

Cannabis Trends in 2023

Products, Consumers, and the Impact
of Prohibition on the Industry



Introduction

IT'S NO SECRET that succeeding in the cannabis industry is tough. High barriers to entry, costly licensing, overly restrictive regulations and the lack of federal action have caused more than a little stress and strife for those trying to succeed. One of the best ways to meet these challenges is by keeping abreast of the trends happening with cannabis products, the industry and consumers. The legacy of prohibition impacts all these areas, and examining industry trends within this context is a must.

This report not only reviews trends across the cannabis space but seeks to educate those in the industry on how the history of prohibition impacts these trends. By understanding where we have been, we can strategically and successfully move forward.

Cannabis Products

Low Dose and a Variety of Options

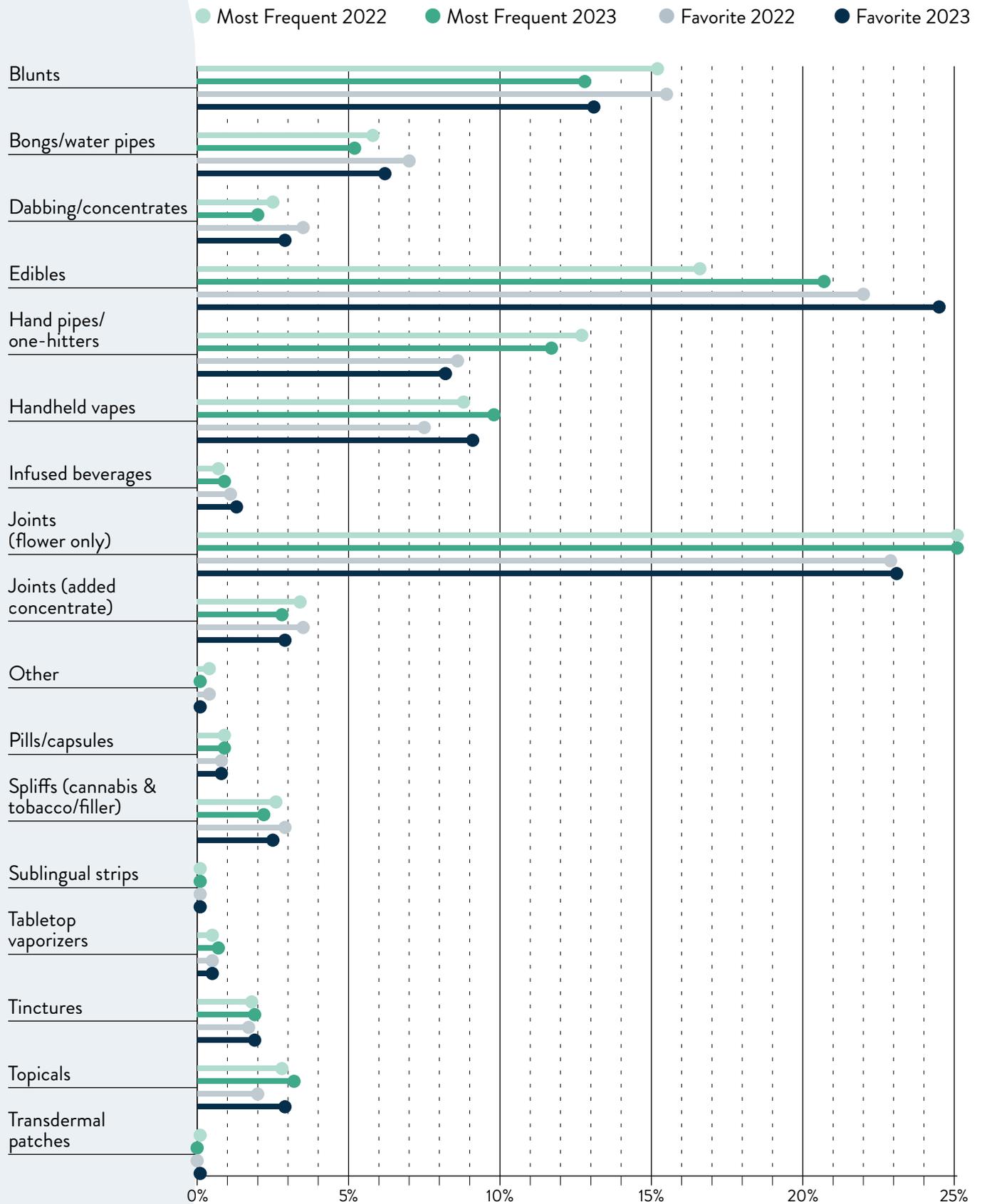
YEARS OF CANNABIS prohibition created a "feast or famine" mentality among consumers, and a desire to stick with what they know. Historically, buying cannabis on the illicit market meant buying flower, and concerns over supply and access meant that the highest potency was best. After all, taking the risk of obtaining an illegal product and spending time and money on an erratic supply chain made consumers seek out the biggest bang for their buck, and quality was often tied to potency. As a result, higher THC cultivars were preferred by growers and breeders as they fetched a higher price in the market. Cannabis high in CBD, for example, would be classified as lower quality and go for a lower price, and therefore was nearly bred out of existence. And even though legalization removed the criminal penalties and allowed consumers to access cannabis in a safe and legal environment, the first few years of legalization saw old habits die hard. High THC was still associated with high quality, and flower was still the main cannabis product form obtained by consumers. However, as people begin to relax into the new reality of legal cannabis, and as companies develop more advanced products to meet specific needs, we are seeing two trends emerge as a result: evolution of preferred forms beyond flower and increasing popularity in lower dose products.

Beyond Flower: Cannabis Product Variety

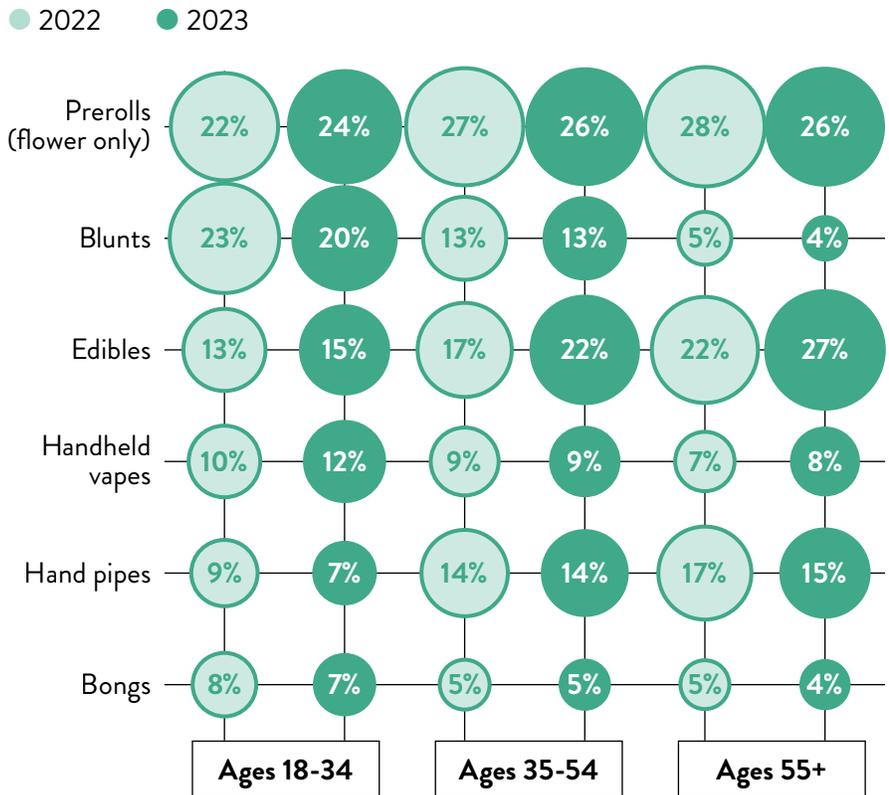
First, both experienced and new consumers are branching out beyond flower. And while flower and pre rolls still dominate cannabis sales, manufactured products like vapes and edibles are gaining ground.

While 16.6% of consumers stated that edibles were their most frequent form in 2022, that rose to 20.7% in 2023. Reporting edibles as a favorite form also rose slightly compared to last year (22% to 24.5%). Preroll use remained stable, but preferences for products common to the illicit market (such as blunts) fell both in terms of most frequent (15.2% in 2022 to 12.8% in 2023) and favorite forms (15.5% in 2022 vs. 13.1% in 2023) among consumers. This may also reflect increased access to regulated markets which introduce manufactured products to consumers who may not have had access before. We also saw a slight dip in higher potency products like prerolls infused with concentrate and dabbing/smoking extracts.

Most Frequent & Favorite Product Forms: 2022 vs. 2023

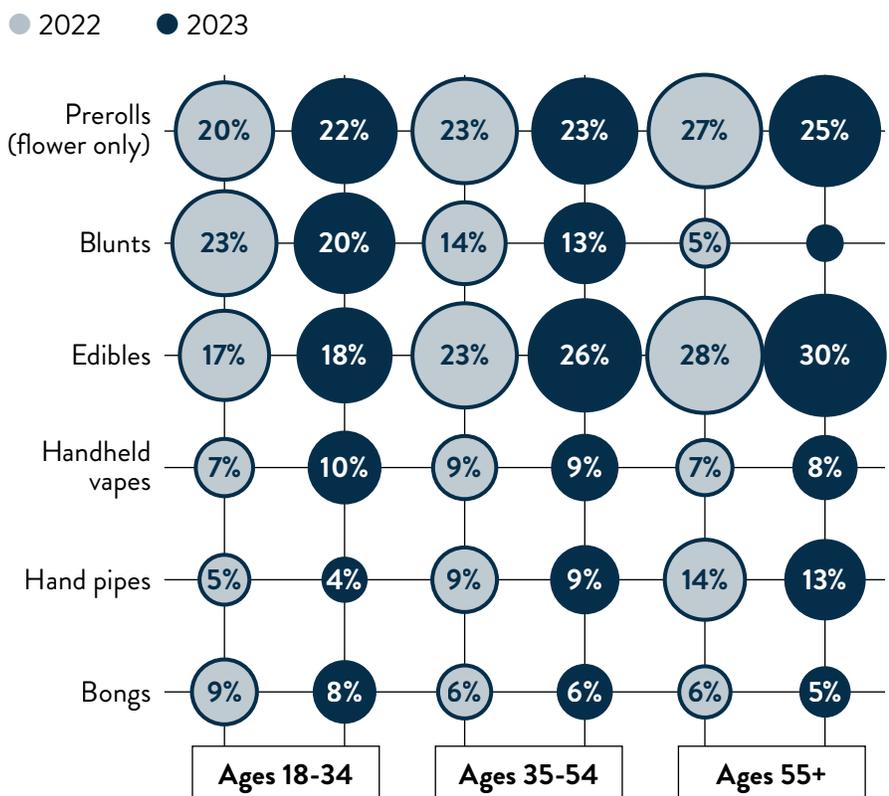


Most Frequent Product Form by Age: 2022 vs. 2023



This is especially prevalent among younger consumers, who were not subject to the nuances of the illicit market. Additionally, smoking cannabis flower is smelly. For some consumers, this is not a deterrent to use, but, for others, it makes manufactured products a more appealing choice. And, since the use of cannabis in social settings is becoming more normalized, consumers are looking for products that they can use out in the open in a variety of settings.

Favorite Product Form by Age: 2022 vs. 2023



Furthermore, although regulated cannabis is tested for potency, THC content can vary throughout the plant and change over time. Consumers looking to standardize their THC dose may find that products like edibles and beverages allow for more specificity, and since effect and potency play a crucial role in deciding which product to buy, accuracy is appreciated.

