International Cannabis Policy Study

United States
2021 CANNABIS REPORT

SEPTEMBER 2022

UNIVERSITY OF WATERLOO

Forward

The International Cannabis Policy Study is an international research collaboration designed to examine cannabis policy and public health impact. The project started in 2018 and includes annual population-based surveys in Canada and the United States (since 2018), as well as Australia and New Zealand (since 2021).

The current report summarizes findings among respondents from the United States for the 2021 survey, with comparisons to previous years. Additional details are available upon request.

Visit the study website for more information: www.cannabisproject.ca.

International Cannabis Policy Study

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STUDY – UNITED STATES 2021 SUMMARY. SEPT 2022.

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International Cannabis Policy Study

🌿 Methods

OVERVIEW

The International Cannabis Policy Study is a repeat cross-sectional survey conducted annually in the United States and Canada (since 2018), as well as Australia and New Zealand (since 2021) to examine trends in cannabis. This report summarizes key indicators from the 2021 ICPS survey in the United States from September 14 to November 8, 2021.

SAMPLE

Respondents were aged 16-65 years and were recruited through the Nielsen Consumer Insights Global Panel. The analytic sample for 2021 comprised 52,938 respondents in Canada (n= 16,952), the United States (n= 30,081), Australia (2,925) and New Zealand (2,980). The results in the current report focus on the subsample of 107,572 respondents from the United States who participated in the 2018 (n= 17,112), 2019 (n= 30,479), 2020 (n= 29,900), and 2021 (n= 30,081) surveys.

SURVEY

The survey covers 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 and socio-economic status.

DATA ANALYSIS

Post-stratification survey weights were created using age-by-sex-by-state, ethnicity-by-census division, education-by-state, and age-by-smoking status groups. All estimates in the current report are weighted and rescaled to the original sample size within each state.

Comparisons are provided between the 'overall' national estimates, as well as by legal status of cannabis at the state level. In the current report, the term 'legal' refers to states that had legalized non-medical cannabis for adult use at the time of data collection in each year. 'Medical' refers to states that had legalized medical but not non-medical adult use cannabis at the time of data collection. 'Illegal' refers to all other states.

TECHNICAL REPORT

The survey and technical report are available at: www.cannabisproject.ca/methods. The technical report includes detailed information on methodology and survey weighting.

Sample profile

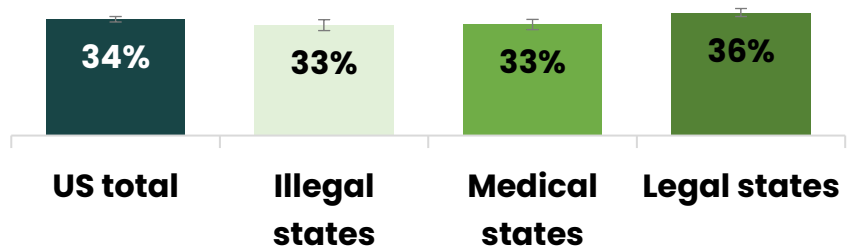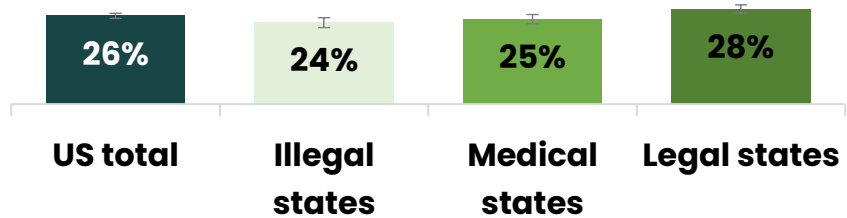## United States

	2018 n=17,112	2019 n=30,479	2020 n=29,900	2021 n=30,081
Sex				
Female	8,586	15,290	14,995	15,080
Male	8,526	15,189	14,905	15,001
Age group				
16-20	2,738	3,772	4,030	3,439
21-30	2,214	5,373	5,032	5,374
31-45	5,351	9,387	9,162	9,612
46-55	3,505	6,012	5,808	5,729
56-65	3,304	5,935	5,869	5,928
Ethnicity				
White	13,068	23,158	22,655	22,730
Am. Indian or Alaskan Native	140	384	288	324
Asian	648	1,207	1,368	1,132
Black or African American	2,335	4,201	4,148	4,183
Native Hawaiian or Pac Islander	34	105	110	129
Other/2+ races/Unstated	887	1,424	1,331	1,583
Hispanic origin (asked separately)	1,493	3,788	3,391	4,063
Education level				
<High school	2,470	3,146	2,900	3,106
High school	3,193	6,689	6,889	6,783
Some college	6,691	11,481	10,946	10,922
Bachelor's degree	4,702	9,039	8,916	9,012
Income adequacy				
Very difficult	1,572	3,200	2,618	3,065
Difficult	3,696	7,013	5,472	5,613
Neither easy nor difficult	5,421	10,075	10,416	9,824
Easy	3,796	5,854	6,268	6,176
Very easy	2,232	3,481	3,958	4,089

ICPS

Cannabis prevalence 2021

Past 12 months Cannabis use

US total	Illegal states	Medical states	Legal states
34%	33%	33%	36%

Past month Cannabis use

US total	Illegal states	Medical states	Legal states
26%	24%	25%	28%

Daily / near daily Cannabis use

US total	Illegal states	Medical states	Legal states
14%	13%	14%	15%
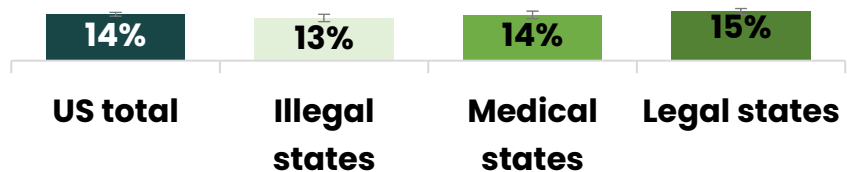
Trends in cannabis prevalence

Past 12 months   **Monthly**   **Daily/near daily**

US total n=107,572

	2018	2019	2020	2021
Past 12 months	26%	33%	29%	34%
Monthly	19%	24%	22%	26%
Daily/near daily	8%	13%	12%	14%

Illegal states n=17,942

	2018	2019	2020	2021
Past 12 months	22%	29%	26%	33%
Monthly	15%	21%	19%	24%
Daily/near daily	6%	11%	10%	13%

Medical states n=24,695

	2018	2019	2020	2021
Past 12 months	25%	32%	28%	33%
Monthly	18%	23%	21%	25%
Daily/near daily	9%	12%	12%	14%

Legal states n=64,935

	2018	2019	2020	2021
Past 12 months	34%	39%	35%	36%
Monthly	25%	29%	27%	28%
Daily/near daily	11%	16%	14%	15%

UNIVERSE: ALL RESPONDENTS. DAILY/NEAR DAILY USE= AT LEAST 5 DAYS PER WEEK

Cannabis prevalence 2021

Daily/ Near daily use
13.7%

Weekly use
5.7%

Monthly use
6.6%

Used in past 12 months
8.1%

Never used
35.9%

Used >12 months ago
29.9%

By sex

Female **Male**

	Female	Male
Past 12 months	32%	36%
At least monthly	23%	29%
Daily / near daily	13%	15%

🌿 Cannabis prevalence 2021

By age

Past 12 months

16-20	21-30	31-45	46-55	56-65
29%	40%	40%	30%	26%

Monthly

16-20	21-30	31-45	46-55	56-65
19%	32%	32%	22%	19%

Daily/almost daily

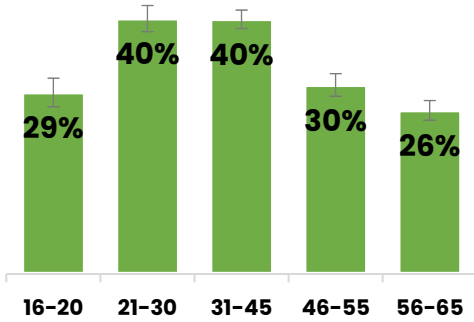| 16-20	21-30	31-45	46-55	56-65
9%	19%	16%	11%	10%

By education

Past 12 months
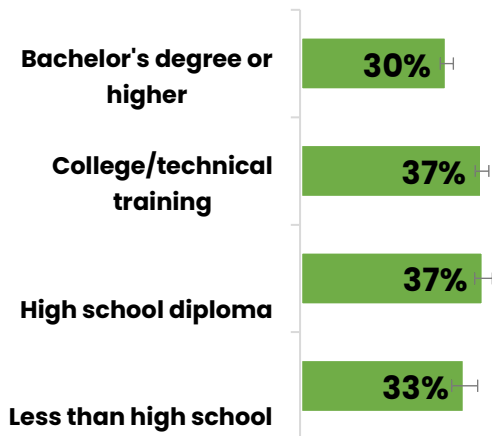
	Past 12 months	Monthly	Daily/almost daily
Bachelor's degree or higher	30%	21%	8%
College/technical training	37%	29%	16%
High school diploma	37%	29%	19%
Less than high school	33%	24%	13%

🌿 ICPS 9
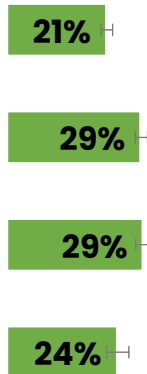
Medical authorization

Overall, 1 in 3 past 12-month cannabis consumers in the US reported that their cannabis consumption was only for medical purposes, an increase since 2019.

Percent of consumers who self-identify as a medical marijuana user
% 'YES', PAST 12-MONTH CONSUMERS N=29,617
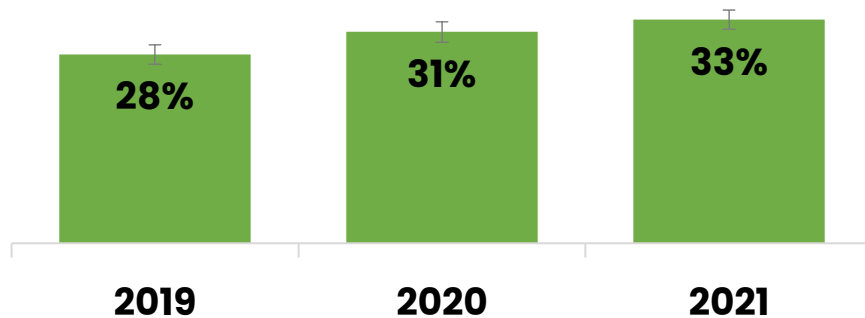
2019	2020	2021
28%	31%	33%

Percent of consumers who self-identify as a medical marijuana user
% 'YES', PAST 12-MONTH CONSUMERS, 2021, N=10,361

US total	Illegal states	Medical states	Legal states
33%	29%	36%	33%
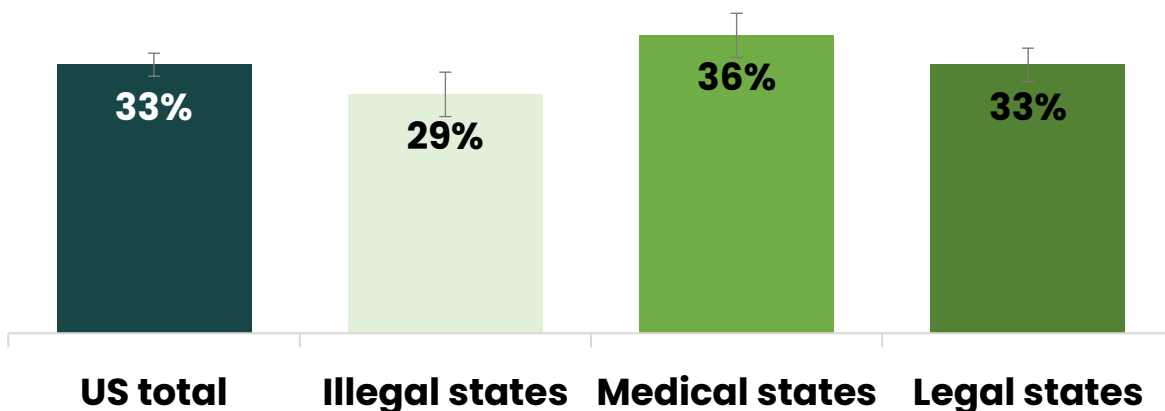
Medical authorization

Over 1 in 4 past 12-month cannabis consumers had 'ever' asked a health professional for a recommendation for medical cannabis. Among those who had asked, almost 4 in 10 had ever been refused.

Have you ever asked a licensed health professional for a recommendation to use medical marijuana?

% 'YES', PAST 12-MONTH CONSUMERS, 2021, N=10,367

US total	Illegal states	Medical states	Legal states
27%	19%	30%	29%
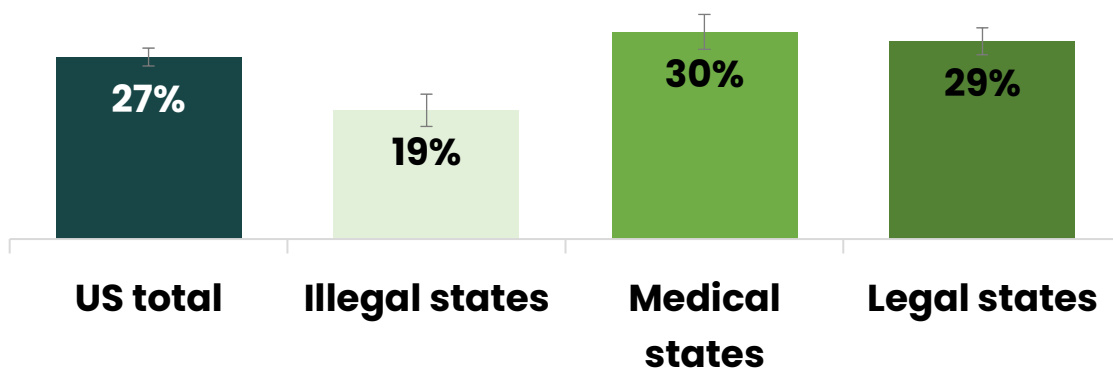
Have you ever been refused a recommendation for medical marijuana?

% 'YES', PAST 12-MONTH CONSUMERS WHO HAVE SOUGHT APPROVAL, 2021, N=2,703

US total	Illegal states	Medical states	Legal states
37%	53%	31%	35%
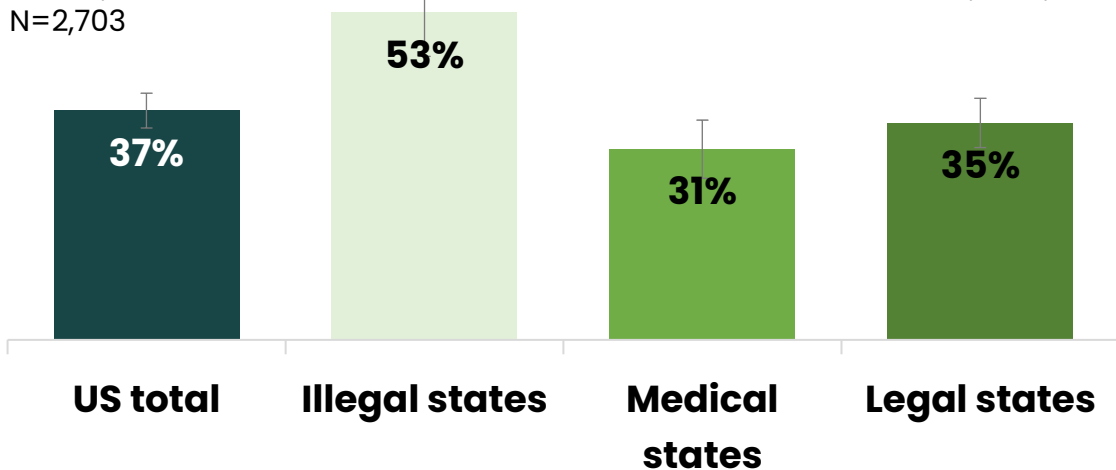
Medical authorization

In 2021, 1 in 5 past 12-month cannabis consumers reported 'ever' receiving approval for medical cannabis use.

Have you ever received a recommendation for medical marijuana?
% 'YES', PAST 12-MONTH CONSUMERS, N=34,277
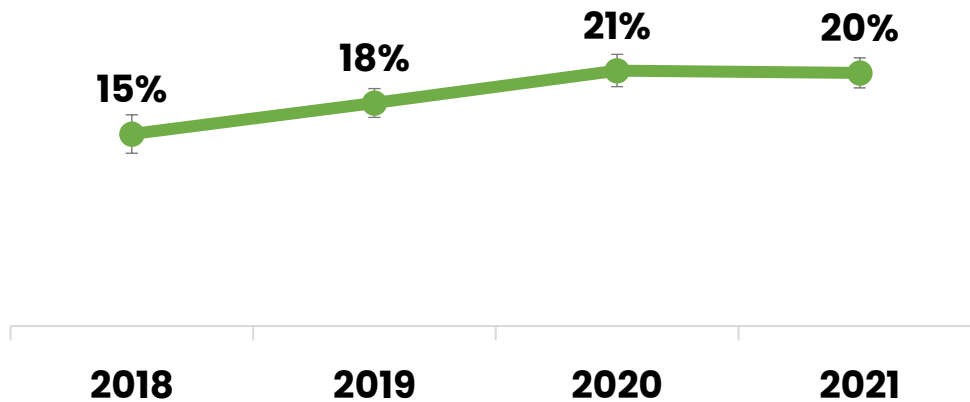
Year	%
2018	15%
2019	18%
2020	21%
2021	20%

Have you ever received a recommendation for medical marijuana?
% 'YES', PAST 12-MONTH CONSUMERS, 2021, N=10,472

Group	%
US total	20%
Illegal states	13%
Medical states	23%
Legal states	23%
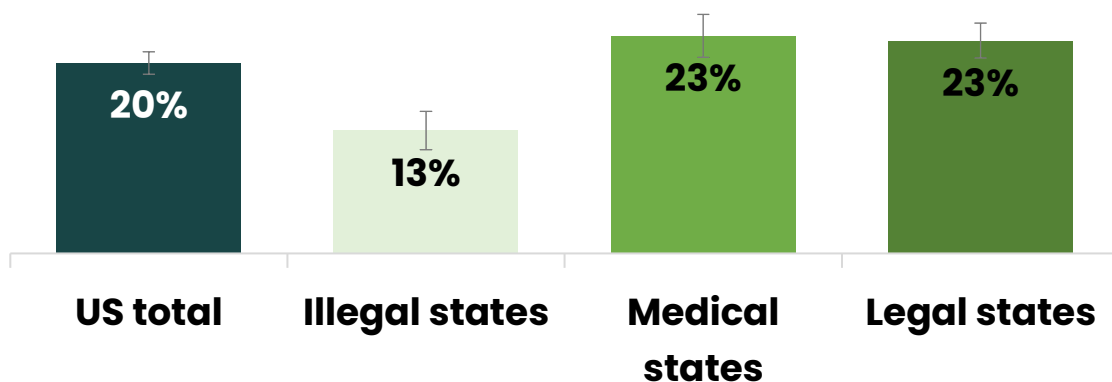
Medical authorization

In 2021, 14% of past 12-month cannabis consumers reported having a recommendation for medical cannabis use in the past year, a modest increase from 12% in 2018.

