CANNABIS PUBLIC POLICY CONSULTING

Examination of Cannabis Consumers in New Mexico and the Use of Cannabis as a Replacement Substance.

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Prepared for:
New Mexico Department of Health
Harold Runnels Building
1190 S. St. Francis Drive
Santa Fe, NM 87505

Prepared by:
Sara Zimmer, M.S.
Michael Sofis, Ph.D.

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Contents

POPULATION-LEVEL SURVEY 1

Executive Summary 1

Section 1. Research Design 3

Section 2. Survey Participant Demographics 4

2.1 Demographic Information 4

Section 3. General Population Findings on Cannabis Consumption 5

3.1. Cannabis Use and Prevalence 5

Section 4. Registered Medical Cannabis Patients 8

4.1 Patient Characteristics and Consumption Patterns 8

4.2. Cannabis Product Preferences 9

4.3. Enrollment and Provider Perceptions 10

4.4. Online Patient Portal 11

4.5. Qualifying and Nonqualifying Conditions 12

4.6. Medical Cannabis Experiences 13

4.7. Taxation 15

4.8. Adult-Use Cannabis Market 15

Section 5. Access and Transportation 17

Section 6. Purchasing Behavior 19

Section 7. Public Health 22

7.1. DUIC 22

7.2. Cannabis Storage and Use Inside the Home 23

7.3. Cannabis Use Disorder 25

Section 8. Medical Care and Health 26

8.1. General Health 26
8.2. Medical Provider Interactions 27
8.3. Cannabis Experiences and Perceptions of Use 28
8.4. Problematic Substance Use 29

Section 9. Cannabis as a Replacement for Other Substances 30
9.1. Prevalence of Cannabis as a Replacement 30
9.2. Prescription Medication Adherence 32

FOLLOW-UP SURVEY 34

Section 10. Follow-Up Survey 34
10.1. Follow-Up Survey Participant Characteristics 35
10.2. Substance Use Consumption Trends 36
10.3. Risky Substance Use 36
10.4. Change in Alcohol Use 38
10.5. Change in Tobacco Use 39
10.6. Health and Well-Being 40

POPULATION-LEVEL SURVEY

Executive Summary

This report details the methods and results of a two-timepoint research study commissioned by the New Mexico Department of Health (DOH), conducted between March and May 2024. The goals of this research study were twofold. First, this study intended to capture general population patterns of cannabis use and medical cannabis patient experiences in New Mexico (population-level survey). Second, this study aimed to assess prevalence and exploratory outcomes associated with the intentional use of cannabis as a replacement for other substances among people who exhibit potentially risky substance use behaviors (follow-up survey). Findings from this study are projected to inform policy efforts and offer critical insights to patients, healthcare providers, and public health professionals.

This report contains our best efforts to obtain meaningful data germane to public health, along with important comparisons between the present survey's findings, results from our 2023 survey, and data from a national sample of cannabis consumers. We believe that our sample (N = 582) is representative of the population of New Mexico and have remained deliberate in our analysis, refraining from making overreaching conclusions about populations and trends.

Delineated below are some of our principal findings from our cross-sectional, population-level survey of cannabis consumers in New Mexico. These findings are more thoroughly described throughout sections 1-9 of the document. Please refer to section 10 for a detailed discussion of findings from our follow-up survey.

General Population Findings

- General patterns of cannabis use (methods of use, frequency of use, etc.) in New Mexico parallel national findings from other states with similar cannabis regulations. Those who consume cannabis on more days throughout the past month are more likely to also consume cannabis more times per day and use products with a higher tetrahydrocannabinol (THC) potency than those who consume cannabis on fewer days in the past month.
- Most individuals can travel within 20 minutes to a dispensary to purchase cannabis. Few reported barriers were associated with a lack of accessibly located regulated dispensaries for most individuals in New Mexico.
- The cost of cannabis remains the most reported barrier that negatively impacts access. Compared to findings from our 2023 survey, cannabis consumers in this year's sample spent less money in the past month on cannabis.
- Cannabis consumers in this sample are less likely to have a sober, designated driver in place when consuming cannabis than when drinking alcohol.
- Adult cannabis consumers with children under the age of 18 residing in their household were more likely to report that they store their cannabis in a locked location compared to those without children. However, nearly 50% of participants with at least one child under the age of 18 residing in their household reported smoking or vaping inside their house most of the time or all the time.

- Intentionally using cannabis to reduce, replace, or stop the use of another prescription or nonprescription substance is not uncommon, with nearly one-third of the sample reporting this as a motive for their cannabis consumption.

Registered Medical Cannabis Patients

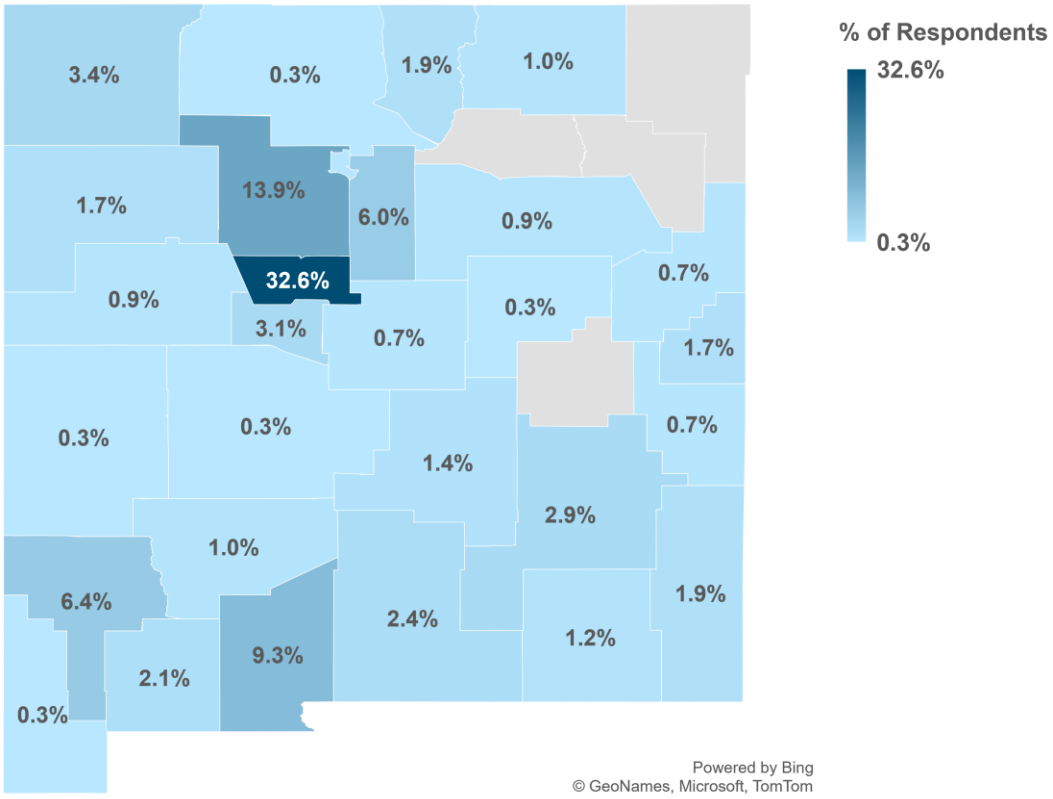
- Over half of medical registry patients utilize both the medical and adult-use markets and use cannabis for both medicinal and recreational purposes.
- There appear to be few, if any, challenges or burdens associated with use of the Online Patient Portal to enroll or renew in the New Mexico Medical Cannabis Program compared to the paper applications. Younger medical patients are more likely to utilize the patient portal on a more frequent basis compared to those who are older.
- Most medical patients in our sample plan to remain in the medical cannabis program when their card is due for renewal, primarily due to lower cost of medical cannabis products, preference for the types of products available to them, and tax exemptions for medical cannabis.
- Similar to findings from our 2023 survey, most medical patients report that they are highly satisfied with the pricing, supply, quality, and potency of medical cannabis available to them.
- Medical patients were more likely to report that medical providers have spoken with them about a variety of cannabis health and safety topics, demonstrating a notable benefit of involvement in the medical cannabis program.

Section 1. Research Design

To qualify for participation in this study, respondents must have reported that they currently reside in New Mexico and are past-year cannabis consumers. A total of 582 respondents met all qualifying criteria to participate in this study and completed the full survey.

Figure 1 displays the geographic distributions of participants by county. The percentage of survey participants residing in each county is almost perfectly correlated with the percentage of actual New Mexico residents in each county (r = .96), which suggests that our recruitment of New Mexico residents is geographically consistent with actual county populations in the state. Demographic characteristics between the survey sample and the population of New Mexico matched by 95%, as shown in table 1. Together, these correlations strengthen our confidence that the findings shown in the report are likely to accurately reflect trends in the state of New Mexico.

Figure 1. Geographic Distribution of Survey Respondents in New Mexico.