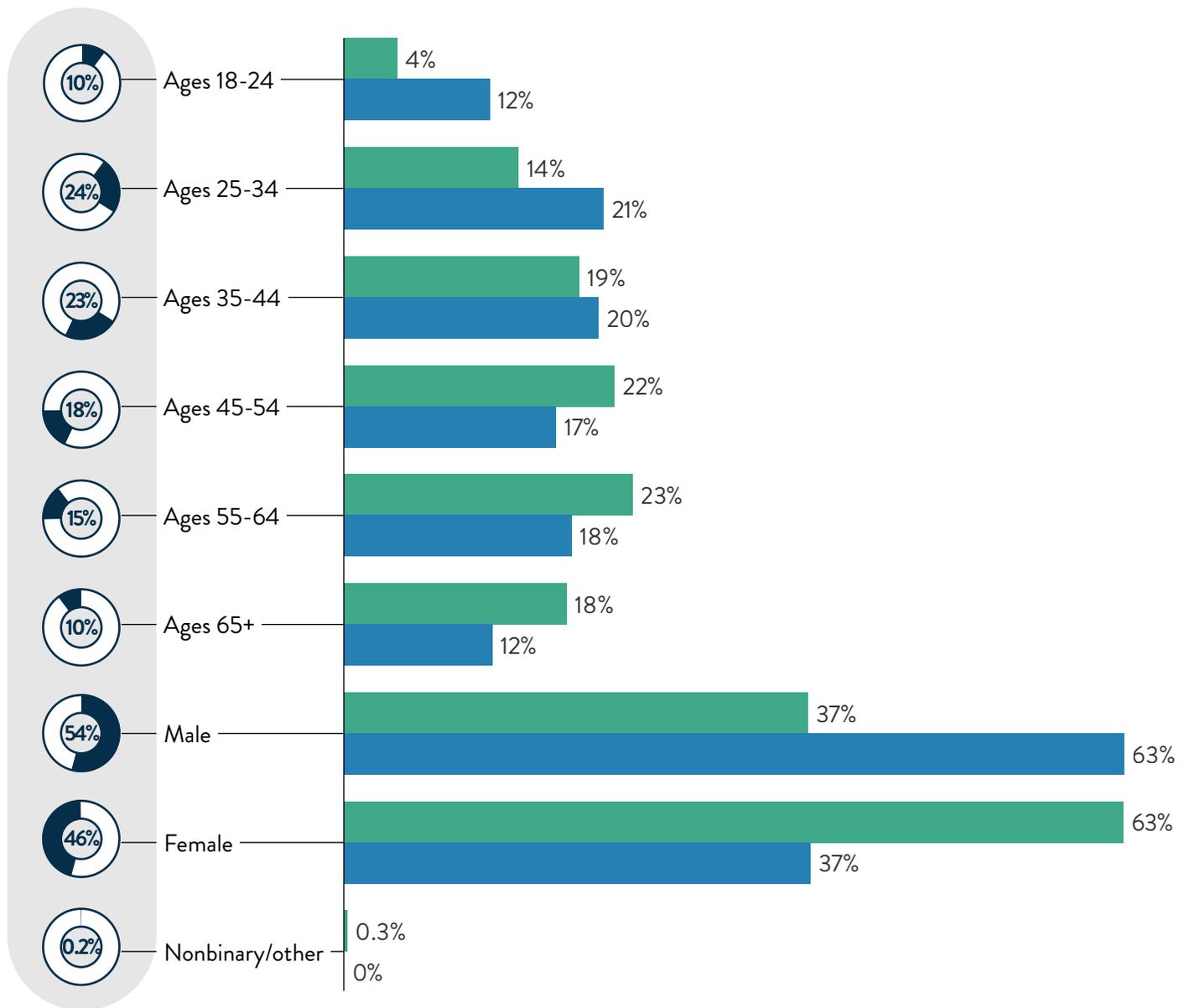
Those who exclusively use noncombustible forms of cannabis tend to be older and women. Interestingly, and in line with the trend presented, using exclusively smoked forms of cannabis is less popular among those 18-24 than their older consumer counterparts between 25-44.

In fact, those 18-24 were the least likely age group to report using smokeable forms exclusively, showing a movement into manufactured product adoption among younger consumers.

Age & Gender Among Those Who Exclusively Use Non-smoked vs. Smoked Forms

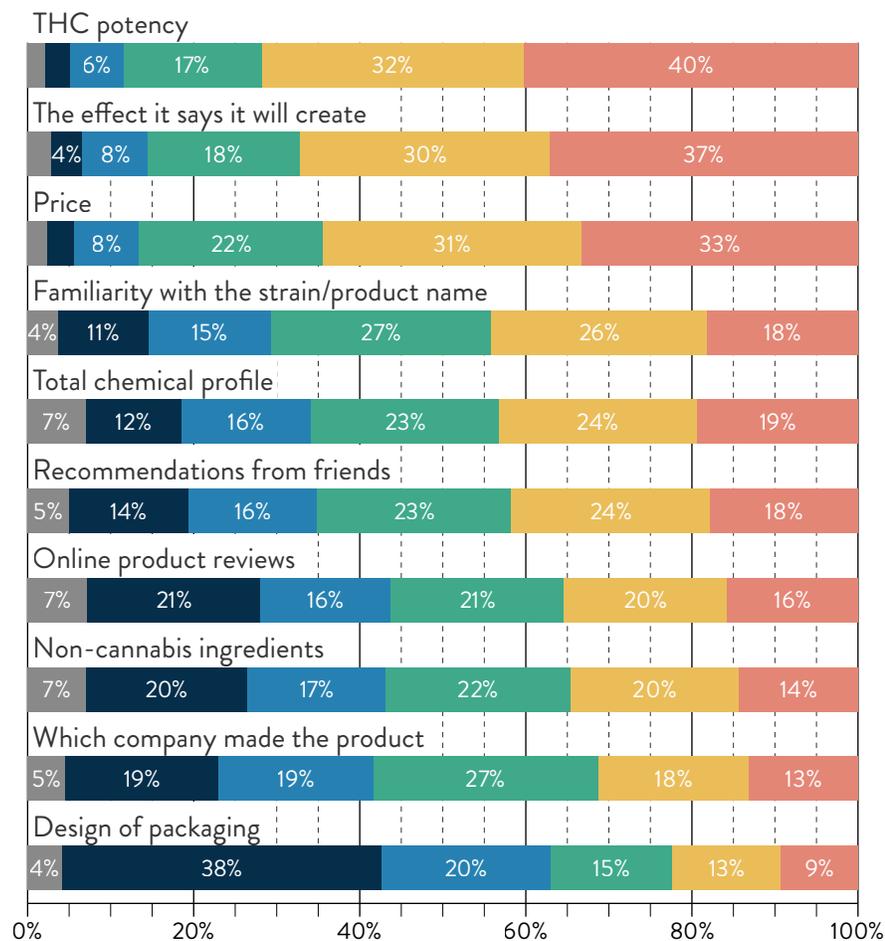
Age Group as % of Total Current Consumers

● Exclusively use non-smoked forms ● Exclusively use smoked forms

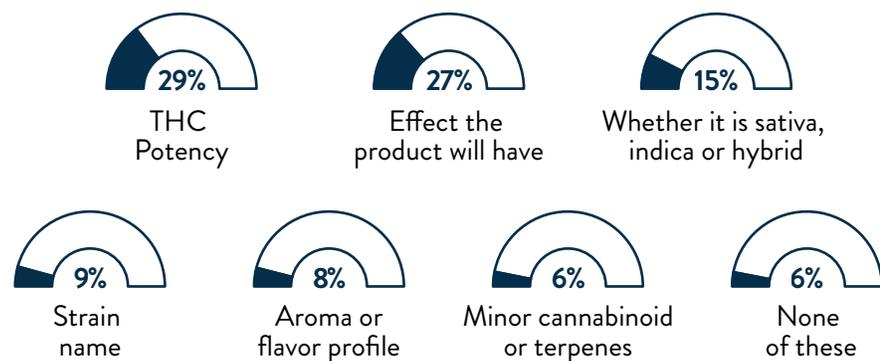


Product Decision Factors: Among Legal Consumers

- Not applicable
- Slightly important
- Very important
- Not at all important
- Moderately important
- Extremely important



Most Useful Information When Making a Purchase Decision: Among Legal Consumers



Potency and the effect of the product are both the most important and most helpful factors for legal consumers when making a purchase decision. The specificity of manufactured products in both potency and effect may be more appealing to consumers looking to dial in their experience than flower, which can vary in potency depending on the part of the plant that is tested and available for purchase. And while seasoned consumers can handle this variability, newer consumers may see it as a risk.

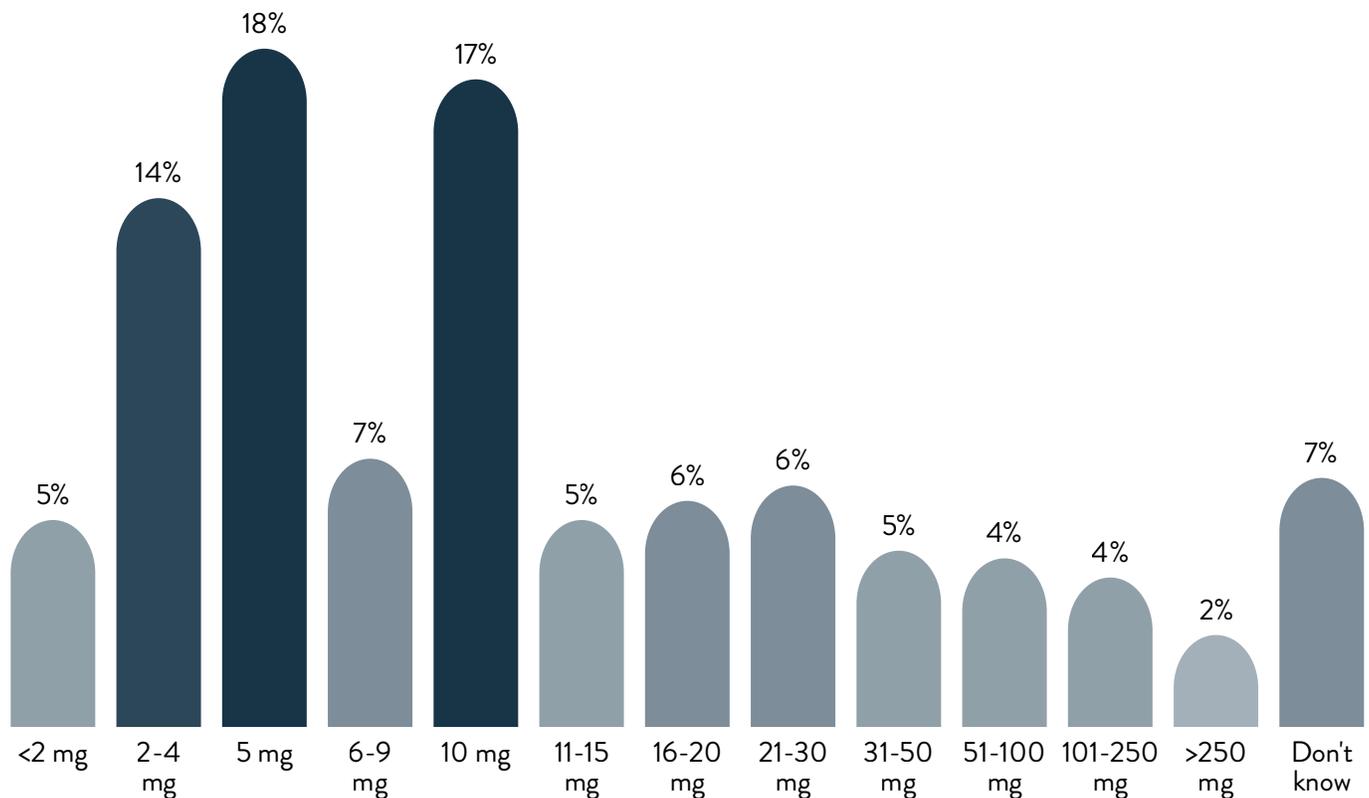
However, it should be noted that individual state and local laws may impact which products consumers have access to. For example, the amount of THC allowed in a package of edibles varies from state to state. This can impact the opportunity for business and brand growth despite consumer desires. And, even in legal markets, banning dispensaries forces consumers to opt for what is available, denying them the chance to fully participate in the legal market.

