

International Cannabis Policy Study

TECHNICAL REPORT

WAVE 6 (2023)



UNIVERSITY OF
WATERLOO

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ETHICS CLEARANCE

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INTRODUCTION

The primary objective of the International Cannabis Policy Study (ICPS) is to examine the impact of cannabis laws and policies. The ICPS study seeks to evaluate the overall impact of different cannabis laws, as well as specific regulations in jurisdictions that have legalized ‘medical’ or ‘non-medical’/recreational cannabis. The project examines a range of outcomes, including:

- 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), as well as Australia and New Zealand (since 2021), and the United Kingdom (UK) and Germany (since 2023). This technical report describes the methods for the sixth wave of the ICPS study conducted from September to November 2023. The methodology of the ICPS is also described in the study’s methodology paper.¹

STUDY PROTOCOL

OVERVIEW

Data were collected between September 16 and November 7, 2023. Respondents completed an online survey in English, French, or German. Median survey time was 22.2 minutes, including 35.9 minutes among past 12-month cannabis users and 17.4 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. The ICPS survey was developed over a 2-year period with dedicated grant funding, with subsequent refinements at each annual wave.² First, focus groups were conducted in April 2017 with youth and young adults to examine key concepts. Second, leading international experts were consulted to identify and refine existing survey measures. Third, an extensive pilot test of the ICPS survey was conducted with 1,000 youth and young adults in 2017.³ Fourth, cognitive interviews were conducted in October 2017 with cannabis consumers to examine comprehension and ease of use. A second round of cognitive interviewing was conducted in July and August 2019 to refine new measures related to emerging product types. Finally, in September 2021, a pilot test was conducted with 400 cannabis consumers to pilot the collection of product images through the ICPS survey. This work has yielded several methodological publications related to measurement of cannabis consumption.^{4,5,6,7,8}

LANGUAGE

The survey was written in English and translated to French by *Sirois Translation Services* and translated to German by investigators at the IFT Center for Mental Health & Addiction at Ludwig Maximilian University in Germany. Canadian respondents were able to complete the survey in French or English. Overall, 1.5% of the analytic sample completed the survey in French (n=1,119) and 5.0% of the analytic sample completed the survey in German (n=3,603).

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, US state, Australia, New Zealand, the United Kingdom, or Germany, 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, the US, Australia, New Zealand, the UK, and Germany (<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.

RESPONSE RATES

Table 1 shows outcomes for respondent recruitment for the 2023 ICPS survey. Overall, 3,550,730 individuals were sent an email invitation to the main survey, of whom 153,508 respondents accessed the survey link. A total of 28,900 respondents of respondents who accessed the link (18.8%) partially completed the survey and 82,657 (53.8%) completed the survey.

As shown in Table 1, 11,298 respondents were terminated. Reasons included ‘forced’ termination due to residence in countries other than Canada, US, Australia, New Zealand, UK, or Germany (n=415), residence in the Canadian territories (n=79), ineligible age (<16 (n=674) or >65 (n=885)), and failure to provide consent (n=7,092).

Participants were also excluded if they did not provide a valid response to mandatory survey questions, including province in Canada (n=7), state in the US (n=14) Australia (n=25), or Germany (n=3), region in New Zealand (n=12), or the UK (n=91), 'Have you ever tried marijuana?' (n=347), 'When was the last time you used marijuana?' (n=242), and 'How often do you use marijuana?' (n=84). In addition, participants were excluded due to duplicate entries and other data quality issues flagged by Nielsen; or because the respondent opted out of the commercial panel after the invitation was sent.

The total participation rate was 2.3%. As shown in Table 1, 3,550,730 invitations were sent to panelists; 153,508 potential respondents (4.3%) accessed the survey link; and 82,657 respondents (2.3%) 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'.⁹ 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".⁹ 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 all countries, the cooperation rate was 53.8%, which was calculated based on AAPOR Cooperation Rate #2 as the percentage of respondents who completed the survey (82,657) of eligible respondents those who accessed the survey link (153,508).

DATA INTEGRITY

Among the respondents who completed the survey, a further 17 who identified as intersex, 6 who responded "don't know" and 35 who responded "Refuse to answer" with an unknown gender identity were excluded due to cell counts insufficient for weighting, and an additional 1,600 were excluded for speeding (n=239), duplicate entries (n=1,316), or unidentified region (n=45).

Due to the potentially sensitive nature of the subject matter (e.g., non-medical cannabis was classified as an illegal substance federally in the US, Australia, New Zealand, the UK, and Germany at the time of the 2023 survey), at the end of the survey, respondents were asked whether they felt they were able to answer the questions honestly. The 1,629 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 6,988 respondents were excluded from the analytic sample due to discrepancies with the month selected/poor data quality. The final analytic sample included 72,382.

RETURNING COHORT

A total of 0.4% of the sample comprised cohort members from the first five survey waves (of the 0.4%, there are 0.3% from 2022 only). These respondents were retained in the 2023 analytic sample because no efforts were made to recruit returning cohort members in 2023.

Table 1: Dispositions of potential respondents in the International Cannabis Policy Study, by country (ICPS) 2023

Disposition	Total		Canada		US		Australia		New Zealand		UK		Germany	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
NIELSEN PANEL														
Total invitations	3,550,730	100.00	547,279	100%	2,299,415	100%	210,536	100%	96,939	100%	283,657	100%	112,904	100%
		%												
Accessed survey ^a	153,508	4.32%	33,176	6.06%	73,014	3.18%	10,355	4.92%	4,354	4.49%	14,918	5.26%	14,284	12.65%
Terminated survey ^a	11,298	0.32%	2,456	0.45%	5,457	0.24%	422	0.20%	213	0.22%	823	0.29%	942	0.83%
Over quota, excluded ^b	30,653	0.86%	1,448	0.26%	6,407	0.28%	5,607	2.66%	240	0.25%	8,774	3.09%	8,177	7.24%
Partially completed survey ^a	28,900	0.81%	6,185	1.13%	16,394	0.71%	926	0.44%	501	0.52%	1,311	0.46%	1,161	1.03%
Completed survey	82,657	2.33%	23,087	4.22%	44,756	1.95%	3,400	1.61%	3,400	3.51%	4,010	1.41%	4,004	3.55%
Excluded – dishonesty ^c	1,629	<0.1%	475	<0.1%	702	<0.1%	68	<0.1%	159	0.16%	78	<0.1%	147	0.13%
Excluded – data quality ^d	6,988	0.20%	2,247	0.41%	3,837	0.17%	198	<0.1%	296	0.31%	227	<0.1%	183	0.16%
Excluded – unidentified sex ^e	58	<0.1%	17	<0.1%	32	<0.1%	2	<0.1%	3	<0.1%	3	<0.1%	1	<0.1%
Excluded – speeding ^f	239	<0.1%	72	<0.1%	60	<0.1%	12	<0.1%	66	<0.1%	20	<0.1%	9	<0.1%
Excluded – duplicates ^g	1,316	<0.1%	310	<0.1%	467	<0.1%	67	<0.1%	189	0.19%	223	<0.1%	60	<0.1%
Excluded – unidentified region	45	<0.1%	2	0.00%	5	0.00%	11	0.00%	11	<0.1%	15	<0.1%	1	0.00%
TOTAL ANALYTIC SAMPLE	72,382		19,964		39,653		3,042		2,676		3,444		3,603	

^a Because 415 respondents who reported residing in ‘other’ countries were terminated and an additional 2,992 respondents who were terminated or partially completed the survey did not indicate their country of residence, frequencies do not sum to ‘totals’ for those who accessed, terminated, and partially completed the survey. Terminated respondents also include those screened ineligible due to residence outside the 10 Canadian provinces (n=79) or with unstated province (n=7), unstated state in the US (n=14), Australia (n=25), or Germany (n=3), unstated region in New Zealand (n=12), or the UK (n=91). ^b Respondents screened ineligible for exceeding the designated quota for their sub-population (i.e., age group, sex, province/state/region). ^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 6,988 respondents from the Nielsen panel who incorrectly answered the data quality check question, “What is the current month?” were excluded. 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. ^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 17 respondents who identified their sex as ‘intersex’ (6 in CA, 9 in the US, 1 in NZ, and 1 in DE) and their gender identity as ‘other’/unstated or selected “Don’t know” or “Refuse to answer” for both sex and gender questions 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). ^g Duplicate cases who matched on 20 sociodemographic variables (including postal/zip code) were identified; the first entry for each was retained and the remaining 1,316 were excluded.

DEVICE USE

Data is collected on respondents' browser type. Overall, over half of all respondents (including those excluded for data integrity) completed the survey on a smartphone (63.4%) or tablet (3.0%), and the remainder on a desktop/laptop computer (33.6%). 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 all countries 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 5.0% (n=1,335) of past 12-month cannabis users.

SURVEY WEIGHTS

Post-stratification sample weights were constructed to calibrate to known population proportions as available in censuses and national benchmark surveys by country. Respondents were classified into age-by-sex-by-region groups, ethnicity-by-region groups (except in Canada and Germany), ethnicity groups (in Germany), education groups (except in the US), education-by-region groups (in the US), age-by-smoking-status groups (in Canada and the US), and age-by-sex-by-cannabis-use groups (in Australia, New Zealand, the UK, and Germany). Categories for each country are described below. Correspondingly grouped population proportion estimates were obtained from Statistics Canada^{10,11,12}, the U.S. Census Bureau^{13,14}, the Centers for Disease Control and Prevention¹⁵, the Australian Bureau of Statistics^{16,17,18}, The Australian Institute of Health and Welfare¹⁹, Stats NZ^{20,21,22}, the New Zealand Ministry of Health²³, the Office for National Statistics^{24,25,26,27}, National Records of Scotland^{28,29}, the Scottish government³⁰, Northern Ireland Statistics and Research Agency^{31,32}, the Federal Statistical Office of Germany^{33,34,35}, the Epidemiological Survey on Addiction in Germany³⁶ and the Federal Centre for Health Education³⁷. Separately by country, a raking algorithm was applied to compute weights that are calibrated to these groupings. The SAS macro “RAKE_AND_TRIM_G4_V5”^{38,39} was used, with trimming to 5 (rescaled) if necessary, in all jurisdictions except the US where the trimming was set to 18 (rescaled) due to differing sampling ratios by US state. Finally, the weights were rescaled to sum to the sample size in each country.