Did you have a recommendation to use medical marijuana at any time in the past 12 months?
% 'YES', PAST 12 MONTH CONSUMERS, N=34,258
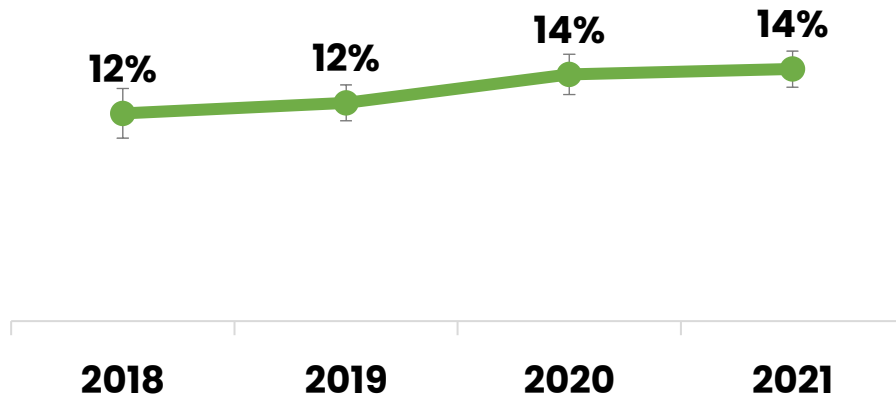
2018	2019	2020	2021
12%	12%	14%	14%

Did you have a recommendation to use medical marijuana at any time in the past 12 months?
% 'YES', PAST 12-MONTH CONSUMERS, 2021, N=10,468

US total	Illegal states	Medical states	Legal states
14%	8%	19%	15%
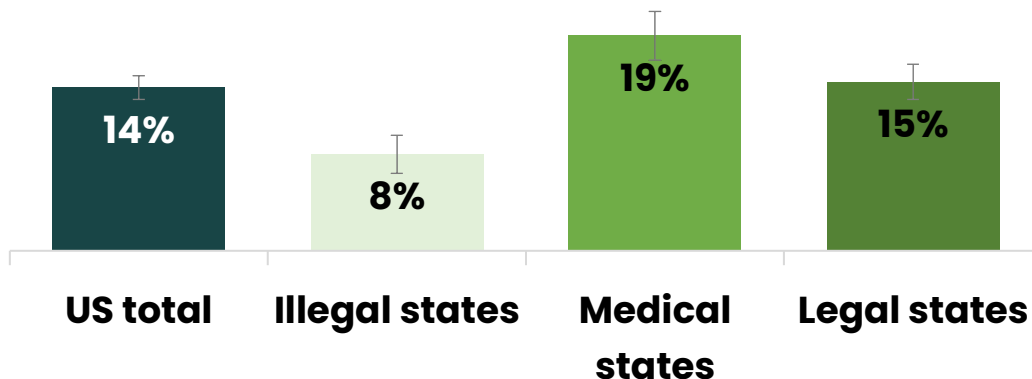
Cannabis use to manage or improve mental health

'Ever' cannabis consumers reported using cannabis to improve or manage a range of mental health conditions, including anxiety, depression and PTSD.

Have you ever used marijuana to improve or manage symptoms for any of the following?

% 'YES' AMONG 'EVER' CANNABIS CONSUMERS, 2021, N=20,125

Condition	%
Anxiety	39.1%
Depression	28.5%
PTSD or traumatic event	15.0%
Bipolar disorder, mania, or borderline...	8.6%
ADD/ADHD	6.8%
Alcohol or other drug use	6.3%
Eating disorder	4.5%
Psychosis	4.3%
Don't know	3.6%
Schizophrenia	2.2%
Other	0.2%
Stress	0.1%
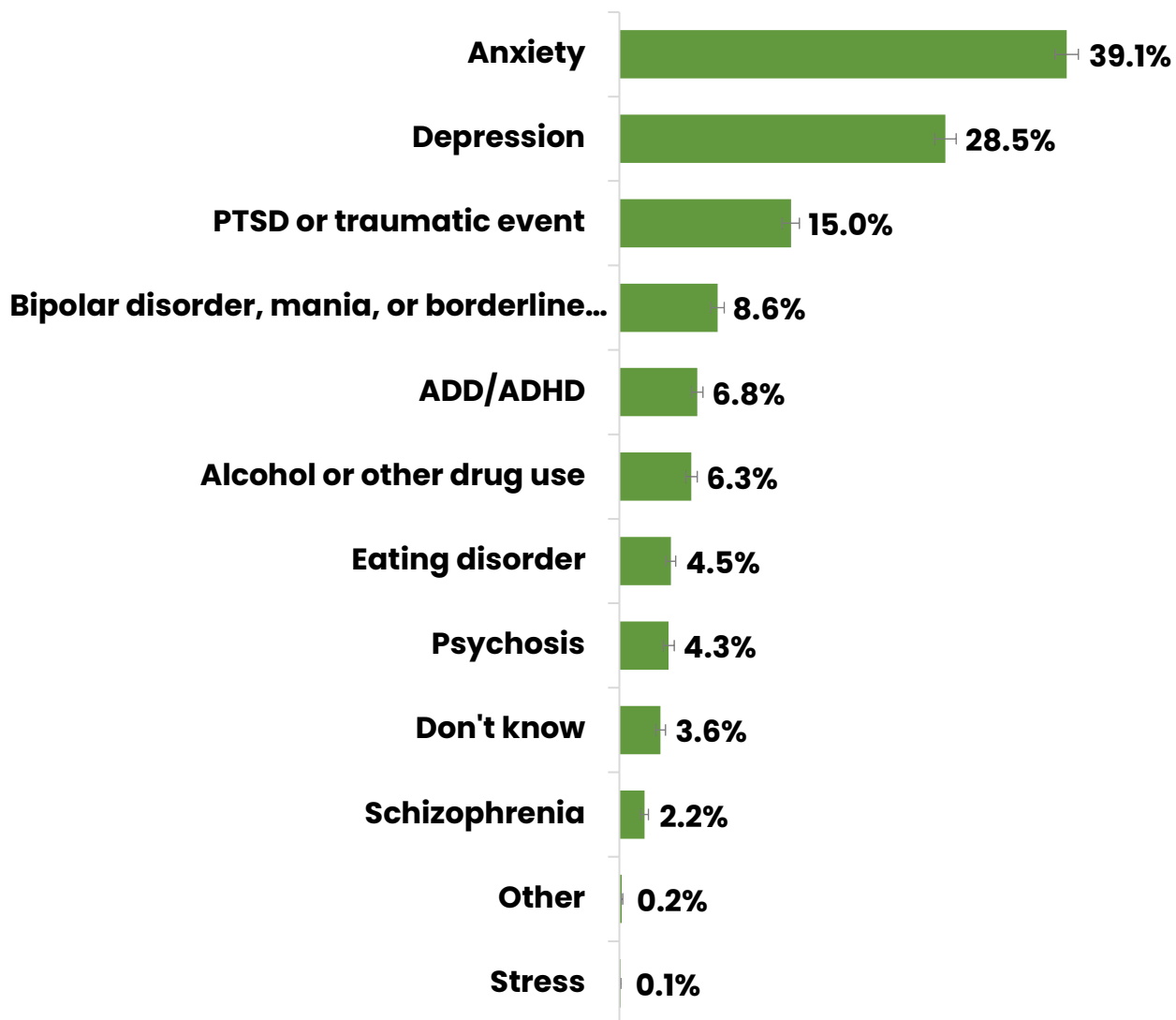
Cannabis use to manage or improve physical health

'Ever' cannabis consumers reported using cannabis to improve or manage a range of symptoms, including pain, sleeping problems and headaches/migraines.

Have you ever used marijuana to improve or manage symptoms for any of the following?

% 'YES' AMONG 'EVER' CANNABIS CONSUMERS, 2021 N=20,125

Symptom	%
Pain	32.1%
Problems sleeping	25.9%
Headaches/migraines	25.0%
Lack of appetite	14.7%
Nausea/vomiting or chemotherapy...	12.5%
Muscle spasms	9.0%
Digestion/gastrointestinal issues	5.9%
Don't know	3.8%
Seizures	3.3%
Fibromyalgia	3.0%
To shrink tumours or treat cancer	2.0%
Other	0.8%
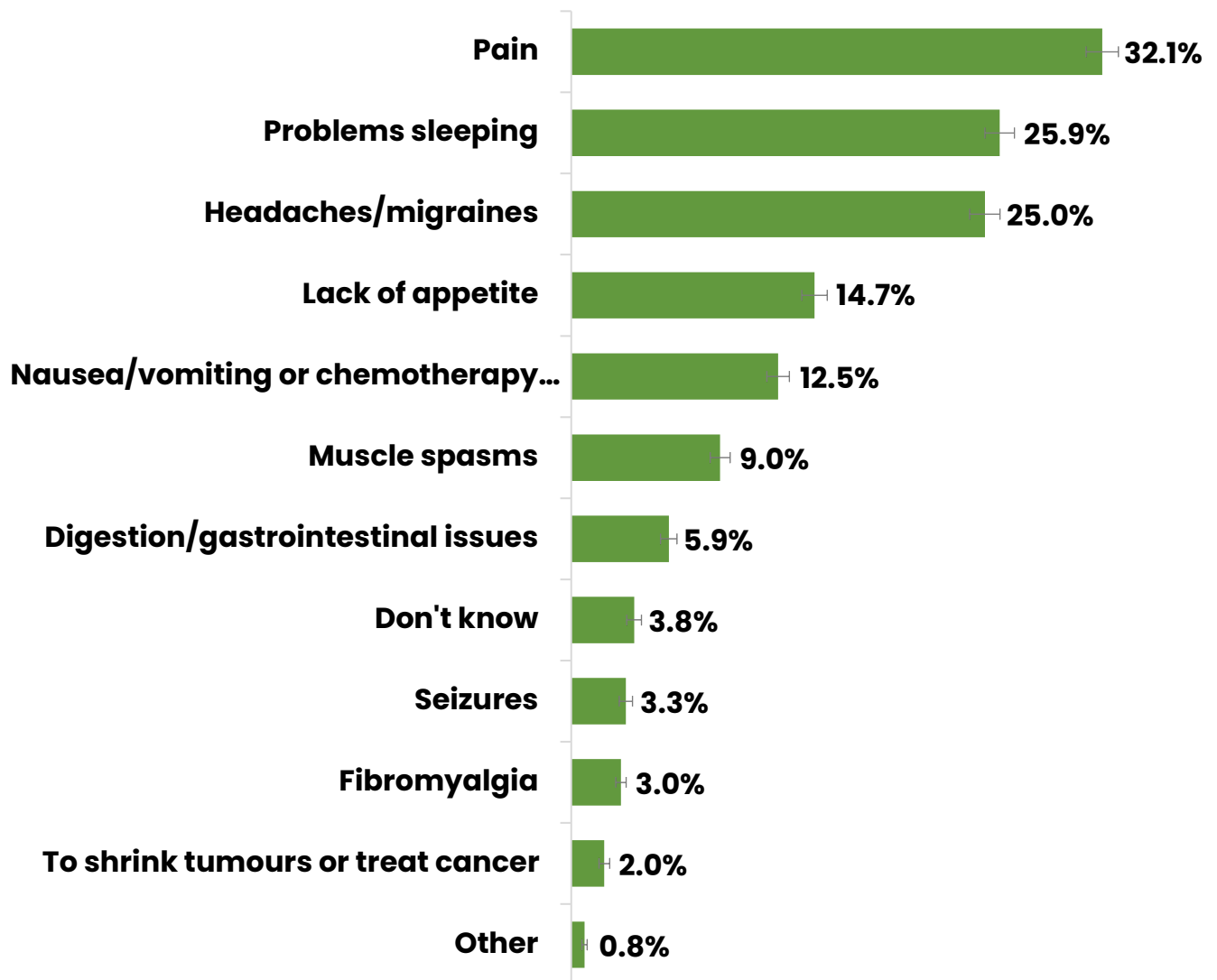
Types of cannabis products
Cannabis consumers 2018-2021

Dried flower was the most commonly used product among past 12-month consumers in all years; however, the prevalence of dried flower use had a modest decrease between 2018 and 2021. Most other products increased between 2018 and 2021.

DRIED FLOWER 80% 77% 75% 73%

EDIBLES 41% 50% 54% 59%

45% 40% 44%

VAPE OILS 33% 30% 30% 31%

25% 25% 27%
24% 24% 26%
23%

ORAL OILS 21% 19%
HASH 19% 17%
CONCENTRATES 17% 14% 17%
16%
TOPICALS 14% 14%
DRINKS 11%
TINCTURES 8%

2018   2019   2020   2021
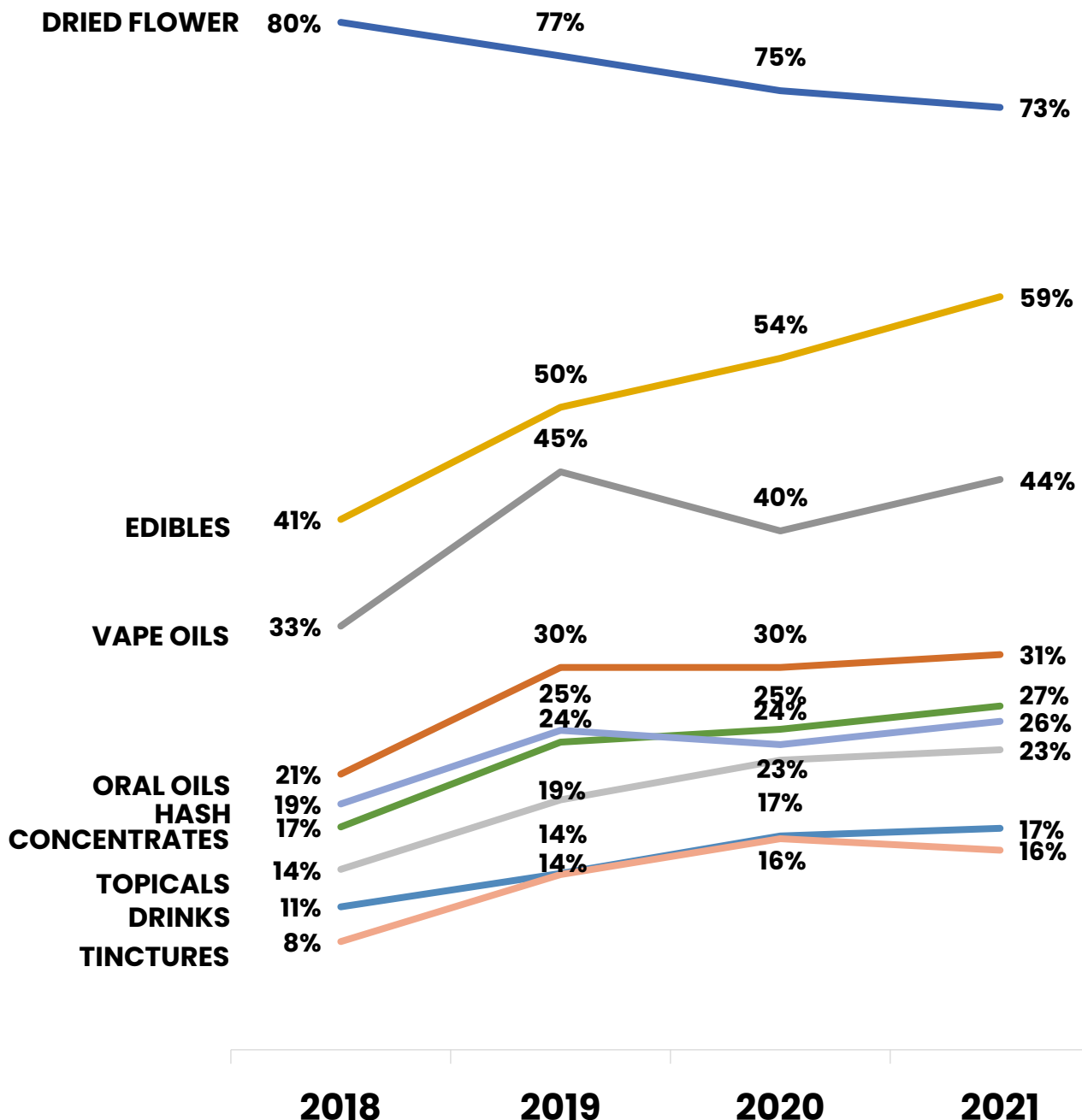
Types of cannabis products 2021

Among past 12-month consumers, the prevalence of dried flower, edibles, drops/capsules, and vape oils were generally similar between illegal, medical, and illegal states.

Dried herb

US total	Illegal states	Medical states	Legal states
73%	73%	73%	74%

Edibles

US total	Illegal states	Medical states	Legal states
59%	55%	58%	61%

Drops or capsules

US total	Illegal states	Medical states	Legal states
31%	29%	32%	31%

Vape oils

US total	Illegal states	Medical states	Legal states
44%	43%	45%	45%
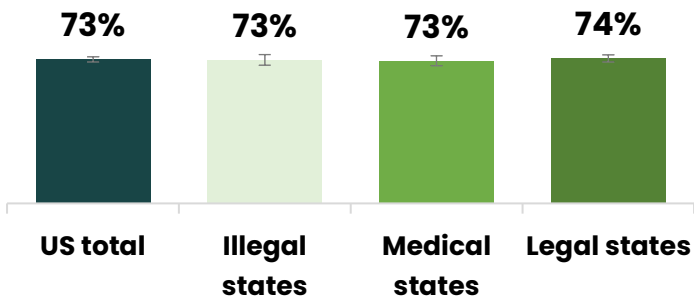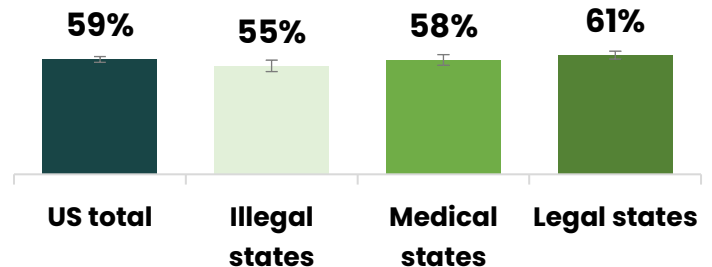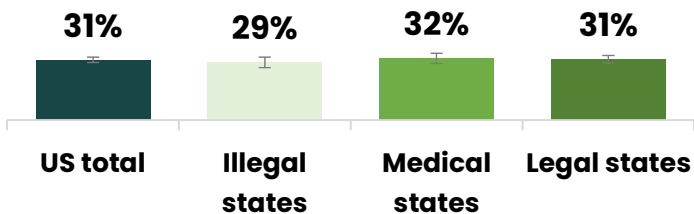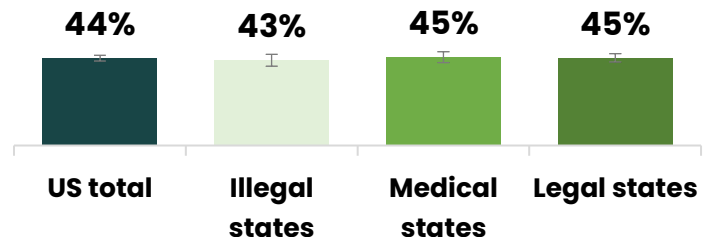
Types of cannabis products 2021

Hash or kief

US total	Illegal states	Medical states	Legal states
26%	24%	24%	27%

Topicals

US total	Illegal states	Medical states	Legal states
23%	20%	22%	26%

Solid concentrates

US total	Illegal states	Medical states	Legal states
27%	25%	27%	27%

Drinks

US total	Illegal states	Medical states	Legal states
17%	15%	14%	20%

Tinctures

US total	Illegal states	Medical states	Legal states
16%	13%	15%	17%
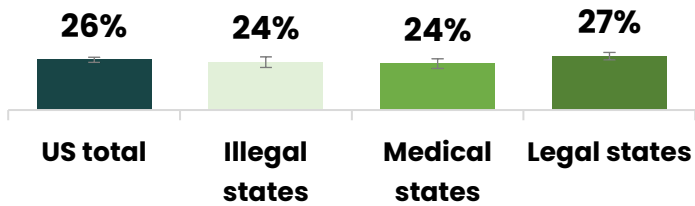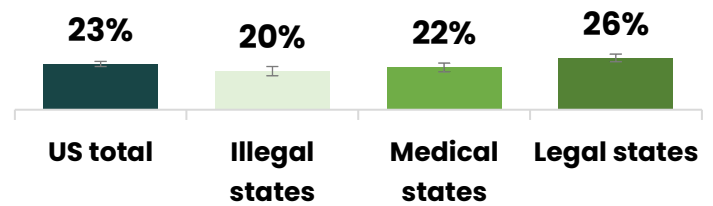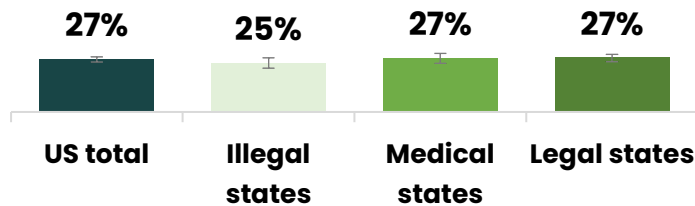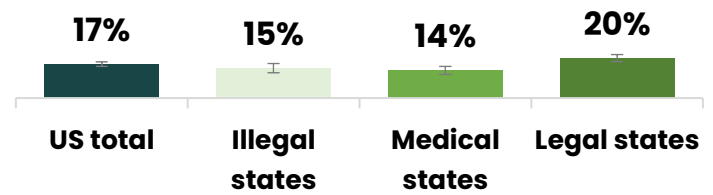
AMONG PAST 12-MONTH CANNABIS CONSUMERS.
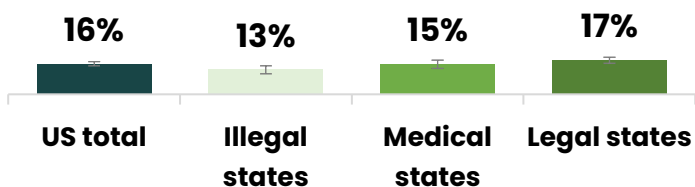
Use of 'non-THC' CBD products

In 2021, over 1 in 4 respondents from the US reported using "CBD-only products" (with no THC) in the past 12 months. The most common CBD product types were oil/liquid drops, topicals, and edibles.