The Popularity of Lower Dose Options

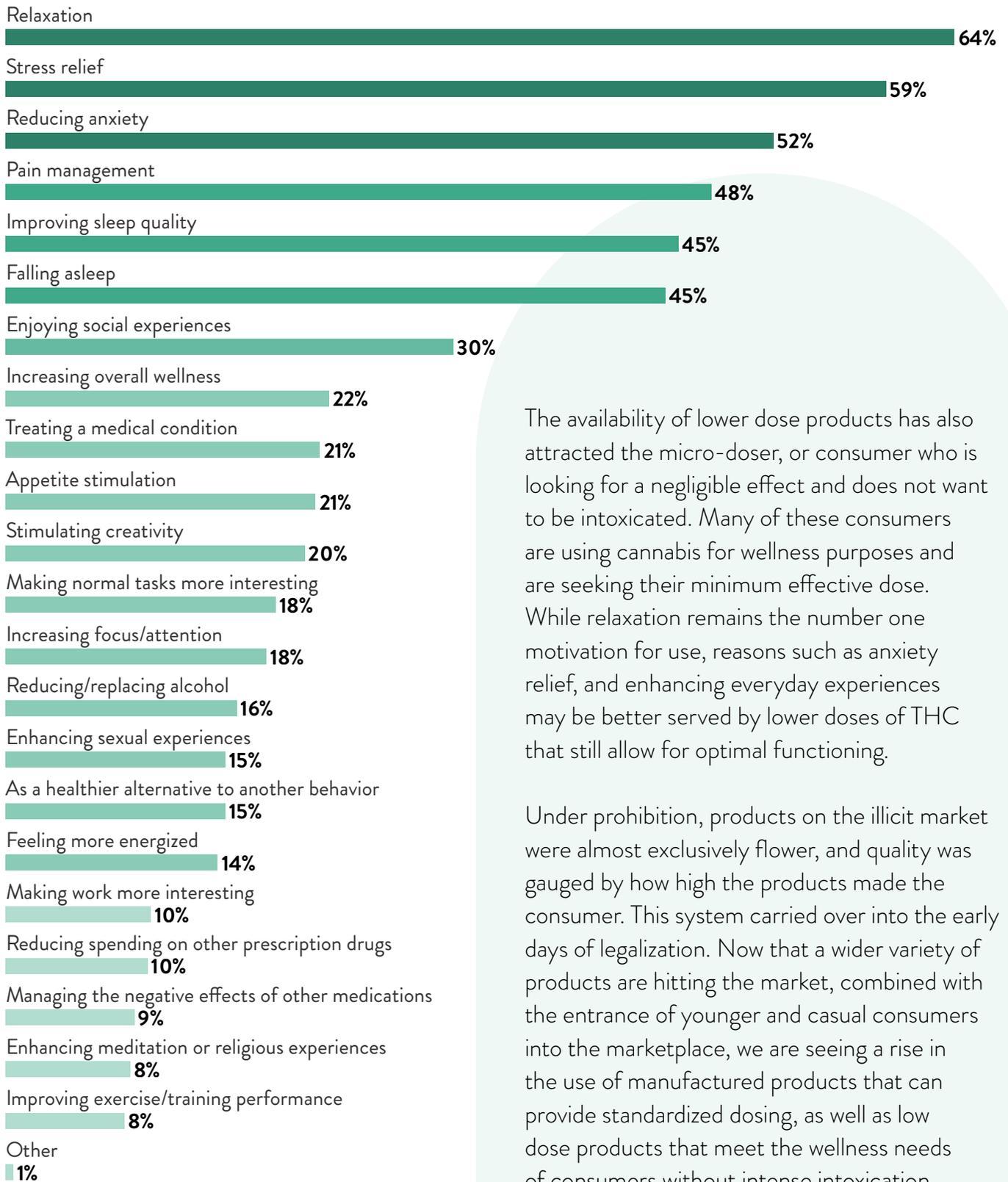
Beyond flower being the most common option in the unregulated market, concerns over when a person may be able to obtain cannabis again bolstered the desire to purchase more potent products. Adding to this was the fact that most people taking a risk to purchase cannabis in the illicit market during prohibition were not casual, sporadic consumers. These consumers, who use cannabis only occasionally, likely did not enter the market until cannabis was legal. The ability to obtain cannabis at

will, along with the entrance of the casual consumer, has resulted in the demand for lower dose cannabis products. Because the flower market is still, for the most part, serving the more experienced consumer, those looking for lower dose products, and who do not want to smoke, are gravitating towards edibles and beverages, where they can find products with 10mg or less of THC. Because potency and effect are top of mind for consumers, it is no surprise that 83.9% of edibles/beverages consumers sometimes or always know the THC dose in their products, and 60.8% of consumers who use edibles/beverages seek doses that are 10mg or less of THC.

Preferred Dose of THC: Among Edible/Beverage Consumers



Overall Reason for Consumption



The availability of lower dose products has also attracted the micro-doser, or consumer who is looking for a negligible effect and does not want to be intoxicated. Many of these consumers are using cannabis for wellness purposes and are seeking their minimum effective dose. While relaxation remains the number one motivation for use, reasons such as anxiety relief, and enhancing everyday experiences may be better served by lower doses of THC that still allow for optimal functioning.

Under prohibition, products on the illicit market were almost exclusively flower, and quality was gauged by how high the products made the consumer. This system carried over into the early days of legalization. Now that a wider variety of products are hitting the market, combined with the entrance of younger and casual consumers into the marketplace, we are seeing a rise in the use of manufactured products that can provide standardized dosing, as well as low dose products that meet the wellness needs of consumers without intense intoxication.

Cannabis Industry

Equity Programs, Equity Financing and Consumption Lounges

CANNABIS INDUSTRY TRENDS cover social justice, investment and public health and safety. These areas are central to many discussions about the benefits of legalization and regulation. The impact of the drug war on communities of color, the potential for employment and thriving businesses and the public health and safety benefits of regulation vs. prohibition are cornerstones of most legalization campaigns. However, realizing these goals post legalization has been difficult. The lack of Federal policy, access to banking, and the continued stigma around cannabis has created an upstream environment for businesses and communities. The following trends are a result of industry and regulators working to meet these challenges.

Technical Support in State and Local Equity Programs

Probably the most important reason to legalize cannabis is the negative impact of prohibition on communities of color. According to a 2020 report from the ACLU, although cannabis use rates are similar between Black and White people, Black people are 3.73 times as likely to be arrested for cannabis compared to White people. This was highest in Iowa where Black people were 8.34 times more likely to be arrested for cannabis compared to White people. The collateral sanctions for having a drug felony charge include limitations on employment, college, housing and voting. Because arrests are disparate and punishment for these crimes includes limited access to services that bolster chances for economic success, one of the key social justice components of legalization was the establishment of social equity programs.

These programs have two main goals, to address the harm and lack of opportunity discriminately placed on certain communities and people,

and to provide opportunities in the industry for people from those communities. Early social equity programs often focused on fee waivers and early access to licenses. However well intentioned, the results from equity programs have been somewhat lackluster. Even with fee waivers and early access, the cost of entry is extremely high. And, while there are some investors dedicated to working with the equity community, the racial and gender barriers that exist in the fundraising world certainly apply in this situation.

A trend in equity programs is the inclusion of state and local technical support and training, which is a component of equity programs in eight states (CA, CO, CT, IL, MA, NY, VT and WA). These programs may include application support, business development training and mentoring, employee training and technical support for marketing, finance and other business components. California and

Illinois provide technical assistance to help equity applicants complete the application and licensing process. Colorado, Connecticut, and Massachusetts all have opportunities for equity businesses to pair up with licensed entities or vendors approved by the state for technical training and assistance. New York has an equity incubator program that includes counseling services, education, small business coaching, financial planning and compliance assistance. Vermont has both an accelerator and access to grant money and technical assistance through their Cannabis Business Development Fund. Washington has developed a video series covering finance, marketing, taxes and business development available only to equity applicants and businesses. As these programs mature, we will know more about the impact of state funded technical training and accelerator programs on the success of cannabis equity businesses.

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The Shift from Equity to Debt Financing

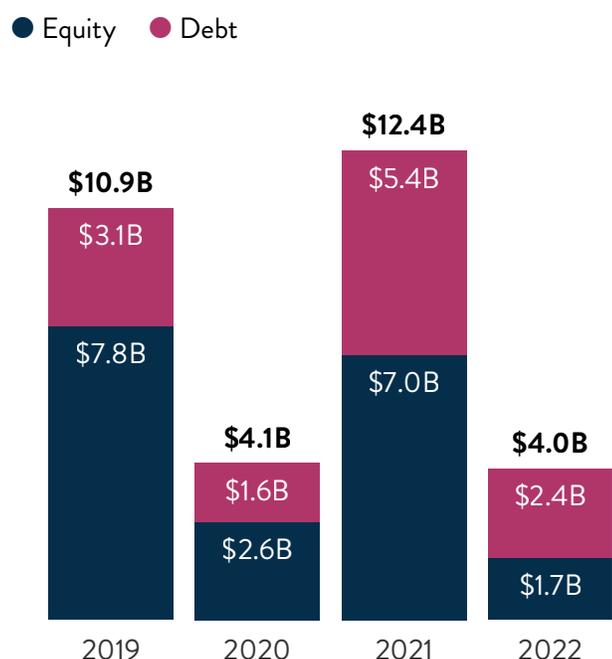
According to our recent [Cannabis Capital: 2023 Industry Market Report](#), debt financing is dominating the investment space. The industry saw a 68% reduction in capital raises between 2021 and 2022. This included a 58% decline in equity raises and a 7% decline in debt raises. In 2021, there were 316 equity raises worth \$7B, this fell to 132 worth \$1.7B in 2022. During that same period, debt raises also fell, but to a much lower extent. In 2021, there were 118 debt raises worth \$5.4B and in 2022 that fell to 110 worth \$2.4B.

According to the financial experts at Viridian Capital Partners, there are several reasons for this shift. First, at the end of 2022 there were still expectations that SAFE Banking could pass. Company CFOs were concerned that recently issued equity could skyrocket in price if this were to happen. This had the effect of freezing the equity market in anticipation of SAFE Banking, especially for plant touching businesses. In 2021, \$3B in equity was put into cultivation companies. In 2022, cultivation equity dropped to \$80M. Second was the movement of investment from Canada to the U.S. in terms of financing. U.S. companies were more mature in producing EBITDA and being able to handle debt. The cost of debt between 21-22 dropped significantly and moved to a straight debt market and away from equity linked debt. We are seeing a slight rebound in equity now. Cost of debt is up, and the amount of debt relative to capital is down slightly.

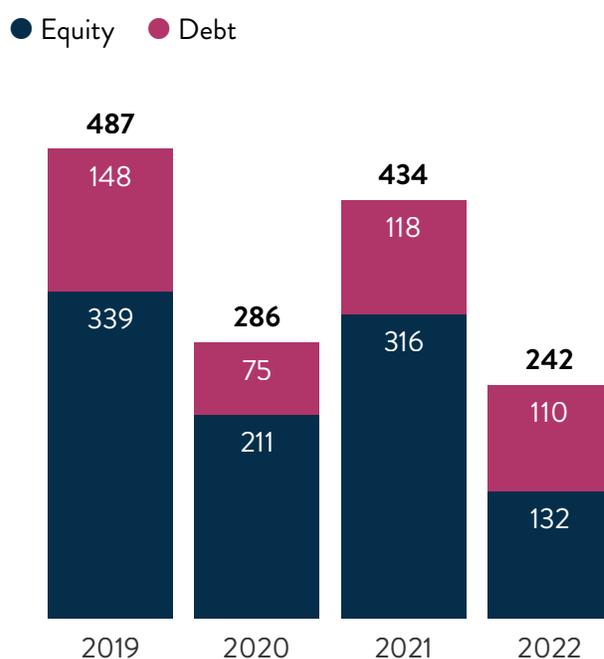
Cannabis Friendly Hotels and Consumption Lounges

One of the biggest fallacies around drug policy is that drug prohibition is drug control. In fact, the opposite is true. Under prohibition, there is no control over who produces drugs, who sells them, who buys them and where or how they are consumed. Laws and regulations define these parameters and then it is up to states and localities to enforce them. And while many states have strict laws around where and how cannabis CANNOT be consumed, regulators and the public are realizing that banning smoking in public areas is only one part of the public health equation. If people are allowed to smoke cannabis, but not in public places, and not in hotels or public housing, where exactly should they do it?

Value of Capital Raises in North America



Number of Capital Raises in North America



Source this page: Viridian Capital Advisors

This conundrum is not new to medical cannabis patients, who for years were forced into places like their cars and secluded alleys to use their cannabis. But now that cannabis tourism is a promising sector of the market and the use of cannabis in public is becoming more normalized, social consumption options are a hot topic of conversation. And it's not just regulators, consumers and cannabis businesses. Local tourism bureaus, hoteliers, caterers, and event producers are also seeking guidance on how to incorporate the social consumption of cannabis into their business models.

Six states currently allow cannabis consumption lounges (CA, CO, IL, MI, NJ, NV). While states like California and New Jersey have on site consumption options at dispensaries, Michigan does not allow cannabis to be sold and consumed in the same place, so their lounges are independent of dispensaries. Also variable is whether non-cannabis food and drink can be served at the lounge. California and New Jersey do not allow this, although California is considering a bill (AB 471) that would create a cannabis caterer license allowing cannabis to be served at a private event such as a wedding.