Note that smoking adjustments were included in Canada and the US, while cannabis use adjustments were included in Australia, New Zealand, the UK, and Germany. The decision to directly adjust for cannabis prevalence in Australia, New Zealand, the UK, and Germany was due to smaller ICPS sample sizes in these countries and to ensure alignment with ‘gold standard’ national monitoring surveys.

Note: For Australia and New Zealand, the weights for the 2021 wave were originally not weighted to a smoking rate or a cannabis rate. They were weighted to demographic variables (age-by-sex-by-region, education, ethnicity-by-region). Additionally, the

weights for the 2022 wave for Australia and New Zealand were originally weighted to age-by-smoking in addition to the demographic variables. In April 2024, we revised the weights for both these waves for Australia and New Zealand, so that they were weighted to age-by-sex-by-cannabis in addition to the demographic variables (age-by-sex-by-region, education, ethnicity-by-region), and instead of age-by-smoking as they had been in 2022. Any new papers using 2021–2022 Australia and New Zealand data should use these revised weights.

CANADA

Respondents from Canada were classified into age-by-sex-by-region, education, and age-by-smoking-status groups. The percent change in the smoking rate from the 2021 to 2022 Canadian Community Health Survey (CCHS)¹² was used to determine the smoking rate for the weighting for ICPS 2023. It was assumed that the rate of decline in smoking between ICPS 2022 and 2023 was the same as that between CCHS 2021 and 2022. The same rate of decline, calculated among CCHS respondents aged 12 years and over, was used for all ICPS age groups.

Age groups	<ul style="list-style-type: none"> • 16–25 years • 26–35 years • 36–45 years • 46–55 years • 56–65 years
Sex at birth	<ul style="list-style-type: none"> • Male • Female
Regions	<ul style="list-style-type: none"> • 10 provinces in Canada
Education	<ul style="list-style-type: none"> • Less than high school • High school diploma or equivalent • Some college or technical/vocational training or certificate/diploma, or apprenticeship, or some university • Bachelor’s degree or higher
Smoking status	<ul style="list-style-type: none"> • Smoked cigarettes within the last month • Did not smoke cigarettes within the last month

US

Starting in the 2022 wave, respondents from the US were classified into age-by-sex-by-region, ethnicity-by-census division, education-by-region, and age-by-smoking status groups. Previous to the 2022 wave, US respondents were weighted separately

by legal status of their state of residence. For the US, it was assumed that the rate of decline in smoking between ICPS 2022 and ICPS 2023 was the same as the yearly rate of decline in the Behavioral Risk Factor Surveillance System (BRFFS)¹⁵ from 2020 to 2022. The same rate of decline, calculated among BRFFS respondents aged 18 years and over, was used for all ICPS age groups.

Age groups	<ul style="list-style-type: none"> • 16–17 years • 18–24 years • 25–35 years • 36–45 years • 46–55 years • 56–65 years
Sex at birth	<ul style="list-style-type: none"> • Male • Female
Regions	<ul style="list-style-type: none"> • Alaska • Arizona • California • Colorado • Connecticut • Florida • Hawaii • Illinois • Maine • Massachusetts • Michigan • Minnesota • Montana • Nevada • New Jersey • New Mexico • New York • Oregon • Texas • Vermont • Virginia • Washington State • All others grouped
Census Division	<ul style="list-style-type: none"> • New England • Middle Atlantic • East North Central • West North Central • South Atlantic

	<ul style="list-style-type: none"> • East South Central • West South Central • Mountain • Pacific
Ethnicity	<ul style="list-style-type: none"> • White alone • Black or African American alone • Other
Education	<ul style="list-style-type: none"> • Ages 16-24 years • Less than high school / High school diploma or equivalent / Some college or technical/vocational training or certificate/diploma, or apprenticeship, or some university • Bachelor's degree or higher
Smoking status	<ul style="list-style-type: none"> • Smoked cigarettes within the last month • Did not smoke cigarettes within the last month

Notes:

Due to an oversampling of 16-17 year olds in 2023, 16-17 years was a separate age group in the age-by-sex-by-region grouping for most respondents. There were some exceptions to this. 16-17 year olds and 18-24 year olds were collapsed into one group in the following states: Alaska, Hawaii, Maine, Montana, New Mexico, and Vermont to avoid small cell sizes in the age-by-sex-by-region groupings. 16-17 year olds were not oversampled in Alaska and Hawaii, and Maine, Montana, New Mexico, and Vermont all had smaller sample sizes. Additionally, in order to avoid very large weights, 16-17 year olds and 18-24 year olds were collapsed into one group among males in California, and among the following:

- White males in the Mountain census division, in the 'Other' state group (the grouped states that are not the 22 treated separately).
- Black males in the East South Central census division, in the 'Other' state group (the grouped states that are not the 22 treated separately).
- White males in the East North Central census division, in the 'Other' state group (the grouped states that are not the 22 treated separately).

Age groups of 18-24 and 25-35 were used to align with the US population education data which are for ages 25 and over.

The 16-17 year old and 18-24 year old groups are collapsed in the age-by-smoking status grouping, such that the age groups for this grouping are 16-24 years, 25-35 years, 36-45 years, 46-55 years, and 56-65 years.

State was grouped for all states with small samples (less than 800 respondents unless intentionally oversampled).

Census divisions (that is, Pacific, New England, Middle Atlantic, East North Central, West North Central South Atlantic, East South Central, West South Central, and Mountain) were used in the ethnicity-by-region grouping.

AUSTRALIA

Respondents from Australia were classified into age-by-sex-by-region, ethnicity-by-region, education, and age-by-sex-by-cannabis-use groups. ICPS 2023 was weighted to the age by sex estimates of past 12 month cannabis use from the 2022–23 National Drug Strategy Household Survey (NDSHS)¹⁹. The NDSHS age groups were close, but slightly shifted from the ICPS age groups. They were 15–24 years, 25–34 years, 35–44 years, 45–54 years, and 55–64 years. The one-year percent decline between the 2019 NDSHS and the 2022–23 NDSHS was used to determine age by sex estimates of past 12 month cannabis for ICPS 2021 and ICPS 2022.

Age groups	<ul style="list-style-type: none"> • 16–25 years • 26–35 years • 36–45 years • 46–55 years • 56–65 years
Sex at birth	<ul style="list-style-type: none"> • Male • Female
Regions	<ul style="list-style-type: none"> • New South Wales • Victoria • Queensland • Western Australia • South Australia • Australian Capital Territory • Tasmania / Northern Territory
Ethnicity	<ul style="list-style-type: none"> • Speak language other than English in the home • Speak English only in the home
Education	<ul style="list-style-type: none"> • Less than high school • High school diploma or equivalent • Some college or technical/vocational training or certificate/diploma, or apprenticeship, or some university • Bachelor's degree or higher
Cannabis use	<ul style="list-style-type: none"> • Used Cannabis in the past 12 months • Did not use cannabis in the past 12 months

Notes:

Respondents from Australian Capital Territory, Tasmania, and Northern Territory were collapsed into one category for the age-by-sex-by-region grouping due to small sample sizes but were left as listed for the ethnicity-by-region grouping. This means that the Australian data are adjusted to the age, sex, and ethnicity of the five larger states but not to Tasmania, Australian Capital Territory, nor Northern Territory individually.

For weighting, Certificate I or Certificate II was categorized as Less than high school to be better aligned with the target population data. This is slightly different from the derived education variable in the ICPS dataset, where Certificate I or Certificate II was categorized as High school diploma or equivalent.

The weights for the 2021 wave were originally not weighted to a cannabis rate or a smoking rate. They were weighted to demographic variables only (age-by-sex-by-region, ethnicity-by-region, and education). The weights for the 2022 wave were originally weighted to age-by-smoking in addition to the demographic variables listed for the 2021 wave. In April 2024, we revised the weights for both these waves for Australia, so that they were weighted to age-by-sex-by-cannabis in addition to the demographic variables (age-by-sex-by-region, ethnicity-by-region, and education), and instead of age-by-smoking as they had been in 2022. Any new papers using 2021-2022 Australia data should use these revised weights.

NEW ZEALAND

Respondents from New Zealand were classified into age-by-sex-by-region, ethnicity-by-region, education, and age-by-sex-by-cannabis-use groups. ICPS 2023 was weighted to the age by sex estimates of past 12 month cannabis use from the 2022-23 New Zealand Health Survey (NZHS)²³. As in Australia, the NZHS age groups were close, but slightly shifted from the ICPS age groups. They were 15-24 years, 25-34 years, 35-44 years, 45-54 years, and 55-64 years. Similarly, ICPS 2022 was weighted to the age by sex estimates of past 12 month cannabis use from the 2021-22 NZHS and ICPS 2021 was weighted to the age by sex estimates of past 12 month cannabis use from the 2020-21 NZHS.

Age groups	<ul style="list-style-type: none"> • 16-25 years • 26-35 years • 36-45 years • 46-55 years • 56-65 years
Sex at birth	<ul style="list-style-type: none"> • Male • Female
Regions	<ul style="list-style-type: none"> • Northland/Auckland • Waikato/Bay of Plenty • Gisborne/Hawke's Bay/Taranaki/Manawatu-Wanganui • Wellington • Tasman/Nelson/Marlborough/West Coast/Southland/Otago • Canterbury
Ethnicity	<ul style="list-style-type: none"> • European background only • Other than European background only

Education	<ul style="list-style-type: none"> • Less than high school / High school diploma or equivalent • Some college or technical/vocational training or certificate/diploma, or apprenticeship, or some university • Bachelor's degree or higher
Cannabis use	<ul style="list-style-type: none"> • Used Cannabis in the past 12 months • Did not use cannabis in the past 12 months

Notes:

The weights for the 2021 wave were originally not weighted to a cannabis rate or a smoking rate. They were weighted to demographic variables only (age-by-sex-by-region, ethnicity-by-region, and education). The weights for the 2022 wave were originally weighted to age-by-smoking in addition to the demographic variables listed for the 2021 wave. In April 2024, we revised the weights for both these waves for New Zealand, so that they were weighted to age-by-sex-by-cannabis in addition to the demographic variables (age-by-sex-by-region, ethnicity-by-region, and education), and instead of age-by-smoking as they had been in 2022. Any new papers using 2021-2022 New Zealand data should use these revised weights.