Use of CBD-only products
IN PAST 12 MONTHS N=29,927

US total	Illegal states	Medical states	Legal states
28%	29%	26%	29%
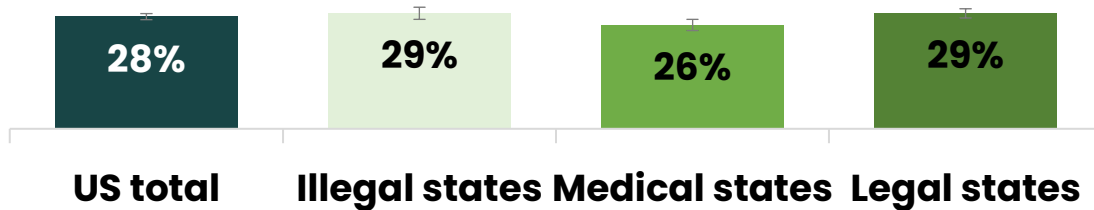
Type of CBD-only products used
AMONG THOSE WHO REPORTED CBD-ONLY PRODUCT USE, N=8,356

Oil/liquid drops	Topicals	Edibles	Oil/liquid capsules	Vape oils	Drinks	Tinctures	Dried herb	Hemp oil	Concentrates	Hash or kief	Other
37%	31%	23%	15%	15%	12%	9%	9%	6%	5%	4%	2%

AMONG ALL RESPONDENTS. PERCENT WHO REPORTED USING ANY CBD-ONLY PRODUCTS WITH NO THC IN THE PAST 12 MONTHS.

ICPS 19
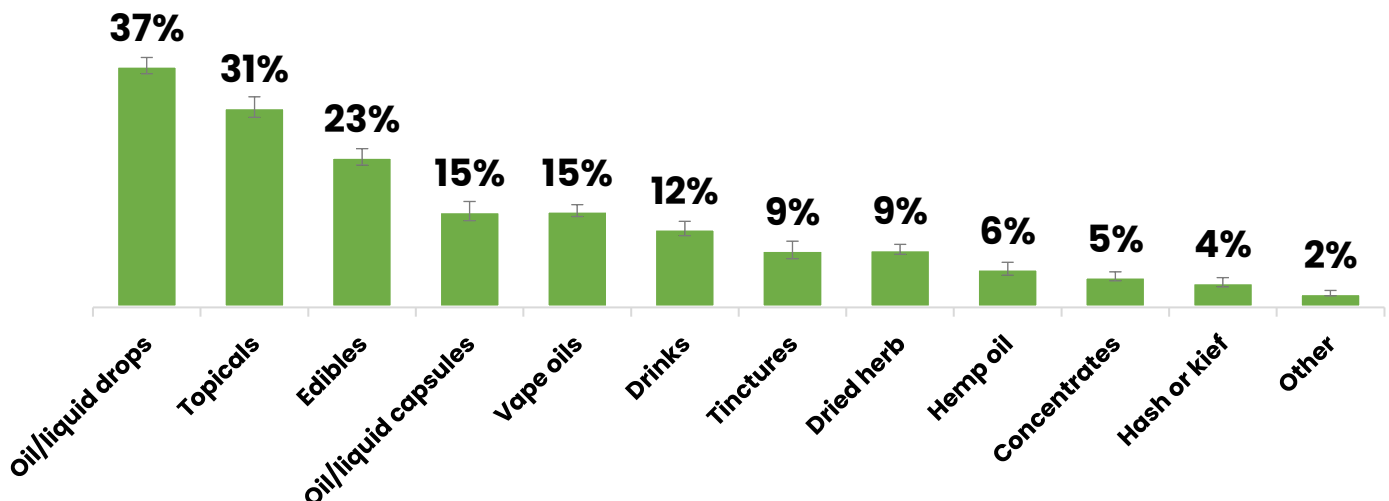
'Delta-8' THC products–Awareness

In 2021, 'Delta-8 THC' products were widely marketed in the US, particularly in jurisdictions in which conventional 'Delta 9 THC' products were illegal for adult use. Approximately 16% of US respondents reported hearing about Delta-8 products. Awareness levels for 'Delta-8' were somewhat higher than the levels for 'Delta-4' or 'Delta-10' products, which were included as 'bogus' options given that these products are not currently marketed or sold in the US. The results suggests higher levels of awareness for Delta-8 products, despite a certain level of misreporting due to confusion about THC types.

Some new types of products contain DELTA-8 THC. Have you heard of products that contain the following?
% 'YES', ALL RESPONDENTS, 2021, n=30,081

	US total	Illegal states	Medical states	Legal states
Delta-4 THC	10%	10%	9%	11%
Delta-8 THC	16%	20%	16%	14%
Delta-9 THC	11%	12%	10%	10%
Delta-10 THC	7%	8%	7%	6%
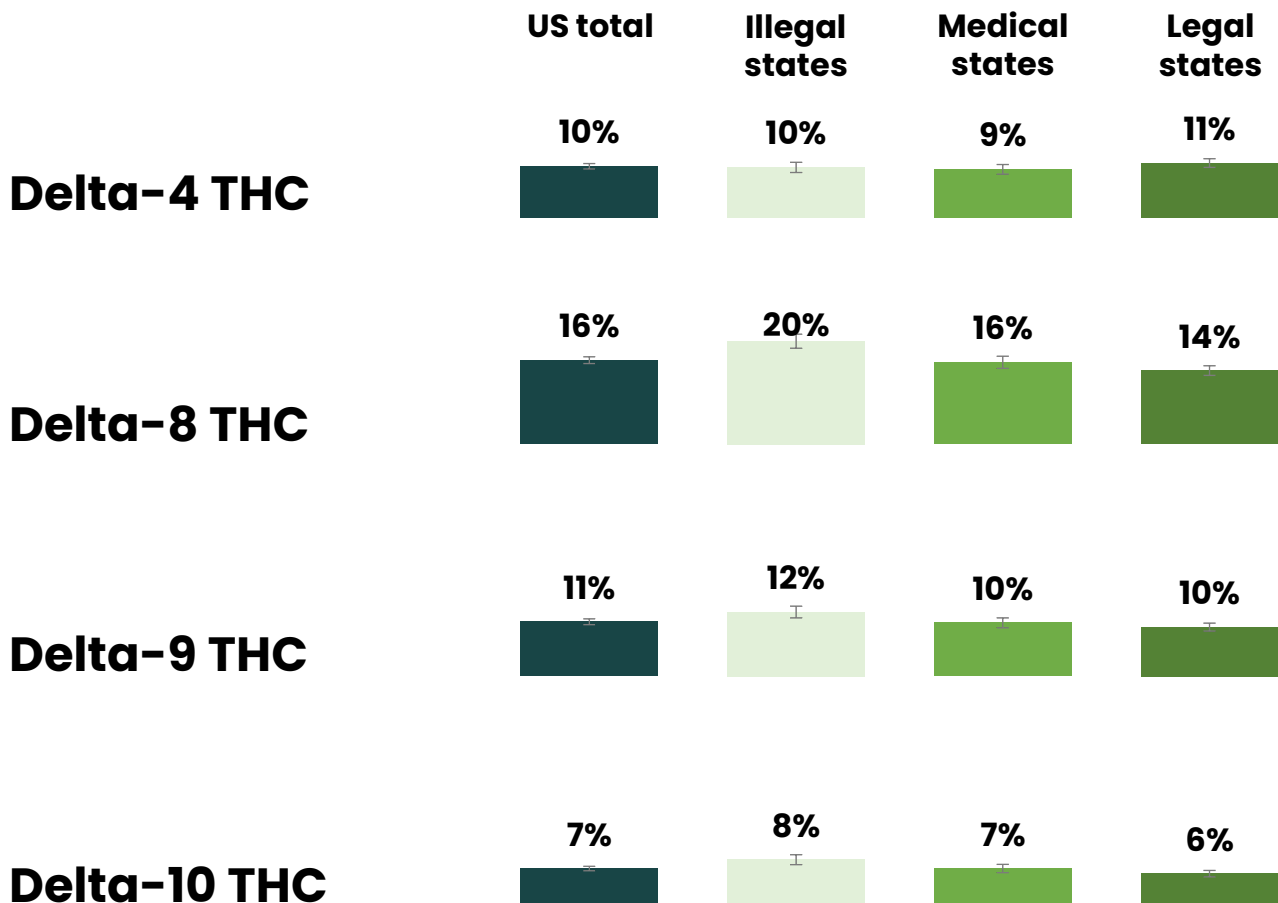
'Delta-8' THC products – Use

In 2021, 27% of respondents who had heard of 'Delta-8' THC reported using a Delta-8 THC product in the past 30 days, corresponding to approximately 3% of all respondents in the US. These estimates should be interpreted with caution given the high likelihood of over-reporting due to confusion over 'Delta-8' products.

Have you ever used a DELTA-8 THC product?
ALL RESPONDENTS, 2021, n=3,645

Yes – In past 30 days

US total	Illegal states	Medical states	Legal states
27%	26%	29%	25%

Yes - more than 30 days ago

US total	Illegal states	Medical states	Legal states
20%	23%	17%	19%
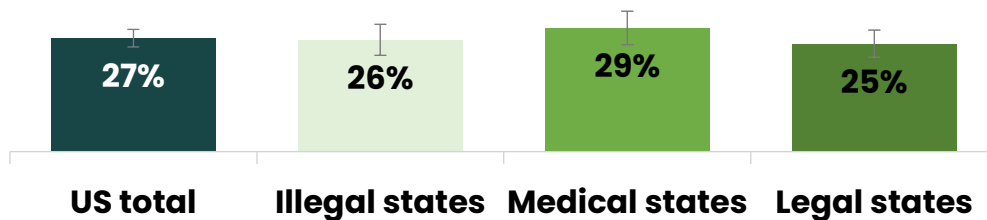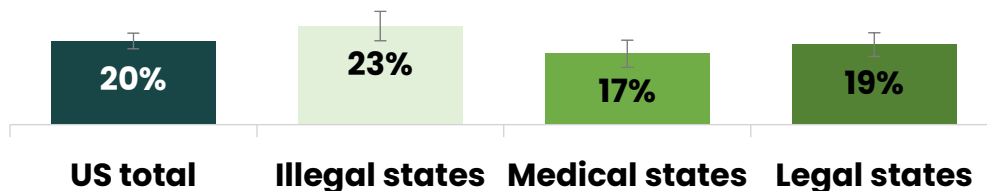
'Delta 8' THC products – Types

Among those that reported using 'Delta-8' THC products, dried herb, vapes, and edibles were the most commonly used, although these estimates are subject to wide confidence intervals due to low numbers of respondents reporting use.

What type of DELTA-8 THC product have you used?
AMONG US RESPONDENTS THAT REPORTED AWARENESS AND USE OF DELTA-8 PRODUCTS, 2021, n=1,561

Product	Percentage
Dried herb	40%
Vape	36%
Edibles	32%
Oral oils or liquids	29%
Drinks	18%
Concentrates	13%
Tinctures	9%
Hash or kief	8%
Topical ointments	5%
Don't know	2%
Other	1%
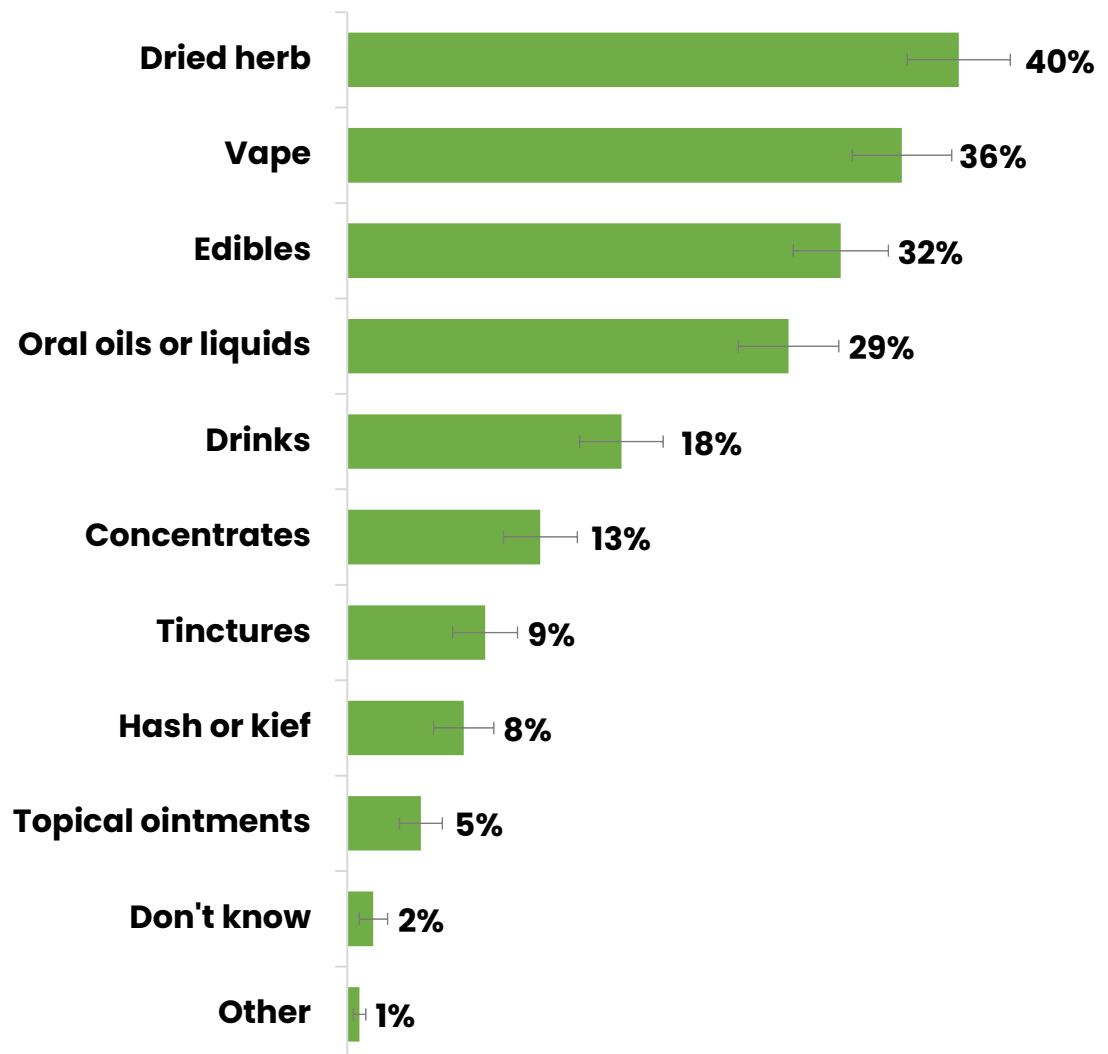
Price of dried flower

Consumers in legal states reported paying an average of $8.75 per gram of dried flower in 2021, including from legal and illegal sources. The price paid for dried flower from illegal and legal retail sources decreased between 2018 to 2019 and then increased from 2019 to 2021. In 2019, the average price paid from legal sources was $8.21 per gram, $1.03 higher than from illegal sources, compared to $8.99 in 2021, $0.51 higher than illegal sources.

Price paid for dried flower
SALES WEIGHTED PRICE-PER-GRAM OF DRIED FLOWER AT LAST PURCHASE, LEGAL STATES ONLY, 2018-2021, n=9,700

Total • **Illegal sources** • **Legal sources**

	2018	2019	2020	2021
Total	$8.90	$7.75	$8.97	$8.75
Illegal sources		$7.18	$8.13	$8.48
Legal sources		$8.21	$8.59	$8.99

Price of dried flower

2021

In 2021, the price of dried flower reported by consumers in legal states was lower in comparison to illegal and medical states. Prices reflect cannabis purchased from all sources, including legal (where permitted) and illegal retail sources.

Price of dried flower
SALES WEIGHTED PRICE-PER-GRAM OF
DRIED FLOWER AT LAST PURCHASE

US total	Illegal states	Medical states	Legal states
$9.17	$9.94	$9.18	$8.75

Among 'legal' states 2021

WA	CO	AK	OR	CA	ME	MA	NV	MI	VT*	IL	NJ*	MT*	AZ	NY*	VA*	NM*	CT*
$7.38	$6.25	$9.09	$5.56	$8.68	$6.12	$11.87	$7.32	$7.81	$8.29	$11.19	$9.65	$8.58	$10.16	$8.90	$10.39	$8.88	$8.77
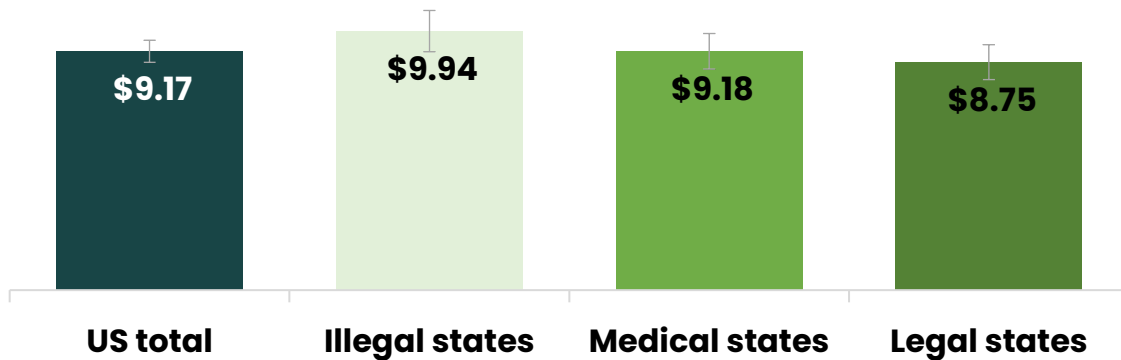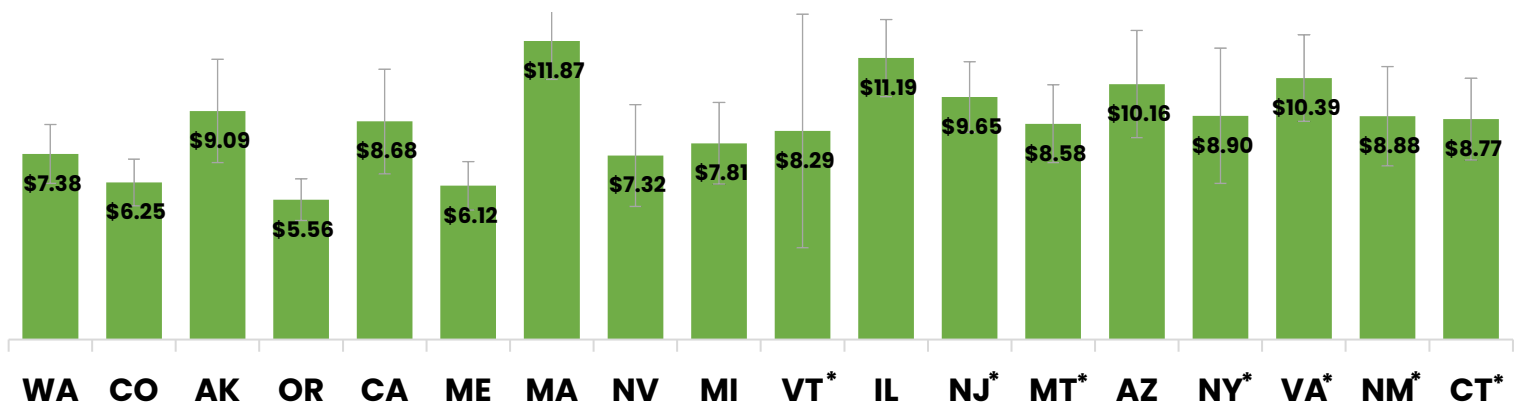
* STATES IN WHICH LEGAL RETAIL STORES HAVE YET TO OPEN

AMONG CONSUMERS WHO PURCHASED DRIED HERB IN THE PAST 12 MONTHS.
AVERAGE PRICE-PER-GRAM OF DRIED FLOWER ADJUSTED FOR THE QUANTITY PURCHASED.
LEGAL STATES ARE SHOWN AS OF THE SURVEY DATA (SEPTEMBER 2021).