Section 2. Survey Participant Demographics

2.1 Demographic Information

Table 1. Demographic Distributions

	Survey	New Mexico
Age (Median)	40	38.6
Race		
American Indian, Native American, or Alaska Native	8.1%	11.2%
Asian	1.2%	1.9%
Black or African American	6.7%	2.7%
White	78.7%	81.3%
Native Hawaiian or other Pacific Islander	0.7%	0.2%
Multi-race	4.8%	2.7%
Gender Identity		
Male	44.3%	49.8%
Female	52.9%	50.2%
Transgender man/trans man/female-to-male (FTM)	1.0%	
Transgender woman/trans woman/male-to-female (MTF)	0.2%	
Genderqueer/gender nonconforming	0.2%	
Nonbinary	1.0%	
Decline to answer	0.3%	
Family Income (Median)	$45,000	$58,722
High School Degree or Higher	98.5%	87.1%

Key demographic characteristics of the survey respondents and the general New Mexico population reported by the U.S. Census Bureau[1] are shown in table 1. Most of the survey respondents were White (78.7%) and female (52.9%). Median age of the survey sample paralleled that of the actual New Mexico population. Total household income was slightly lower in our sample compared to the census.

Not listed in table 1: Among the total sample, 13% of respondents indicated that they currently reside on Native American tribal, pueblo, or sovereign land in New Mexico. Eight percent indicated that they have served in the U.S. Armed Forces, military reserves, or National Guard. On average, respondents reported that there were three individuals residing in their household and 43% reported having one or more children under the age of 18 living in their household. Eighty-nine percent of respondents had active health insurance at the time of taking this survey.

[1] U.S. Census Bureau. (n.d.). *QuickFacts New Mexico*. Retrieved April 16, 2024, from https://www.census.gov/quickfacts/fact/table/NM/PST045223

Section 3. General Population Findings on Cannabis Consumption

3.1. Cannabis Use and Prevalence

To qualify for participation in this study, respondents must have indicated that they consumed cannabis in the past year. Among the full sample of past-year cannabis consumers, 90.4% of participants reported consuming cannabis at least on a monthly basis, and 45.2% consumed cannabis daily or almost every day.[2]

Figure 2. Cannabis Use Frequency Among Respondents.

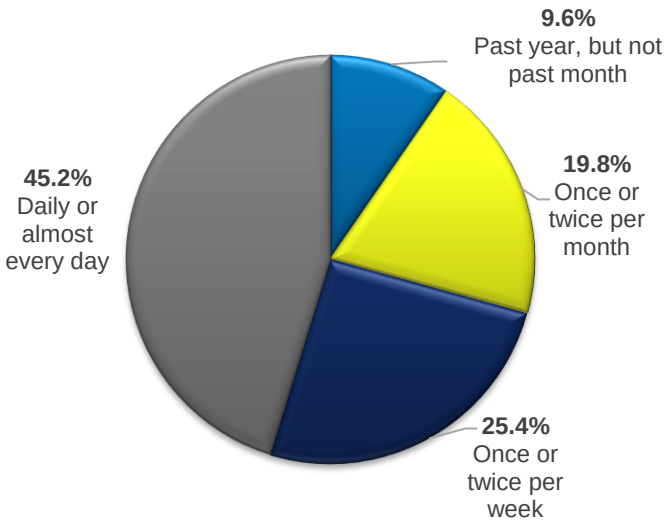


Table 2 summarizes general cannabis consumption patterns among those who reported consuming each respective cannabis product at least once within the past month. Flower products appear to be the most frequently consumed product, with past-month flower consumers reporting an average of 15 days of use within the past month. Those consuming vape products within the past month reported an average of 12 days of use, followed by 11 days for concentrate products and 8 days for edible products. Reported past-month days of use for tinctures and topicals were slightly lower compared to other methods of consumption (7 and 8 days of use within the past month, respectively). These findings mirror those from a national sample[3] of past-month cannabis consumers who reside in states with similar adult-use and medical cannabis regulations. Participants in this sample reported typically consuming cannabis with 25–30% THC and 15–20% cannabidiol (CBD), and consuming cannabis three times per day, on average. Being a medical patient significantly predicted one's preferred CBD potency, such that patients reported consuming products with higher CBD potency compared to nonpatients. Similar to findings from our 2023 survey, consumers of vape and concentrate cannabis products consumed higher potency (THC) products compared to those who preferred smoking flower or ingesting edibles, and more frequent consumption of vape and concentrate products was associated with significantly higher THC potencies.

[2] These data are not intended to provide an estimate of cannabis consumption prevalence among the general population of New Mexico, as our sample contains exclusively past-year cannabis consumers.
[3] Cannabis Public Policy Consulting (2023, September). *The regulatory determinants of cannabis outcomes survey* [Unpublished data].

Table 2. Comparison of Consumption Patterns (Days in the Past Month) Among Past-Month Cannabis Respondents in New Mexico to National Data.

	Smoke (Flower)	Edibles	Vape	Concentrates
New Mexico	15 days	8 days	12 days	11 days
National Data from Other Adult-Use States[2]	14 days	10 days	13 days	12 days

Table 3. Consumption Patterns Among New Mexico Past-Month Cannabis Consumers.

Average THC Potency	Average CBD Potency	Average Use Occasions Per Day
25–30%	15–20%	3 times per day

Figure 3. Typical THC Potency Among Past-Year Cannabis Consumers.

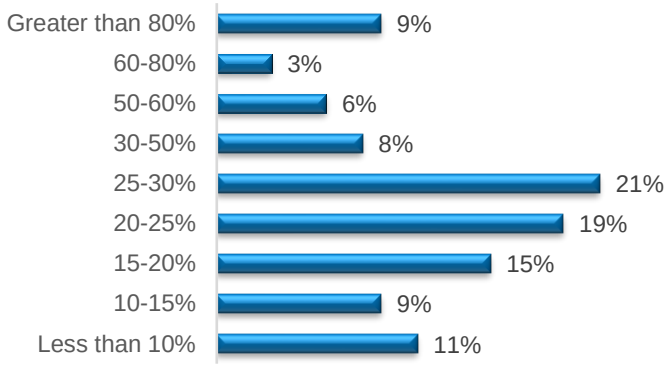
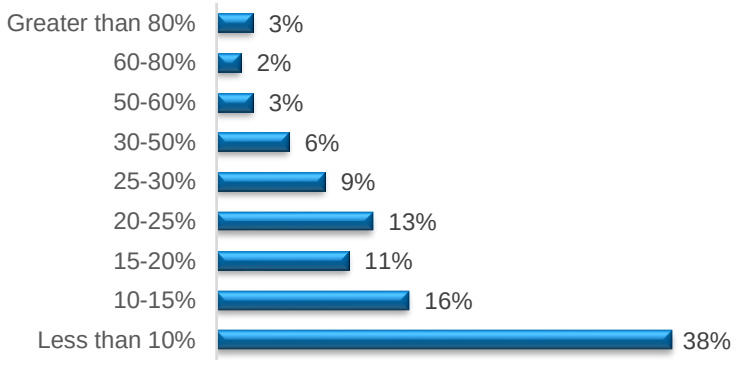


Figure 4. Typical CBD Potency Among Past-Year Cannabis Consumers.



Past-month cannabis consumption patterns were further examined by one's frequency of use (daily or almost daily, weekly, and monthly use).

- As one would expect, those consuming cannabis more often throughout the past month also reported more days of use. Flower products were consumed most frequently among participants.
- Participants who consume cannabis on more days within the past month also reported consuming cannabis on more occasions throughout the day.
- Participants who consume cannabis more frequently throughout the past month also reported consuming a higher amount (grams) of cannabis per day. These effects were most notable among those consuming flower and edible products.

Table 4. Average Cannabis Consumption Patterns Among Participants Who Consume Cannabis on a Daily, Weekly, and Monthly Basis.

	Daily or Almost Daily Consumers	Once or Twice Per Week Consumers	Once or Twice Per Month Consumers
Average days of use in the past month, per method			
Flower* **	20	8	3
Edibles* **	8	5	2
Vape* **	11	6	2
Concentrates **	8	3	2
Average grams consumed per day, per method			
Flower **	2.4	1.6	1.0
Edibles **	1.9	1.3	0.8
Vape*	2.0	1.6	1.0
Concentrates **	2.0	1.7	0.7
Average times of use per day			
Times per day* **	4.1	2.3	1.7
Cannabis potency			
THC potency* **	30–50%	25–30%	15–20%
CBD potency **	15–20%	20–25%	15–20%

***Statistically significant difference between all three groups ($p < .05$).
**Statistically significant difference between two groups ($p < .05$).
*Statistically significant difference among one group ($p < .05$).

Section 3 Summary

- Patterns of cannabis consumption in New Mexico parallel national findings.
- In our sample, 90.4% of participants reported consuming cannabis at least monthly, and 45.2% reported daily use.
- The majority of consumers report an average potency of 25–30% THC.
    - Some (9% of the population) use extremely high-potency products (>80% THC) monthly.
- Those who vape and/or use concentrate products monthly tend to use higher potencies than consumers who prefer other methods of consumption.
- Those who are more frequent consumers (daily consumers) report consuming more grams of cannabis per day, more use occasions per day, and using products with a higher THC potency than less frequent consumers.
- Medical cannabis patients consume products with higher CBD potency than nonpatients.