Cannabis lounges can be crucial in markets with many tourists such as Los Angeles and Las Vegas. Most hotels have no smoking policies and those, along with rules about smoking in public areas can make it difficult for tourists to find places to consume since they do not have access to private homes. Furthermore, tourist dependent areas do not want to alienate non-consumers with open air, public consumption. To address this challenge and opportunity,

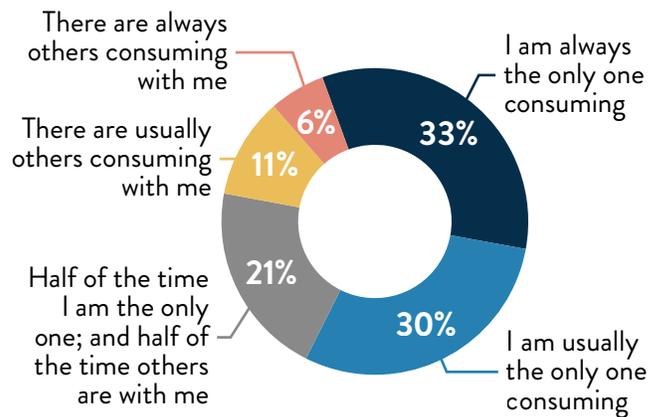
If people are allowed to smoke cannabis, but not in public places, and not in hotels or public housing, where exactly should they do it?

hotels are rethinking their cannabis policies and even providing access to non-smoked forms of cannabis for their guests as well as outdoor areas where cannabis smoking is allowed. Some hotels in popular cannabis regions offer discounts to local dispensaries and guides for guests wanting to experience the cannabis culture. Providing access to non-smoked items, outdoor consumption areas and guiding people towards legal cannabis businesses are all ways of integrating social and appropriate consumption into tourism and the consumer experience.

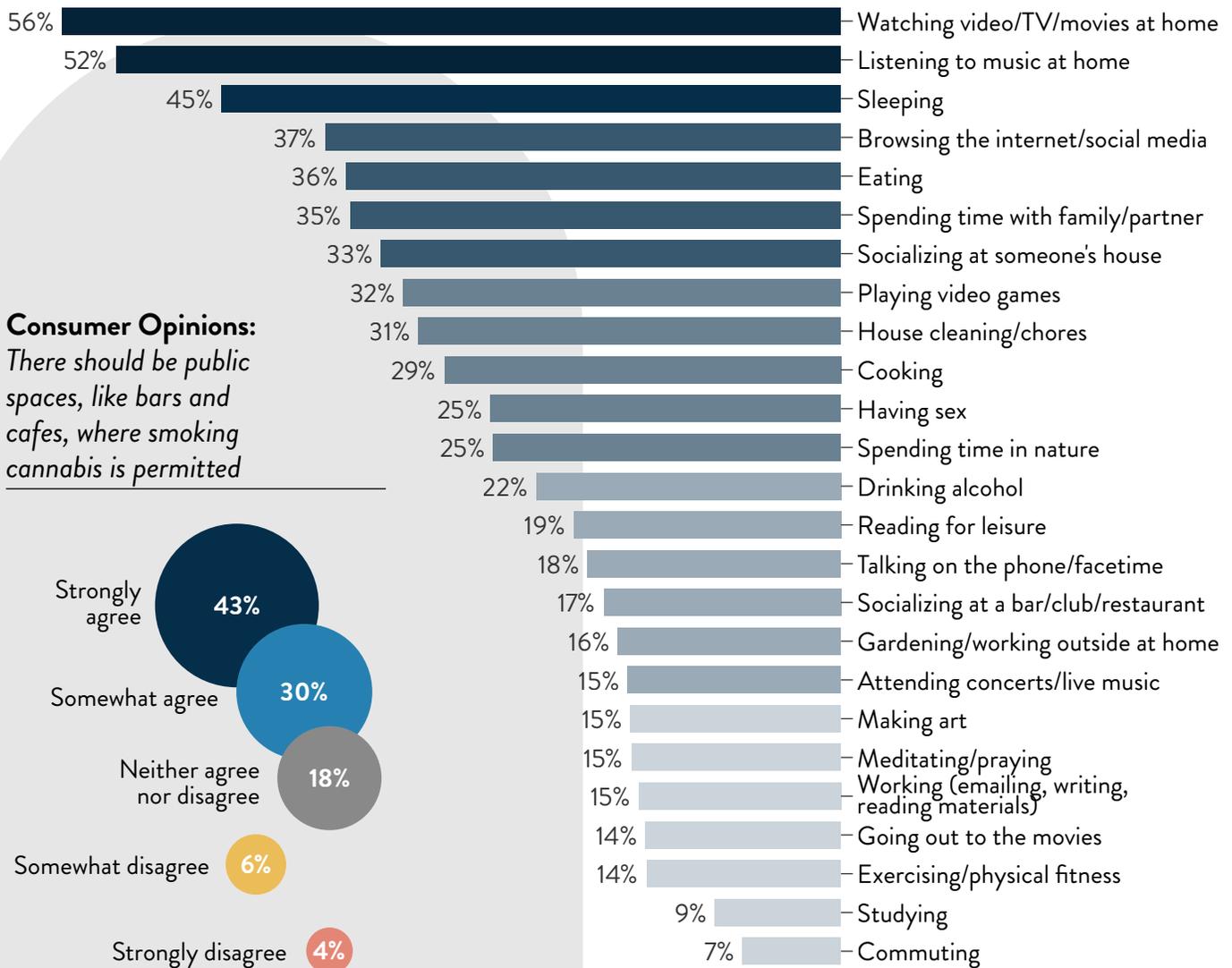
But social consumption is not just about business opportunity, there is a very real public safety and harm reduction component to it. Alcohol bars were developed to curb public drinking and to bring drinking into an environment with oversight and access to help if needed. With an increase in canna-curious visitors who may not be experienced with cannabis consumption, having a safe place to consume is important. Lest we forget Maureen Dowd overdosing on an edible alone in her hotel room.

Indeed, when we look at who people are consuming cannabis with currently, 62.9% say they are always or usually the only one consuming it. This speaks to the need for safe spaces for people to consume around others, which can enhance public and personal safety. Consumers are also highly supportive of the option for public consumption. Seventy three percent of consumers agree that there should be public consumption options.

Do you consume alone or with others?

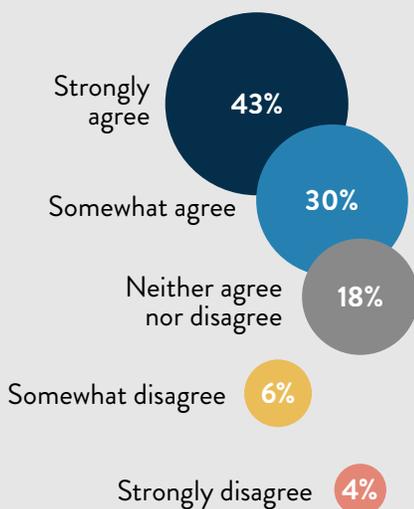


Activities While/After Consuming

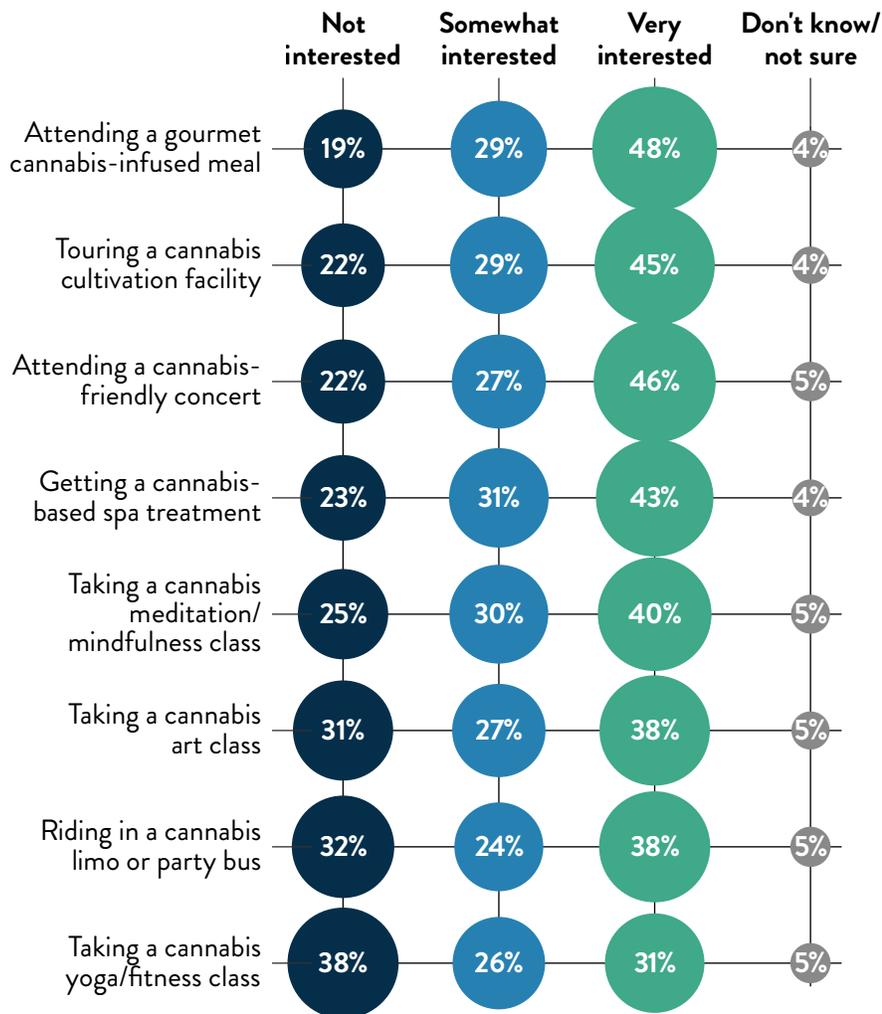


Consumer Opinions:

There should be public spaces, like bars and cafes, where smoking cannabis is permitted

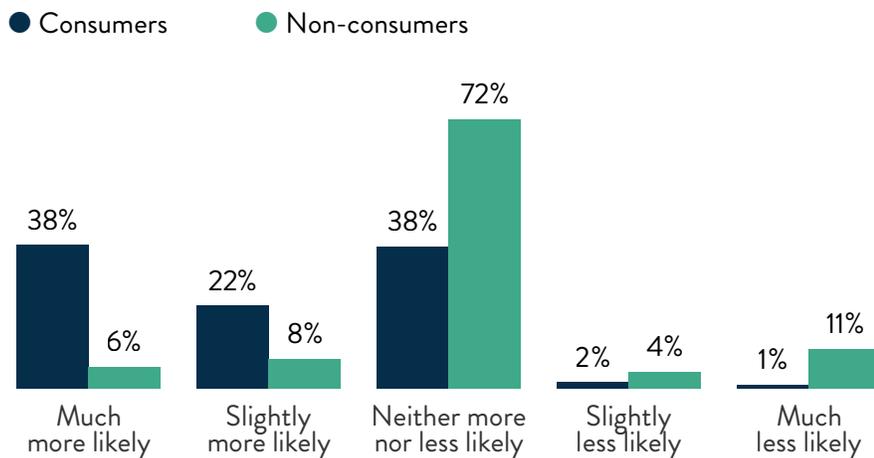


Expressed Interest in Cannabis-Based Activities



Impact of Legalization on Desire to Visit State:

Consumers vs. Non-consumers



While currently only 17.1% of consumers say that they socialize out in a public place with others after consuming, other, more popular, activities such as watching movies, listening to music, eating and spending time with family could be enjoyed in a social space if such a place was available.

Cannabis consumers also express quite a bit of interest in cannabis related activities outside of the home. Interest in activities involving cannabis ranged from 57% interest in taking a cannabis yoga/fitness class to 77% interest in attending a gourmet cannabis-infused meal.

And while state legalization is definitely a pull for visitors who consume cannabis with 59.9% saying legalization makes them more likely to visit a particular state, it is not a deterrent for non-consumers as only 14.8% said it would make them less likely to visit and 71.5% said it would not impact their decision. The availability of cannabis is a draw for consumers but does not keep non-consumers from visiting.