ICPS 24

Cannabis sources

Family or friends were the most common source of cannabis among past 12-month consumers across all years. In 2021, over half of consumers got their cannabis from family or friends.

Cannabis sources in the past 12-months
AMONG PAST 12-MONTH CONSUMERS

- **Made or grew my own** (blue)
- **Family member or friend** (orange)
- **Dealer** (gray)
- **Store, co-operative or dispensary** (yellow)

Family member or friend: 64% (2018), 62% (2019), 54% (2020), 55% (2021)

Dealer: 35% (2018), 37% (2019), 38% (2020), 37% (2021)

Store, co-operative or dispensary: 26% (2018), 32% (2019), 35% (2020), 44% (2021)

Made or grew my own: 10% (2018), 9% (2019), 10% (2020), 11% (2021)

2018   2019   2020   2021
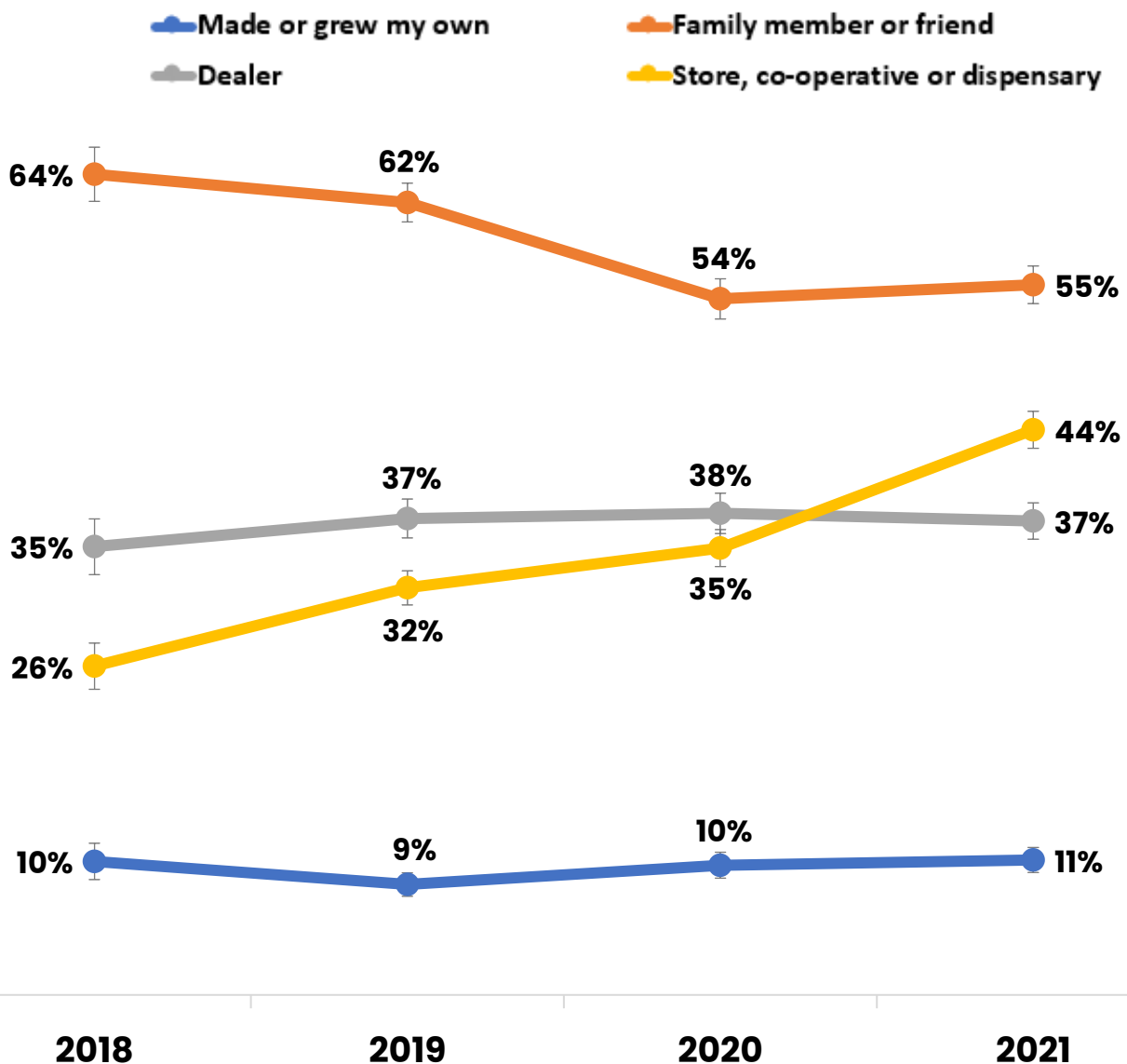
Cannabis sources

Past 12-month consumers from legal states were more likely to report sourcing cannabis from a store, and past 12-month consumers from illegal states were more likely to report sourcing cannabis from family/friends or a dealer.

Store, co-op, or dispensary

US total	Illegal states	Medical states	Legal states
44%	29%	36%	57%

Family member or friend

US total	Illegal states	Medical states	Legal states
55%	59%	56%	52%

Dealer

US total	Illegal states	Medical states	Legal states
37%	46%	41%	29%

Made or grew my own

US total	Illegal states	Medical states	Legal states
11%	8%	10%	12%
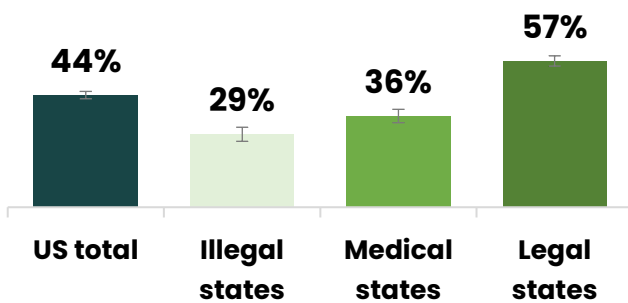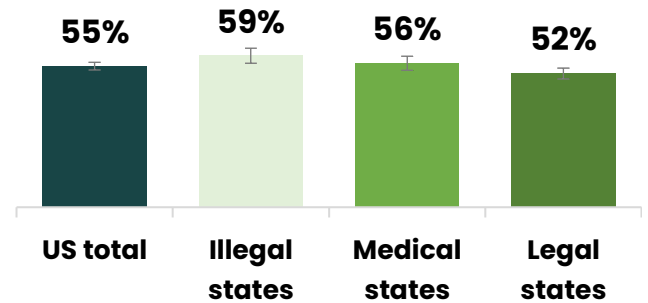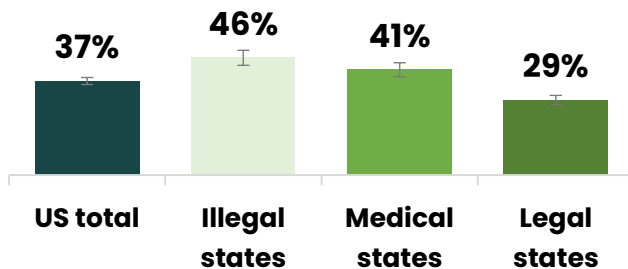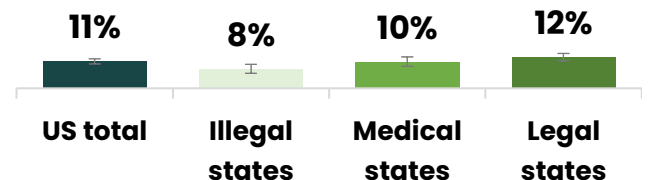
Purchasing cannabis from 'legal' sources

Past 12-month consumers from legal states reported purchasing the highest percentage of cannabis from legal retail sources in 2021.

Mean percentage of all cannabis products purchased in last 12-months from a legal retail source

AMONG PAST 12 MONTHS CONSUMERS, RESPONDENTS AGE: 21+

■ 2019   ■ 2020   ■ 2021

	US total	Illegal states	Medical states	Legal states
2019	50%	32%	39%	78%
2020	56%	33%	50%	78%
2021	64%	46%	58%	76%
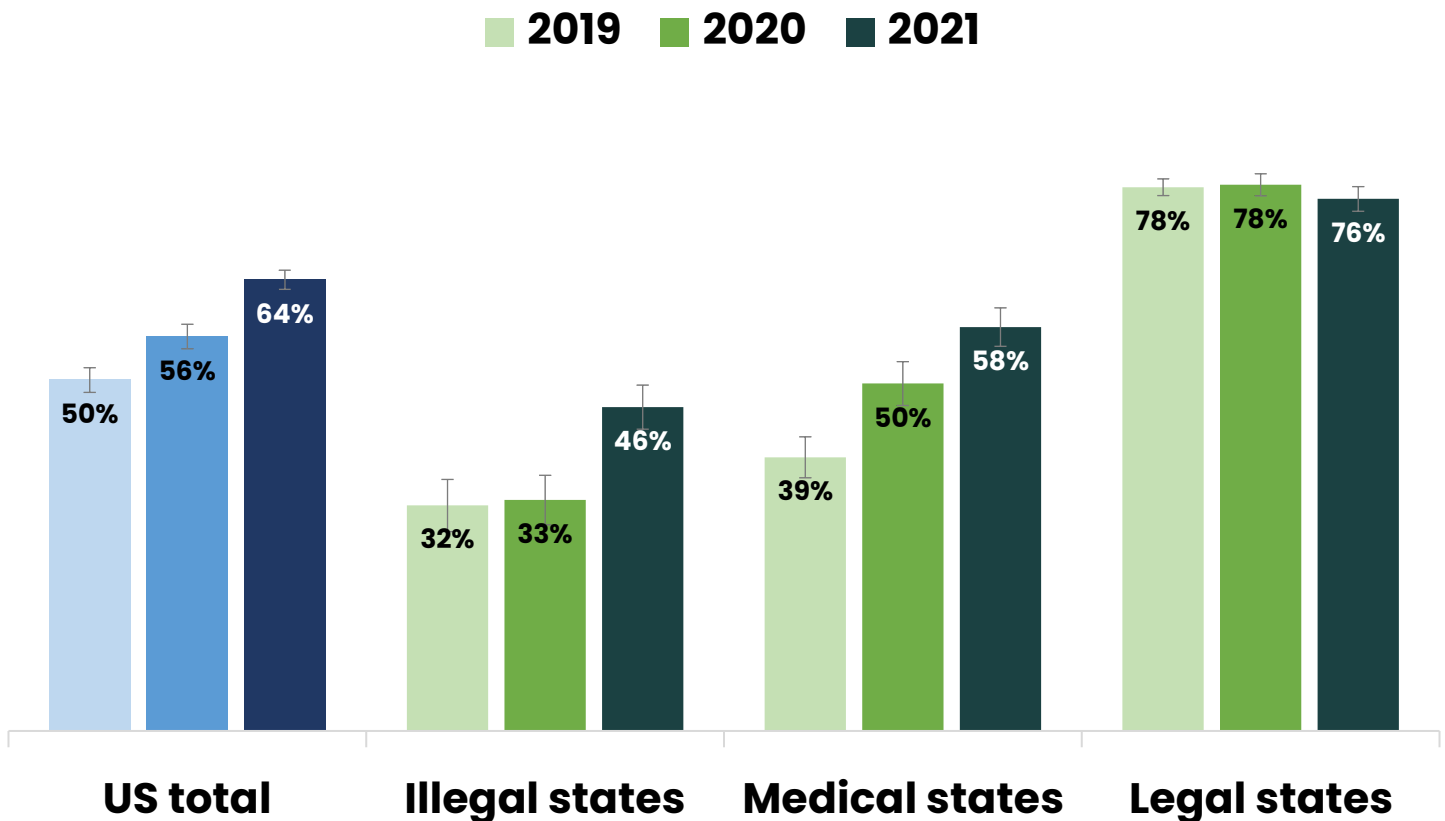
Perceptions of legal cannabis

Past 12-month consumers were more likely than all respondents to perceive cannabis from 'legal' sources as more expensive, and less convenient to purchase. Fewer respondents perceived differences in the quality and safety of cannabis from legal versus illegal sources.

Legend:
- Legal marijuana is 'lower quality'
- Legal marijuana is 'more expensive'
- Legal marijuana is 'less convenient to buy'
- Legal marijuana is 'less safe to use'
- Legal marijuana is 'less safe to buy'

ALL RESPONDENTS

Legal marijuana is 'more expensive': 31% (2018), 33% (2019), 31% (2020), 37% (2021)

Lower lines (2018, 2019, 2020, 2021):
- less convenient to buy: 6%, 8%, 8%, 8%
- lower quality: 5%, 6%, 5%, 6%
- less safe to use: 4%, 4%, 5%, 5%
- less safe to buy: 4%, 4%, 4%, 4%

PAST 12-MONTH CONSUMERS

Legal marijuana is 'more expensive': 42% (2018), 44% (2019), 45% (2020), 49% (2021)

Lower lines (2018, 2019, 2020, 2021):
- less convenient to buy: 8%, 13%, 14%, 10%
- lower quality: 6%, 8%, 7%, 8%
- less safe to use: 3%, 4%, 4%, 4%
- less safe to buy: 3%, 3%, 4%, 3%
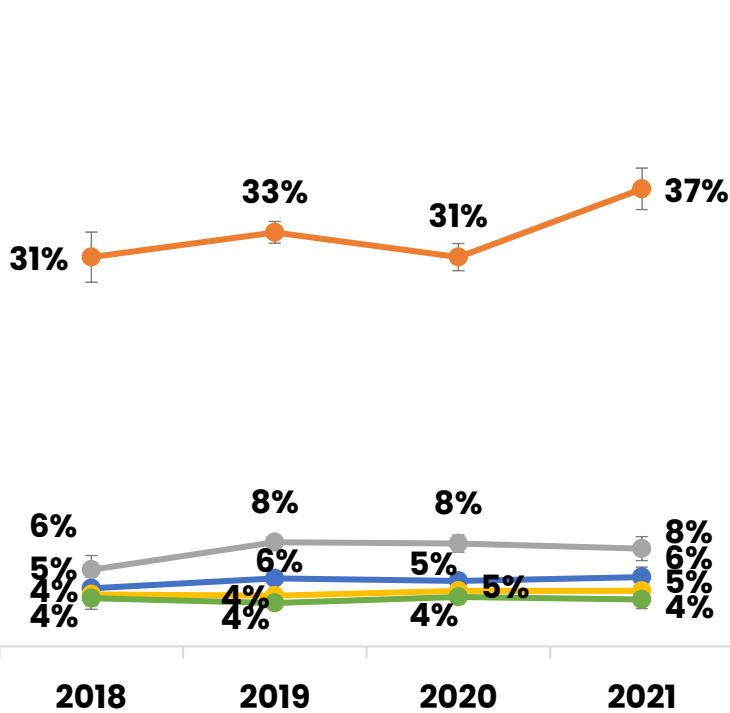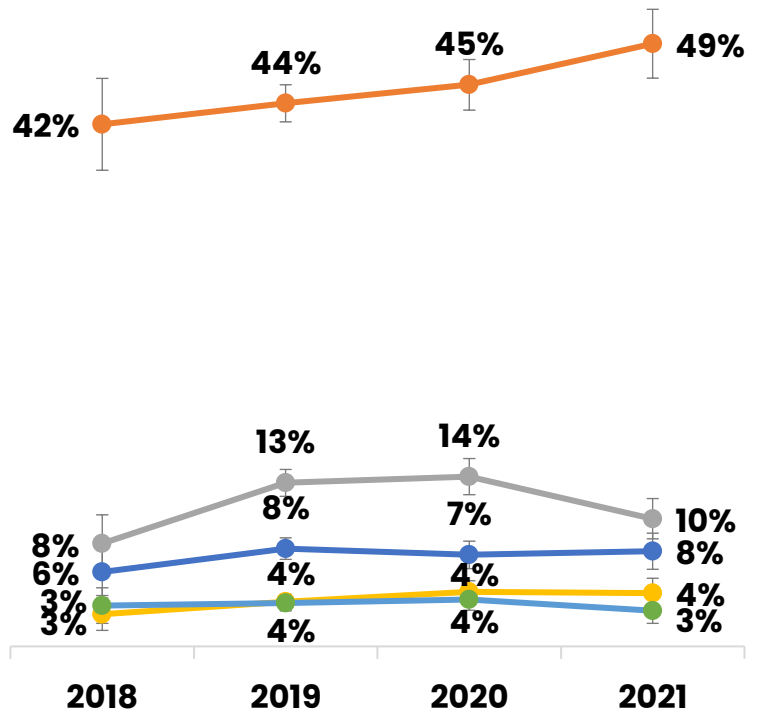
Reasons for purchasing from retail 'illegal' sources

Consumers who purchased cannabis from an illegal retail source reported a range of reasons for doing so. Higher price, not having a prescription got medical marijuana, and lower convenience were the most common reasons for purchasing cannabis from illegal sources in 2021

Legend: ■ 2019 ■ 2020 ■ 2021

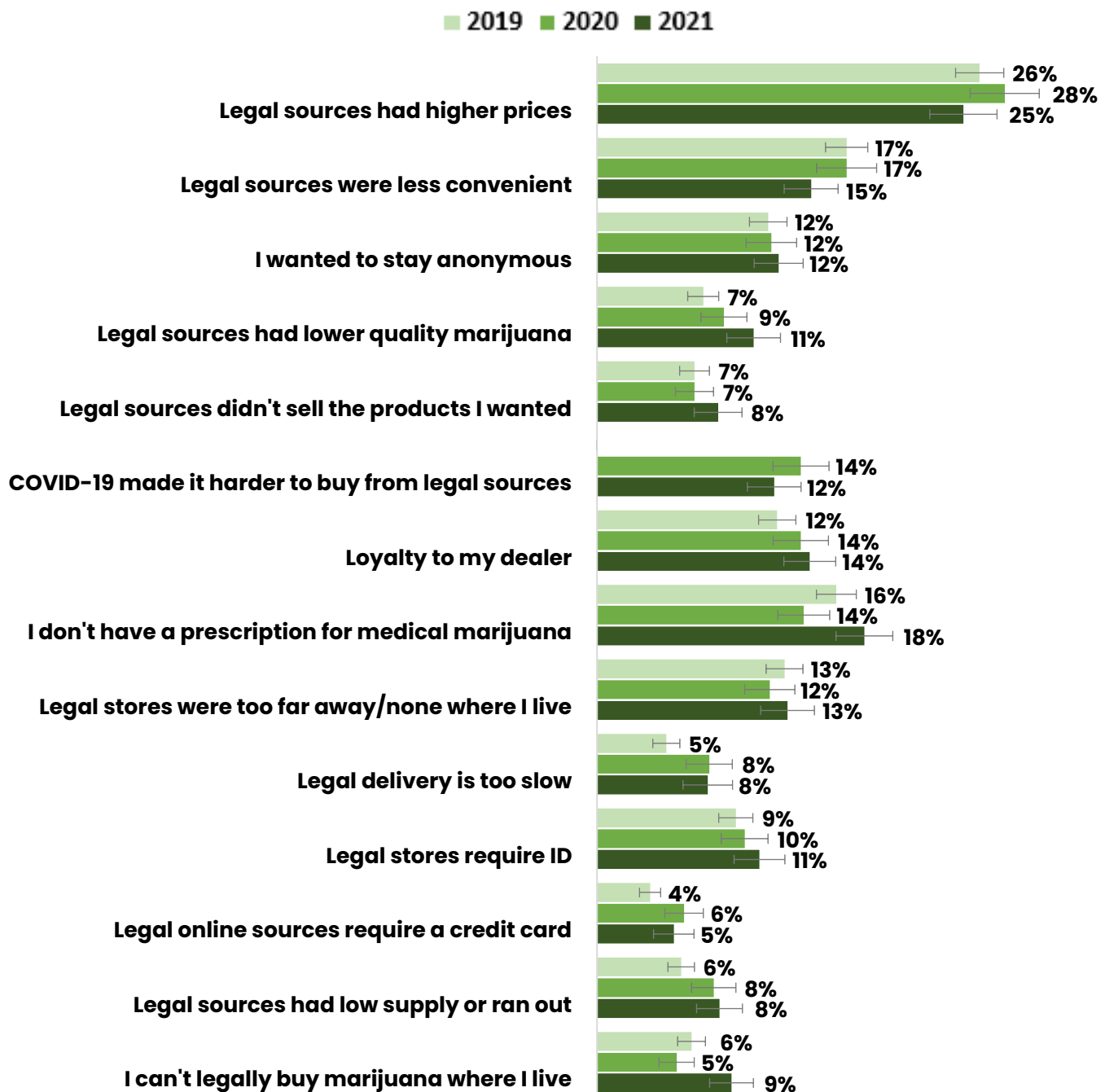**Legal sources had higher prices**
- 2019: 26%
- 2020: 28%
- 2021: 25%