Section 4. Registered Medical Cannabis Patients

4.1 Patient Characteristics and Consumption Patterns

In this sample, 38.5% of respondents indicated that they are registered medical cannabis patients in the state of New Mexico. Findings presented in section 4 of this report focus solely on data from registered medical cannabis patients (n = 224), unless otherwise specified. Of the registered medical cannabis patient sample, 27.2% reported being enrolled as a medical patient for more than 3 years, 28.2% have been enrolled for 1–3 years, and 44.7% enrolled within the past 12 months.

Among medical cannabis registry patients, 39.3% reported that their cannabis use is exclusively for medical purposes. This figure is lower than what was found in our 2023 and 2022 studies, in which 56% and 42%, respectively, of medical patients reported that they used cannabis for exclusively medicinal purposes. If this trend continues in future studies, this finding may suggest that registered patients are gravitating to more frequent recreational use as the adult-use market matures. Fifty-six percent of registered medical patients reported consuming cannabis for a combination of recreational and medicinal purposes.

Table 5. Reported Purposes for Cannabis Use Among Medical Cannabis Patients.

Purpose for Use	%
100% medical use	39.3%
75% medical use, 25% recreational use	21.4%
50% medical use, 50% recreational use	25.0%
25% medical use, 75% recreational use	9.8%
100% recreational use	4.5%

Among medical cannabis patients in this sample, 94% report consuming cannabis at least on a monthly basis, and 43% consume cannabis daily or almost every day.

Table 6 summarizes general cannabis consumption patterns among medical cannabis patients who reported consuming each respective cannabis product at least once within the past month. Flower products appear to be the most favored method of consumption, with past-month flower consumers reporting an average of 14 days of use within the past month. Those consuming vape products within the past month report an average of 11 days of use, followed by 10 days for concentrate products and 9 days for edible products. Reported past-month days of use for tinctures and topicals were slightly lower compared to other methods of consumption (7 and 8 days of use within the past month, respectively).

Figure 5. Past-Month Cannabis Consumption Among Medical Cannabis Patients.

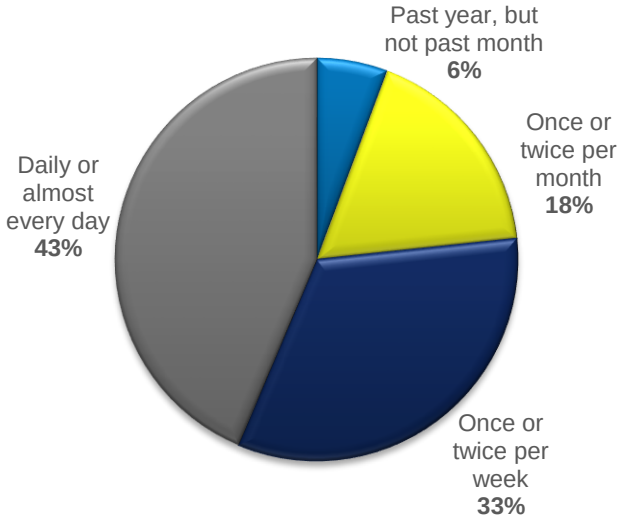


Table 6. Cannabis Consumption Patterns (Days of Past Month Use) Among Medical Cannabis Patients.

	Smoke (Flower)	Edibles	Vape	Concentrates
Medical Patients	14 days	9 days	11 days	10 days

4.2. Cannabis Product Preferences

An overarching goal of this study was to better understand cannabis product preferences, specifically among the medical cannabis patient population. To achieve this, questions about preferred strain, potency, and reasons for product preferences were included in this survey. Patients were asked whether they choose to use a specific cannabis strain (e.g., sativa, indica, hybrid) when consuming cannabis for medicinal purposes. Approximately one-third of the patient sample (34%) had no strain preference, 30% preferred the indica strain, 18% preferred the sativa strain, and 18% of patients preferred hybrid strains of cannabis.

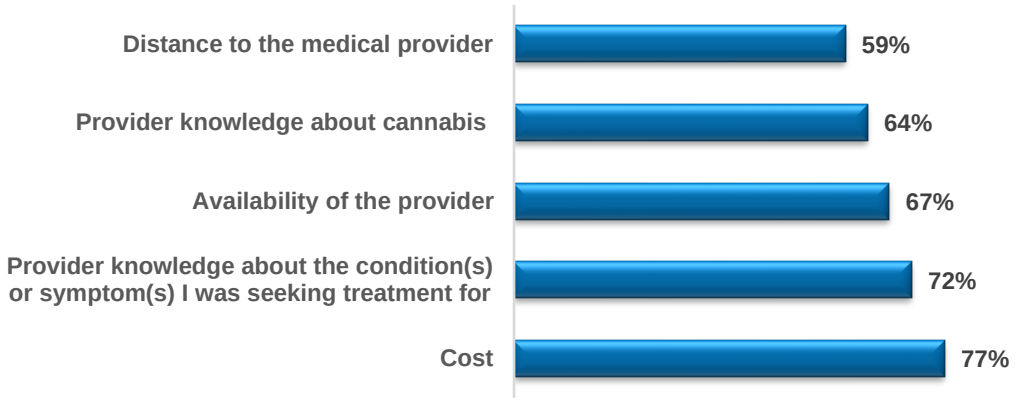
Patients were also asked about why they prefer their favorite cannabis product(s) that they typically consume for medicinal purposes. The largest group (42%) reported that they use their preferred product because it works best for their condition(s) or symptom(s), 14% use their preferred product because of its taste/flavor, and 12% use their preferred product because it is simply their preferred method of use.

Nearly two-thirds (63%) of patients reported that they use high THC potency[4] cannabis specifically for medicinal use, 19% reported that they use high-potency cannabis only for recreational purposes, and 19% do not consume high-potency cannabis for any purpose. Considering the potential increased risks of harm associated with high-potency cannabis (e.g., increased risk of dependence, memory, and concentration problems),[5] it is noteworthy that patients reported consuming these products specifically for medicinal use. This finding is indicative that additional efforts may be needed to better inform medical cannabis patients of the risks associated with high-potency cannabis products. We recommend that patients always discuss their potency and dosage of cannabis with a medical provider.

4.3. Enrollment and Provider Perceptions

Medical patients were presented with a series of questions inquiring about their experiences enrolling in the New Mexico Medical Cannabis Program. To eliminate potential errors in recall, only patients who enrolled in the program within the past 12 months were presented with these questions about their enrollment experiences. Among these individuals, when asked how they chose a provider to recommend cannabis to them, 32% reported that they spoke with their primary care provider; 19% reported that they met with a consultant at a dispensary; 24% reported that they received a recommendation from a friend, patient, social worker, or other; 14% reported that they spoke with a medical specialist other than their primary care provider; and 9% found a provider through an online search. These patients were also asked about the most important factors when choosing a provider to recommend medical cannabis to them (please refer to figure 6 for detailed information). Most patients (77%) rated cost as the most important factor, followed closely by provider knowledge about the condition(s) or symptom(s) they were seeking treatment for (72%), and availability of the provider (67%). When comparing these data to the 2023 survey, we observe an increase in the percent of patients reporting cost as an important factor to them when choosing a provider (58.5% in 2023 versus 77% in 2024).

Figure 6. Factors Influencing Patients' Decision When Choosing a Provider to Recommend Medical Cannabis.



[4] High-potency cannabis was defined as any product containing over 35% THC, including vaping or dabbing oil, concentrates, and extracts.
[5] Freeman, T. P., & Winstock, A. R. (2015). Examining the profile of high-potency cannabis and its association with severity of cannabis dependence. *Psychological Medicine, 45*(15), 3181–3189. https://doi.org/10.1017/S0033291715001178

Medical cannabis patients reported overall positive experiences with the medical provider who certified them for the medical cannabis program. The majority (74%) agreed or strongly agreed that their provider listened carefully to what they had to say; 72% agreed or strongly agreed that the provider spent enough time with them; and 79% agreed or strongly agreed that their questions and concerns were taken seriously by the provider. See table 7 for detailed information.

Table 7. Responses to the question, "Think about your experience with the medical provider who certified you for the medical cannabis program. Please select the option that best describes your experiences."

They listened carefully to what I had to say:	
Agree or strongly agree	74%
Neutral	18%
Disagree or strongly disagree	8%
They spent enough time with me and did not rush me:	
Agree or strongly agree	72%
Neutral	23%
Disagree or strongly disagree	5%
They took my questions and concerns seriously:	
Agree or strongly agree	79%
Neutral	13%
Disagree or strongly disagree	8%

Overall, patients found the registry enrollment and renewal process to be relatively easy. Provided a scale of 1 (extremely easy) to 10 (extremely difficult), patients rated the process of finding a medical provider at 4.1 out of 10, on average, the process of enrolling as a medical patient at 3.7 out of 10, and the process of renewing their registry identification card a 3.4 out of 10. These data parallel findings from the 2023 survey, indicating that most patients find the overall process to be easy and experienced no additional challenges or burdens when finding a medical provider and enrolling or renewing their medical cannabis card.