UK

Respondents from the UK were classified into age-by-sex-by-region, ethnicity-by-region, education, and age-by-sex-by-cannabis-use groups. Cannabis use proportions were estimated by age and sex from the England/Wales Crime Survey and the Scottish Health Survey. The benchmark England/Wales cannabis use rates were for ages 16-24 and 25-59²⁷. The 60-65 year old rate for England/Wales was estimated by applying the same percent decrease seen in Scotland³⁰ to age 55-64 from age 25-64 by sex and then used to estimate the England/Wales rate for ages 25-64. Northern Ireland was assumed to have the same rates as England/Wales.

Age groups	<ul style="list-style-type: none"> • 16-17 years • 18-24 years • 25-35 years • 36-45 years • 46-55 years • 56-65 years
Sex at birth	<ul style="list-style-type: none"> • Male • Female
Regions	<ul style="list-style-type: none"> • North East/North West/Yorkshire and the Humber • East Midlands/West Midlands • East of England/South East/South West • London • Scotland

	<ul style="list-style-type: none"> • Wales • Northern Ireland
Ethnicity	<ul style="list-style-type: none"> • White alone • Not White alone
Education	<ul style="list-style-type: none"> • No qualifications or Level 1 • Level 2, Apprenticeship, Foreign (and not Level 3 or 4), Not Stated • Level 3 • Level 4
Cannabis use	<ul style="list-style-type: none"> • Used Cannabis in the past 12 months • Did not use cannabis in the past 12 months

Notes:

Due to an oversampling of 16-17 year olds in 2023, 16-17 years was a separate age group in the age-by-sex-by-region grouping. Age groups of 18-24 and 25-35 were used to align with the UK population cannabis use data which is for ages 16-24 and 25 to 65.

Germany

Respondents from Germany were classified into age-by-sex-by-region, ethnicity, education, and age-by-sex-by-cannabis-use groups. The 2021 Epidemiological Survey on Addiction³⁶ was used to estimate cannabis use proportions for ages 21 to 65 and was used in combination with the 2021 Youth Alcohol Survey³⁷ to estimate cannabis use proportions for ages 16-20. These 2021 rates were then adjusted for time using findings from Olderbak et. al.⁴⁰

Age groups	<ul style="list-style-type: none"> • 16-20 years • 21-24 years • 25-29 years • 30-39 years • 40-49 years • 50-59 years • 60-65 years
Sex at birth	<ul style="list-style-type: none"> • Male • Female
Regions	<ul style="list-style-type: none"> • North: Schleswig-Holstein, Hamburg, Lower Saxony and Bremen • West-I: North Rhine-Westphalia • West-II: Hesse, Rhineland-Palatinate and Saarland • South: Baden-Württemberg and Bavaria

	<ul style="list-style-type: none"> • East: Brandenburg, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt and Thuringia and Berlin
Ethnicity	<ul style="list-style-type: none"> • Migration background • No migration background
Education	<ul style="list-style-type: none"> • Without qualification/No vocational qualification attained • Apprenticeship/Technical college diploma (and those in the former GDR)/Qualification from trade and technical schools (and those in the former GDR) • Bachelor or higher
Cannabis use	<ul style="list-style-type: none"> • Used Cannabis in the past 12 months • Did not use cannabis in the past 12 months

Notes:

Age group categories were aligned to the Germany population cannabis use data available.

SAMPLE SOCIODEMOGRAPHIC PROFILE

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

Table 2: International Cannabis Policy Study (ICPS) 2023 cross-sectional sample characteristics, 16–65 years old (n=72,382)

	Canada		US		Australia		New Zealand		UK		Germany	
	n=19,964		n=39,653		n=3,042		n=2,676		n=3,444		n=3,603	
	Unweighted	Weighted ^a	Unweighted	Weighted ^a	Unweighted	Weighted ^a	Unweighted	Weighted ^a	Unweighted	Weighted ^a	Unweighted	Weighted ^a
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Sex												
Female	61.9% (12351)	49.6% (9910)	68.0% (26974)	49.6% (19681)	53.2% (1618)	50.1% (1525)	54.3% (1453)	50.2% (1343)	51.0% (1756)	50.8% (1748)	47.1% (1698)	49.4% (1781)
Male	38.1% (7613)	50.4% (10054)	32.0% (12679)	50.4% (19972)	46.8% (1424)	49.9% (1517)	45.7% (1223)	49.8% (1333)	49.0% (1688)	49.2% (1696)	52.9% (1905)	50.6% (1822)
Age (years)												
mean (SD)	43.0 (13.8)	40.8 (14.5)	41.6 (14.3)	40.3 (14.4)	40.5 (14.3)	39.9 (14.1)	39.5 (13.5)	40.3 (14.0)	39.1 (14.3)	41.0 (14.1)	39.9 (12.8)	42.2 (14.2)
Age groups												
16–25	12.9% (2579)	18.6% (3705)	15.9% (6294)	20.0% (7920)	19.5% (594)	19.6% (596)	20.0% (534)	19.4% (519)	23.1% (796)	17.6% (606)	15.2% (547)	16.4% (590)
26–35	20.4% (4066)	21.5% (4288)	20.0% (7921)	21.7% (8612)	20.8% (632)	22.7% (692)	22.2% (593)	22.6% (606)	17.2% (592)	21.9% (755)	25.2% (908)	19.2% (691)
36–45	22.3% (4452)	20.5% (4086)	23.3% (9220)	20.1% (7951)	22.3% (677)	21.2% (644)	25.2% (675)	19.6% (525)	26.9% (925)	20.2% (694)	26.5% (953)	20.4% (735)
46–55	19.6% (3914)	18.8% (3760)	18.7% (7428)	18.7% (7432)	17.5% (531)	19.0% (578)	14.3% (384)	19.7% (526)	16.5% (567)	20.9% (718)	18.3% (658)	21.1% (760)
56–65	24.8% (4953)	20.7% (4125)	22.2% (8790)	19.5% (7737)	20.0% (608)	17.5% (531)	18.3% (490)	18.7% (499)	16.4% (564)	19.5% (670)	14.9% (537)	22.9% (826)
Ethnicity												
Majority	66.6% (13287)	66.1% (13190)	76.0% (30138)	75.1% (29769)	79.1% (2405)	74.3% (2260)	59.2% (1584)	58.5% (1565)	84.5% (2909)	81.8% (2816)	82.2% (2963)	68.5% (2470)
Other/Mixed/Unstated	33.4% (6677)	33.9% (6774)	24.0% (9515)	24.9% (9884)	20.9% (637)	25.7% (782)	40.8% (1092)	41.5% (1111)	15.5% (535)	18.2% (628)	17.8% (640)	31.5% (1133)

SD, standard deviation. ^a Weighted data are scaled to the unweighted sample size in each country.

The weighted ICPS sample was compared with national census/benchmark estimates for Canada, the US, Australia, New Zealand, the UK, and Germany for socio-demographic profile (see Tables 4-9). 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 high school or more, and Bachelor's 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 somewhat poorer self-reported general health compared to the national population in the US, which is a feature of many non-probability samples,⁴¹ 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.⁴² The Australian ICPS sample was similar to the national population in terms of ethnicity and fairly similar in terms of education level. The ICPS New Zealand sample had fewer respondents with less than high school education and more with a high school diploma or equivalent, while ethnicity was similar to national estimates. The ICPS UK and Germany sample were similar to the national population in terms of ethnicity and education level.

Table 3: Proportion of 2023 respondents aged 16-65 by region (n=72,382)

Canadian Province (n=19,964)	Unweighted % (n)	Weighted^b % (n)
British Columbia	21.7% (4,333)	13.9% (2,776)
Alberta	17.7% (3,532)	11.9% (2,376)
Saskatchewan	4.5% (897)	3.0% (595)
Manitoba	4.5% (899)	3.6% (713)
Ontario	26.8% (5,355)	39.5% (7,878)
Quebec	12.5% (2,498)	21.8% (4,351)
New Brunswick	4.1% (809)	2.0% (405)
Nova Scotia	4.5% (892)	2.6% (519)
Prince Edward Island	1.0% (196)	0.4% (87)
Newfoundland & Labrador	2.8% (553)	1.3% (263)
US State (n=39,653)		
Alabama	0.7% (288)	1.5% (582)
Alaska	3.9% (1,536)	0.2% (89)
Arizona	2.3% (907)	2.2% (858)
Arkansas	0.5% (195)	1.1% (420)
California	2.2% (877)	12.0% (4,747)

Colorado	4.5% (1,782)	1.8% (721)
Connecticut	2.2% (864)	1.1% (436)
Delaware	0.2% (89)	0.5% (209)
Florida	2.9% (1,161)	6.5% (2,566)
Georgia	1.3% (517)	2.6% (1,015)
Hawaii	3.1% (1,225)	0.4% (165)
Idaho	0.2% (66)	0.5% (196)
Illinois	8.8% (3,504)	3.8% (1,505)
Indiana	0.9% (341)	1.8% (733)
Iowa	0.3% (126)	0.7% (267)
Kansas	0.3% (131)	0.6% (249)
Kentucky	0.8% (307)	1.3% (530)
Louisiana	0.6% (237)	1.2% (477)
Maine	1.5% (576)	0.4% (161)
Maryland	1.1% (454)	2.7% (1,069)
Massachusetts	4.5% (1,800)	2.2% (853)
Michigan	2.2% (861)	3.0% (1,183)
Minnesota	7.2% (2,859)	1.7% (671)
Mississippi	0.4% (176)	0.9% (367)
Missouri	1.2% (459)	2.6% (1,014)
Montana	1.1% (435)	0.3% (130)
Nebraska	0.2% (95)	0.5% (205)
Nevada	2.0% (795)	1.0% (380)
New Hampshire	0.2% (72)	0.3% (117)
New Jersey	4.5% (1,782)	2.8% (1,105)
New Mexico	1.9% (754)	0.6% (245)
New York	6.7% (2,642)	5.9% (2,359)
North Carolina	1.3% (522)	2.6% (1,018)
North Dakota	0.1% (34)	0.1% (50)
Ohio	1.6% (637)	3.8% (1,497)
Oklahoma	0.6% (242)	1.2% (466)
Oregon	5.7% (2,246)	1.3% (504)
Pennsylvania	2.0% (785)	3.8% (1,525)
Rhode Island	0.2% (93)	0.5% (185)
South Carolina	0.8% (308)	1.5% (598)
South Dakota	0.1% (35)	0.2% (77)
Tennessee	1.1% (417)	2.1% (830)
Texas	3.2% (1,254)	9.1% (3,625)
Utah	0.3% (112)	1.0% (380)
Vermont	0.6% (257)	0.2% (77)
Virginia	2.2% (892)	2.6% (1,043)
Washington State	8.5% (3,375)	2.4% (940)
West Virginia	0.3% (126)	0.5% (195)
Wisconsin	0.7% (277)	1.6% (645)
Wyoming	0.1% (36)	0.3% (119)