Legal sources were less convenient
- 2019: 17%
- 2020: 17%
- 2021: 15%

I wanted to stay anonymous
- 2019: 12%
- 2020: 12%
- 2021: 12%

Legal sources had lower quality marijuana
- 2019: 7%
- 2020: 9%
- 2021: 11%

Legal sources didn't sell the products I wanted
- 2019: 7%
- 2020: 7%
- 2021: 8%

COVID-19 made it harder to buy from legal sources
- 2020: 14%
- 2021: 12%

Loyalty to my dealer
- 2019: 12%
- 2020: 14%
- 2021: 14%

I don't have a prescription for medical marijuana
- 2019: 16%
- 2020: 14%
- 2021: 18%

Legal stores were too far away/none where I live
- 2019: 13%
- 2020: 12%
- 2021: 13%

Legal delivery is too slow
- 2019: 5%
- 2020: 8%
- 2021: 8%

Legal stores require ID
- 2019: 9%
- 2020: 10%
- 2021: 11%

Legal online sources require a credit card
- 2019: 4%
- 2020: 6%
- 2021: 5%

Legal sources had low supply or ran out
- 2019: 6%
- 2020: 8%
- 2021: 8%

I can't legally buy marijuana where I live
- 2019: 6%
- 2020: 5%
- 2021: 9%

AMONG RESPONDENTS FROM 'LEGAL' STATESWHO REPORTED OBTAINING ANY CANNABIS FROM ILLEGAL OR UNAUTHORIZED SOURCES (N=11,506). RESPONDENTS COULD SELECT ALL THAT APPLIED.
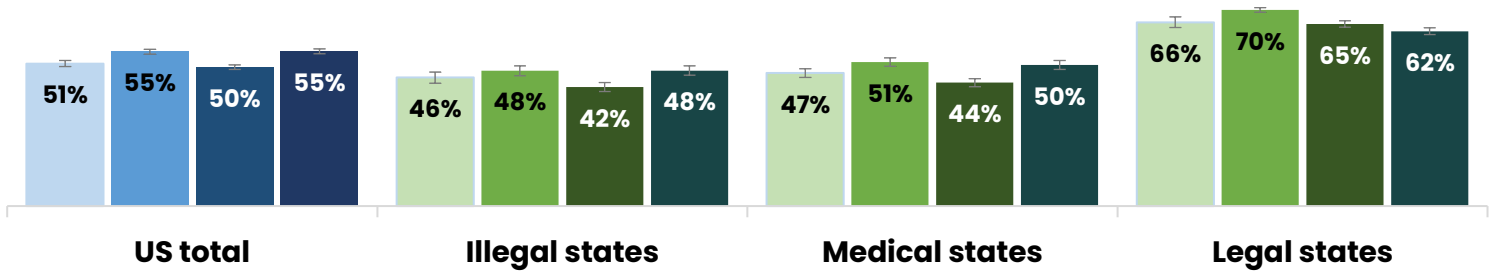
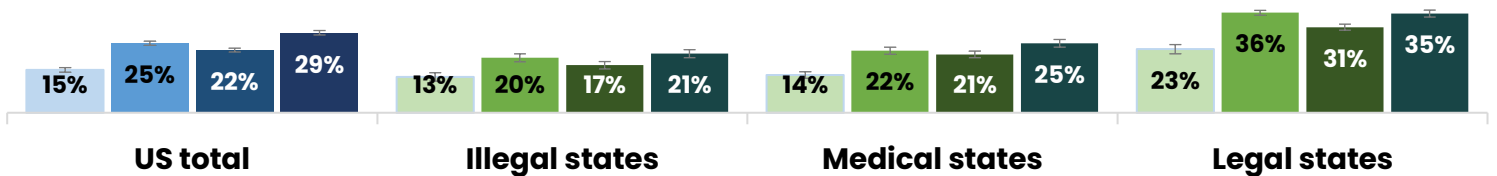ICPS 29

Perceptions of cannabis access

Respondents from legal states reported a higher ease of getting cannabis, buying cannabis from a legal store, and buying cannabis from a legal online source, compared to respondents from illegal or medical states.
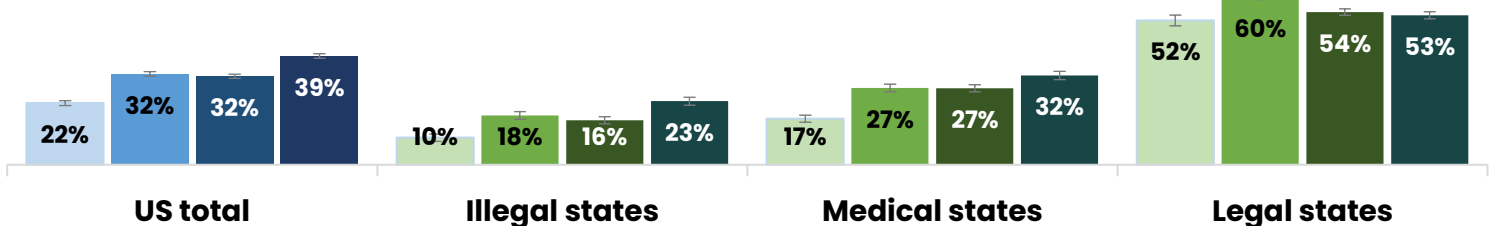
■ 2018 ■ 2019 ■ 2020 ■ 2021

Ease of getting cannabis

	US total	Illegal states	Medical states	Legal states
2018	51%	46%	47%	66%
2019	55%	48%	51%	70%
2020	50%	42%	44%	65%
2021	55%	48%	50%	62%

Ease of buying cannabis from a legal store or dispensary

	US total	Illegal states	Medical states	Legal states
2018	15%	13%	14%	23%
2019	25%	20%	22%	36%
2020	22%	17%	21%	31%
2021	29%	21%	25%	35%

Ease of buying cannabis from a legal online source

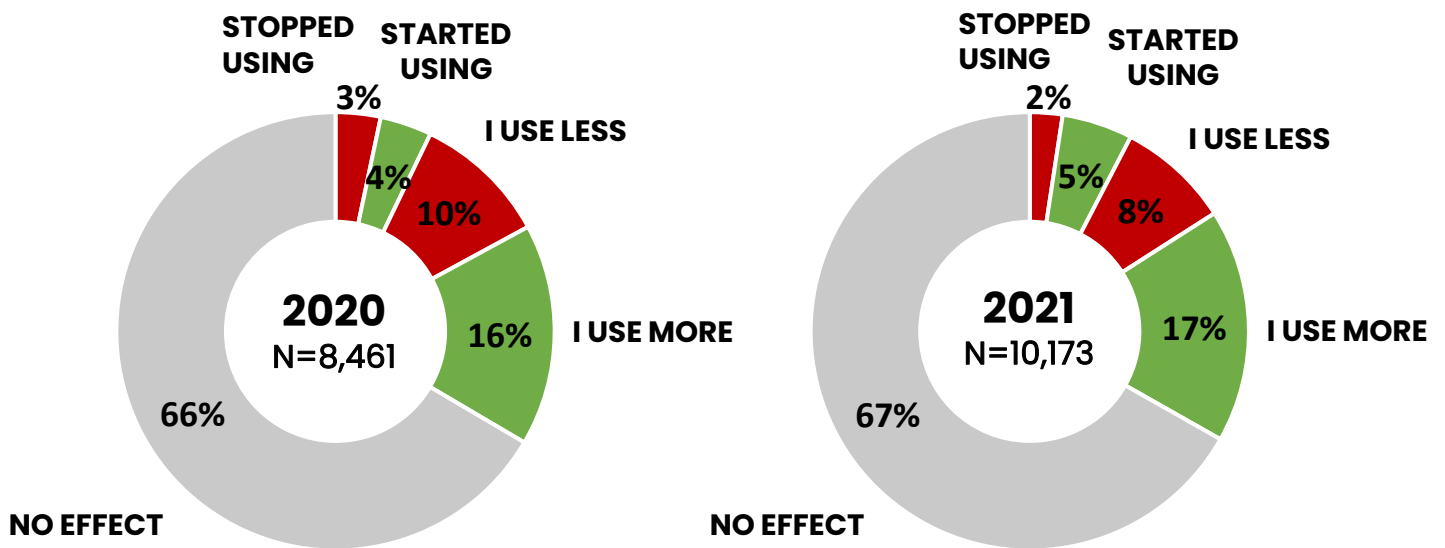|	US total	Illegal states	Medical states	Legal states
2018	22%	10%	17%	52%
2019	32%	18%	27%	60%
2020	32%	16%	27%	54%
2021	39%	23%	32%	53%

COVID-19 impact on consumption
2020 and 2021

Approximately 1 in 3 past 12-month consumers in the US reported that the COVID-19 pandemic changed their cannabis use, with a greater percentage indicating an increase in consumption.

Impact of COVID-19 pandemic on cannabis use

2020
N=8,461

- STOPPED USING 3%
- STARTED USING 4%
- I USE LESS 10%
- I USE MORE 16%
- NO EFFECT 66%

2021
N=10,173

- STOPPED USING 2%
- STARTED USING 5%
- I USE LESS 8%
- I USE MORE 17%
- NO EFFECT 67%

Percent of consumers who 'used more' or 'started using' cannabis during the pandemic

■ 2020 ■ 2021

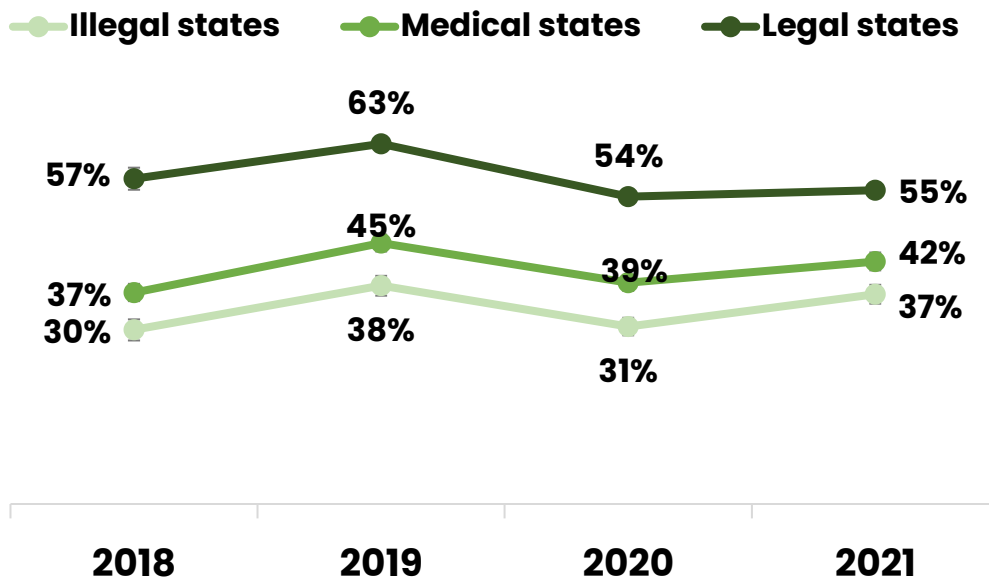|	2020	2021
US total	20%	22%
Illegal states	19%	22%
Medical states	20%	21%
Legal states	21%	23%
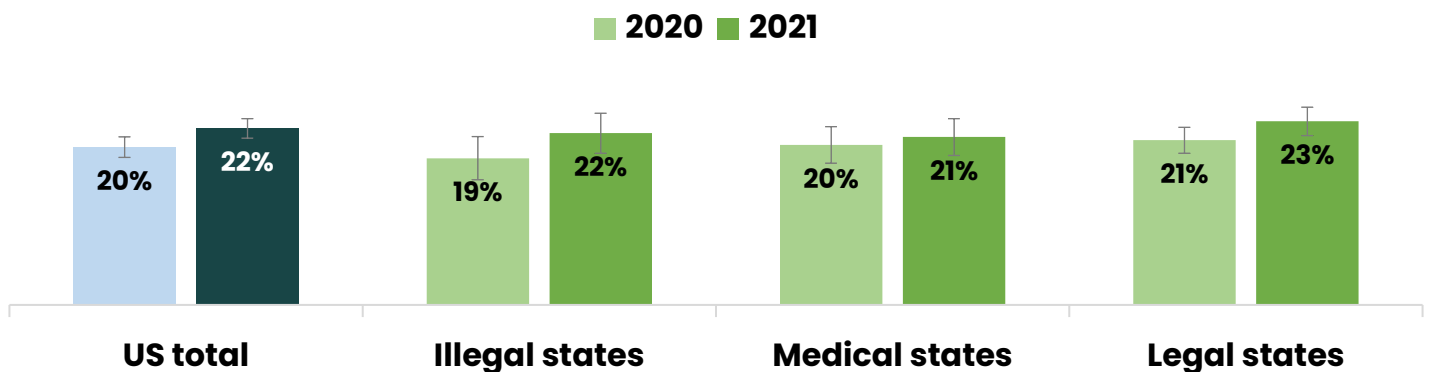
Cannabis advertising exposure

In 2021, almost half of respondents in the US reported noticing at least one type of cannabis advertising or promotion in the past 12 months – Respondents from legal states reported higher exposure than those from medical or illegal states.
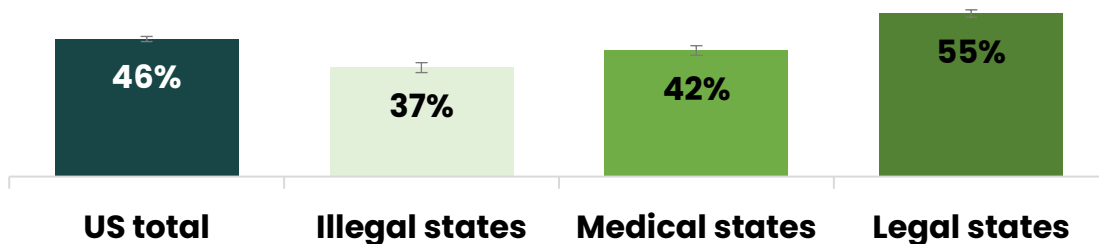
Noticing any cannabis ads and promotions

AT LEAST ONE LOCATION IN THE PAST 12 MONTHS

- Illegal states
- Medical states
- Legal states

63%
57%
54%
55%
45%
42%
37%
39%
37%
30%
38%
31%

2018   2019   2020   2021

Noticing any cannabis ads and promotions - 2021

AT LEAST ONE LOCATION IN THE PAST 12 MONTHS

US total	Illegal states	Medical states	Legal states
46%	37%	42%	55%

AMONG ALL RESPONDENTS. PERCENT REPORTING SEEING MARIJUANA BEING ADVERTISED OR PROMOTED IN AT LEAST 1 LOCATION IN PAST 12 MONTHS.
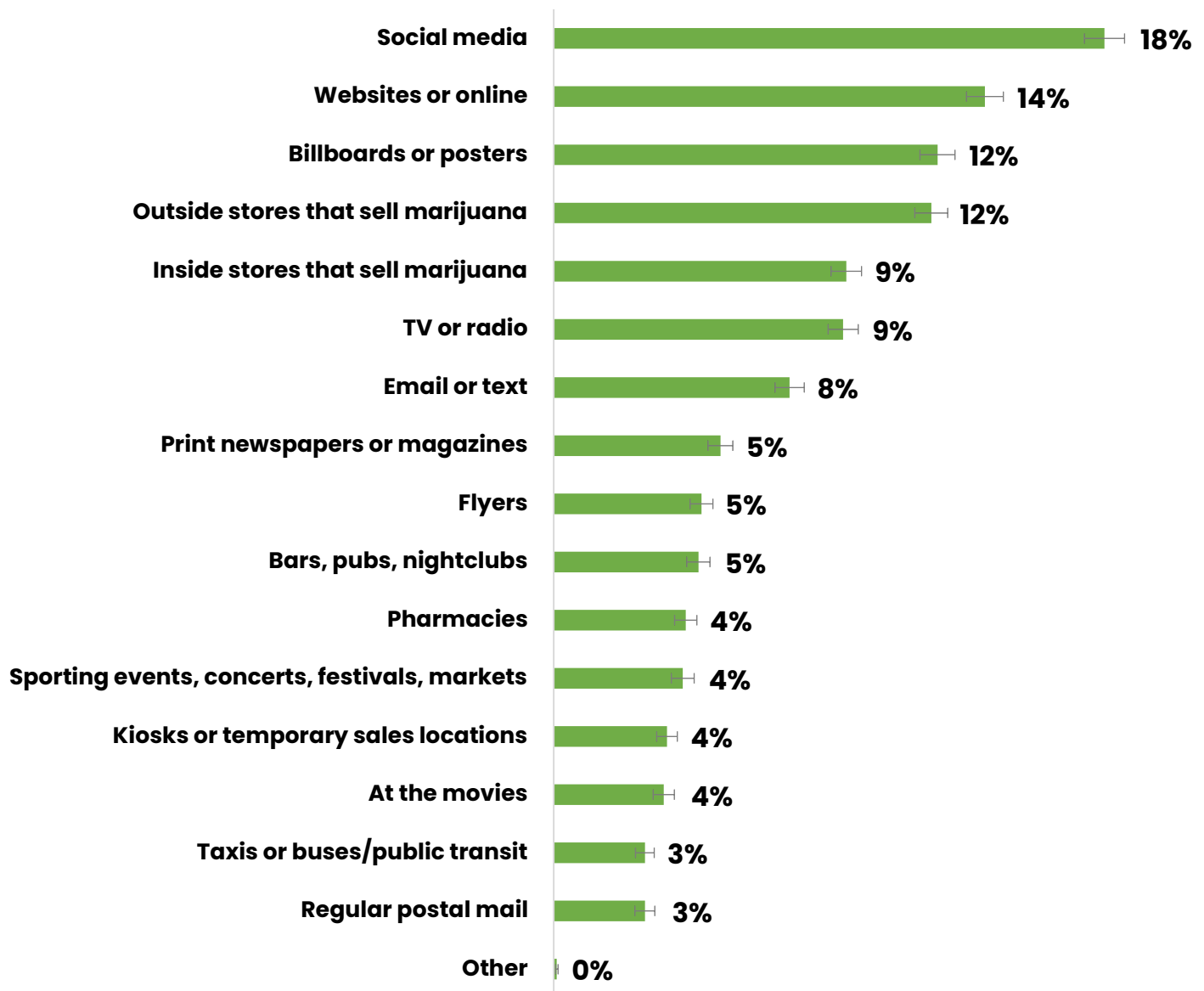
ICPS 32

Cannabis advertising exposure
2021

Among US respondents in 2021, social media was the most common source of advertising and promotion, followed by websites/online and billboards/posters.