4.4. Online Patient Portal

In 2020, the New Mexico DOH launched the Online Patient Portal, in which New Mexico residents could choose to enroll in the medical cannabis program or renew their registry identification card virtually. At this time, individuals still had the option to enroll or renew as a medical cannabis patient via paper application. In late 2022, the Department launched virtual medical cannabis program identification cards that patients could access online, and, as of April 2023, the Department transitioned fully to the Online Patient Portal and discontinued paper applications altogether.

A series of questions was included in this survey in an effort to better understand how patients are utilizing the Online Patient Portal. Thirty-one percent of patients reported that they have not used the Online Patient Portal to enroll or renew their New Mexico Medical Cannabis Card, 32.1% have enrolled using the Online Patient Portal, and 36.6% have renewed their registry identification card using the Online Patient Portal. Among those who have enrolled in the program or renewed their registry identification card, patients in this sample rated the process of enrolling in the medical cannabis program using the Online Patient Portal as easy, at 4.3 out of 10, and renewing their cannabis registry identification card using the Online Patient Portal as easy, at 3.4 out of 10, when provided a scale of 1 (extremely easy) to 10 (extremely difficult). These ratings are fairly equivalent to those who have not enrolled or renewed using the Online Patient Portal, which suggests that there are likely few, if any, additional challenges that patients have experienced with the Online Patient Portal compared to paper applications.

Medical cannabis patients in New Mexico have access to the Online Patient Portal, regardless of whether they enrolled in the program or renewed their identification card using the Online Patient Portal. All patients in this sample were asked about their frequency of logging on to the Online Patient Portal for purposes such as reviewing sales history, checking their available units, etc. Thirteen percent reported logging on within the past year, 21% on a monthly basis, 21% on a weekly basis, 8.9% on a daily basis, and 25.4% reported that they have never logged on to the Online Patient Portal. Overall, approximately 75% of patients have logged on to the patient portal at least once within the past year. Patients' age and their recency of enrolling in the medical cannabis program significantly predicted the frequency with which they logged on to the Online Patient Portal ($p < .001$). Younger patients and patients who enrolled in the program more recently were more likely to log onto the patient portal on a more frequent basis.

4.5. Qualifying and Nonqualifying Conditions

In both the 2023 and 2024 surveys, patients reported the health conditions or symptoms that a medical provider recommended they use cannabis for (i.e., qualifying conditions), and the health conditions or symptoms they currently use cannabis for that a medical provider did not recommend (i.e., nonqualifying conditions). Please refer to tables 8 and 9 for detailed information. Anxiety disorder (60%) was the most commonly reported qualifying condition in the patient sample, followed by insomnia (54%). Among use for conditions not recommended by a medical provider, sleep (60%), pain (59%), and anxiety (53%) were the most common.

Table 8. Percentage of Sample Reporting Obtaining a Medical Provider's Recommendation for Qualifying Conditions: Registered Patients in 2024 and 2023.

Condition/Symptom	2024 Patients (%, n = 224)	2023 Patients (%, n = 192)
Anxiety disorder	60%	79%
Insomnia	53%	57%
Severe chronic pain	42%	41%
Post-traumatic stress disorder	41%	62%
Intractable nausea/vomiting	25%	19%
Inflammatory autoimmune-mediated arthritis	23%	20%
Cancer	21%	12%
Painful peripheral neuropathy	21%	15%
Opioid use disorder	19%	13%
Epilepsy/seizure disorder	18%	14%
Crohn's disease	18%	10%
Damage to the nervous tissue of the spinal cord	17%	22%
Spinal muscular atrophy	17%	11%
Multiple sclerosis	17%	9%
Obstructive sleep apnea	16%	17%
Alzheimer's disease	16%	7%
Amyotrophic lateral sclerosis (ALS)	14%	7%
Ulcerative colitis	14%	9%
Glaucoma	13%	12%

Autism spectrum disorder	13%	13%
Severe anorexia/cachexia	13%	11%
Hospice care	13%	11%
Inclusion body myositis	13%	8%
Spasmodic torticollis (cervical dystonia)	13%	8%
Hepatitis C infection currently receiving antiviral therapy	12%	6%
Huntington's disease	10%	8%
Parkinson's disease	10%	10%
Lewy body disease	9%	5%
HIV/AIDS	9%	8%
Friedreich's ataxia	7%	7%

Table 9. Percentage of Sample Reporting Cannabis Use for Conditions Without a Medical Provider's Recommendation: Registered Patients in 2024 and 2023.

	2024 Patients (%, n = 227)	2023 Patients (%, n = 192)
Sleep	60%	69%
Pain	59%	59%
Anxiety	53%	68%
Depression	48%	59%
Headaches or eye pain	30%	37%
Inflammation	28%	32$
Reducing alcohol use	25%	25%
Nausea	25%	30%
Appetite/weight	24%	34%
Reducing tobacco use	22%	24%
Spasms	21%	20%
Reducing other drug use	17%	21%
Reducing prescription antidepressants	16%	23%
Opioid use disorder treatment	16%	13%
Opioid withdrawal symptoms	15%	10%
Another type of substance use disorder	14%	9%
Skin issues	13%	8%
Preventing/alleviating opioid withdrawal	13%	13%
Other	6%	4%

4.6. Medical Cannabis Experiences

To better understand the potential access challenges medical cannabis patients may face, patients in this survey were presented with a series of questions inquiring about their satisfaction with medical dispensaries near them and barriers they have faced when accessing cannabis. Patients generally reported high ratings of satisfaction and low ratings of dissatisfaction with medical dispensaries near them. The quality of medical cannabis, variety of medical cannabis product types, THC potency in medical cannabis products, and the supply/stock of medical cannabis had the highest ratings of

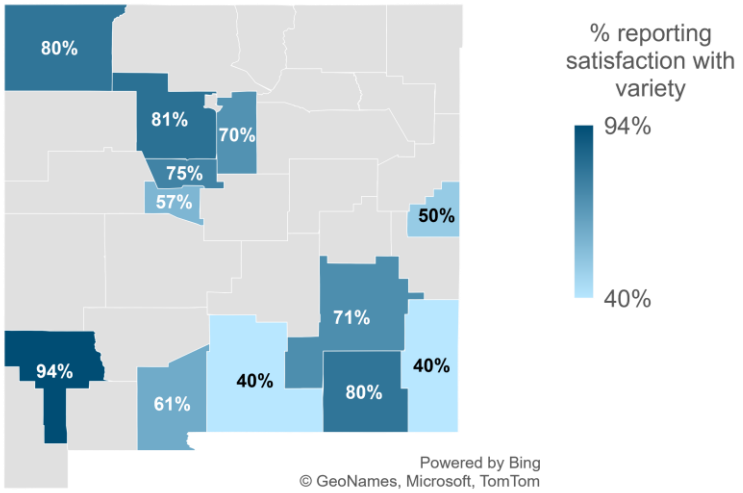
satisfaction among patients. Patients in the 2023 survey also reported high ratings of satisfaction with the quality of medical cannabis and the supply/stock of cannabis, which is an optimistic finding that patient satisfaction appears to be stable, especially as the adult-use cannabis market matures. The CBD potency in medical cannabis had the lowest ratings of satisfaction and the highest rating of being "neither satisfied nor dissatisfied." This may suggest that the CBD potency in products is less of a priority for patients compared to other factors, such as THC potency.

Table 10. Satisfaction with Medical Dispensaries Among Medical Cannabis Patients.

	Satisfied	Neutral	Dissatisfied
Variety of medical cannabis product types	73%	17%	10%
Pricing of medical cannabis products	62%	24%	14%
THC potency in medical cannabis	72%	21%	7%
CBD potency in medical cannabis	58%	32%	10%
Availability of cannabis strains	67%	20%	13%
Supply or stock of medical cannabis product types	68%	21%	10%
Quality of medical cannabis	77%	16%	7%

When examining these data by county,[6] we generally found that those in San Juan, Sandoval, Grant, Chaves, and Bernalillo counties reported the highest satisfaction ratings in terms of price of medical cannabis products, variety of medical cannabis product types, and supply or stock of medical cannabis. Those in Lea, Curry, and Valencia counties generally reported the lowest satisfaction for price, variety, and supply/stock. These findings are presented in figures 7–9.

Figure 7. Percent of Sample Reporting Satisfaction with the Variety of Medical Cannabis, Separated by County.



[6] Only counties with five or more participants were included in this analysis.

Figure 8. Percent of Sample Reporting Satisfaction with the Supply/Stock of Medical Cannabis, Separated by County.