Cannabis Consumers

Alcohol Substitution and Novel Cannabinoids

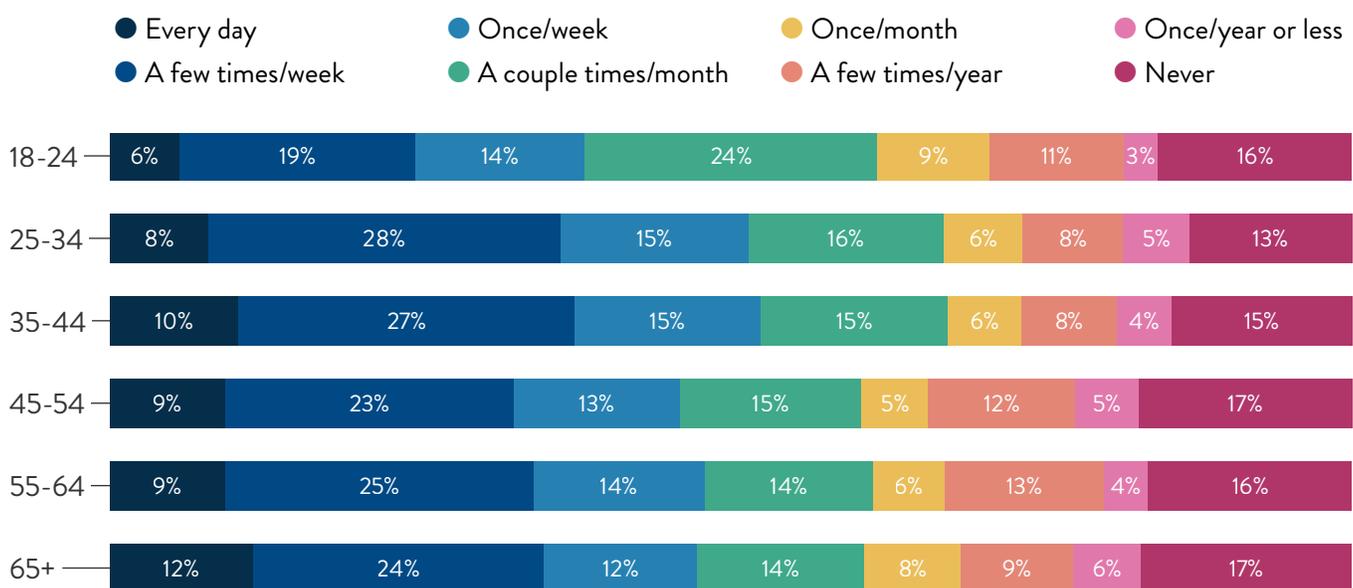
Cannabis Beverages as a Viable Alcohol Substitute

A 2008 study surveyed 350 medical cannabis patients and found that 53% were using cannabis instead of alcohol. And 15 years later in the New Frontier Data Consumer Survey of nearly 4000 current consumers 57% reported replacing at least some of their alcohol with cannabis. This was more profound among younger consumers with 66% of those 25-34 using cannabis as an alcohol replacement. According

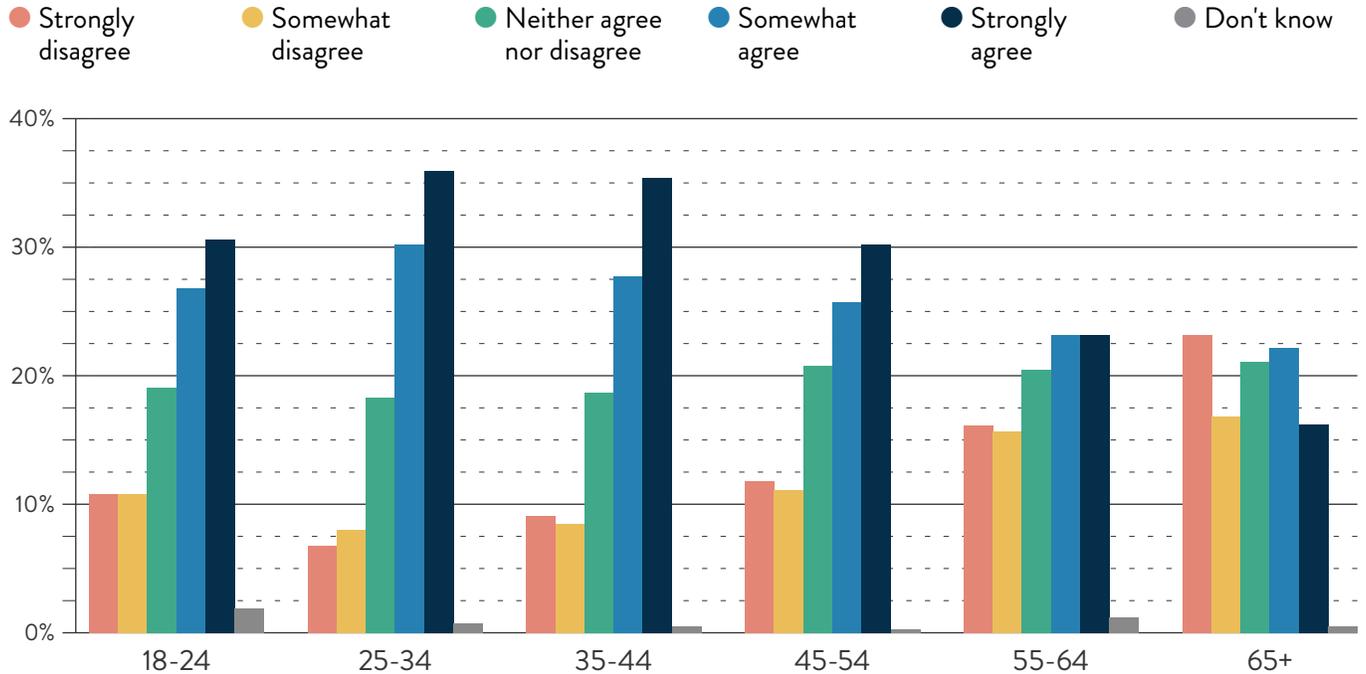
to a recent report from Berenberg Research, Gen Z consumes 20% less alcohol than Millennials did at their age. And, according to our data, they are the most frequent cannabis consumers with 44.1% reporting use multiple times per day.

Younger consumers are the least likely to report using alcohol every day and more likely than those 25-44 to say they never drink. Also, the most common drinking pattern among all age groups is a few times per week, except for those 18-24 who most often report drinking a couple of times per month.

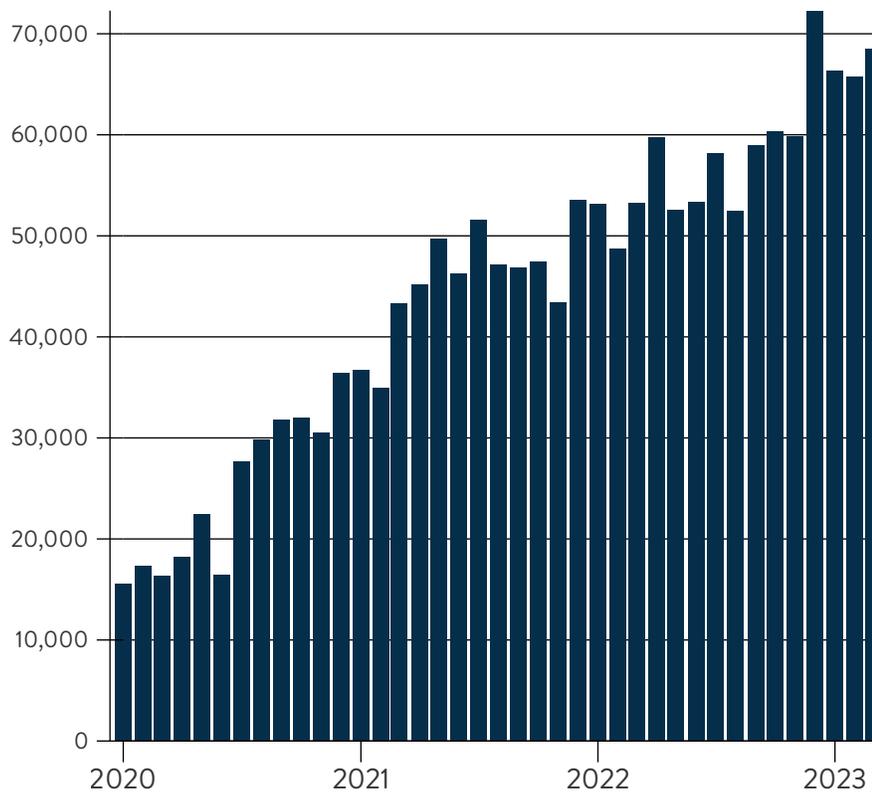
Alcohol Use Frequency: By Age



I have replaced at least some of my alcohol drinking with cannabis.



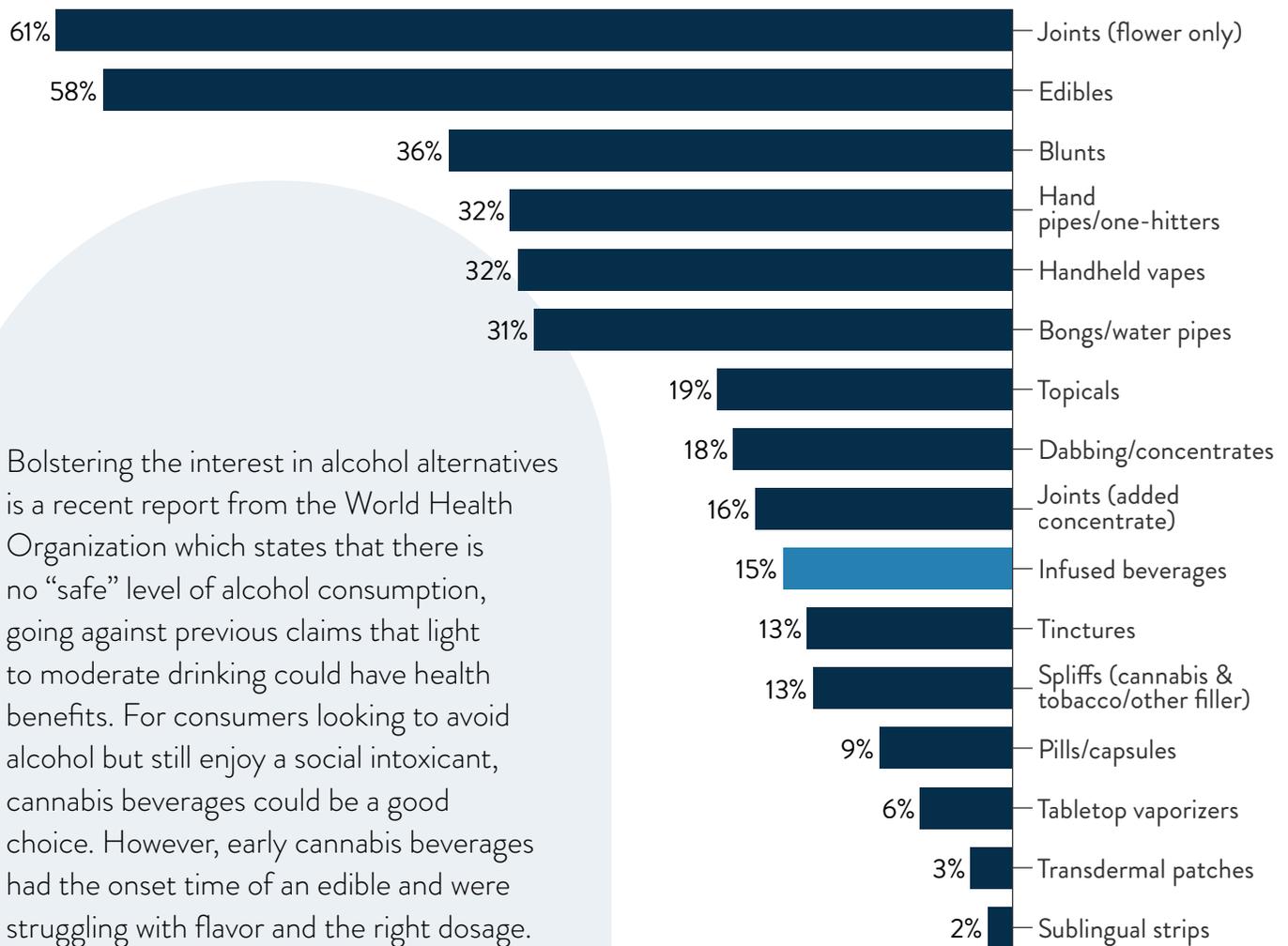
Number of Cannabis Transactions that Included Beverages: 2020-2023



Replacing alcohol with cannabis is common across age groups. Overall, 56.8% of consumers say that they have replaced at least some of their drinking with cannabis.

Sober bars and nonalcoholic elixirs are fast growing sectors of the alcohol-alternative market, and cannabis beverages are emerging in their company. Transactions at the dispensary that included beverages have steadily grown between January 2020 and March 2023 and currently 14.6% of consumers report using cannabis beverages, more than tinctures and spliffs.

Cannabis Forms Used by Consumers



Bolstering the interest in alcohol alternatives is a recent report from the World Health Organization which states that there is no “safe” level of alcohol consumption, going against previous claims that light to moderate drinking could have health benefits. For consumers looking to avoid alcohol but still enjoy a social intoxicant, cannabis beverages could be a good choice. However, early cannabis beverages had the onset time of an edible and were struggling with flavor and the right dosage.