Noticing cannabis ads in the past 12-months
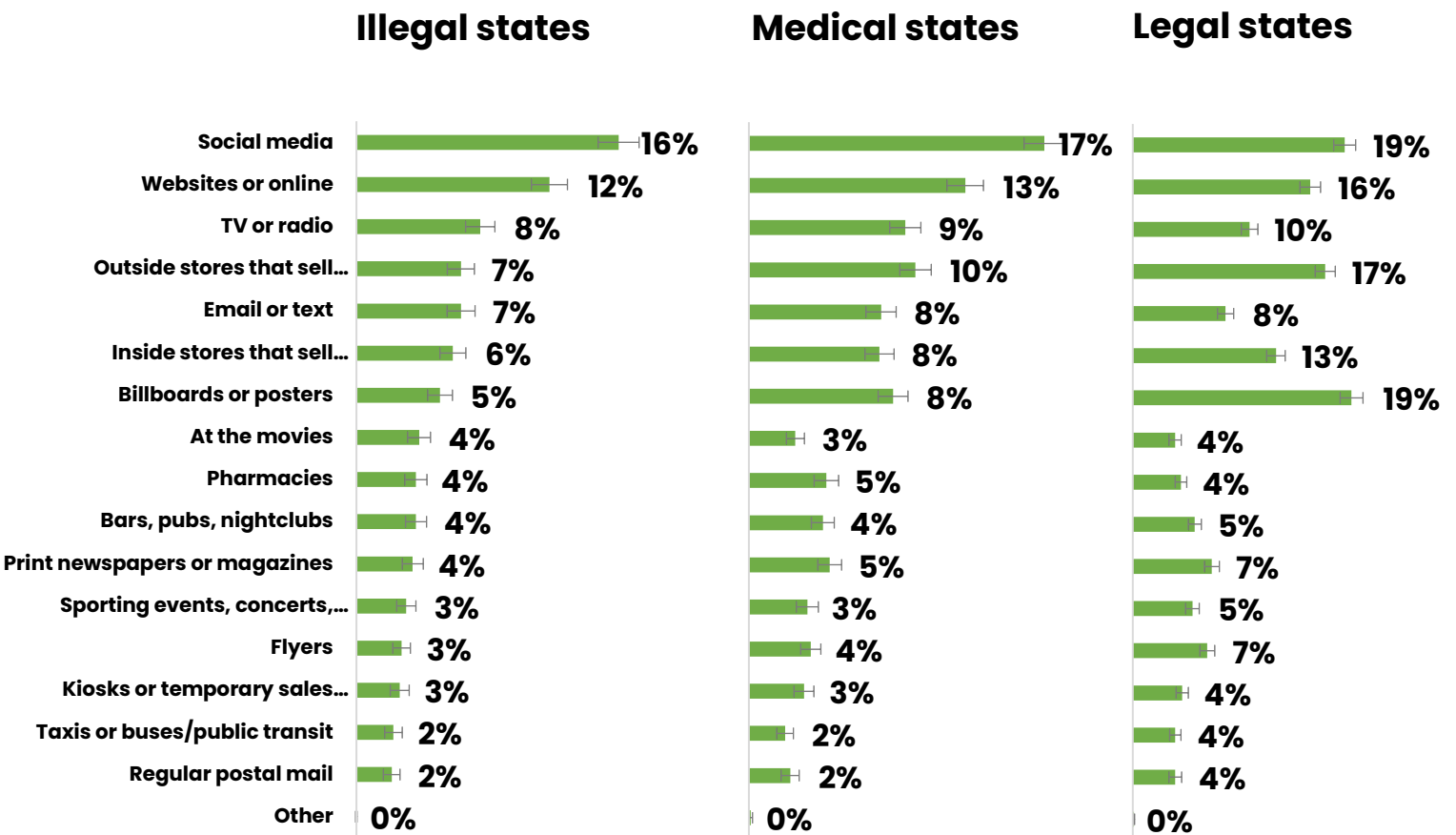BY MARKETING CHANNEL, 2021, N=30,081

Channel	Percent
Social media	18%
Websites or online	14%
Billboards or posters	12%
Outside stores that sell marijuana	12%
Inside stores that sell marijuana	9%
TV or radio	9%
Email or text	8%
Print newspapers or magazines	5%
Flyers	5%
Bars, pubs, nightclubs	5%
Pharmacies	4%
Sporting events, concerts, festivals, markets	4%
Kiosks or temporary sales locations	4%
At the movies	4%
Taxis or buses/public transit	3%
Regular postal mail	3%
Other	0%

AMONG ALL RESPONDENTS. PERCENT REPORTING SEEING MARIJUANA BEING ADVERTISED OR PROMOTED IN AT LEAST 1 LOCATION IN PAST 12 MONTHS.

ICPS 33

For most marketing channels, respondents reported similar sources of seeing and hearing cannabis advertising. However, respondents living in 'legal' states reported higher levels of noticing billboards and advertising in retail settings, including inside and outside stores.

Noticing cannabis ads in the past 12-months

BY MARKETING CHANNEL, 2021, N=30,081

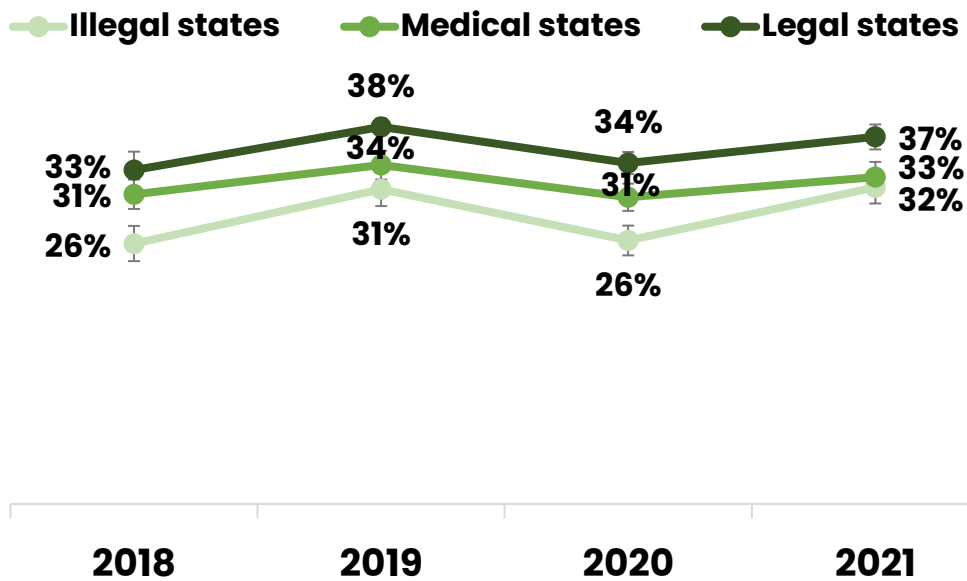| Marketing channel	Illegal states	Medical states	Legal states
Social media	16%	17%	19%
Websites or online	12%	13%	16%
TV or radio	8%	9%	10%
Outside stores that sell...	7%	10%	17%
Email or text	7%	8%	8%
Inside stores that sell...	6%	8%	13%
Billboards or posters	5%	8%	19%
At the movies	4%	3%	4%
Pharmacies	4%	5%	4%
Bars, pubs, nightclubs	4%	4%	5%
Print newspapers or magazines	4%	5%	7%
Sporting events, concerts,...	3%	3%	5%
Flyers	3%	4%	7%
Kiosks or temporary sales...	3%	3%	4%
Taxis or buses/public transit	2%	2%	4%
Regular postal mail	2%	2%	4%
Other	0%	0%	0%

AMONG ALL RESPONDENTS. PERCENT REPORTING SEEING MARIJUANA BEING ADVERTISED OR PROMOTED IN AT LEAST 1 LOCATION IN PAST 12 MONTHS.
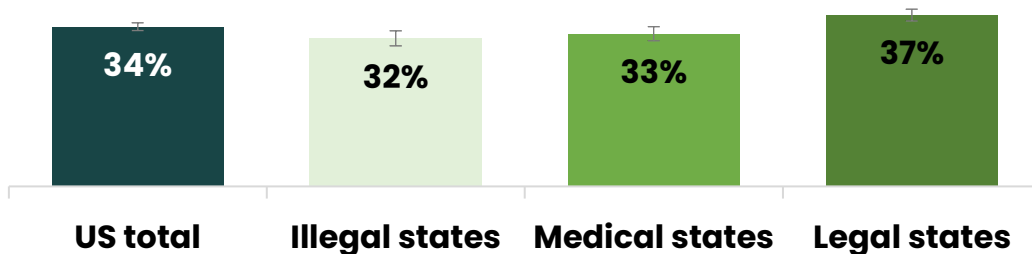
Education campaign exposure

In 2021, 1 in 3 respondents in the US recalled seeing an education campaign or public health message about cannabis in the past 12 months, with higher exposure among respondents from legal states.

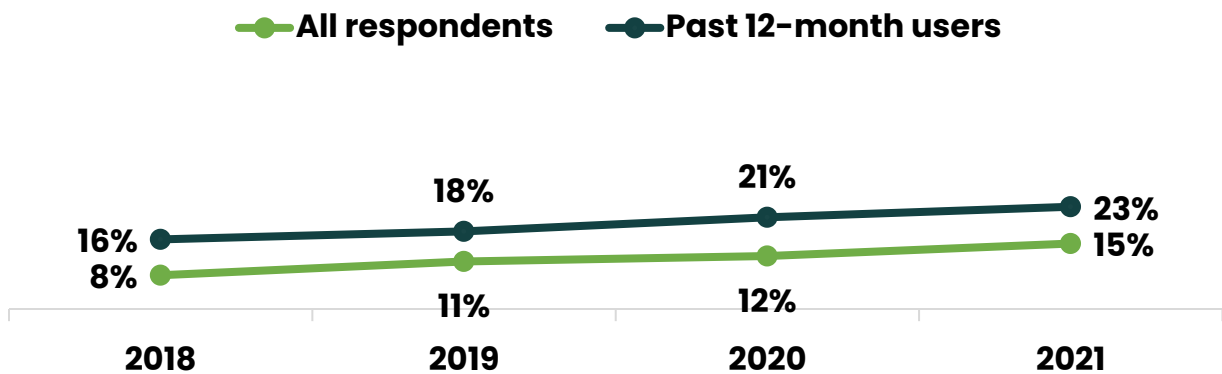## Recall of cannabis education campaigns
IN THE PAST 12 MONTHS

Legend:
- Illegal states
- Medical states
- Legal states

	2018	2019	2020	2021
Legal states	33%	38%	34%	37%
Medical states	31%	34%	31%	33%
Illegal states	26%	31%	26%	32%

By jurisdiction 2021

US total	Illegal states	Medical states	Legal states
34%	32%	33%	37%

AMONG ALL RESPONDENTS. PERCENT REPORTING SEEING AN EDUCATIONAL CAMPAIGN OR PUBLIC HEALTH MESSAGE ABOUT CANNABIS IN AT LEAST 1 LOCATION IN PAST 12 MONTHS.

ICPS 35

Health warnings on products

Around 15% of respondents in the US—and over 20% of past 12-month consumers—reported seeing health warnings on cannabis products in the past year, with higher exposure among respondents from legal states.
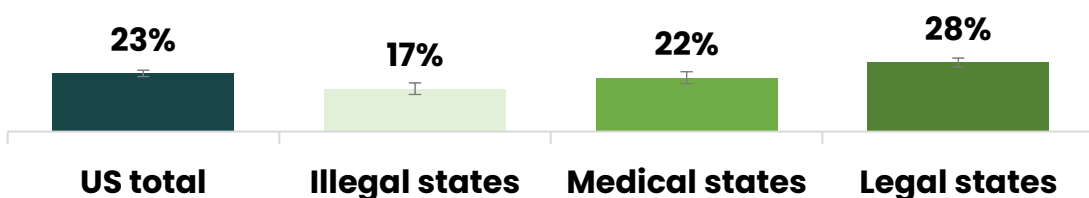
Noticing cannabis health warnings on packages
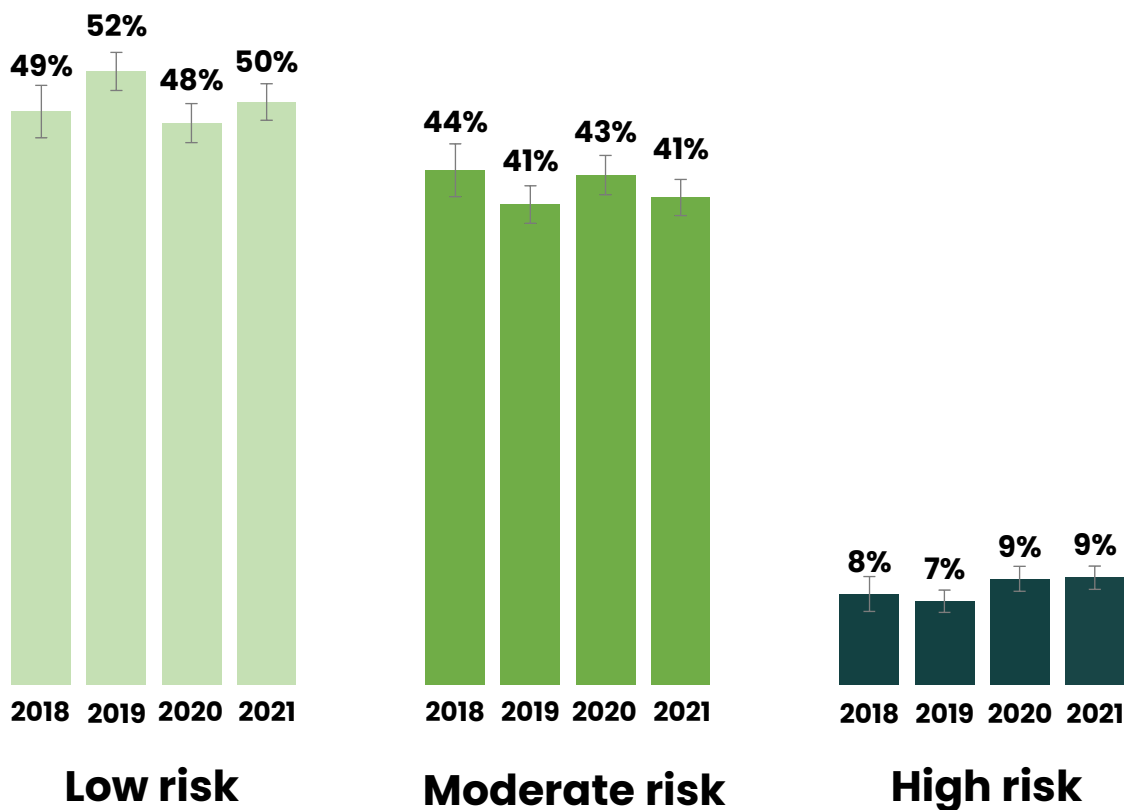
—●— All respondents   —●— Past 12-month users

	2018	2019	2020	2021
Past 12-month users	16%	18%	21%	23%
All respondents	8%	11%	12%	15%

ALL RESPONDENTS

US total	Illegal states	Medical states	Legal states
15%	12%	13%	18%

PAST 12-MONTH CONSUMERS

US total	Illegal states	Medical states	Legal states
23%	17%	22%	28%

AMONG ALL RESPONDENTS AND PAST 12-MONTH CANNABIS CONSUMERS. PERCENT REPORTING HAVING SEEN HEALTH WARNINGS ON CANNABIS PRODUCTS OR PACKAGES IN THE PAST 12 MONTHS.

ICPS 36

Problematic cannabis use

The World Health Organization's ASSIST tool assesses low, moderate or high risk of problematic cannabis use. Between 2018 and 2021, 'high risk' cannabis use has remained relatively stable between 7-9%.

Risk of problematic cannabis use
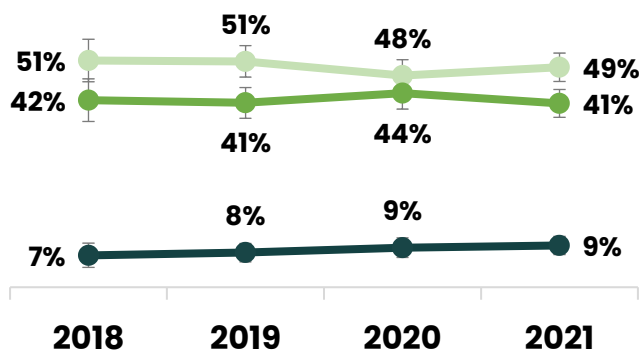WHO ASSIST SCORES, AMONG PAST 12-MONTH CONSUMERS
N=30,679

Low risk
- 2018: 49%
- 2019: 52%
- 2020: 48%
- 2021: 50%

Moderate risk
- 2018: 44%
- 2019: 41%
- 2020: 43%
- 2021: 41%

High risk
- 2018: 8%
- 2019: 7%
- 2020: 9%
- 2021: 9%

Problematic cannabis use

'High risk' cannabis use was similar between illegal, medical, and legal states. In 2021, 'high risk' cannabis use among past 12-month users was about 10%.

Risk of problematic cannabis use
WHO ASSIST SCORES, AMONG PAST 12-MONTH CONSUMERS
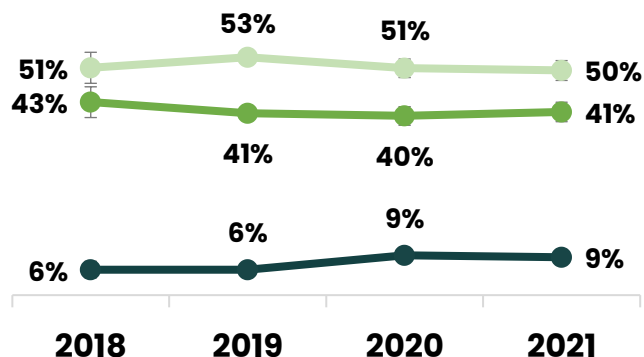
Low risk   Moderate risk   High risk

Illegal states n=4,117

	2018	2019	2020	2021
Low risk	51%	51%	48%	49%
Moderate risk	42%	41%	44%	41%
High risk	7%	8%	9%	9%

Medical states n=6,074

	2018	2019	2020	2021
Low risk	46%	52%	45%	48%
Moderate risk	45%	40%	46%	42%
High risk	9%	8%	9%	10%

Legal states n=20,488

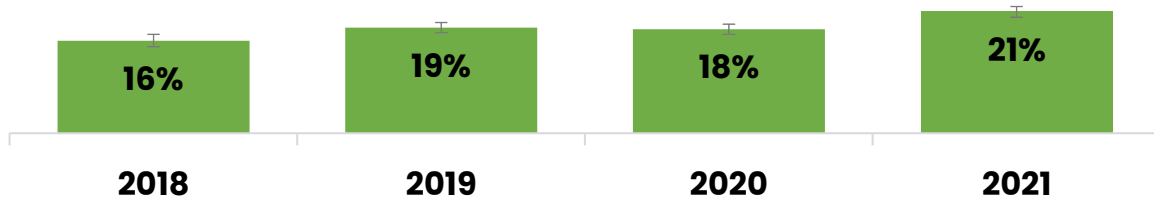|	2018	2019	2020	2021
Low risk	51%	53%	51%	50%
Moderate risk	43%	41%	40%	41%
High risk	6%	6%	9%	9%
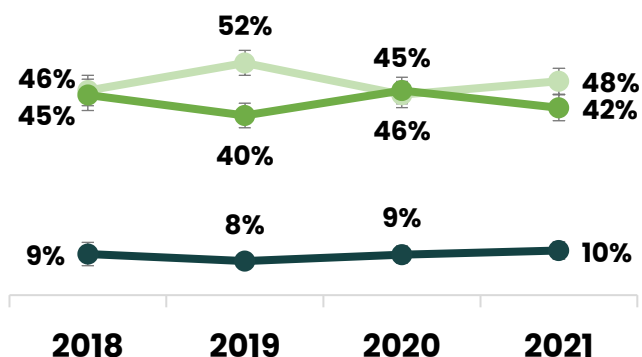
Driving after cannabis use

The self-reported prevalence of driving within 2 hours of cannabis use in the US increased from 16% in 2018 to 21% in 2021.

Driving a vehicle within 2 hours of cannabis use

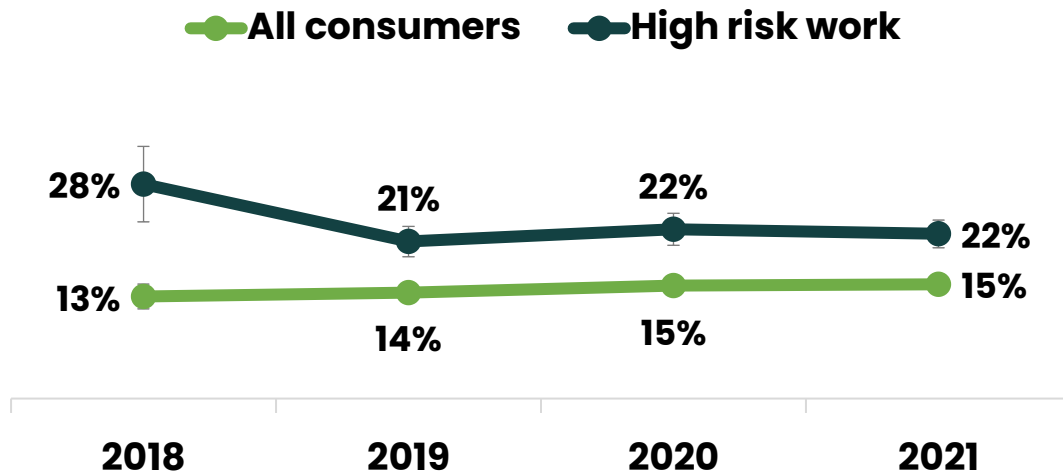IN THE PAST 12 MONTHS AMONG 'EVER' CANNABIS CONSUMERS, N=67,525

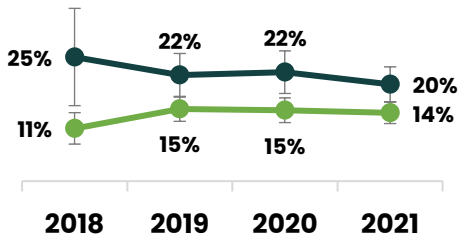| 2018	2019	2020	2021
16%	19%	18%	21%

Illegal states — **Medical states** — **Legal states**

	2018	2019	2020	2021
	17%	19%	19%	22%
	17%			21%
	15%	18%	18%	21%
		18%	18%	

AMONG EVER CANNABIS CONSUMERS WITH A DRIVER'S LICENSE. PERCENT WHO HAD DRIVEN A VEHICLE WITHIN 2 H OF CANNABIS USE, WITHIN THE PAST 12 MONTHS.