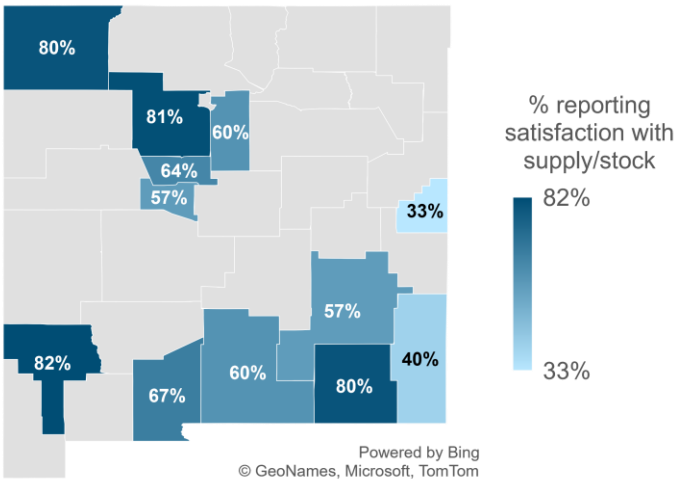
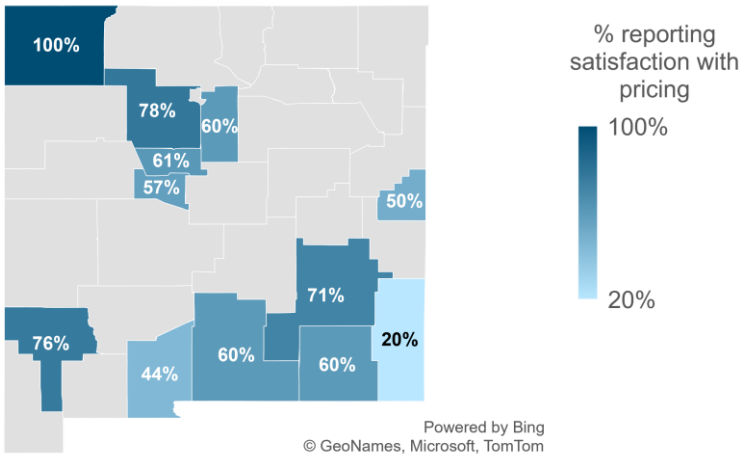


Figure 9. Percent of Sample Reporting Satisfaction with the Pricing of Medical Cannabis, Separated by County.



4.7. Taxation

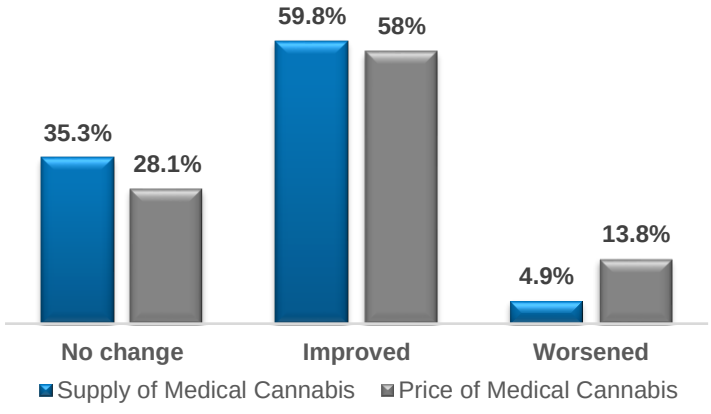
In New Mexico, the purchase of medical cannabis is not subject to excise tax, as is required for the purchase of cannabis for adult use. Patients in this survey were prompted with a question asking whether or not they recall if they have been charged tax when purchasing medical cannabis. Of these respondents, 40.6% reported that they have been charged tax when purchasing medical cannabis, 39.7% reported that they have not been charged tax, and 19.6% could not recall whether they have been charged tax. These findings are nearly identical to data from the 2023 survey.

4.8. Adult-Use Cannabis Market

New Mexico legalized adult-use (recreational) cannabis in April 2021, with the first licensed sales beginning a year later in April 2022. The New Mexico DOH was interested to know if medical patients have experienced impacts to the medical market since adult-use legalization, and to what extent patients are utilizing the adult-use market.

Patients generally reported positive or neutral experiences with the medical cannabis market since the legalization of the adult-use cannabis market. Most patients reported that the legalization of adult-use cannabis has improved the supply (59.8%) and price (58%)

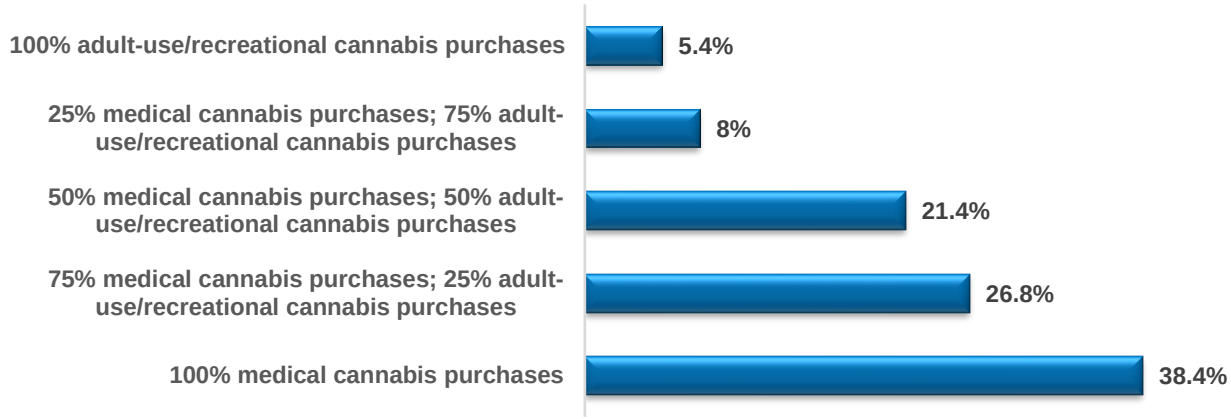
Figure 10. Perceived Impacts to the Medical Cannabis Program Following Adult-Use Cannabis Legalization.



of medical cannabis, or that there has been no change to the supply (35.3%) and price (28.1%) of medical cannabis since the legalization of the adult-use market.

As previously discussed, many medical patients consume cannabis for both medicinal and recreational purposes. For that reason, the New Mexico DOH was interested to learn more about how medical patients are interacting with and utilizing the adult-use market. Patients were asked how many of their cannabis purchases within the past year were medical cannabis purchases (i.e., purchased using their medical card) versus adult-use cannabis purchases. Results are displayed in figure 11. Thirty-eight percent of patients reported that 100% of their purchases within the past year were medical cannabis purchases and 56.3% reported that their cannabis purchases within the past year were a combination of medical and adult-use. Approximately 5% of patients reported that 100% of their purchases were for adult-use cannabis, which may indicate that these individuals are no longer utilizing the medical program and may be more likely to choose to not renew their medical cannabis card.

Figure 11. Percentage of Medical Cannabis Purchases vs. Adult-Use Cannabis Purchases Within the Past Year.



Considering the ease of accessibility of cannabis due to adult-use legalization, some have raised concerns that patients may be inclined to not remain in the medical cannabis program. To better understand their intentions, patients were prompted with a series of questions inquiring about their plans to remain in or leave the medical cannabis program. A majority of patients (76%) reported that they plan to remain in the medical cannabis program when they are due to renew their medical cannabis card. These patients were then presented with a follow-up question inquiring about the primary reason why they plan to remain in the medical cannabis program. Responses included lower costs of medical cannabis products (25%), preference for the types of products available to medical cannabis patients (20%), tax exemptions when purchasing medical cannabis (14%), higher quality of medical cannabis (12.8%), benefits associated with interactions with a medical provider (12%), and reduced stigma when purchasing and/or consuming medical cannabis (9%). Among those who reported that they plan to leave the medical cannabis program (15%), the most common reasons appear to be cost-related, including higher costs of medical cannabis (21%) and costs associated with recertification from a certifying healthcare provider (15%). Approximately 24% of these respondents reported that they plan to leave the program because the medical cannabis tax exemption is not being honored.