A few recent developments have propelled cannabis beverages into a desired and viable alternative to alcohol. First, to realistically replace alcohol, cannabis beverages needed to fix the issue of delayed onset. Having an onset of 1-2 hours like an edible made beverages unappealing in social situations where alcohol was also being served. However, the introduction of nano emulsion technology, in which cannabinoids are rendered small enough for rapid absorption into the bloodstream, has lowered the onset from 1-2 hours to 10-15 minutes. This allows

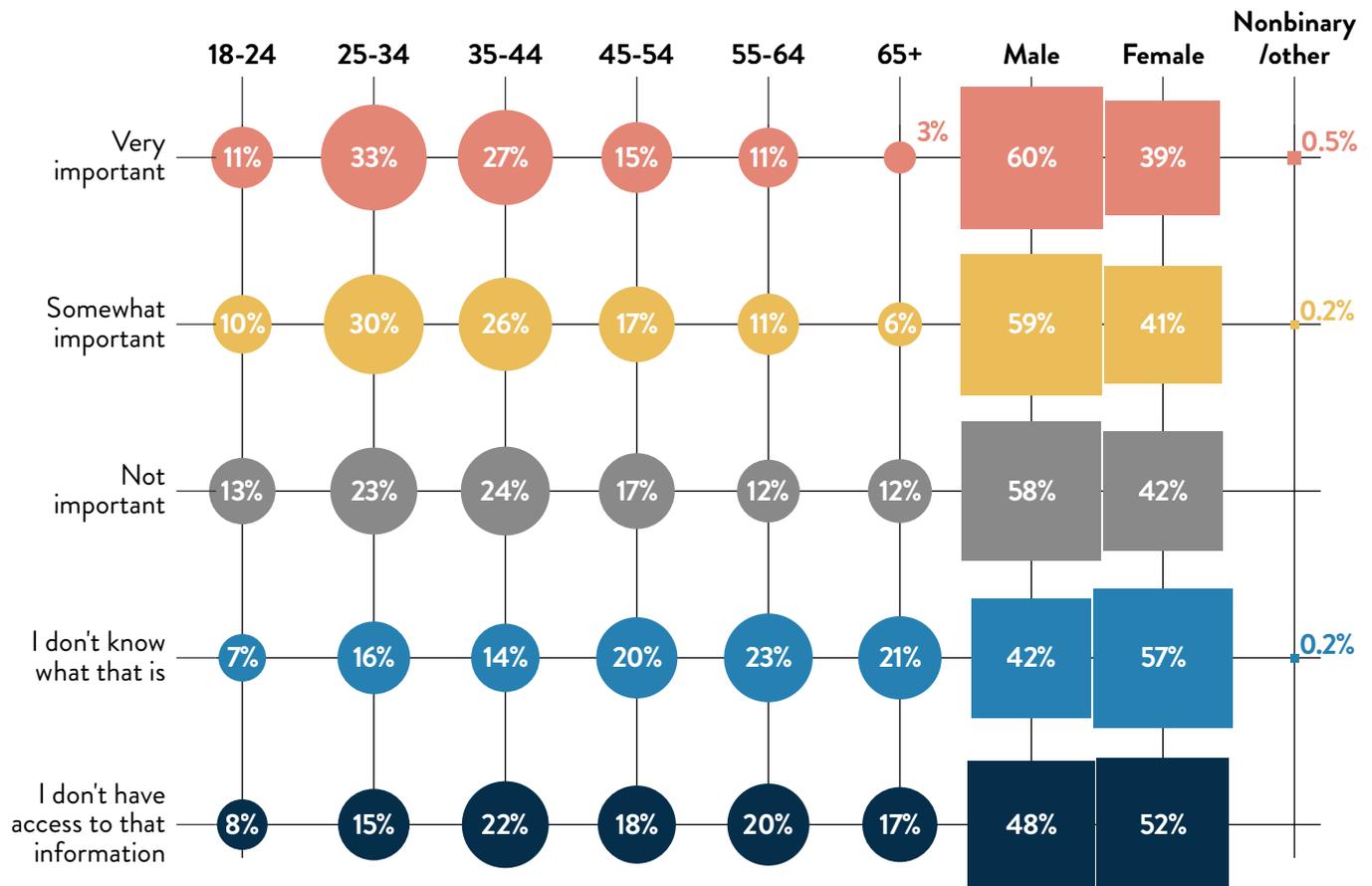
consumers to titrate their dose in a manner they are used to doing with alcohol. Second, they taste better. Cannabis oil can leave a bitter flavor behind, which was unappealing to many consumers. Today’s beverages have worked to formulate unique and interesting flavor profiles that do a better job of masking the bitterness. Finally, the beverages market is finding its consumer. Many early beverages tried to fit enough THC into a bottle to satisfy heavy consumers. And while you can still find 100mg cans and bottles, more often larger dosed products come in the form of

flavor shots and mix-ins that allow the consumer to make their own strong beverage. Most of the newer cannabis beverages are targeting the low dose market. As an alcohol substitute, low dose makes sense to a lot of consumers because they may desire to drink two or three during an event, which, at 5-10mg of THC a piece, is a manageable and enjoyable experience. Furthermore, with the increase in cannabis consumption friendly hotels and venues, beverages are a fun and interactive way to provide cannabis without smoking and without the risks inherent in edibles which, due to delayed onset, are more likely to bring on overdose in an inexperienced consumer.

Consumer Interest in Novel Cannabinoids

THC and CBD used to dominate the cannabinoid conversation. Indeed, these are the two most prolific cannabinoids found in the plant. However, there are over 90 cannabinoids (and counting!) that are present to a lesser extent, including THCV, CBDV, CBC, CBG, and CBN. And although the research on the potential benefits of these novel cannabinoids is still in its infancy, brand and consumer interest is piqued and

Importance of Minor Cannabinoids/Terpenes in Making Purchase Decisions: By Age & Gender



more and more products are including these compounds in their formulations. The presence of terpenes and novel cannabinoids can enhance certain effects of cannabis and give the consumer a better sense of what to expect. And, with lab testing becoming more sophisticated, labels featuring terpenes and minor cannabinoid content are more common.

Interest in minor cannabinoids and terpenes was highest among those 25-44 and men. Interestingly, that age group was also the most likely to say that these factors were not important to them. And while younger consumers 18-24 were less likely to say that these factors influenced their decision, they were the most likely to at least know what a minor cannabinoid or terpene was and the most likely to say they have access to that information. This shows that, although these factors may be more important to older consumers who may be using cannabis for medical/wellness reasons, there is a trend of education and information that is trickling down

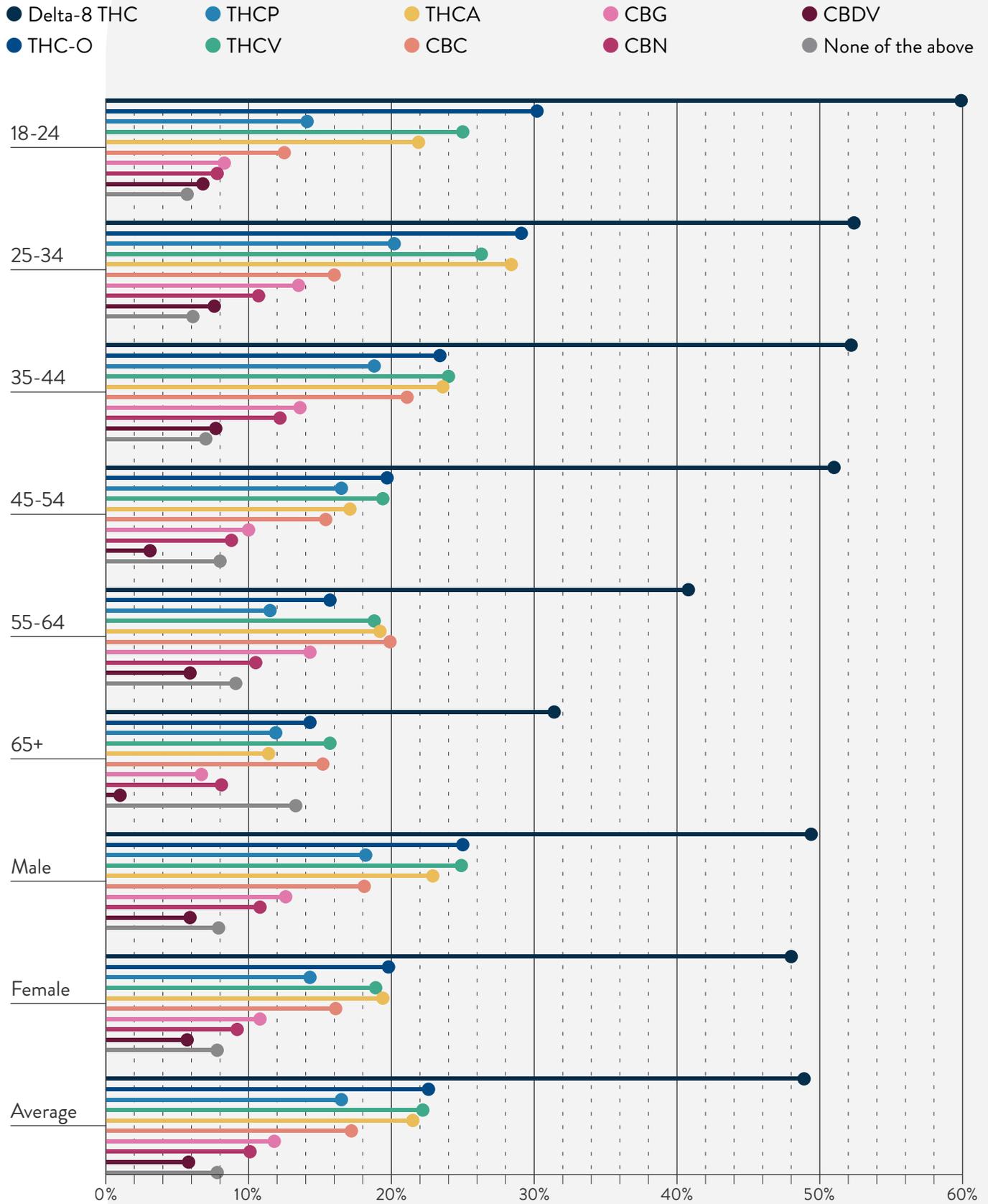
Given the value of cannabis for women's health issues, brands can do a better job of educating women about the role that minor cannabinoids and terpenes play in women's health.

to the younger group. By contrast, 44% of those 55+ did not know what a minor cannabinoid or terpene was. Another interesting result is that 57.4% of women do not know what a minor cannabinoid or terpene is compared to 42.4% of men. Given the value of cannabis for women's health issues, brands can do a better job of educating women about the role that minor cannabinoids and terpenes play in women's health.

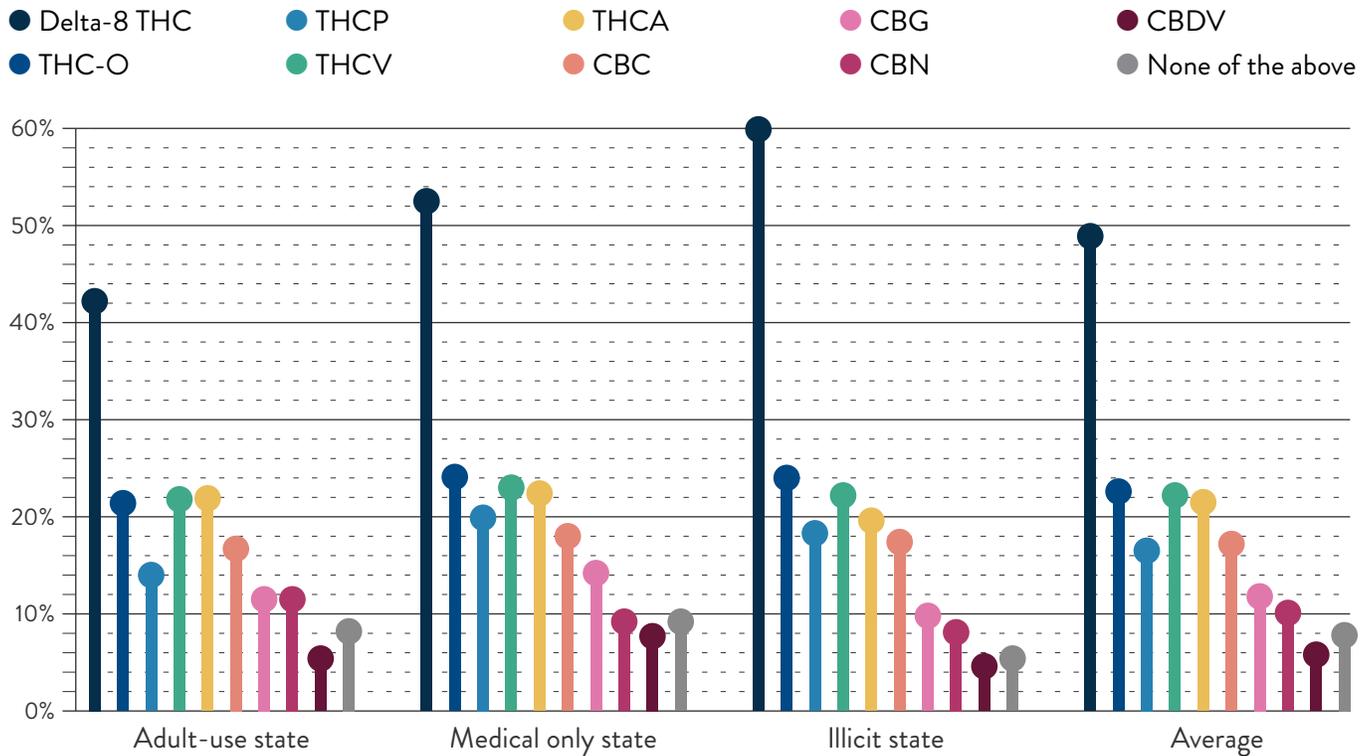
Knowledge of hemp derived cannabinoids like Delta-8 THC, THC-O and THCP was most common among younger consumers and male consumers. Knowledge of minor cannabinoids like THCV, THCA, CBC and others was highest among those 25-44 and men. This 25-44-year-old age group was also the most likely to report these compounds as important when making their purchasing decision. This could be because this age group is more likely to be seeking wellness vs. intoxication outcomes compared to the youngest age group and is more likely to try novel products than older age groups. It should be noted that very few consumers across age groups had not heard of any of the compounds listed.