ICPS 39
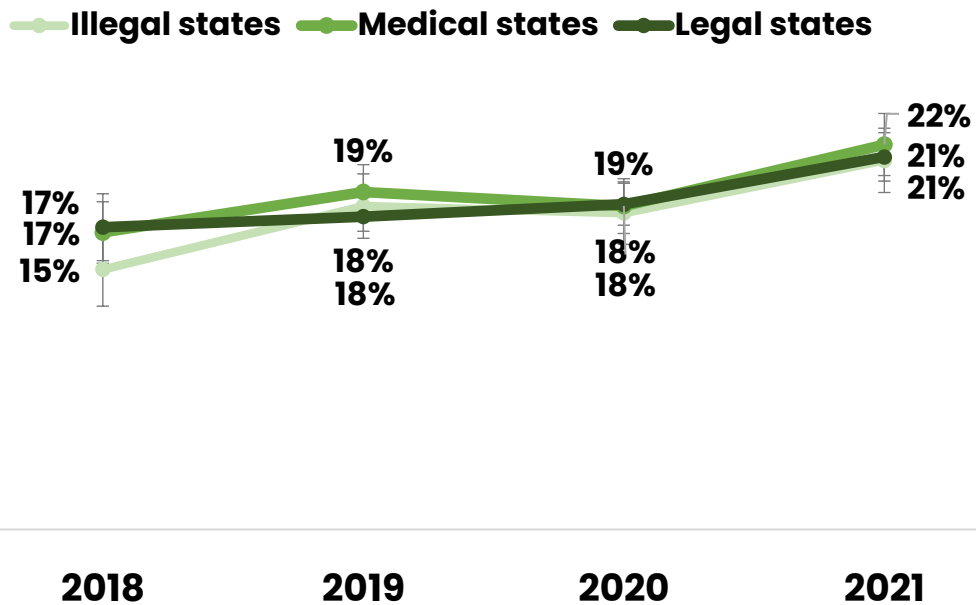
Cannabis use at work

In 2021, 1 in 5 past 12-month cannabis consumers reported using cannabis within 2 hours of starting work. Prevalence of using cannabis at work was higher among consumers who reported working in hazardous jobs. Cannabis use at work decreased between 2018 and 2019, and then has remained relatively stable between 2019 and 2021.

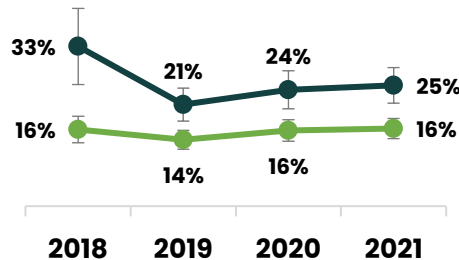## Cannabis use at work (including breaks) or within 2 hours of starting work in past 30 days

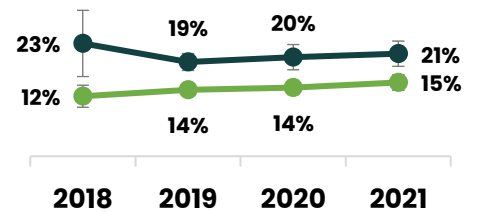% 'YES', AMONG PAST 12-MONTH CANNABIS CONSUMERS, N=33,918

●— All consumers   **●— High risk work**

High risk work: 28% (2018), 21% (2019), 22% (2020), 22% (2021)
All consumers: 13% (2018), 14% (2019), 15% (2020), 15% (2021)

2018   2019   2020   2021

Illegal states n=4,570

High risk work: 25% (2018), 22% (2019), 22% (2020), 20% (2021)
All consumers: 11% (2018), 15% (2019), 15% (2020), 14% (2021)

2018 2019 2020 2021

Medical states n=6,681

High risk work: 33% (2018), 21% (2019), 24% (2020), 25% (2021)
All consumers: 16% (2018), 14% (2019), 16% (2020), 16% (2021)

2018 2019 2020 2021

Legal states n=22,667

High risk work: 23% (2018), 19% (2019), 20% (2020), 21% (2021)
All consumers: 12% (2018), 14% (2019), 14% (2020), 15% (2021)

2018 2019 2020 2021

"IN THE PAST 30 DAYS, HAVE YOU USED MARIJUANA AT WORK (INCLUDING BREAKS) OR WITHIN 2 HOURS OF STARTING WORK?" AMONG PAST 12-MONTH CONSUMERS

ICPS 40

Adverse events from cannabis use

In 2021, approximately 9% of past 12-month cannabis consumers in the US reported seeking medical help for an adverse event from cannabis. Among those who sought medical help, emergency rooms and doctors or health professionals were the most common sources of help.
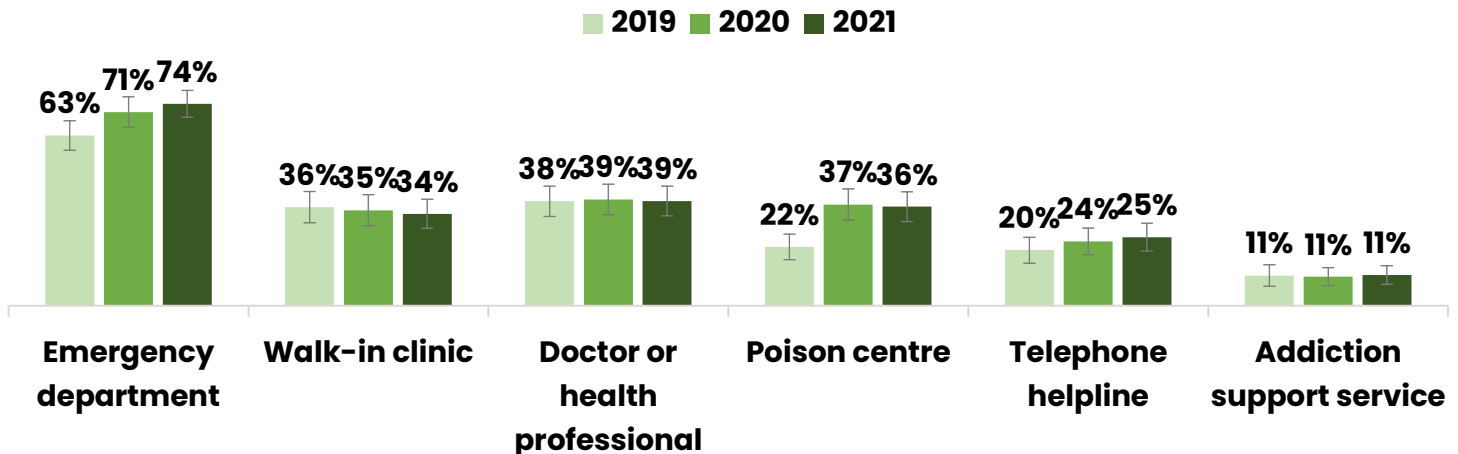
Percentage of consumers who sought medical help for adverse effects caused by cannabis use
AMONG PAST 12-MONTH CONSUMERS, 2021 N=10,346

US total	Illegal states	Medical states	Legal states
8.9%	7.6%	9.3%	9.4%
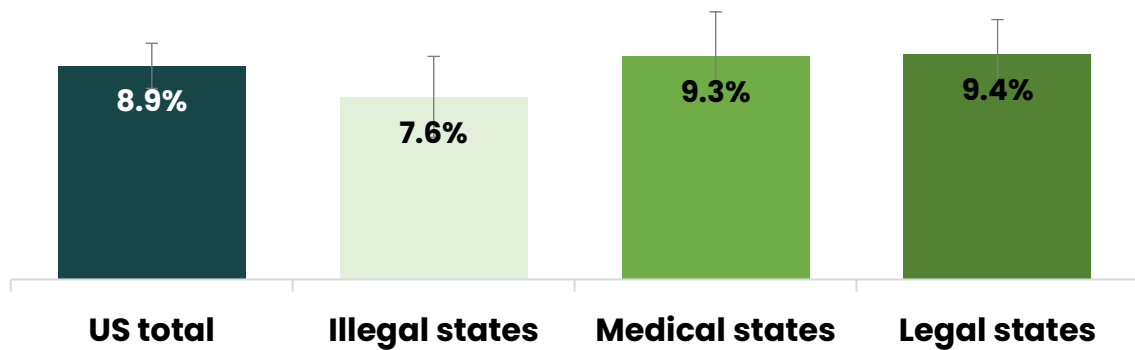
Sources of assistance among consumers who sought medical help for adverse effects
AMONG THOSE WHO SOUGHT MEDICAL HELP

■ 2019 ■ 2020 ■ 2021

|	2019	2020	2021
Emergency department	63%	71%	74%
Walk-in clinic	36%	35%	34%
Doctor or health professional	38%	39%	39%
Poison centre	22%	37%	36%
Telephone helpline	20%	24%	25%
Addiction support service	11%	11%	11%

Storage of cannabis in home

Almost 6 in 10 past 12-month consumers in the US stored cannabis in the home in a variety of locations.

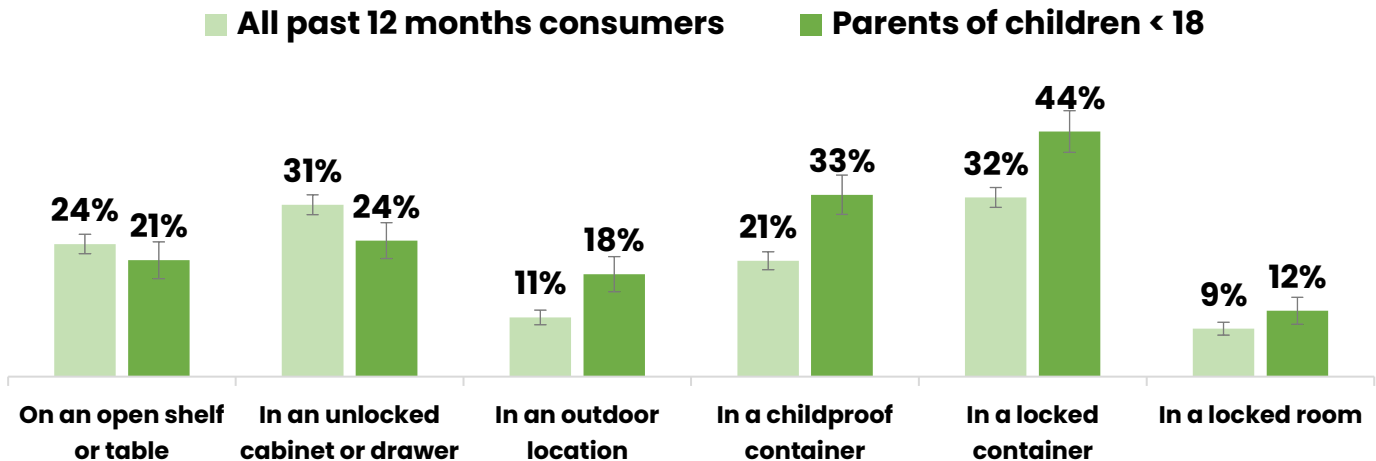## Do you currently keep any marijuana in or around your home?
% 'YES' PAST 12-MONTH CONSUMERS, 2021, N=10,154

US total	Illegal states	Medical states	Legal states
57%	44%	56%	65%
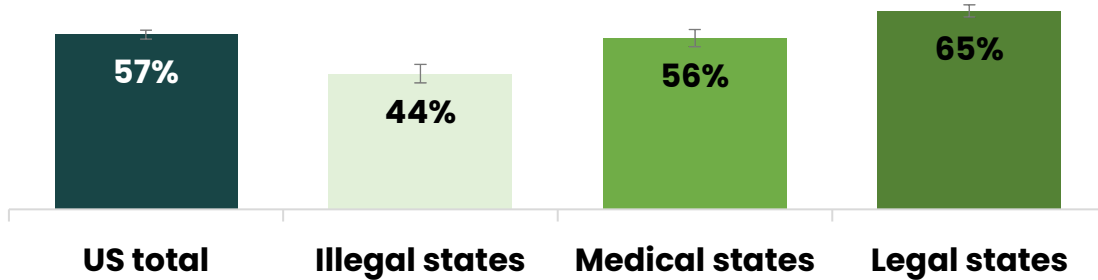
Where is the marijuana in your home stored?
% 'YES', AMONG CONSUMERS WHO STORED CANNABIS IN HOME, 2021, N=6,274

All past 12 months consumers **Parents of children < 18**

	On an open shelf or table	In an unlocked cabinet or drawer	In an outdoor location	In a childproof container	In a locked container	In a locked room
All past 12 months consumers	24%	31%	11%	21%	32%	9%
Parents of children < 18	21%	24%	18%	33%	44%	12%

Accidental ingestion

In 2021, around 10% of past 12-month consumers in the US reported at least one case of accidental cannabis consumption in the home. Accidental consumption was most commonly reported for respondents themselves or an adult, but included youth, children, and pets.

In the past 12 months, has anyone in your household accidentally consumed marijuana?
% 'YES' PAST 12-MONTH CONSUMERS, 2021, N=33,999

Illegal states   Medical states   Legal states

	2018	2019	2020	2021
Medical states	7%	8%	10%	10%
Legal states	6%	8%	9%	10%
Illegal states	5%	7%	9%	9%
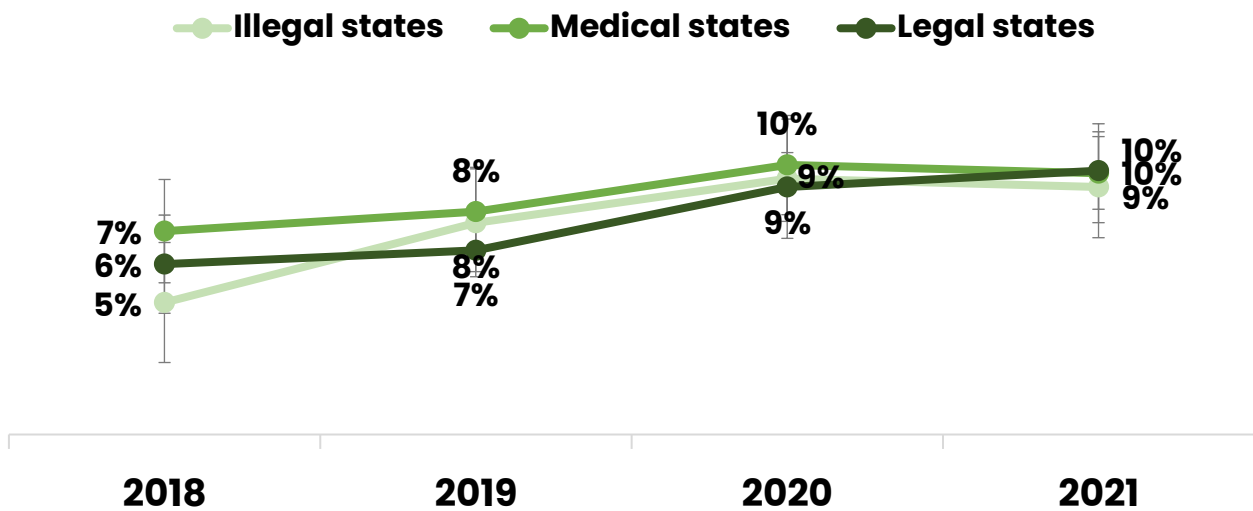
Who was it that accidentally consumed marijuana?
% AMONG RESPONDENTS REPORTING ACCIDENTAL INGESTION IN HOME, 2021

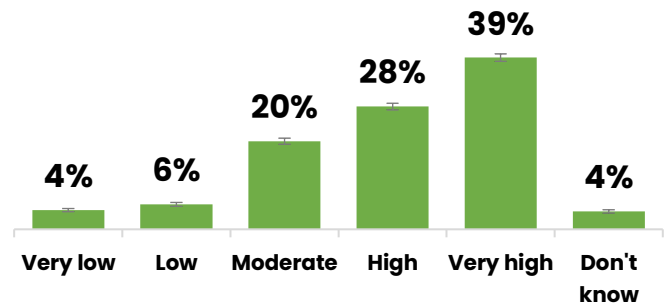| Me	An adult	A teenager	A child <18 years	A pet
51%	42%	16%	9%	11%
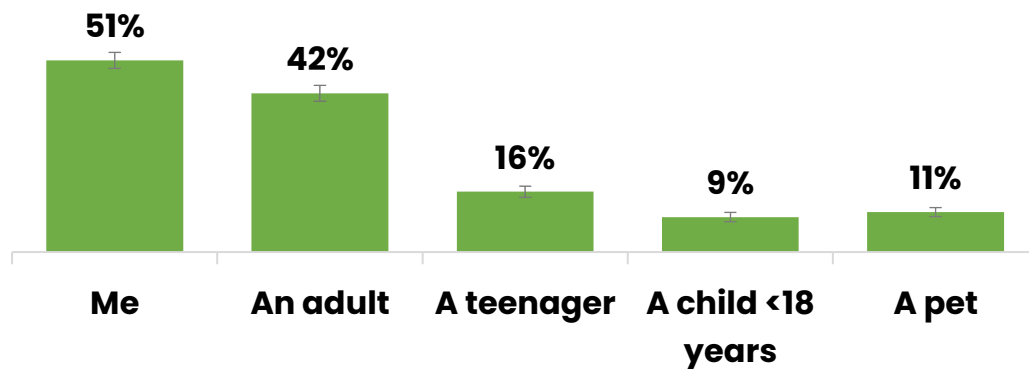
Risk perceptions

Risk perceptions of smoking tobacco cigarettes were highest, followed by alcohol, with slightly higher risk perceptions for vaping versus smoking cannabis.

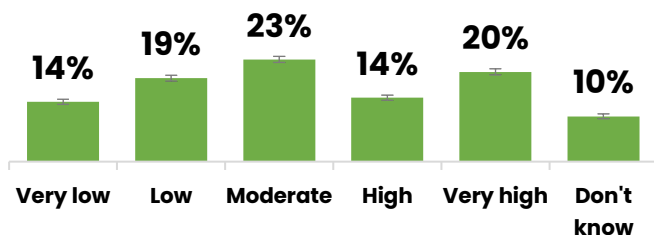## In your opinion, what is the level of health risk from...
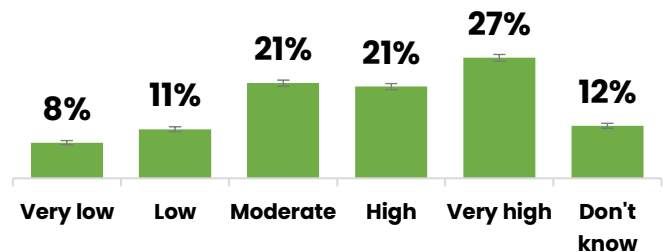
Smoking cigarettes daily
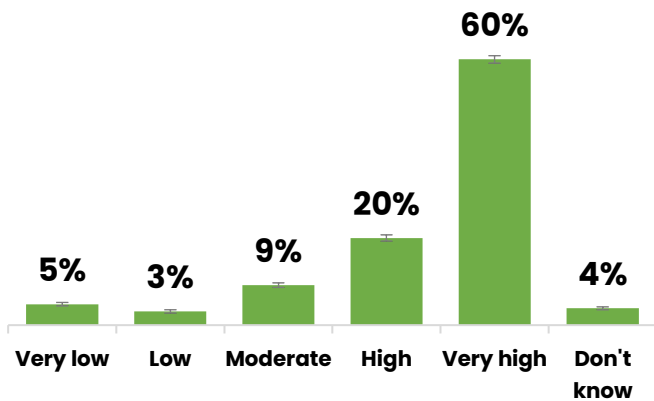
Very low	Low	Moderate	High	Very high	Don't know
5%	3%	9%	20%	60%	4%

Drinking alcohol daily

Very low	Low	Moderate	High	Very high	Don't know
4%	6%	20%	28%	39%	4%

Smoking marijuana daily

Very low	Low	Moderate	High	Very high	Don't know
14%	19%	23%	14%	20%	10%

Vaping marijuana daily

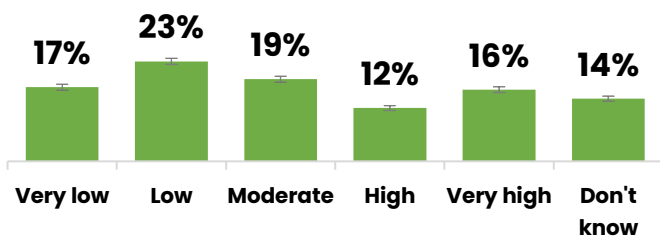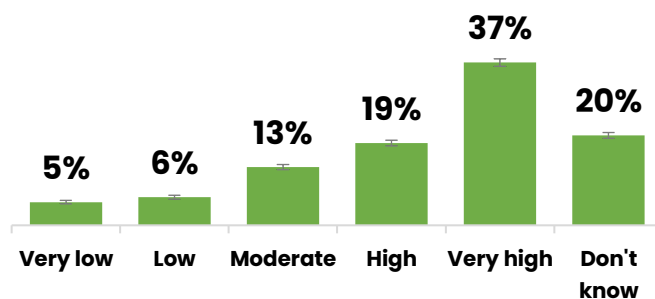| Very low	Low	Moderate	High	Very high	Don't know
8%	11%	21%	21%	27%	12%

Risk perceptions

Among cannabis products, use of synthetic products was perceived as highest risk, followed by high-potency cannabis. Lower risk perceptions were reported for using edibles and exposure to second-hand cannabis smoke.