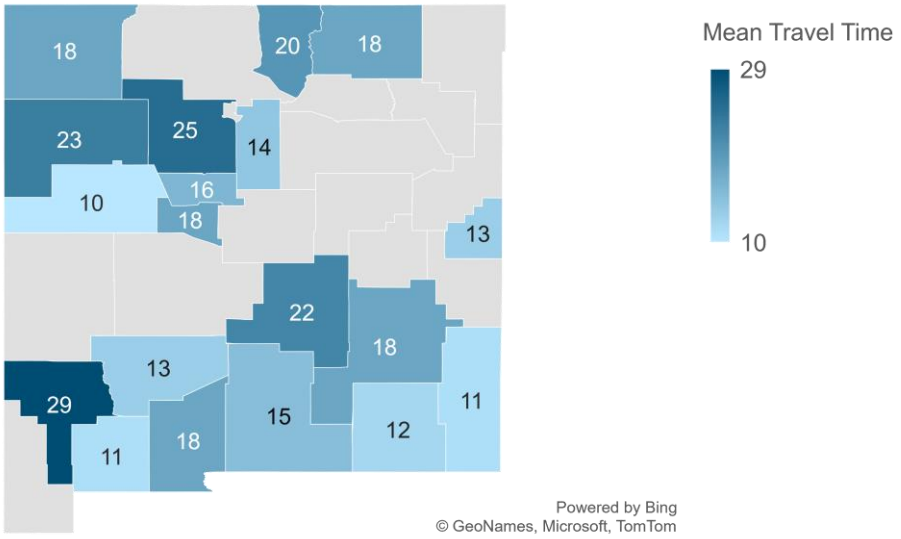
Section 4 Summary

- Over half of medical registry patients use cannabis for both medicinal and recreational purposes.
- Nearly two-thirds of patients (63%) reported using high THC potency cannabis for medicinal use.
- Cost appears to be an increasingly important factor for patients when choosing a medical provider to recommend cannabis to them when comparing responses from the 2024 and 2023 surveys.
- Approximately 75% of patients have logged on to the Online Patient Portal at least once within the past year. Younger medical patients are more likely to utilize the patient portal compared to those who are older.
- Most medical patients are highly satisfied with the pricing, supply, quality, and potency of medical cannabis available to them, a finding that is consistent with our data from 2023.
- Few patients reported a worsening of their experiences with the medical cannabis program since the legalization of the adult-use cannabis market.
- Medical cannabis patients also utilize the adult-use cannabis market, with slightly over half (56%) of our sample reporting a combination of medical and adult-use cannabis purchases within the past year.
- Three-quarters of our sample plan to remain in the medical cannabis program, primarily due to lower cost of medical cannabis products, preference for the types of products available to them, and tax exemptions for medical cannabis.

Section 5. Access and Transportation

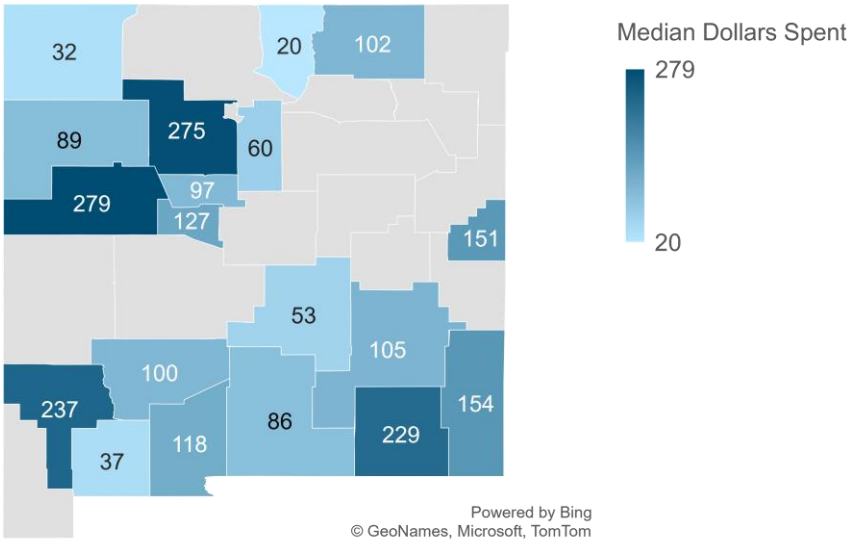
The remaining sections of this report will include data from the full sample of participants (i.e., both medical patients and nonpatients). Participants reported that it takes them an average of nearly 19 minutes (one way) to travel to purchase cannabis. Nearly 70% of participants report that they can purchase cannabis within a 20-minute distance. Medical patients reported a higher travel time on average (23 minutes) compared to nonpatients (16 minutes). These differences were statistically significant ($p < .001$). Figure 12 displays the average travel time per county in New Mexico with five or more participants. Travel times are generally consistent across the counties, with the exception of the southeastern portion of the state (including Eddy and Lea counties), in which participants reported slightly lower travel times when compared to counties in the western and northern portions. Participants in Grant County reported the highest travel time to a dispensary, with an average of 29 minutes.

Figure 12. Reported Travel Time (in Minutes) to a Dispensary per County, Among Counties with Five or More Respondents.



Past-year cannabis consumers in the sample reported spending a median of $104 on cannabis within the past month. This figure is lower compared to findings from the 2023 survey, in which participants reported spending a median of $150 on cannabis in the past month. When comparing spending between medical patients and nonpatients, medical patients reported spending a significantly higher amount on cannabis within the past month compared to nonpatients ($206 and $63, respectively). As shown in figure 13, participants in Cibola, Sandoval, Grant, and Eddy counties reported spending the most on cannabis within the past month.

Figure 13. Dollars Spent (Median) in the Past Month Per County, Among Counties with Five or More Respondents.



Nearly two-thirds of the sample (65%) reported experiencing at least one barrier to accessing cannabis within the past year. Nonpatients reported experiencing fewer overall barriers to accessing cannabis compared to medical patients. The cost of cannabis products was the most frequently endorsed barrier among all participants, with around half of the sample reporting cost as a barrier (56% of medical patients and 47% of nonpatients). Among medical patients, crowded dispensaries and/or long lines in dispensaries and a lack of supply or stock of cannabis were endorsed as barriers to access cannabis among slightly over one-third of patients (35%). A lack of transportation options to get to and from a dispensary was the least frequently reported barrier among medical patients, and a lack of nearby dispensaries was the least frequently reported barrier among nonpatients.

Table 11. Percent of Participants Reporting Barriers When Accessing Cannabis.

	Medical Cannabis Patients	Nonpatients
Cost of cannabis products*	56%	47%
Crowded dispensaries and/or long lines at dispensaries*	35%	11%
Lack of supply or stock of cannabis*	35%	16%
A lack of dispensaries near me*	27%	10%
Stigma associated with cannabis use*	24%	15%
A lack of transportation options to get to & from a dispensary	21%	16%
% of participants reporting at least one barrier	65%	

*Statistically significant mean differences between the two groups ($p < .05$).

Section 5 Summary

- Participants spend approximately 19 minutes (one way) to travel to purchase cannabis in New Mexico.
- Participants appear to be spending less money on cannabis compared to our findings from 2023. Medical patients in this sample generally reported spending more money per month on cannabis compared to nonpatients.
- The cost of cannabis is generally the most common barrier to access cannabis.

Section 6. Purchasing Behavior

Participants in this survey were presented with a series of questions inquiring about details of their most recent transaction when purchasing cannabis from a regulated dispensary. Participants were first prompted to choose when their most recent transaction occurred (within the past week, month, or year; over a year ago; or never) for each cannabis product type (flower, edibles, vape, concentrates). If participants reported that their most recent purchase for each given product type occurred within the past month, they were presented with follow-up questions inquiring about the total amount (grams or milligrams), average potency,

and amount they paid (in dollars) for the cannabis they purchased in that transaction.[7] Among all participants, 277 reported purchasing flower cannabis products, 66 purchased concentrate cannabis products, 110 purchased vape cannabis products, and 267 purchased edible products within the past month.

- ***Flower products***. During their most recent transaction of flower cannabis products within the past year, participants reported purchasing a total of 4.4 grams of cannabis with 23% THC potency on average. The average cost of this transaction was $62. Among medical patients, 78% reported that their most recent transaction when purchasing flower products was a medical cannabis purchase (i.e., using their medical cannabis card).

- ***Edible products.*** During their most recent transaction of edible cannabis products within the past year, participants reported purchasing nearly three units and/or packages of edible products, totaling 380 mg/THC. The average cost of this transaction was $64. Thirty-one percent of participants purchased gummy edible products, 14% purchased chocolates, 13% purchased candy products, and 11% purchased a beverage product. Among medical patients, 76% reported that their most recent transaction when purchasing edible products was a medical cannabis purchase (i.e., using their medical cannabis card).

- ***Vape products***. During their most recent transaction of vape cannabis products within the past year, participants reported purchasing a total of 2.6 grams of cannabis with an 80% THC potency on average. The average cost of this transaction was $85. Among medical patients, 89% reported that their most recent transaction when purchasing vape products was a medical cannabis purchase (i.e., using their medical cannabis card).

- ***Concentrate products.*** During their most recent transaction of concentrate cannabis products within the past year, participants reported purchasing a total of 2.5 grams of cannabis with a 77% THC potency on average. The average cost of this transaction was $89. Among medical patients, 90% reported that their most recent transaction when purchasing concentrate products was a medical cannabis purchase (i.e., using their medical cannabis card).

When comparing differences between medical patients and nonpatients, medical patients reported purchasing more grams of flower, concentrate, vape, and edible products, on average, in their most recent transaction compared to nonpatients. Because of this, patients also reported spending more money on their most recent transaction of these products. Nonpatients reported purchasing higher potency vape and concentrate products, on average, compared to medical patients in their most recent transaction. Please refer to table 12 for detailed information.

[7] Questions assessing cannabis potency were presented on a sliding bar format, from 0–100% THC. Only those who reported purchasing concentrate and vape products with 50% THC and greater, or 40% THC and lower for flower products, were included in the analyses. These qualifications were based on typical THC potencies of cannabis products available in regulated dispensaries in New Mexico, as validated by dispensary research.

Table 12. Details of Participants' Most Recent Cannabis Purchase Within the Past Month, Separated by Medical Patients and Nonpatients.