District of Columbia	0.2% (92)	0.6% (255)
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Australian

State or Territory (n=3,042)

New South Wales (NSW)	30.2% (919)	31.2% (948)
Victoria (VIC)	24.8% (755)	25.9% (788)
Queensland (QLD)	18.7% (569)	20.4% (620)
South Australia (SA)	6.5% (197)	6.8% (206)
Western Australia (WA)	10.0% (304)	10.8% (330)
Tasmania (TAS)	2.0% (61)	2.1% (64)
Australian Capital Territory (ACT)	6.9% (210)	1.8% (56)
Northern Territory (NT)	0.9% (27)	1.0% (30)

New Zealand Region (n=2,676)

Bay of Plenty	5.8% (154)	6.8% (182)
Northland	4.3% (114)	4.0% (108)
Auckland	36.4% (975)	34.1% (914)
Waikato	7.6% (203)	9.0% (242)
Gisborne	2.0% (53)	1.2% (33)
Hawkes Bay	3.5% (93)	3.2% (86)
Taranaki	2.9% (78)	2.8% (75)
Manawatu-Wanganui	5.0% (134)	4.2% (113)
Wellington	11.5% (307)	11.1% (297)
Tasman	1.6% (42)	1.4% (37)
Nelson	1.4% (38)	1.7% (46)
Marlborough	1.0% (28)	1.1% (30)
West Coast	0.8% (22)	1.1% (28)
Canterbury	11.3% (302)	12.8% (343)
Otago	3.6% (96)	4.1% (110)
Southland	1.4% (37)	1.3% (33)

UK Region (n=3,444)

North East	4.3% (149)	3.9% (133)
North West	11.6% (399)	11.0% (380)
Yorkshire and The Humber	7.3% (250)	8.1% (279)
East Midlands	6.4% (219)	7.1% (245)
West Midlands	8.9% (308)	8.8% (304)
East of England	8.8% (302)	9.3% (321)
London	19.8% (681)	14.3% (492)
South East	11.6% (401)	13.7% (470)
South West	6.8% (234)	8.2% (282)
Wales	4.0% (139)	4.5% (155)
Scotland	7.9% (272)	8.3% (286)

Northern Ireland	2.6% (90)	2.8% (97)
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Germany State (n=3,603)

Baden-Württemberg	9.3% (334)	12.4% (448)
Bavaria	13.0% (468)	17.7% (637)
Berlin	8.5% (308)	5.2% (186)
Brandenburg	2.9% (104)	2.3% (81)
Bremen	0.8% (28)	0.5% (18)
Hamburg	3.9% (139)	2.9% (103)
Hesse	8.0% (287)	7.7% (279)
Lower Saxony	8.5% (306)	9.7% (349)
Mecklenburg-Vorpommern	1.8% (66)	1.3% (48)
North Rhine-Westphalia	22.7% (819)	21.9% (787)
Rhineland-Palatinate	4.7% (168)	4.3% (155)
Saarland	1.1% (40)	1.3% (45)
Saxony	5.4% (193)	4.7% (168)
Saxony-Anhalt	3.2% (117)	3.0% (107)
Schleswig-Holstein	3.1% (112)	2.9% (106)
Thuringia	3.2% (114)	2.4% (85)

^aData are weighted to the national population using the variable WEIGHT_RESC in Canada, US, Australia, New Zealand, UK, and Germany which are the inflation weights scaled back to the sample size of Canada, US, Australia, New Zealand, UK, and Germany.

Table 4: Comparison between 2023 ICPS sample and sociodemographic profile in Canada

	Census 2021 ^a , age 15–64	ICPS 2023, Canada, age 16–65	
	%	Unweighted % (n)	Weighted ^c % (n)
		(n=19,733)^b	(n=19,694)
Education			
Less than high school	13.9%	6.3% (1,249)	13.8% (2,719)
High school diploma or equivalent	26.3%	14.3% (2,823)	26.3% (5,178)
Some college or technical training or diploma	31.0%	38.9% (7,668)	31.0% (6,114)
Bachelor’s degree or higher	28.9%	40.5% (7,993)	28.9% (5,683)
	Census 2021^a, all ages	ICPS 2023, Canada, age 16–65 (n=19,964)	
	%	Unweighted % (n)	Weighted^c % (n)
Ethnicity			
White	69.8%	66.6% (13,287)	66.1% (13,190)
Chinese (ICPS: East and Southeast Asian)	4.7%	10.4% (2,085)	9% (1,801)
Indigenous	5.0%	2.5% (494)	2.4% (482)
South Asian	7.1%	5.7% (1,136)	5.5% (1,103)
Black	4.3%	4.3% (860)	5.1% (1,017)
Other/Mixed/Unstated (ICPS: also includes Latinx and Middle Eastern)	9.1%	10.5% (2,102)	11.9% (2,371)

^aData obtained from the Canada Census 2021 (For Education: Statistics Canada, 2021 Census of Population, Statistics Canada Catalogue no. 98-10-0384-01. Highest level of education by census year: Canada, provinces and territories, census metropolitan areas and census agglomerations. Released December 2022. Available at:

<https://www150.statcan.gc.ca/t1/tbl/en/cv.action?pid=9810038401>); ^bvalues from ICPS 2023 exclude Don’t know/Refuse to answer (n=231, 1.2%, unweighted; n=269, 1.4%, weighted); ^cData weighted using the variable WEIGHT_RESC, which are the inflation weights scaled back to the sample size of Canada.

Table 5: Comparison between 2023 ICPS sample and census sociodemographic profile in the United States (US)

	ACS 2022 ^a , age 18–64	ICPS 2023, US, age 18–65	
	%	Unweighted % (n) (n=36,632) ^e	Weighted ^d % (n) (n=37,238)
Education			
Less than high school	10.0%	3.7% (1,345)	4.3% (1,584)
High school or more (but not Bachelor's)	56.3%	59.1% (21,654)	61.1% (22,758)
Bachelor's degree or higher	33.6%	37.2% (13,633)	34.6% (12,896)
	US Census 2020 ^b age 16–65 %	ICPS, 2023, US, age 18–65 Unweighted % (n) (n=36,857)	Weighted % (n) (n=37,513)
Ethnicity (exclusive categories)			
White	75.1%	76.0% (27,993)	74.9% (28,114)
Black or African American	14.0%	9.9% (3,645)	14.1% (5,295)
Asian	6.7%	4.8% (1,770)	4.5% (1,690)
American Indian or Alaskan Native	1.3%	1.8% (664)	1.0% (388)
Native Hawaiian or Pacific Islander	0.3%	0.9% (343)	0.3% (109)
Other/≥2 races/ un stated	2.6%	6.6% (2,442)	5.1% (1,917)
Hispanic origin	19.6%	12.3% (4,524)	14.6% (5,489)
	NHIS 2021 ^c age ≥18 %	ICPS, 2023, US, age 18–65 Unweighted % (n) (n=36,543) ^f	Weighted % (n) (n=37,164)
Self-rated health			
Excellent	22.6%	11.0% (4,012)	12.9% (4,778)
Very good	34.3%	27.3% (9,993)	28.0% (10,407)
Good	28.3%	37.5% (13,686)	36.3% (13,485)
Fair	11.4%	19.5% (7,119)	18.6% (6,901)
Poor	3.4%	4.7% (1,733)	4.3% (1,593)

^a Data obtained from the American Community Survey (ACS) 2022 (U.S. Census Bureau, American Community Survey, 2022 American Community Survey 1-Year Estimates, Table S1501 generated using data.census.gov. Available at:

[https://data.census.gov/table/ACSST1Y2022.S1501?q=Educational%20Attainment%20in%20the%20United%20States&g=0100000US\\$04000\\$001&tid=ACSST1Y2021.S1501](https://data.census.gov/table/ACSST1Y2022.S1501?q=Educational%20Attainment%20in%20the%20United%20States&g=0100000US$04000$001&tid=ACSST1Y2021.S1501). ^b Data obtained from the US Census 2020 (U.S. Census Bureau, Population Division. Annual State Resident Population Estimates for 6 Race Groups (5 Race Alone Groups and Two or More Races) by Age, Sex, and Hispanic Origin: April 1, 2020 to July 1, 2022. File: 7/1/2022 State Characteristics Population Estimates Release Date: June 2023. <https://www.census.gov/data/tables/time-series/demo/pepopt/2020s-state-detail.html>).

^c Data obtained from the National Health Interview Survey (NHIS) 2021. ^d National data

weighted using WEIGHT_RESC, which are the inflation weights scaled back to the US sample size as a whole. ^e ICPS 2023 data exclude 'Don't know' and 'Refuse to answer' (n=225, 0.6%, unweighted; n=275, 0.7%, weighted). ^f ICPS 2023 data exclude 'Don't know' and 'Refuse to answer' (n=314, 0.9%, unweighted; n=348, 0.9%, weighted).