Knowledge of hemp derived cannabinoids was highest in illicit markets where access to regulated cannabis products does not exist. Nearly 60% of consumers in illicit markets had heard of Delta-8 THC compared to 52.5% in medical only markets and 42.2% in adult use markets. Those in medical only markets were the most likely to know non-intoxicating minor cannabinoids such as CBC, CBG and CBDV. These patterns generally hold when considering both consumers and non-consumers.

Familiarity with Minor/Hemp Derived Cannabinoids: By Age & Gender

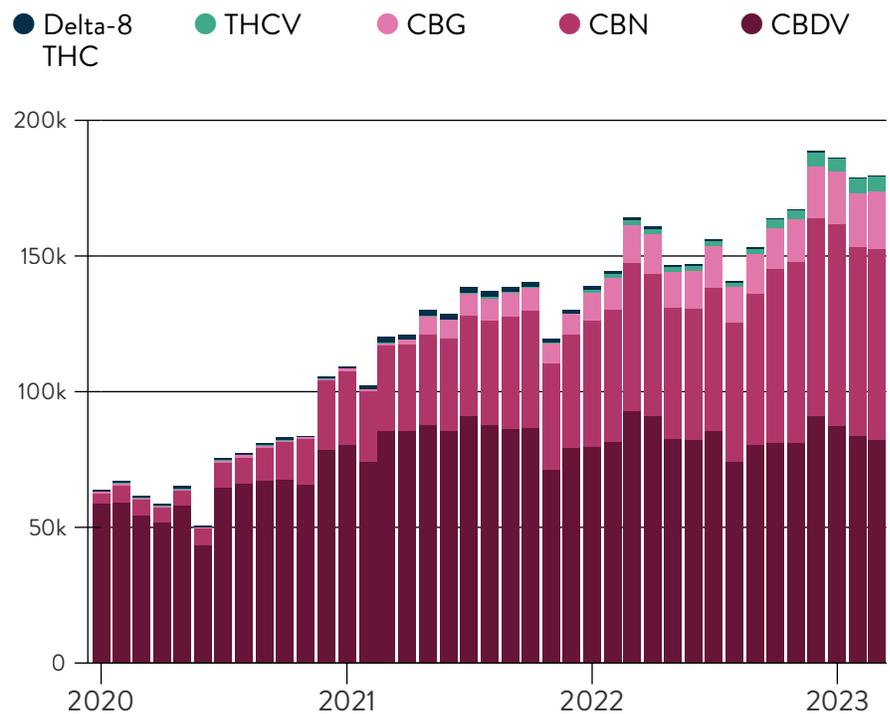


Familiarity with Minor/Hemp Derived Cannabinoids: By State Market Type



The number of cannabis transactions involving products that advertise minor cannabinoids has grown since 2020. The largest growth can be seen in products including CBN. Despite the research being in its infancy, CBN has garnered the reputation as a sleep aid, and has begun to appear in products promoting sleep. This speaks to the desire of consumers to choose products that yield a particular effect.

Transactions Including Products with Minor Cannabinoids: 2022-2023



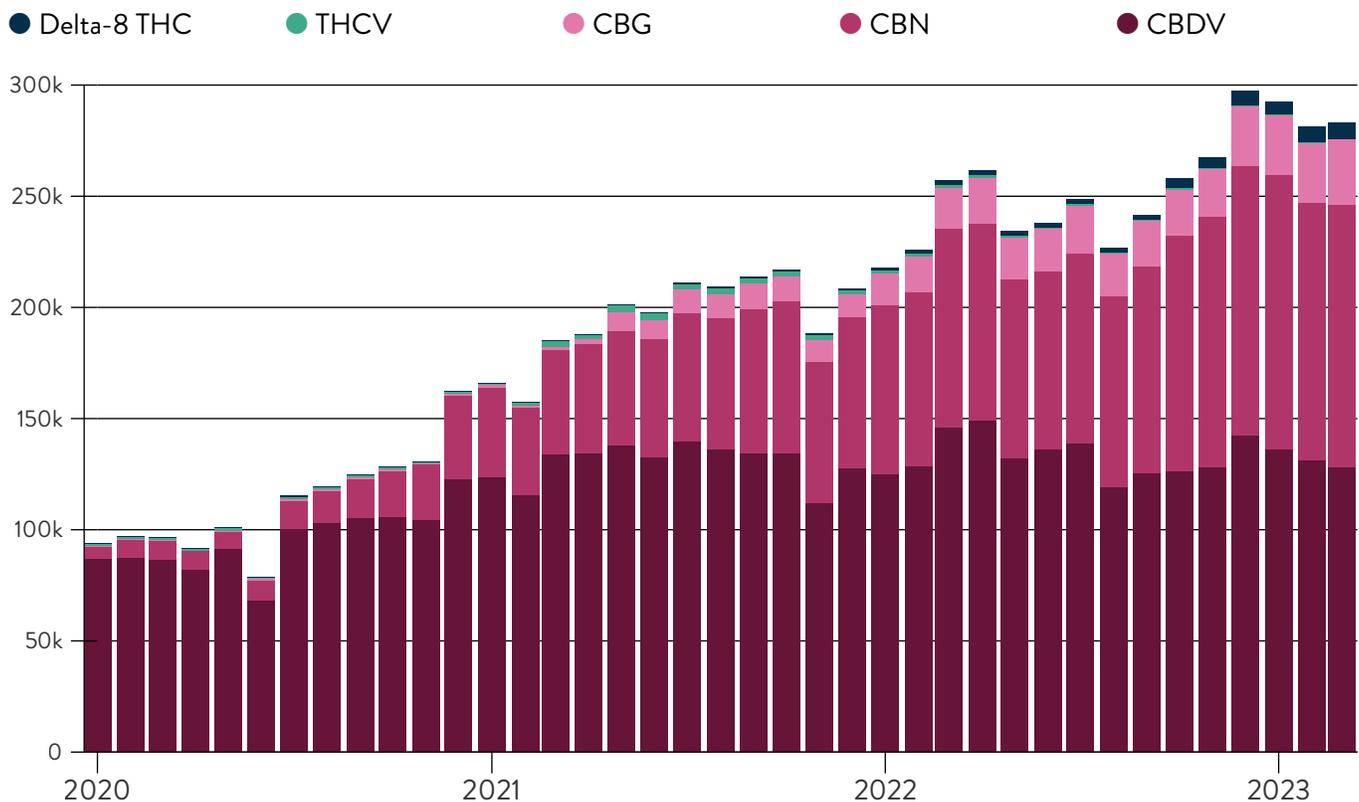
We also see an increase in the number of products with minor cannabinoids being sold at dispensaries. In addition to CBN, we are seeing the emergence of CBG and THCV, the latter is being promoted as an appetite suppressant (again, research in this area is still developing).

The rising interest in terpenes and minor cannabinoids underscores the entourage effect, which claims that the whole plant works together to provide benefits, including compounds found in trace amounts.

Beyond the presence of minor cannabinoids in regulated cannabis products, it is important to again touch on hemp derived cannabinoids such as Delta-8 THC. In regulatory flux, these

compounds, produced from federally legal hemp, have become popular in illicit markets especially, but also in legal markets due to their lack of hefty cannabis taxes. However, there are no regulations around the production or testing of these products, which has caused concern among both consumers and the legal cannabis industry as any health and safety issues that arise from the hemp-derived cannabinoid market may result in tougher regulations for the legal cannabis market. While the DEA (Drug Enforcement Administration) has issued guidance stating that synthetically derived hemp-based cannabinoids are illegal and controlled substances, the large market that has grown up around them shows no signs of slowing down.

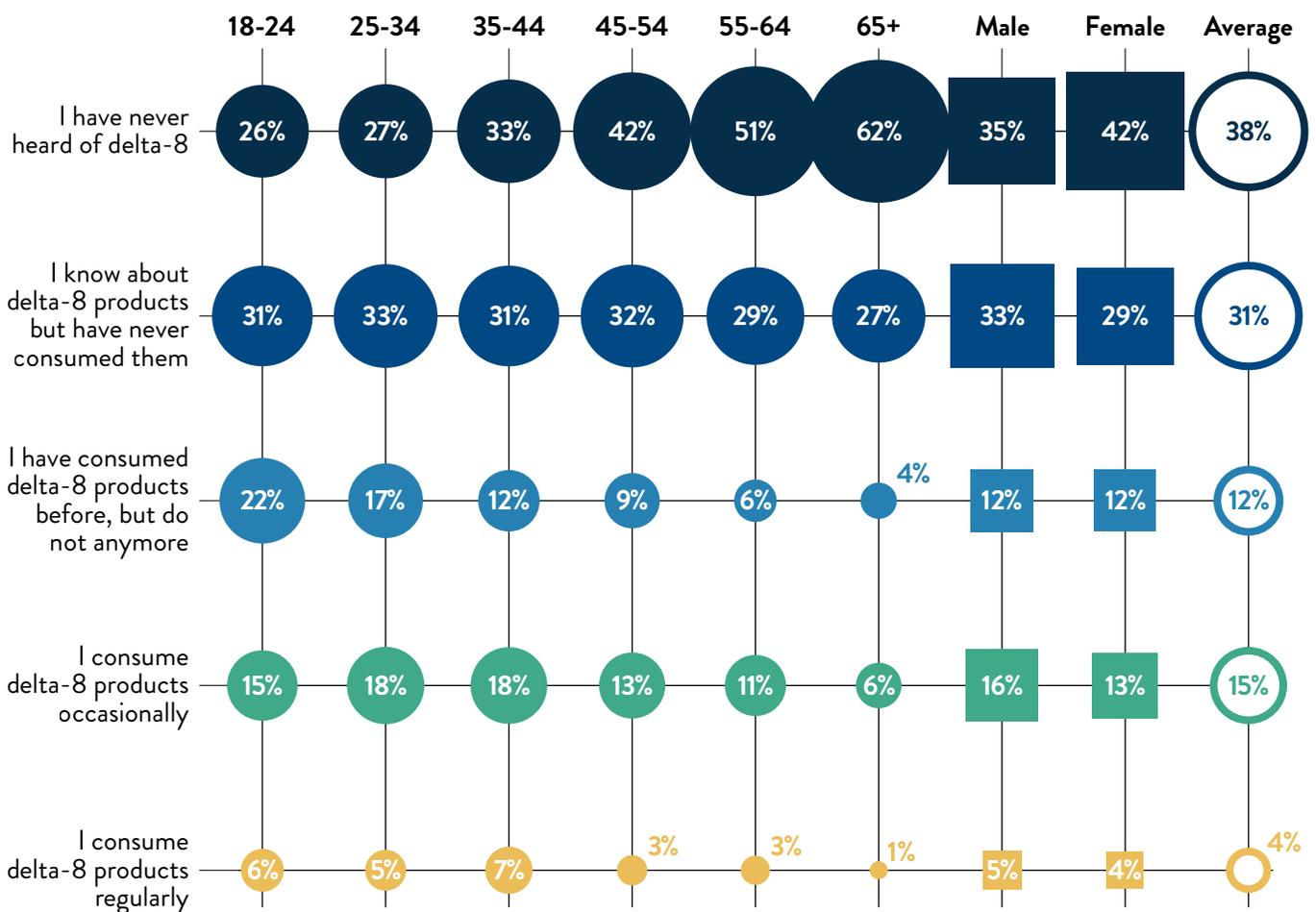
Number of Products with Minor Cannabinoids Sold: 2022-2023