	Medical Patients	Non-Patients
Flower		
Amount (grams)*	4.8	4.2
Potency	22%	23%
Amount spent*	$77	$51
Medical purchase	78%	---
Concentrates		
Amount (grams)*	2.7	2.3
Potency*	75%	79%
Amount spent*	$105	$75
Medical purchase	90%	---
Vape		
Amount (grams)*	2.7	2.5
Potency*	76%	84%
Amount spent*	$98	$75
Medical purchase	89%	---
Edibles		
Amount (units)*	3.1	2.6
mg/THC	407	358
Amount spent*	$85	$45
Medical purchase	76%	---

* Statistically significant differences at $p < .05$
--- Represents non-applicability of the outcome

Section 6 Summary

- Most (>75%) of medical patients report that their most recent transaction when purchasing cannabis was a medical cannabis purchase (using their medical cannabis card).
- Medical patients report spending more money on cannabis, on average, in their most recent transaction, but also report purchasing more cannabis (grams) in this transaction.

Section 7. Public Health

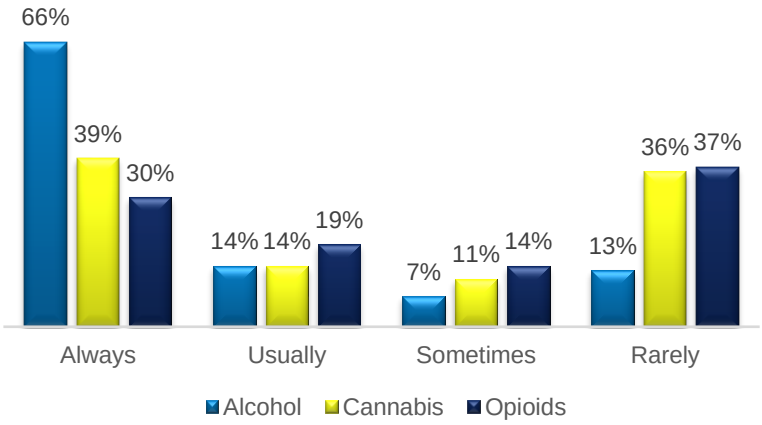
7.1. DUIC

Data examining a variety of cannabis use outcomes on public health were assessed in this study. Among the full sample, nonpatients reported an average of 3.5 days of driving within 2 hours of consuming cannabis (driving under the influence of cannabis [DUIC]) within the past month, and medical patients reported an average of 3.8 DUIC days within the past month. Among those who reported at least 1 DUIC day, the average number of DUIC days was 11 days among nonpatients and 7 days among medical patients, thus indicating that those who drive under the influence of cannabis are likely to drive while under the influence several days within the month, most notably among nonpatients in this sample. There was a significant relationship ($p < .001$) between the number of DUIC days in the past month and reporting the ability to drive safely with higher levels of cannabis intoxication while controlling for factors such as age, gender, and patient status. In other words, those who report more DUIC days within the past month are also more likely to report that they perceive that they can still drive safely despite being heavily intoxicated after cannabis consumption.

Acute cannabis intoxication is associated with an array of neurocognitive and psychomotor impairments and has a negative effect on driving performance. Research shows that cannabis intoxication decreases reaction time, increases lane weaving, impairs critical-tracking tasks, and increases the risk of being involved in a motor vehicle accident.[8] Although most individuals are aware of the impairing effects of alcohol on driving skills, fewer are aware of these impairing effects of cannabis.[9] DUIC is considered to be a growing public health concern; therefore, it is vital that cannabis consumers be aware of these risks associated with acute cannabis intoxication.

Some individuals will choose to designate a sober driver (designated driver [DD]) prior to the consumption of impairing substances, specifically alcohol, but less is known about the frequency with which individuals choose a DD when consuming cannabis. In this survey, participants were asked to report how often they have a DD (e.g., sober friend or family member, Uber, taxi) selected when they know they will need to drive within 2 hours after consuming alcohol, cannabis, and opioids. We found that at least 50% of the sample who consumes each

Figure 14. Nonpatients Only - Likelihood of Having a Designated Driver in Place When Consuming Alcohol, Cannabis, and Opioids.

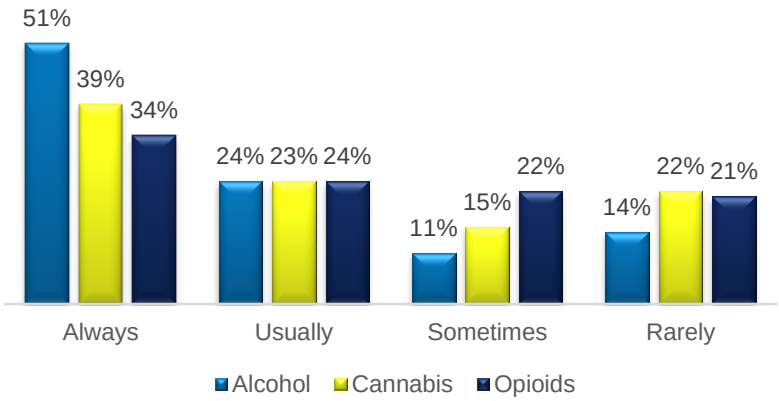


[8] Busardò, F. P., Pellegrini, M., Klein, J., & di Luca, N. M. (2017). Neurocognitive correlates in driving under the influence of cannabis. *CNS & Neurological Disorders-Drug Targets*, *16*(5), 534-540. https://doi.org/10.2174/1871527316666170424115455

[9] Donnan, J. R., Drakes, D. H., Rowe, E. C., Najafizada, M., & Bishop, L. D. (2022). Driving under the influence of cannabis: Perceptions from Canadian youth. *BMC Public Health*, *22*(1), 2384. https://doi.org/10.1186/s12889-022-14658-9

substance reports always or usually having a DD in place when consuming these substances. Eighty percent of nonpatients and 75% of patients who consume alcohol report that they always or usually have a DD in place when consuming alcohol. Fifty-three percent of nonpatients and 62% of patients always or usually have a DD in place when consuming cannabis. Forty-nine percent of nonpatients and 58% of patients who consume opioids always or usually have a DD in place when consuming opioids. Participants were most likely to report having a DD in place when consuming alcohol compared to cannabis and opioids, which aligns with the literature suggesting that fewer individuals recognize the impairing effects of cannabis on driving abilities compared to alcohol[10] [11]. These data suggest that additional education related to the risks associated with driving while under the influence of cannabis is necessary, as well as public health efforts to increase awareness for the importance of utilizing a DD when needing to drive after consuming cannabis.

Figure 15. Medical Patients Only - Likelihood of Having a Designated Driver in Place When Consuming Alcohol, Cannabis, and Opioids.



Among the full sample, participants with a greater number of DUIC days within the past month were statistically significantly more likely to report that they rarely have a DD in place when consuming cannabis and also are more likely to believe they are safe to drive despite high levels of intoxication (*ps* < .001), even when controlling for age, gender, and patient status. No relationships were found between one's likelihood to have a DD in place when consuming cannabis and preferred types of cannabis products, typical THC potency, and grams of cannabis consumed. These data indicate the presence of a more high-risk profile of cannabis consumer among a subset of participants in this sample that is unrelated to specific types of products, potencies, and amount of cannabis consumed.

7.2. Cannabis Storage and Use Inside the Home

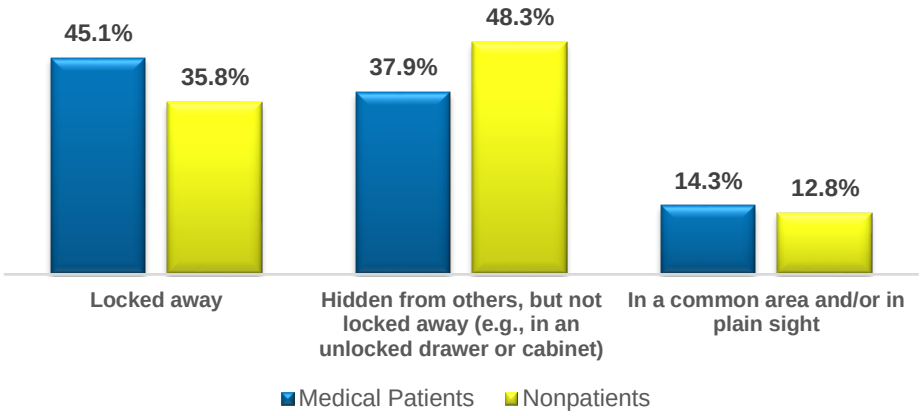
Participants in this survey were presented with a series of questions inquiring about how they store cannabis in their homes. It is crucial that cannabis be safely stored in a locked location away from others, especially if children are present in the home. Figure 16 displays the cannabis storage practices among the total sample, separated by medical patients and nonpatients. No significant differences were found between the storage practices among medical patients and nonpatients. Around 45% of medical patients and 36% of nonpatients report that they store their cannabis in a locked location; 38% of medical patients