Table 6: Comparison between 2023 ICPS sample and sociodemographic profile in Australia

	Australian Bureau of Statistics 2023 ^a age 15-74	ICPS 2023, Australia, age 16-65	
	%	Unweighted % (n)	Weighted % (n)
		(n=3,020)^b	(n=3,019)
Education			
Less than high school	21.2%	15.2% (459)	16.9% (510)
High school diploma or equivalent	18.6%	20.2% (611)	22.8% (687)
Some college or technical training or diploma	27.5%	26.1% (788)	27.5% (831)
Bachelor's degree or higher	32.8%	38.5% (1,162)	32.8% (990)
	Australian Bureau of Statistics 2021 ^b age 16-65	ICPS 2023, Australia, age 16-65 (n=3,042)	
	%	Unweighted % (n)	Weighted % (n)
		(n=3,042)	(n=3,042)
Ethnicity			
English only	74.3%	79.1% (2,405)	74.3% (2,260)
Other	25.7%	20.9% (637)	25.7% (782)

^aData obtained from the Australian Bureau of Statistics 2021 (Australian Bureau of Statistics. Education and Work, Australia, May 2023. Released November 2023. Table 21. Highest educational attainment by state/territory by sex, Persons aged 15-74 years. Available at <https://www.abs.gov.au/statistics/people/education/education-and-work-australia/may-2023>). ^b2021 Australia, Census (Australian Bureau of Statistics. Census of Population and Housing, 2021, TableBuilder - Cultural Diversity (LANP), 2021. Available at <https://www.abs.gov.au/statistics/microdata-tablebuilder/tablebuilder>). ^cICPS 2023 data exclude 'Don't know' and 'Refuse to answer' (n=22, 0.7%, unweighted; n=23, 0.8%, weighted).

Table 7: Comparison between 2023 ICPS sample and sociodemographic profile in New Zealand

	Census 2018 ^a age 15–64	ICPS 2023, New Zealand, age 16–65	
	%	Unweighted % (n)	Weighted % (n)
		(n=2,482)^c	(n=2,514)
Education			
Less than high school	13.9%	5.7% (142)	10.9% (273)
High school diploma or equivalent	40.1%	23.0% (570)	42.7% (1,074)
Some college or technical training or diploma	18.8%	24.1% (598)	19.0% (478)
Bachelor’s degree or higher	27.3%	47.2% (1,172)	27.4% (688)
	Census 2018 ^b age ≥15	ICPS 2023, New Zealand, age 16–65	
	%	Unweighted % (n)	Weighted % (n)
		(n=2,676)	(n=2,676)
Ethnicity			
New Zealand European	64.1%	65.3% (1,747)	66.1% (1,770)
Maori	16.5%	14.0% (374)	15.7% (419)

^a Data obtained from the NZ Census 2018: Stats NZ. Census 2018. Dataset: Highest qualification and ethnic group (grouped total responses) by age group and sex, for the census usually resident population count aged 15 years and over, 2006, 2013, and 2018 Censuses (RC, TA, SA2, DHB). Available at <http://nzdotstat.stats.govt.nz/wbos/Index.aspx>. ^b Data obtained from the NZ Census 2018: <https://www.stats.govt.nz/information-releases/2018-census-totals-by-topic-national-highlights-updated>. ^c ICPS 2023 data exclude ‘Don’t know’ and ‘Refuse to answer’ (n=191, 7.1%, unweighted; n=159, 6%, weighted) and ‘Other’ (n=3, 0.1%, unweighted; n=3, 0.1%, weighted).

Table 8: Comparison between 2023 ICPS sample and sociodemographic profile in the UK

	Census 2021 ^{a, b} for England/Wales and Northern Ireland, and Census 2011 ^c for Scotland age 16–65 for England/Wales and Northern Ireland, 16–64 for Scotland %	ICPS 2023, United Kingdom, age 16–65	
		Unweighted % (n) (n = 3,438) ^g	Weighted % (n) (n = 3,436)
Education			
No qualifications or Level 1	24.4%	15.6% (538)	24.4% (838)
Level 2, Apprenticeship, Foreign (and not Level 3 or 4), Not Stated	20.8%	22.4% (770)	20.7% (711)
Level 3	18.7%	16.6% (572)	18.8% (647)
Level 4	36.1%	45.3% (1,558)	36.1% (1,240)
	Census 2021 ^{d, e} for England/Wales and Northern Ireland, and Census 2011 ^f for Scotland age 16–65 for England/Wales and Northern Ireland, 16–64 for Scotland %	ICPS 2023, United Kingdom, age 16–65	
		Unweighted ^h % (n) (n=3,409)	Weighted % (n) (n=3,411)
Ethnicity			
Asian or Asian British	9.2%	6.4% (218)	9.2% (313)
Black, Black British, Caribbean or African	4.0%	3.8% (129)	4.7% (159)
Mixed or multiple ethnic groups	2.2%	3.9% (133)	3.0% (101)
White	82.5%	85.3% (2,909)	82.6% (2,816)
Other ethnic group	2.1%	0.6% (20)	0.6% (22)

^aData obtained from the England and Wales Census 2021: Office for National Statistics, Census 2021, England and Wales, Age (B) (61 categories) and Highest level of qualification (8 categories). Accessed August 17, 2023 at <https://www.ons.gov.uk/filters/f2981ca9-ec38-4302-8ace-f2e1b2f36699/dimensions>

^bData obtained from the Northern Ireland Census 2021: Northern Ireland Statistics and Research Agency, Census 2021, Qualifications (Highest level) by age – 86 categories. Accessed August 17, 2023 at https://build.nisra.gov.uk/en/custom/variables?d=PEOPLE&v=HIGHEST_QUALIFICATION&v=AGE_SYOA_85

^cData obtained from the Scotland Census 2011: National Records of Scotland, Scotland's Census 2011, DC5102SC. Highest level of qualification by sex and age, All people aged 16 and over. Accessed August 17, 2023 at <https://www.scotlandscensus.gov.uk/search-the-census#/search-by>.

^dData obtained from the England and Wales Census 2021: Office for National Statistics, Census 2021, Census 2021 estimates that classify usual residents in England and Wales by ethnic group, by sex, and by age. Release date March 28, 2023. Customised. Accessed January 24, 2024 at <https://www.ons.gov.uk/datasets/RM032/editions/2021/versions/1>

^eData obtained from the Northern Ireland Census 2021: Northern Ireland Statistics and Research Agency, Census 2021, MS-B01 – Ethnic group by age– 86 categories. Accessed August 14, 2023 (for 2 category race) and on September 25, 2024 (for 5 category race) at https://build.nisra.gov.uk/en/custom/data?d=PEOPLE&v=ETHNIC_GROUP_INTERMEDIATE&v=AGE_SYOA_85

^fData obtained from the Scotland Census 2011: National Records of Scotland, Scotland's Census 2011, DC2101SC – Ethnic group by sex by age. Accessed August 14, 2023 at <https://www.scotlandscensus.gov.uk/webapi/jsf/tableView/tableView.xhtml>

^hvalues from ICPS 2023 exclude the respondents reported other levels of education than the available options (n=6, 0.17%, unweighted), (n=8, 0.23%, weighted)

^gICPS 2023 data exclude 'Don't know' and 'Refuse to answer' (n=35, 1.0%, unweighted; n=33, 1.0%, weighted).

Table 9: Comparison between 2023 ICPS sample and sociodemographic profile in Germany

	Destatis Statistisches Bundesamt 2019 ^a age 15-64 %	ICPS 2023, Germany, age 16-65 (n= 3,603)	
		Unweighted % (n) (n = 3,581)^c	Weighted % (n) (n = 3,575)
Education			
Without qualification/No vocational qualification attained	26.3%	12.4% (443)	26.3% (939)
Apprenticeship, tech., trade	53.7%	55.0% (1,971)	53.7% (1,921)
Bachelor's or Master's or Diploma or Doctor's Degree	20.0%	32.6% (1,167)	20.0% (715)
	Destatis Statistisches Bundesamt 2022 ^b age 15-64 %	ICPS 2023, Germany, age 16-65	
		Unweighted % (n) (n=3,603)	Weighted % (n) (n=3,603)
Ethnicity			
Without a migration background	69.3%	82.2% (2,963)	68.5% (2,470)
With migration background (at least one parent not born in Germany)	30.7%	17.8% (640)	31.5% (1,133)

^a Destatis Statistisches Bundesamt. 12211-9013: Population (15 years and older): Germany, years (until 2019), gender, age groups, vocational education and training qualification. Microcensus. Accessed July 20, 2023. Accessible from <https://www-genesis.destatis.de/genesis/online>

^b Destatis Statistisches Bundesamt. 12411-0200: Population in main residence households: Germany, years, gender, age groups, migration status: 2022. Accessed March 21, 2024. Available from <https://www-genesis.destatis.de/genesis/online>

^c values from ICPS 2023 exclude the respondents selected "don't know" or "refuse to answer" levels of education (n=22, 0.61%, unweighted), (n=28, 0.77%, weighted)

CANNABIS USE – COMPARISONS WITH NATIONAL BENCHMARK SURVEYS

COMPARISONS WITH NATIONAL BENCHMARKS

Tables 9–14 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 lower than national estimates 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 similar to national estimates, with the exception of oils for ingestion, solid concentrates and topical ointments which were higher among ICPS respondents.

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

In the Australian ICPS sample, past 12-month cannabis prevalence was generally lower than national estimates for youth/young adults and higher than national estimates among adults. Of note, national 2021 data for Australia were unavailable at the time of writing; comparisons to 2019 data may not reflect secular changes in cannabis use that occurred from 2019–2021.

In the New Zealand ICPS sample, past 12-month cannabis prevalence was generally lower than national estimates for youth/young adults and higher than national estimates among adults 25 and over.