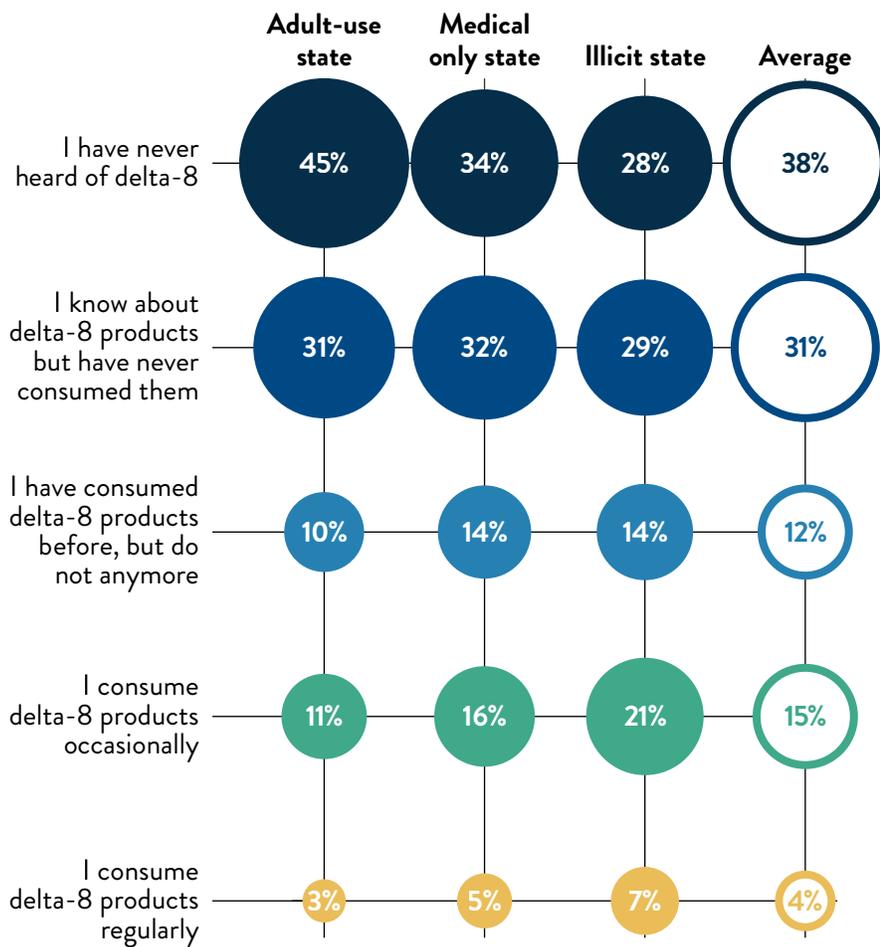
While younger consumers are the most likely to have heard of Delta-8 THC, those 25-34 are the most likely to be former consumers of Delta-8 THC and those 35-44 are the most likely to report using Delta-8 products regularly. This could be because Delta-8 THC has a reputation for being

less intoxicating than Delta-9 THC and may appeal to those with lower tolerances, while consumers over 44 may be less likely to try new and untested compounds. And, while men are more likely to report knowing about Delta-8 THC, reports of regular use are about the same between men and women.

Knowledge and Use of Delta-8 THC: By Age & Gender



Knowledge and Use of Delta-8 THC: By State Market Type



As previously discussed in this report, Delta-8 THC is more commonly known in illicit markets. Consumers in illicit markets are also more likely to report using Delta-8 THC (28.6% use occasionally or regularly). Consumers in adult use and medical markets are more likely to say that they have heard of Delta-8 THC but never used it, highlighting how access to naturally derived cannabinoids offsets the desire or need to try synthetically derived cannabinoids. These patterns hold when considering both consumers and non-consumers.

Conclusion

SINCE 1996, the United States has been moving piecemeal towards full federal legalization. The process of incrementalism has resulted in the remnants of prohibition still very much playing a role in the evolution of cannabis products, industry and consumerism.

Understanding the impact that decades of prohibition have on cannabis trends is crucial to meeting consumers where they are, developing products to meet their needs, and ensuring that programs address both the harms of prohibition and the needs of the modern consumer.

Key Takeaways

Because of prohibition, cannabis consumers may still equate potency with quality and default to flower as their product of choice.

However, the evolution of legalization and regulated access has consumers, especially younger consumers, looking for a wider variety of products and moving away from exclusively smoking as their method of ingestion.

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Potency and effect continue to dominate product purchase decision-making in regulated markets.

Manufactured products that provide more standardized dosing, predictable effects and lower dose options are meeting consumer demand, especially as we see the entry of casual consumers into the legal market.

States are funding technical assistance and education for equity applicants and businesses.

This is a move away from simply providing fee waivers and early access to licensing as was seen in many earlier equity programs. The goal being to not just bring equity businesses into the industry, but to support their success long term.

There has been a shift away from equity financing and towards debt financing, especially for plant touching companies.

This is related to concerns about the volatile value of equity in light of federal action/inaction, the cost of debt declining, and the shift of financing from Canadian to American companies.

Cannabis lounges are addressing issues related to inappropriate consumption, public health and safety concerns and the needs of the emerging cannabis tourism market. Currently, most consumers use cannabis alone and stay home during and after the experience. However, there is high interest in participating in cannabis activities outside of the home, and those in the tourism industry are developing novel ways to incorporate cannabis into their offerings.

New technology in the sector of cannabis beverages is making them a more viable substitute for alcohol, especially among younger consumers who are using alcohol less than the generations before them. Cannabis beverages are also finding their niche among those looking for low dose options that have a rapid onset and can be used in public places.

Hemp derived cannabinoids like Delta-8 THC are most known and used in illicit markets due to the lack of access to natural, regulated cannabis products. Those in markets with access have also heard of these compounds but are less likely to consume them. This highlights the impact that legalization has on providing access to a safe supply of regulated products, and that prohibition does not prevent people from accessing intoxicating products, it just limits their access to products tested for potency and safety.

Prohibition does not prevent people from accessing intoxicating products, it just limits their access to products tested for potency and safety.

Products with minor cannabinoids are finding favor among the 25–44-year-old group of consumers. This could be tied to using cannabis for wellness and the claims that are being made about the effects of minor cannabinoids. However, women are less likely than men to know about these compounds, providing an opportunity for brands focused on women's health. Younger consumers are more likely to know about these compounds but less likely to seek out products that contain them. Older consumers are both less likely to know about and to choose products with minor cannabinoids, perhaps because they are less likely to be inclined to try new products overall.

Methodology

Data Overview

New Frontier Data's analysis in this report represents a new threshold of modeling in the evolving cannabis industry. The forecasts presented leverage data collected over 13 years, both spanning the breadth of the cannabis industry and including insights gained from dozens of state, national, and global forecasting iterations. The term "cannabis" here (i.e., also commonly referred to as marijuana) refers to high-THC cannabis and cannabis products sold in both legal and illicit markets. Legal cannabis refers to products sold in regulated channels, including dispensaries and delivery services. The illicit market is defined as sales of cannabis and cannabis products outside of regulated and taxed dispensaries or retail sales.

The data included in this report is drawn from a wide range of sources, including:

RETAIL SALES

Point-of-sale data from strategic partnerships with industry-leading technology platforms provide visibility into retail sales trends, including evolving product demand, pricing and sales trends, and variability across markets.

CONSUMER SURVEYS

New Frontier Data designed and conducted an online survey to assess cannabis consumer attitudes, perceptions, and consumption across legal and unregulated markets in the United States. Survey themes included: cannabis use, purchasing behavior and decision influencers, product preferences and expenditures, beliefs about cannabis, and other consumption

SURVEY OVERVIEW		
Methodology	Online Survey	
Sample Size	Total Respondents	5,534
	Consumers	4,358
	Non-consumers	1,176
Fielding Dates	Feb 17 - Feb 26, 2023	
Mean Duration	16 minutes	
Margin of Error	Consumers	±1.48%
	Non-consumers	±2.86%

behaviors. U.S. adults who were not cannabis consumers were also surveyed about potential future cannabis use, and beliefs and attitudes about cannabis, and social and personal connections to cannabis consumers.

Sampling was demographically representative of the adult population in the United States. Analyses were conducted among 4,358 cannabis consumers – respondents who indicated that they consumed cannabis in the past, and will consume it again, as well as 1,176 non-consumers. The survey was conducted in Q1 2023.

Market Projection Methodology

New Frontier Data has developed proprietary models for estimating the size of both the legal and illicit cannabis markets in the U.S. The models are continually refined based on new data inputs, expansion of legalization into new markets, changes in state regulations, and other market-disrupting events. The market growth projections for legal sales included in this report reference both adult-use and medical markets, and are focused exclusively on retail sales to medical patients and adult-use consumers. These projections do not include wholesale transactions between producers, processors, and retailers, or revenues collected by state governments. Nor do they include revenues from the ancillary (non-plant touching) sectors of the industry. The growth models were developed based on analysis of key inputs including:

- Size and growth of the total population within each state;
- Size and growth of the adult population within each state;
- Growth of cannabis usage rates in each state market;
- Monthly changes in legal medical and adult-use cannabis sales in legal state markets;
- Size and growth of the tourism population in states with adult-use sales, as well as in medical-use states that offer reciprocity to cardholding medical patients from other states;
- Monthly changes in patient registrations in each medical market since the activation of a medical program;
- Number and types of qualifying medical conditions accepted in the states which track patient registration growth;
- Monthly changes in medical cannabis expenditures per patient in the states which track this data;
- Monthly changes in expenditures per person in adult-use states which track this data;
- Interplay between medical and adult-use sales in states where adult-use sales are legal (specifically including demand elasticity to price differences in open-access markets);
- Time between passage of each state's respective legalization measure and launch of sales; and

- Analysis of each state’s regulatory model to identify similarities and differences in each market’s structure, to apply appropriate proxy estimations for more accurate variable predictions in new markets.

Based on such inputs, an economic growth model was applied to project the sizes of legal and illicit state markets through 2025. The projections depend on estimated sales per capita in both medical and adult-use markets, and the model is iteratively refined as additional data is collected on each market.

DOMESTIC CANNABIS CONSUMER ESTIMATIONS

The number of estimated cannabis consumers in a given state depends heavily on both the state’s total adult population, and reported cannabis usage rates compiled by the U.S. Department of Health and Human Services from its annual Nation Survey on Drug Use and Health (NSDUH) – which New Frontier Data has adjusted to account for underreporting errors, and projected growth in usage rates according to each state’s unique legal status and regulatory environment.

TOURISM CANNABIS CONSUMER ESTIMATIONS

New Frontier Data aggregates data from private data partnerships and publicly available sources that provide transparency into spending and consumption rates, as well as monthly sales share attributable to in-state residents vs. out-of-state visitors across all legal operating adult-use markets. This data is ingested and analyzed on a monthly basis in conjunction with respective overall state tourism visitation data, and provides the foundation for the development of expected participation and spending rates by tourist visitors in markets that have legalized adult-use sales but have yet to become operational. The tourism consumer projection models are updated iteratively to reflect changes in industry regulation that are pertinent to tourism participation, i.e.: product restrictions, rules surrounding delivery to non-private residences/hotels, allowance for public social-use spaces, and subsequent legalization of adult-use cannabis in a bordering state.

About Us



NEW FRONTIER DATA is the premier data, analytics, and technology firm specializing in the global cannabis industry, delivering solutions that enable investors, operators, advertisers, brands, researchers, and policymakers to, engage, and transact with the cannabis industry and its consumers. New Frontier Data's global reach and reputation is evidenced by research and analysis citations in more than 85 countries. Founded in 2014, New Frontier Data is headquartered in Washington, D.C., with presence in Europe, Latin America, and Africa.

Mission

New Frontier Data's mission is to inform policy and commercial activity for the global legal cannabis industry. We maintain a neutral position on the merits of cannabis legalization through comprehensive and transparent data analysis and projections that shape industry trends, dynamics, demand and opportunity drivers.

Core Values

- Honesty
- Respect
- Understanding

Vision

To be the nexus of data for the global cannabis industry.

Commitment to Our Clients

The trusted one-stop shop for cannabis business intelligence, New Frontier Data provides individuals and organizations operating, researching, or investing in the cannabis industry with unparalleled access to actionable industry intelligence and insight, helping them leverage the power of big data to succeed in a fast-paced and dynamic market. We are committed to the highest standards and most rigorous protocols in data collection, analysis, and reporting, protecting all IP and sources, as we continue to improve transparency into the global cannabis industry.

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