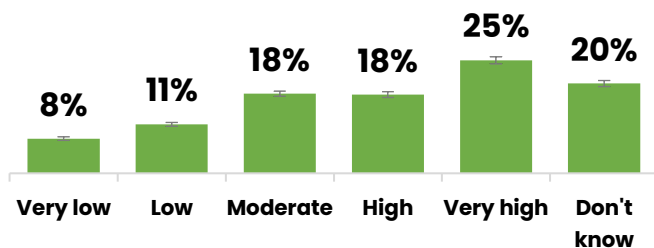## In your opinion, what is the level of health risk from...
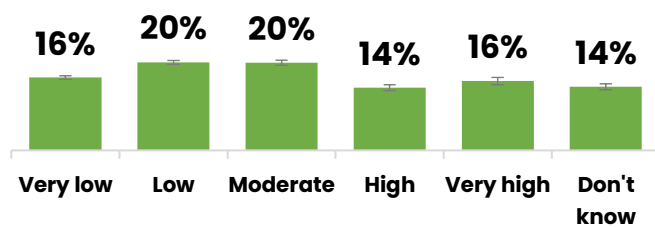
Consuming edibles daily

Very low	Low	Moderate	High	Very high	Don't know
17%	23%	19%	12%	16%	14%

Using synthetic marijuana daily

Very low	Low	Moderate	High	Very high	Don't know
5%	6%	13%	19%	37%	20%

Using high-potency marijuana concentrates daily

Very low	Low	Moderate	High	Very high	Don't know
8%	11%	18%	18%	25%	20%

Exposure to second-hand marijuana smoke daily

Very low	Low	Moderate	High	Very high	Don't know
16%	20%	20%	14%	16%	14%

Risk perceptions

In your opinion, what is the level of health risk from...
% Moderate – High risk

By sex

Legend: Female, Male

Category	Female	Male
Smoke cannabis	57%	59%
Vape cannabis	70%	68%
Consume edibles	45%	48%
Use synthetic cannabis	67%	69%
Use high-potency concentrates	60%	62%
Exposure to second-hand cannabis smoke	49%	50%

By cannabis use

Legend: Non past 12-month consumer, Past 12-month consumer

Category	Non past 12-month consumer	Past 12-month consumer
Smoke cannabis	66%	40%
Vape cannabis	74%	59%
Consume edibles	55%	30%
Use synthetic cannabis	68%	69%
Use high-potency concentrates	67%	49%
Exposure to second-hand cannabis smoke	58%	33%

Risk perceptions
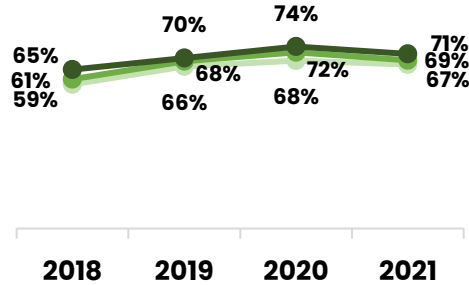
In your opinion, what is the level of health risk from...
% Moderate – High risk

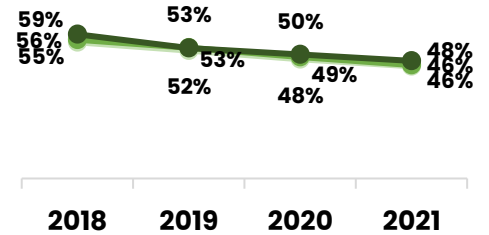- Illegal states
- Medical states
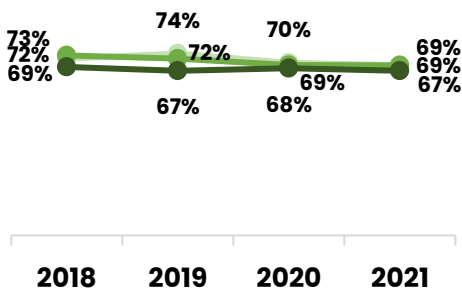- Legal states

Smoke cannabis
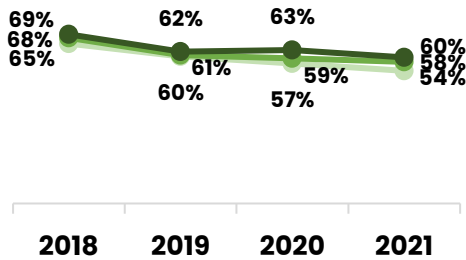
	2018	2019	2020	2021
Legal states	69%	62%	63%	60%
Medical states	68%	61%	59%	58%
Illegal states	65%	60%	57%	54%

Vape cannabis

	2018	2019	2020	2021
	65%	70%	74%	71%
	61%	68%	72%	69%
	59%	66%	68%	67%

Consume edibles

	2018	2019	2020	2021
	59%	53%	50%	48%
	56%	53%	49%	46%
	55%	52%	48%	46%

Use synthetic cannabis

	2018	2019	2020	2021
	73%	74%	70%	69%
	72%	72%	69%	69%
	69%	67%	68%	67%

Use high-potency concentrates

	2018	2019	2020	2021
	66%	64%	63%	62%
	66%	63%	62%	61%
	65%	62%	62%	59%

Exposure to second-hand cannabis smoke

	2018	2019	2020
	52%	55%	51%
	52%	52%	49%
	51%	51%	47%

ICPS
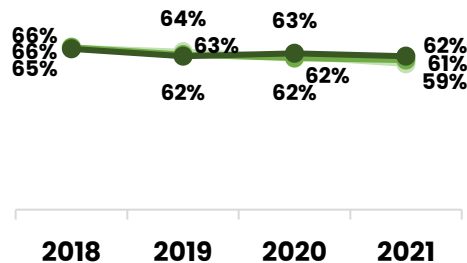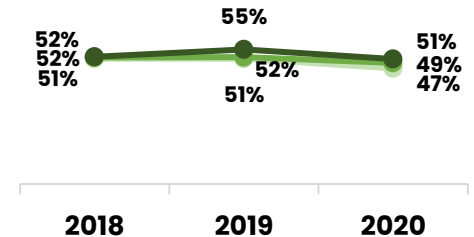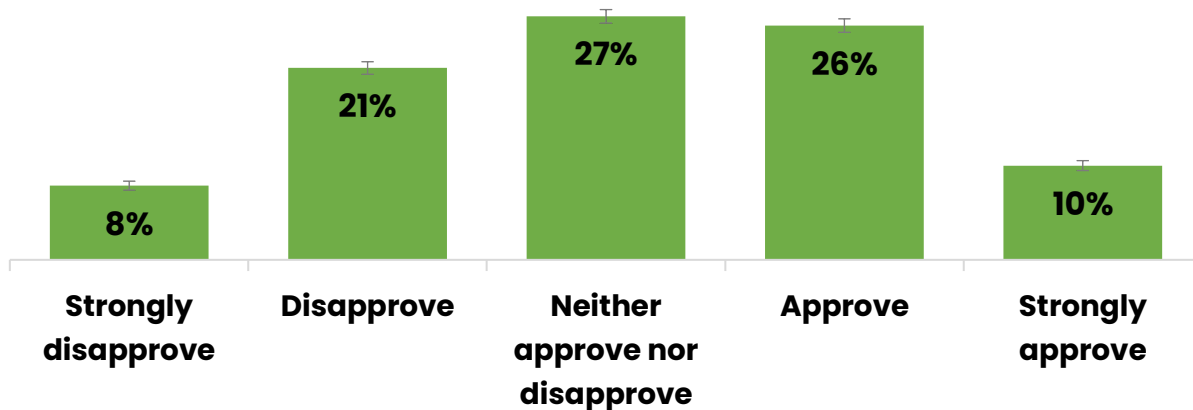
Social acceptability of cannabis

In 2021, over 1 in 3 respondents perceived general 'approval' for cannabis, with few changes since 2018.

In your opinion, do people generally approve or disapprove of marijuana?
% 'APPROVE' OR 'STRONGLY APPROVE'

Legend: Illegal states — Medical states — Legal states

	2018	2019	2020	2021
Illegal states	33%	36%	34%	37%
Medical states	36%	35%	33%	36%
Legal states	32%	34%	32%	35%

US overall 2021

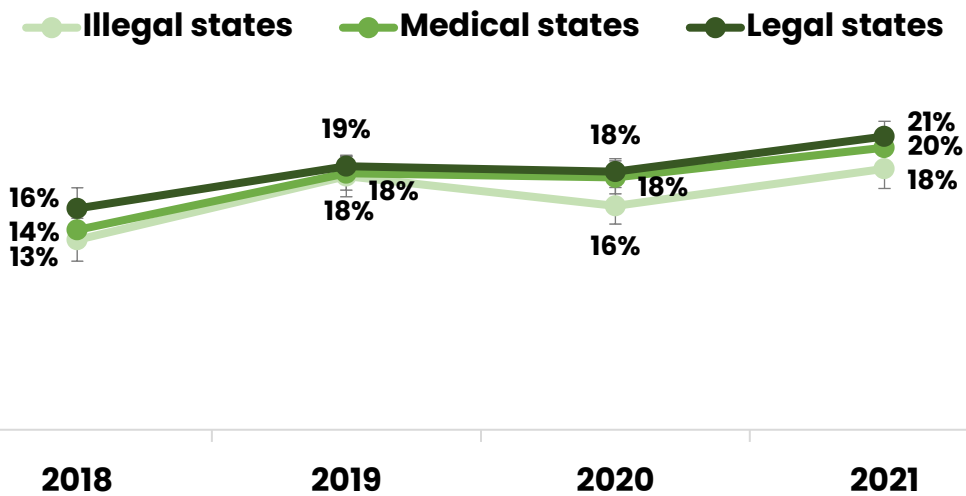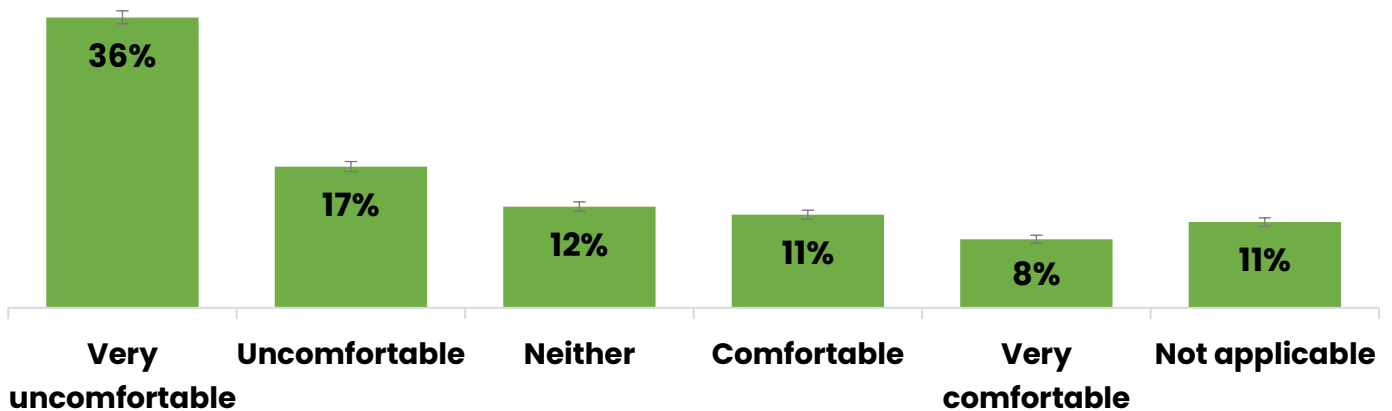| Strongly disapprove	Disapprove	Neither approve nor disapprove	Approve	Strongly approve
8%	21%	27%	26%	10%
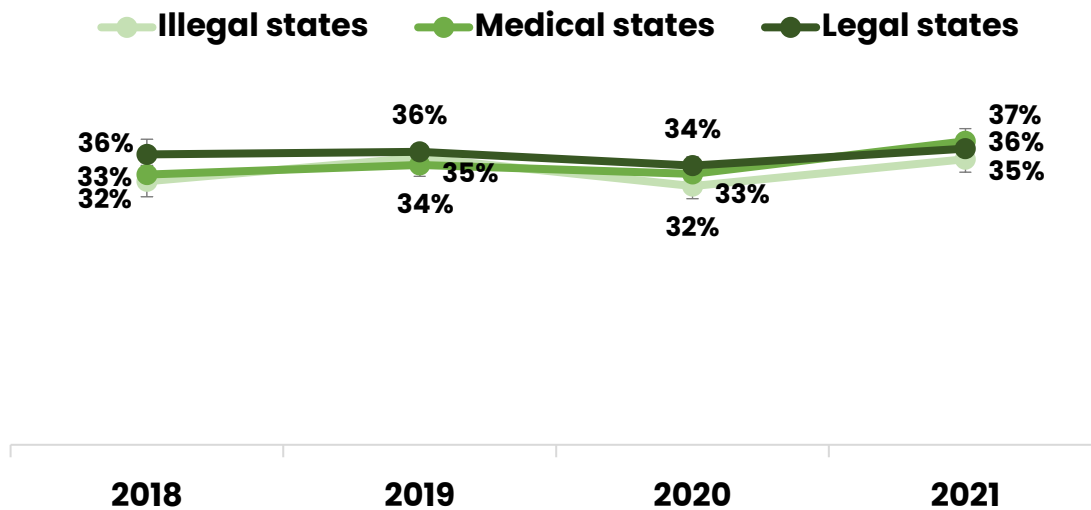
Social acceptability of cannabis

Approximately 1 in 5 respondents would feel comfortable using cannabis in public.

How comfortable or uncomfortable would you feel openly using marijuana in public?
% 'COMFORTABLE' OR 'VERY COMFORTABLE'

Legend: ● Illegal states ● Medical states ● Legal states

Year	Legal	Medical	Illegal
2018	16%	14%	13%
2019	19%	18%	18%
2020	18%	18%	16%
2021	21%	20%	18%

US total 2021

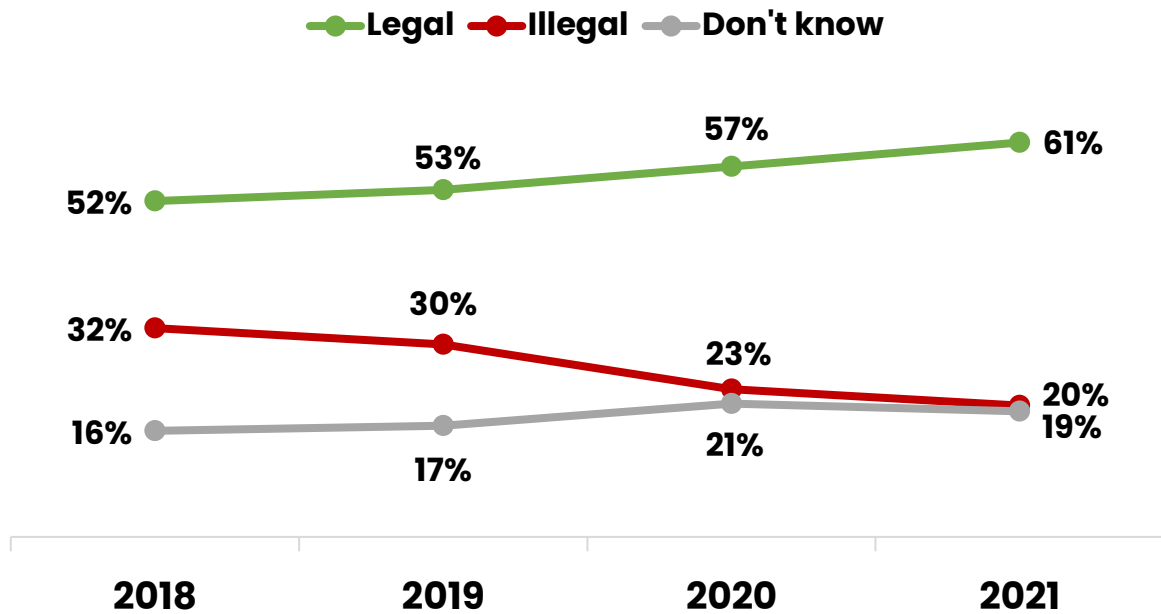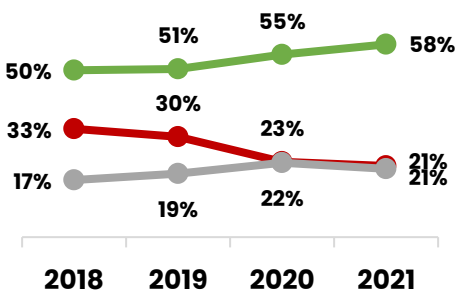| Very uncomfortable	Uncomfortable	Neither	Comfortable	Very comfortable	Not applicable
36%	17%	12%	11%	8%	11%

Support for cannabis legalization

In 2021, 6 in 10 US respondents supported legalization of non-medical cannabis, with approximately 2 in 10 opposed to legalization. Support has increased between 2018 and 2021 across 'illegal', 'medical', and 'legal' states.
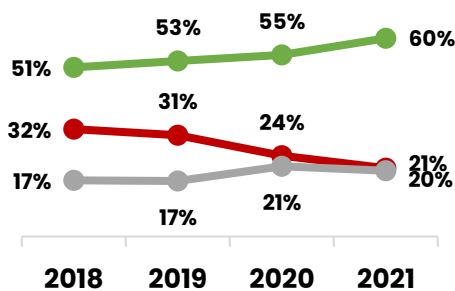
Recreational (non-medical) marijuana should be...
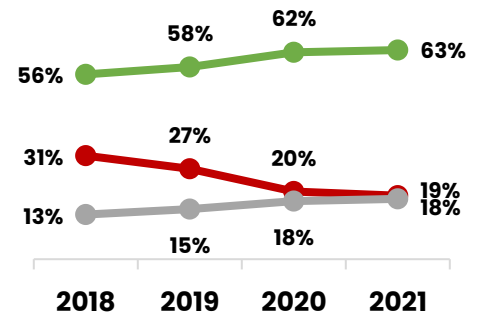AMONG ALL RESPONDENTS, N=106,670

Legend: ●━ Legal ●━ Illegal ●━ Don't know

	2018	2019	2020	2021
Legal	52%	53%	57%	61%
Illegal	32%	30%	23%	20%
Don't know	16%	17%	21%	19%

Illegal states n=17,792

	2018	2019	2020	2021
Legal	50%	51%	55%	58%
Illegal	33%	30%	23%	21%
Don't know	17%	19%	22%	21%

Medical states n=24,494

	2018	2019	2020	2021
Legal	51%	53%	55%	60%
Illegal	32%	31%	24%	21%
Don't know	17%	17%	21%	20%

Legal states n=64,384

	2018	2019	2020	2021
Legal	56%	58%	62%	63%
Illegal	31%	27%	20%	19%
Don't know	13%	15%	18%	18%

Acknowledgements

International Cannabis Policy Study

International Cannabis Policy Study

Visit the study website for more information: www.cannabisproject.ca.

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