Table 10: Frequency of cannabis use among 2023 ICPS cross-sectional respondents aged 16–65, weighted

Indicator	All ICPS respondents n=72,382						Past 12-month cannabis users n=21,377					
	Canada n=19,964	US n=39,653	Australia n=3,042	New Zealand n= 2,676	UK n=3,444	Germany n=3,603	Canada n=7,039	US n=14,233	Australia n=433	New Zealand n=447	UK n=246	Germany n=402
Ever tried cannabis												
Yes	61.6% (12,297)	65.2% (25,834)	50.8% (1,547)	51.4% (1,376)	41.9% (1,442)	44.0% (1,586)	100%	100%	100%	100%	100%	100%
Cannabis use status^a												
Never user	38.4% (7667)	34.8% (13819)	49.2% (1495)	48.6% (1300)	58.1% (2002)	56.0% (2017)	--	--	--	--	--	--
Used >12 months ago	26.3% (5259)	29.3% (11601)	36.6% (1114)	34.7% (929)	34.7% (1197)	32.9% (1184)	--	--	--	--	--	--
Used in past 12 months	9.6% (1917)	8.6% (3405)	5% (153)	5.8% (156)	2.1% (73)	3.7% (132)	27.2% (1917)	23.9% (3405)	35.4% (153)	34.9% (156)	29.7% (73)	32.8% (132)
Monthly use	7.4% (1469)	6.6% (2604)	3.3% (101)	3.8% (102)	1.8% (63)	3.4% (121)	20.9% (1469)	18.3% (2604)	23.4% (101)	22.8% (102)	25.5% (63)	30.2% (121)
Weekly use	5.8% (1164)	5.7% (2249)	1.6% (47)	2.4% (63)	1.2% (43)	1.5% (55)	16.5% (1164)	15.8% (2249)	11.0% (47)	14.2% (63)	17.3% (43)	13.6% (55)
Daily/almost daily use	12.5% (2489)	15.1% (5976)	4.3% (131)	4.7% (125)	2.0% (68)	2.6% (94)	35.4% (2489)	42.0% (5976)	30.3% (131)	28.1% (125)	27.5% (68)	23.4% (94)

^a Exclusive categories ('Used in past 12 months' does not include monthly, weekly, or daily/almost daily users)

Table 11: Cannabis use in Canada among ICPS 2023 cross-sectional respondents and national surveys

	CCS 2023^a	ICPS 2023, Canada, age 16-65	
	age ≥16 n=11,690 %	Unweighted %	Weighted %
Lifetime (ever) use	64.2%	63.3%	61.6%
16-19	53.1%	38.3%	37.0%
16-24	--	49.0%	44.2%
20-24	66.2%	55.6%	51.9%
25-44	--	67.4%	68.3%
45-64	--	62.9%	61.8%
Past 12-month use	26.0%	34.6%	35.3%
Age 16-19	42.8%	31.6%	30.1%
Age 20-24	47.6%	40.2%	36.6%
Past 30-day use	17.3%	23.2%	24.1%
Age 16-19	28.5%	19.3%	18.4%
Age 20-24	31.1%	26.5%	25.4%
Frequency of cannabis use (past 12-month users)			
Monthly	20.4%	20.1%	20.9%
Weekly	20.3%	16.1%	16.5%
Daily/almost daily	23.0%	33.0%	35.4%
Initiation to cannabis use			
Mean age (years)	20.8	21.3	20.7
16-19	15.7	15.4	15.5
20-24	17.5	17.5	17.6
Products used (current users)			
Dried flower*	65.4%	65.6%	67.5%
Edibles (foods)	56.1%	58.0%	53.8%
Vaped*	36.8%	31.4%	31.1%
Hash/kief	17.9%	18.9%	21.9%
Oils for oral ingestion	21.6%	28.2	26.8%
Solid concentrates	11.5%	15.4%	16.4%
Topical ointments	9.7%	16.7%	14.7%
Beverages	21.3%	21.1%	21.5%

^aData obtained from the 2023 Canadian Cannabis Survey (CCS) for 'non-medical' cannabis use. (<https://epe.bac-lac.gc.ca/100/200/301/pwgsc-tpsgc/por-ef/health/2023/149-22-e/index.html>, click on Data Tables – PDF) in which cannabis users may have been more likely to complete the study compared to other surveys such as CSTADS *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.

Table 12: International Cannabis Policy Study annual changes in estimates of cannabis consumption by age groups, Canada, weighted^a

Indicator of cannabis use	ICPS	ICPS	ICPS	ICPS	ICPS	ICPS
	Canada 2018 n=10,057	Canada 2019 n=15,256	Canada 2020 n=15,780	Canada 2021 n=16,952	Canada 2022 n=15,942	Canada 2023 n=19,964
Ever tried cannabis						
All respondents	56.5%	62.0%	60.7%	61.9%	61.8%	61.6%
Age 16-19	32.0%	36.1%	33.8%	32.6%	33.0%	37%
Age 20-24	57.2%	61.6%	59.3%	51.9%	55.9%	51.9%
Age 25-44	61.8%	69.4%	67.4%	69.4%	69.7%	68.3%
Age 45-64	59.8%	61.7%	63.0%	62.3%	60.9%	61.8%
Past 12-month use						
All respondents	27.5%	35.3%	34.1%	36.3%	35.3%	35.3%
Age 16-19	25.9%	29.3%	27.7%	26.6%	26.5%	30.1%
Age 20-24	40.5%	46.1%	44.5%	37.6%	41.0%	36.6%
Age 25-44	34.8%	43.6%	42.0%	45.9%	43.4%	43.9%
Age 45-64	20.5%	27.6%	28.0%	28.9%	28.2%	27.9%
Past 30-day use						
All respondents	18.7%	23.6%	23.5%	25.6%	23.7%	24.1%
Age 16-19	15.1%	15.5%	16.1%	14.2%	15.4%	18.4%
Age 20-24	25.5%	28.5%	30.2%	24.3%	24.3%	25.4%
Age 25-44	24.1%	30.0%	30.0%	33.3%	29.5%	30.6%
Age 45-64	14.5%	18.8%	19.3%	20.7%	19.5%	18.8%
Daily/almost daily use						
All respondents	8.9%	11.3%	11.8%	13.6%	12.0%	12.5%
Age 16-19	5.4%	5.5%	6.3%	5.3%	6.1%	7.6%
Age 20-24	11.6%	14.3%	17.5%	14.2%	13.3%	13%
Age 25-44	11.5%	15.1%	15.4%	19.0%	15.0%	16.2%
Age 45-64	7.5%	8.8%	9.6%	10.0%	10.1%	9.8%

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

Table 13: Cannabis use in the US among ICPS 2023 cross-sectional respondents and national surveys

	NSDUH 2022^a age ≥12 n=69,850	ICPS 2023 US age 16–65 n=39,653	
Cannabis use	%	Unweighted %	Weighted^b %
Ever (lifetime) use			
Age 18–25	51.9%	61.3%	57.6%
Age 26–49	55.1%	72.8%	68.6%
Age 50–54	47.2%	70.1%	66.8%
Age 55–59	53.3%	71.0%	67.3%
Age 60–64	57.4%	72.4%	67.6%
Past 12-month use			
Age 16–25	32.4%	38.0%	37.0%
Age 18–25	38.2%	41.7%	38.9%
Age 26–49	28.8%	43.2%	40.6%
Age 50–54	18.4%	35.8%	33.0%
Age 55–59	18.7%	31.3%	28.3%
Age 60–64	17.7%	28.0%	23.8%
Past 30-day use			
Age 16–25	21.7%	24.1%	23.7%
Age 18–25	25.9%	28.1%	25.7%
Age 26–49	20.2%	30.5%	28.8%
Age 50–54	12.9%	24.8%	23.7%
Age 55–59	13.7%	22.2%	19.4%
Age 60–64	11.8%	19.4%	16.3%

^aData obtained from the 2022 National Survey on Drug Use and Health (NSDUH); ^bNational data weighted using WEIGHT_RESC, which are the inflation weights scaled back to the US sample size as a whole. Source: Substance abuse and Mental Health Services Administration (SAMHSA). Key Substance Use and Mental Health Indicators in the United States: Results from the 2022 National Survey on Drug Use and Health. 2022: <https://www.samhsa.gov/data/report/2022-nsduh-detailed-tables>

Table 14: International Cannabis Policy Study annual changes in estimates of cannabis consumption by age groups, 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 2021 n=30,081	ICPS US 2022 n=40,420	ICPS US 2023 n=39,653
Ever tried cannabis						
All respondents	56.1%	64.0%	58.8%	64.1%	63.7%	65.2%
Age 16-19	31.9%	41.3%	32.5%	40.2%	39.6%	40.2%
Age 20-25	52.7%	60.6%	52.4%	51.8%	58.8%	61.5%
Age 26-49	57.4%	68.2%	62.7%	69.0%	67.9%	68.6%
Age 50-64	66.1%	67.1%	64.5%	68.3%	67.8%	67.3%
Past 12-month use						
All respondents	26.0%	32.7%	29.3%	34.2%	34.1%	35.9%
Age 16-19	26.0%	31.6%	23.9%	29.3%	31.3%	31.3%
Age 20-25	38.5%	40.0%	36.7%	34.2%	39.1%	40.8%
Age 26-49	28.6%	37.1%	34.3%	40.2%	39.4%	40.6%
Age 50-64	21.1%	24.6%	22.6%	26.9%	26.5%	28.4%
Past 30-day use						
All respondents	16.2%	21.8%	19.5%	23.2%	22.7%	24.8%
Age 16-19	12.7%	16.4%	13.9%	17.2%	17.5%	18.3%
Age 20-25	22.4%	25.3%	24.2%	23.0%	26.7%	27.3%
Age 26-49	18.0%	25.7%	22.9%	27.5%	26.6%	28.8%
Age 50-64	14.7%	17.3%	15.6%	18.9%	18.2%	19.8%
Daily/almost daily use						
All respondents	8.3%	12.8%	11.8%	13.7%	13.2%	15.1%
Age 16-19	4.0%	7.4%	7.8%	8.3%	8.0%	9.1%
Age 20-25	10.0%	16.7%	15.3%	15.2%	17.2%	17.6%
Age 26-49	9.7%	16.1%	14.5%	16.9%	16.3%	18.5%
Age 50-64	8.10%	8.8%	8.5%	10.2%	9.8%	10.6%

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

Table 15: Cannabis use in Australia among ICPS 2023 cross-sectional respondents and national surveys

	NDSHS 2022-2023^a age ≥14 n=22,274	ICPS 2023 Australia age 16-65 n=3,042	
Cannabis use	%	Unweighted %	Weighted %
Ever (lifetime) use			
Age 18+	42.3%	-	-
Age 14-19	20.5%	-	-
Age 15-24	34.4%	42.3%	36.7%
Age 18-24	42.1%	45.3%	39.9%
Age 20-29	46.4%	51.9%	46.6%
Age 30-39	49.6%	55.6%	52.9%
Age 40-49	51.9%	58.5%	53.0%
Age 50-59	49.9%	60.7%	58.3%
Age 60+	26.3%	-	-
Age 65+	20.7%	-	-
Past 12-month use			
Age 18+	11.6%	-	-
Age 14-19	15.0%	-	-
Age 15-24	21.5%	26.8%	21.2
Age 18-24	25.5%	27.8%	22.5%
Age 20-29	23.0%	28.6%	21.6%
Age 30-39	14.0%	24.5%	15.6%
Age 40-49	11.1%	21.7%	11.1%
Age 50-59	8.9%	15.8%	10.9%
Age 60+	3.6%	-	-
Age 65+	2.3%	-	-

^aData obtained from the 2022-2023 National Drug Strategy Household Survey (NDSHS) (<https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/contents/drug-types/cannabis>).

Table 16: International Cannabis Policy Study annual changes in estimates of cannabis consumption by age group, Australia, weighted^a

Indicator of cannabis use	ICPS AUS 2021 n=2,925	ICPS AUS 2022 n=2,866	ICPS AUS 2023 n=3,042
Ever tried cannabis			
All respondents	50.3%	56.9%	50.8%
Age 16-19	37.4%	29.3%	27.7%
Age 20-25	43.8%	55.4%	44.9%
Age 26-49	52.1%	59.2%	52.3%
Age 50-64	52.9%	57.7%	56.7%
Past 12-month use			
All respondents	14.1%	14.1%	14.2%
Age 16-19	24.2%	16.3%	17.4%
Age 20-25	20.8%	22.9%	24.3%
Age 26-49	14.8%	14.2%	14.1%
Age 50-64	8.4%	9.2%	9.7%
Past 30-day use			
All respondents	7.0%	7.6%	7.5%
Age 16-19	12.0%	7.9%	9.0%
Age 20-25	8.5%	7.9%	12.8%
Age 26-49	7.2%	8.3%	6.9%
Age 50-64	5.4%	6.3%	6.0%
Daily/almost daily use			
All respondents	4.3%	4.7%	4.3%
Age 16-19	7.4%	3.7%	4.8%
Age 20-25	6.2%	5.8%	8.5%
Age 26-49	4.5%	5.0%	4.0%
Age 50-64	2.7%	3.8%	3.1%

^a Data are weighted to the national population using the variable WEIGHT_RESC, which are the national inflation weights scaled back to the sample size of Australia.

Table 17: Cannabis use in New Zealand among ICPS 2023 cross-sectional respondents and national surveys

	New Zealand Health Survey 2022/23 ≥15 n=6,799	ICPS 2023 New Zealand age 16-65 n=2,676	
Cannabis use	%	Unweighted %	Weighted %
Past 12-month use			
Age 15+	14.2%	-	-
Age 15-24	23.9%	24.2%	23.8
Age 25-34	22.4%	23.3%	23.8%
Age 35-44	15.3%	19.2%	15.0%
Age 45-54	12.3%	22.3%	12.9%
Age 55-64	9.3%	13.3%	9.5%
Age 65-74	6.4%	-	-
Age 75+	0.9%	-	-
Weekly use or more (in the last 3 months)			
Age 15+	4.7%	-	-
Age 15-24	7.7%	7.0%	7.7%
Age 25-34	8.0%	7.5%	9.4%
Age 35-44	4.1%	7.8%	7.4%
Age 45-54	3.4%	10.4%	6.9%
Age 55-64	3.9%	6.8%	4.3%
Age 65-74	2.9%	-	-
Age 75+	0.5%	-	-

^aData obtained from the 2022/23 New Zealand Health Survey (<https://www.health.govt.nz/publications/annual-update-of-key-results-202223-new-zealand-health-survey>)

Table 18: International Cannabis Policy Study annual changes in estimates of cannabis consumption by age group, New Zealand, weighted^a

Indicator of cannabis use	ICPS NZ 2021 n=2,980	ICPS NZ 2022 n=2,898	ICPS NZ 2023 n=2,676
Ever tried cannabis			
All respondents	57.1%	60.2%	51.4%
Age 16-19	37.4%	40.0%	36.8%
Age 20-25	47.0%	54.6%	45.3%
Age 26-49	59.2%	64.1%	53.9%
Age 50-64	63.6%	61.4%	52.9%
Past 12-month use			
All respondents	18.5%	18.2%	16.7%
Age 16-19	31.6%	22.0%	27.6%
Age 20-25	28.1%	31.6%	20.7%
Age 26-49	18.6%	19.7%	18.5%
Age 50-64	11.3%	9.8%	10.2%
Past 30-day use			
All respondents	11.5%	9.2%	9.0%
Age 16-19	18.0%	15.3%	15.1%
Age 20-25	18.2%	12.1%	8.1%
Age 26-49	11.8%	10.2%	9.8%
Age 50-64	7.1%	5.5%	6.8%
Daily/almost daily use			
All respondents	5.4%	4.9%	4.7%
Age 16-19	5.4%	4.1%	4.1%
Age 20-25	10.0%	6.7%	5.7%
Age 26-49	6.5%	5.8%	5.5%
Age 50-64	2.4%	3.2%	3.2%

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

Table 19: Cannabis use in the UK among ICPS 2023 cross-sectional respondents and national surveys

	England and Wales Crime Survey 2022/23^a age 16-59 n=16,092	ICPS 2023 UK age 16-65 (n=3,444)	
Cannabis use	%	Unweighted %	Weighted %
Ever (lifetime) use			
Age 16-59	31.1	66.2%	43.3%
Age 16-24	26.6	61.3%	35.0%
Past 12-month use			
Age 16-59	7.6	48.0%	7.6%
Age 16-24	15.4	54.3%	15.6%
Past 30 day use			
Age 16-59	3.7	24.8%	4.0%
Age 16-24	8.4	24.0%	7.2%

^aData obtained from the 2022/23 Crime Survey for England and Wales from the Office for National Statistics

(<https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/datasets/drugmisuseinenglandandwalesappendixtable>).

Table 20: International Cannabis Policy Study annual changes in estimates of cannabis consumption by age group, UK, weighted^a

Indicator of cannabis use	ICPS UK 2023 n=3,444
Ever tried cannabis	
All respondents	41.9%
Age 16-19	22.2%
Age 20-24	43.2%
Age 25-44	47.9%
Age 45-64	39.6%
Past 12-month use	
All respondents	7.1%
Age 16-19	12%
Age 20-24	17.9%
Age 25-44	7.1%
Age 45-64	4%
Past 30-day use	
All respondents	3.7%
Age 16-19	4.9%
Age 20-24	8.7%
Age 25-44	4%
Age 45-64	2.1%
Daily/almost daily use	
All respondents	2%
Age 16-19	1.7%
Age 20-24	4.1%
Age 25-44	2.4%
Age 45-64	1.1%

Table 21: Cannabis use in Germany among ICPS 2023 cross-sectional respondents and national surveys

	Epidemiological Survey on Addiction 2021^a age 18-64 n=9,046	ICPS 2023 Germany age 16-65 n=3,603	
Cannabis use	%	Unweighted %	Weighted %
Ever (lifetime) use			
Age 18-64	34.7	68.2%	44.9%
Age 18-20	30.4	58.1%	35.8%
Age 21-24	46.5	68.4%	53.3%
Age 25-29	50.8	79.2%	58.7%
Age 30-39	46.6	74.8%	52.5%
Age 40-49	34.5	73.8%	47.2%
Age 50-59	20.0	53.9%	36.4%
Age 60-69	14.0	48.1%	31.7%
Past 12-month use			
Age 18-64	8.8	48.6%	10.9%
Age 18-20	19.6	47.9%	22.7%
Age 21-24	25.0	50.2%	32.2%
Age 25-29	15.8	60.4%	20.3%
Age 30-39	10.7	55.7%	13.8%
Age 40-49	5.6	53.8%	7.2%
Age 50-59	2.8	31.3%	3.6%
Age 60-69	1.6	28.6%	2.1%
Past 30 day use			
Age 18-64	4.3	22.9%	5.4%
Age 18-20	8.6	19.7%	10.5%
Age 21-24	11.7	24.0%	17.9%
Age 25-29	7.4	27.7%	8.6%
Age 30-39	5.3	26.3%	6.8%
Age 40-49	2.9	27.0%	4.2%
Age 50-59	1.3	13.7%	1.5%
Age 60-69	1.1	14.1%	1.0%

^aData obtained from the Epidemiological Survey on Addiction 2021 (https://www.esa-survey.de/fileadmin/user_upload/Literatur/Berichte/Short_Reports/ESA_2021_b_Illegal-Drugs-Short-Report.pdf).

Table 22: International Cannabis Policy Study cross-sectional sample, Germany, weighted^a

Indicator of cannabis use	ICPS Germany 2023 n=3,603
Ever tried cannabis	
All respondents	44%
Age 16-19	36%
Age 20-24	46%
Age 25-44	53.7%
Age 45-64	36.6%
Past 12-month use	
All respondents	11.2%
Age 16-19	26.8%
Age 20-24	28.4%
Age 25-44	14%
Age 45-64	3.6%
Past 30-day use	
All respondents	5.4%
Age 16-19	11.2%
Age 20-24	15.2%
Age 25-44	6.8%
Age 45-64	1.7%
Daily/almost daily use	
All respondents	2.6%
Age 16-19	4%
Age 20-24	7.8%
Age 25-44	3.2%
Age 45-64	0.9%

REFERENCES

- ¹ Hammond D, Goodman S, Wadsworth E, Rynard V, Boudreau C, Hall W. Evaluating the impacts of cannabis legalization: The International Cannabis Policy Study. *International Journal of Drug Policy*; 2020, 77: 102698. doi: 10.1016/j.drugpo.2020.102698
- ² Hammond D, Hall W, Ware M, Pacula R, George T, Rehn J, Werb D, Boudreau C, Wadsworth E, Leos-Toro C, Porath-Waller A, Elliot R. Marijuana legalization: Impact on prevalence and risk behaviours among youth and young adults in Canada. Canadian Institutes of Health Research – Project Bridge Grant; 2017–2018. Grant #: PJT-153342.
- ³ Leos-Toro C. Health warnings, cannabis marketing and perceptions among youth and young adults in Canada. (Dissertation). University of Waterloo, 2019. Available from: <http://hdl.handle.net/10012/14544>
- ⁴ Goodman S, Leos-Toro C, Hammond D. Methods to assess cannabis consumption in population surveys: Results of cognitive interviewing. *Qualitative Health Research* 2019; 29(10):1474–1482.
- ⁵ Sikorski C, Leos Toro C, Hammond D. Cannabis consumption, purchasing and sources among young Canadians: The Cannabis Purchase and Consumption Tool (CPCT). *Substance Use & Misuse* 2021;56(4):449–457.
- ⁶ Hammond D, Goodman S, Wadsworth E, Rynard V, Boudreau C, Hall W. Evaluating the impacts of cannabis legalization: The International Cannabis Policy Study. *International Journal of Drug Policy*; 77: 102698.
- ⁷ Health Canada, Statistics Canada, Public Safety and the Public Health Agency of Canada. Finding Consensus on Cannabis Data Measures Workshop. 27–28 Nov 2018; Ottawa.
- ⁸ Shiplo S, Asbridge M, Leatherdale SL, Hammond D. Medical Marijuana Use in Canada: Vapourization and Modes of Delivery. *Harm Reduction Journal* 2016; 107(3): e296–e302.
- ⁹ American Association for Public Opinion Research. 2022. Data quality metrics for online samples: Considerations for study design and analysis. AAPOR. Available at: <https://aapor.org/wp-content/uploads/2023/02/Task-Force-Report-FINAL.pdf>
- ¹⁰ Statistics Canada. Table 17-10-0005-01 Population estimates on July 1st, by age and sex, 2022. Released December 2022. Available at: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501>
- ¹¹ Statistics Canada, 2021 Census of Population, Statistics Canada Catalogue no. 98-10-0384-01. Highest level of education by census year: Canada, provinces and territories, census metropolitan areas and census agglomerations. Released December 2022. Available at: <https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=9810038401>

-
- ¹² Statistics Canada. Canadian Community Health Survey – Annual Component. Table 13-10-0096-10 Smokers, by age group. Released November 2023. Available at: <https://www150.statcan.gc.ca/t1/tbl/en/tv.action?pid=1310009610>
- ¹³ U.S. Census Bureau, Population Division. Annual State Resident Population Estimates for 6 Race Groups (5 Race Alone Groups and Two or More Races) by Age, Sex, and Hispanic Origin: April 1, 2020 to July 1, 2022. File: 7/1/2022 State Characteristics Population Estimates Release Date: June 2023. <https://www.census.gov/data/tables/time-series/demo/pepest/2020s-state-detail.html>
- ¹⁴ U.S. Census Bureau, American Community Survey, 2022 American Community Survey 1-Year Estimates, Table S1501 generated using data.census.gov. Available at: [https://data.census.gov/table/ACSSTIY2022.S1501?q=Educational%20Attainment%20in%20the%20United%20States&g=0100000US\\$04000\\$001&tid=ACSSTIY2021.S1501](https://data.census.gov/table/ACSSTIY2022.S1501?q=Educational%20Attainment%20in%20the%20United%20States&g=0100000US$04000$001&tid=ACSSTIY2021.S1501)
- ¹⁵ Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. Available at: <https://www.cdc.gov/brfss/brfssprevalence/>
- ¹⁶ Australian Bureau of Statistics. 31010do002_202306 National, state and territory population, Jun 2023. Released December 2023, Table 8. Estimated resident population, by age and sex—at 30 June 2023. Available at <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/jun-2023>
- ¹⁷ Australian Bureau of Statistics. Education and Work, Australia, May 2023. Released November 2023. Table 21. Highest educational attainment by state/territory by sex, Persons aged 15–74 years. Available at <https://www.abs.gov.au/statistics/people/education/education-and-work-australia/may-2023>
- ¹⁸ Australian Bureau of Statistics. Census of Population and Housing, 2021, TableBuilder – Cultural Diversity (LANP). 2021. Available at <https://www.abs.gov.au/statistics/microdata-tablebuilder/tablebuilder>
- ¹⁹ Australian Institute of Health and Welfare. National Drug Strategy Household Survey, Cannabis in the NDSHS. Released February 2024. Available at <https://www.aihw.gov.au/reports/illicit-use-of-drugs/national-drug-strategy-household-survey/data?&page=1>
- ²⁰ Stats NZ. Subnational population estimates. Dataset: Subnational population estimates (RC, SA2), by age and sex, at 30 June 1996–2023 (2023 boundaries). Available at <http://nzdotstat.stats.govt.nz/wbos/Index.aspx>
- ²¹ Stats NZ. Census 2018. Dataset: Ethnic group (detailed single and combination) by age and sex, for the census usually resident population count, 2013 and 2018 Censuses (RC, TA, SA2, DHB). Available at <http://nzdotstat.stats.govt.nz/wbos/Index.aspx>
- ²² Stats NZ. Census 2018. Dataset: Highest qualification and ethnic group (grouped total responses) by age group and sex, for the census usually resident population count aged 15 years and over, 2006, 2013, and 2018 Censuses (RC, TA, SA2, DHB). Available at <http://nzdotstat.stats.govt.nz/wbos/Index.aspx>

-
- ²³ New Zealand Government, Ministry of Health. New Zealand Health Survey. Available at <https://www.health.govt.nz/publication/annual-update-key-results-2022-23-new-zealand-health-survey>
- ²⁴ Office for National Statistics. Estimates of the population for the UK, England, Wales, Scotland and Northern Ireland: mid-2021. Accessed January 17, 2024. Available from <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2021>
- ²⁵ Office for National Statistics, Census 2021, Census 2021 estimates that classify usual residents in England and Wales by ethnic group, by sex, and by age. Release date March 28, 2023. Customised. Accessed January 24, 2024 at <https://www.ons.gov.uk/datasets/RM032/editions/2021/versions/1>
- ²⁶ Office for National Statistics, Census 2021, England and Wales, Age (B) (61 categories) and Highest level of qualification (8 categories). Accessed August 17, 2023 at <https://www.ons.gov.uk/filters/f2981ca9-ec38-4302-8ace-f2e1b2f36699/dimensions>
- ²⁷ Office for National Statistics, Drug misuse in England and Wales: year ending March 2023. Appendix table 3.04. Accessed Feb 12, 2024 at <https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/datasets/drugmisuseinenglandandwalesappendixtable>
- ²⁸ National Records of Scotland, Scotland's Census 2011, DC2101SC – Ethnic group by sex by age. Accessed August 14, 2023 at <https://www.scotlandscensus.gov.uk/webapi/jsf/tableView/tableView.xhtml>
- ²⁹ National Records of Scotland, Scotland's Census 2011, DC5102SC. Highest level of qualification by sex and age, All people aged 16 and over. Accessed August 17, 2023 at <https://www.scotlandscensus.gov.uk/search-the-census#/search-by>
- ³⁰ Scottish Government. Scottish Health Survey 2021. Supplementary table L9: Taken Cannabis in the last 12 months by age, 2021 accessed February 28, 2024 at <https://www.gov.scot/publications/scottish-health-survey-2021-supplementary-tables/> Section 12. Drugs, Table L9
- ³¹ Northern Ireland Statistics and Research Agency, Census 2021, MS-B01 – Ethnic group by age – 86 categories. Accessed August 14, 2023 at https://build.nisra.gov.uk/en/custom/data?d=PEOPLE&v=ETHNIC_GROUP_INTERMEDIATE&v=AGE_SYOA_85
- ³² Northern Ireland Statistics and Research Agency, Census 2021, Qualifications (Highest level) by age – 86 categories. Accessed August 17, 2023 at https://build.nisra.gov.uk/en/custom/variables?d=PEOPLE&v=HIGHEST_QUALIFICATION&v=AGE_SYOA_85
- ³³ Destatis Statistisches Bundesamt. 12411-0013: Population: federal states, reference date, sex, age: December 31, 2022. Accessed July 17, 2023 at <https://www-genesis.destatis.de/genesis/online>

-
- ³⁴ Destatis Statistisches Bundesamt. 12411-0200: Population in main residence households: Germany, years, gender, age groups, migration status: 2022. Accessed March 21, 2024. Available from <https://www-genesis.destatis.de/genesis/online>
- ³⁵ Destatis Statistisches Bundesamt. 12211-9013: Population (15 years and older): Germany, years (until 2019), gender, age groups, vocational education and training qualification. Microcensus. Accessed July 20, 2023. Accessible from <https://www-genesis.destatis.de/genesis/online>
- ³⁶ Rauschert, C., Möckl, J., Wilms, N., Hoch, E., Kraus, L., & Olderbak, S. (2023). Brief report: Epidemiological Survey on Addiction 2021. Volume: (Problematic) Use of Illegal Drugs and Multiple Drug Experience by Gender and Age in 2021. IFT Institut für Therapieforchung. https://www.esa-survey.de/fileadmin/user_upload/Literatur/Berichte/Short_Reports/ESA_2021_b_Illegal-Drugs-Short-Report.pdf
- ³⁷ Orth, B. & Merkel, C. (2022). Der Substanzkonsum Jugendlicher und junger Erwachsener in Deutschland. Ergebnisse des Alkoholsurveys 2021 zu Alkohol, Rauchen, Cannabis und Trends. BZgA-Forschungsbericht. Köln: Bundeszentrale für gesundheitliche Aufklärung. <https://doi.org/10.17623/BZGA:Q3-ALKSY21-DE-1.0>
- ³⁸ The macro was obtained from https://www.abtassociates.com/sites/default/files/files/Insights/Tools/rake_and_trim_G4_V5.sas, with further documentation available at https://www.abtassociates.com/sites/default/files/files/Insights/Tools/SD_62_2017.pdf
- ³⁹ Battaglia MP, Izrael D, Ball SW. Tips and Tricks for Raking Survey Data with Advanced Weight Trimming. Accessed October 19, 2021. Available from: https://www.abtassociates.com/sites/default/files/files/Insights/Tools/SD_62_2017.pdf
- ⁴⁰ Olderbak, S., Möckl, J., Manthey, J., Lee, S., Rehm, J., Hoch, E., & Kraus, L. (2024). Trends and projection in the proportion of (heavy) cannabis use in Germany from 1995 to 2021. *Addiction*, 119(2), 311-321.
- ⁴¹ Fahimi M, Barlas FM, Thomas RK. American Association for Public Opinion Research (AAPOR). A Practical Guide for Surveys Based on Nonprobability Samples. Webinar; 13 February 2018.
- ⁴² Hays RD, Liu H, Kapteyn A. Use of Internet panels to conduct surveys. *Behav Res*, 2015; 47: 685-690. doi: 10.3758/s13428-015-0617-9