[10] Pollard, M. A., Drakes, D. H., & Harris, N. (2024). Perceptions of the risk and social acceptability of driving under the influence of cannabis. *International Journal of Mental Health and Addiction*, *22*(1), 376-393. https://doi.org/10.1007/s11469-022-00879-x

[11] Erin Goodman, S., Leos-Toro, C., & Hammond, D. (2020). Risk perceptions of cannabis-vs. alcohol-impaired driving among Canadian young people. *Drugs: Education, Prevention and Policy*, *27*(3), 205-212. https://doi.org/10.1080/09687637.2019.1611738

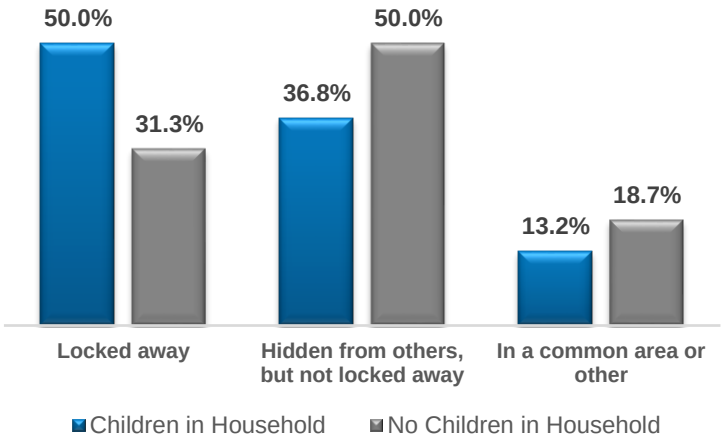
and 48% of nonpatients store their cannabis in a hidden, but not locked away, location; and 14% of patients and 13% of nonpatients keep their cannabis in a common area/plain sight. Among participants who store their cannabis in a locked location, 51.5% keep their cannabis in a lockbox, 25.3% keep their cannabis in a locked cabinet or drawer, and 20.1% keep their cannabis in a locked safe.

Figure 16. Cannabis Storage Practices, by Medical Patients vs. Nonpatients.



Importantly, among the full sample, individuals with children residing in their household were significantly more likely ($p < .001$) to report that they store their cannabis in a locked location compared to those who do not have children in their household. Approximately 50% of participants with at least one child under the age of 18 residing in their household reported that they keep their cannabis locked away, compared to 31% of participants without a child residing in their household. Among participants in this sample with children residing in the household, those with younger children (e.g., under the age of 5) were generally more likely to keep their cannabis locked away compared to those with older children (e.g., 16–18 years). It is an optimistic finding that individuals with children in the household are more likely to keep their cannabis locked away; however, there is room for improvement considering that half of the sample with children in the home report that they do not keep their cannabis locked away.

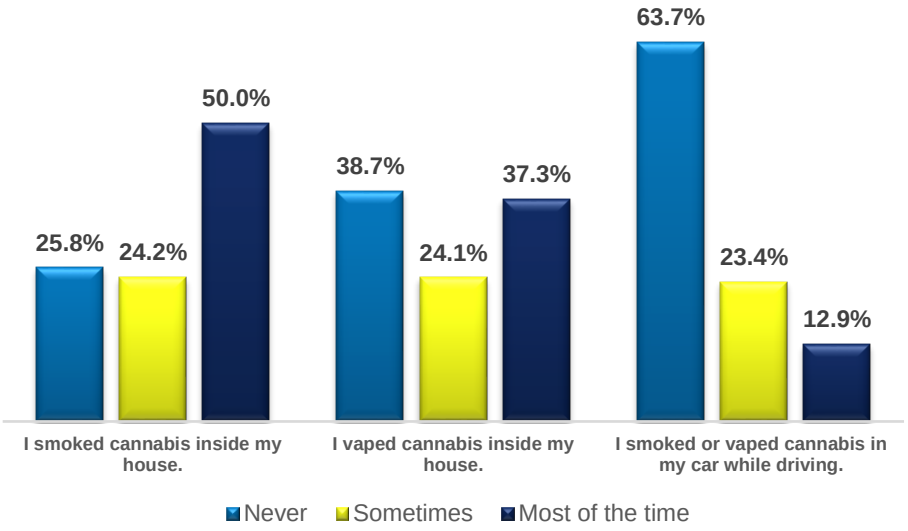
Figure 17. Cannabis Storage Practices Among Participants with and Without Children Under 18 Residing in the Household.



Cannabis consumption behaviors within the home were also assessed in this study. Half of participants in this sample reported that they smoke inside their house most of the time, whereas slightly over one-third of participants (37.3%) reported that they vape cannabis inside their house most of the time. Among participants who had at least one child under the age of 18 residing in their household, 49.2% reported

that they smoke cannabis inside their home most of the time or always. Similarly, 44.4% of participants with at least one child under the age of 18 residing in their household reported vaping cannabis in their home most of the time or always. Only 24% of participants with at least one child in the household reported that they never smoked cannabis inside their home, and 27.2% reported that they never vaped cannabis inside their home.

Figure 18. Cannabis Use Behaviors Among the Full Sample.



7.3. Cannabis Use Disorder

A revised version of the Cannabis Use Disorder Identification Task (CUDIT-SF) was used to assess prevalence of cannabis use disorder (CUD). Forty-three participants among the full sample met criteria for CUD. Nearly 54% of medical cannabis patients qualified for CUD compared to 36% of nonpatients; these differences were statistically significant ($p < .001$) even when controlling for factors such as age, gender, typical product types consumed, and mental health factors.

Section 7 Summary

- Participants were less likely to have a designated driver in place when consuming cannabis compared to alcohol.
- Individuals with children under the age of 18 residing in their household were more likely to store their cannabis in a locked location compared to those without children. However, there is still an overall high prevalence of unsafe cannabis storage among those with children residing in their household.
- Nearly 50% of participants with at least one child under the age of 18 residing in their household reported smoking or vaping inside their house most of the time or all the time.

Section 8. Medical Care and Health

8.1. General Health

To obtain an understanding of participants' overall well-being, participants' satisfaction with their mental and physical health, quality of life, stress levels, degree to which physical pain interferes with their daily life, and hours of sleep they receive per night were assessed in this survey. The findings presented below reflect data across the full sample of participants, unless otherwise specified.

- Sixty-one percent of participants reported that they had a "good" or "very good" quality of life, 25% reported "neither poor nor good" quality of life, and 14% reported "poor" or "very poor" quality of life.
- Slightly over half of the participants (54%) were "satisfied" or "very satisfied" with their mental health, 21.5% were "neither satisfied nor dissatisfied" with their mental health, and 24.5% were "dissatisfied" or "very dissatisfied" with their mental health.
- Slightly less than half of the sample (48.3%) reported that they were "satisfied" or "very satisfied" with their physical health, and nearly 29% were "dissatisfied" or "very dissatisfied" with their physical health.
- On average, participants indicated that they were actively experiencing moderate levels of stress (6 on a scale from 0 [no stress] to 10 [very high stress]).
- Participants reported that physical pain moderately interfered with their general activity within the past week, on average (5 on a scale from 0 [does not interfere] to 10 [completely interferes]).
- The average number of hours of sleep received per night was nearly 7 hours across the sample.

There were statistically significant correlations (*rs* = -.16 to .54; *ps* < .01) among all of these variables (quality of life, mental health, physical health, pain interference, stress, and sleep). For example, those who reported lower quality-of-life ratings were also more likely to report poorer satisfaction with their physical and mental health, higher levels of stress, greater pain interference, and fewer hours of sleep received per night. In particular, mental and physical health satisfaction, number of hours of sleep received per night, and stress levels each significantly predicted how participants rated their quality of life ($p < .01$), while controlling for age, gender, and patient status. Qualifying for depression using the Patient Health Questionnaire-2 (PHQ-2) screener also significantly predicted quality-of-life ratings ($p < .001$), whereas scores for anxiety and post-traumatic stress disorder (PTSD) demonstrated no relationship with quality-of-life ratings. Altogether, these findings highlight the complex and interconnected nature of physical and mental health.

Registered medical cannabis patients in this sample reported receiving more hours of sleep per night, greater satisfaction with their mental and physical health, and higher quality-of-life ratings compared to nonpatients. These differences were statistically significant ($p < .05$). Patients also reported significantly higher pain interference (i.e., the degree to which physical pain interferes with daily activities) ratings than nonpatients. Despite the greater pain interference ratings among medical patients, it is optimistic that this does not appear to be negatively impacting their mental health, physical health, and quality of life.

Participants using cannabis for pain (without a recommendation from a medical provider) did report experiencing greater pain interference compared to those not using cannabis for pain, as well as lower mental health and physical health ratings, these results were statistically significant (*ps* < .01). Individuals using cannabis for sleep (without a provider's recommendation for cannabis for this purpose) reported receiving fewer hours of sleep per night, and lower mental and physical health ratings, these results were statistically significant (*ps* < .05). These data are discussed in order to provide a holistic view of participants' mental and physical well-being. These findings are specific to our sample and should not be generalized to all cannabis consumers (medical patients and nonpatients alike).

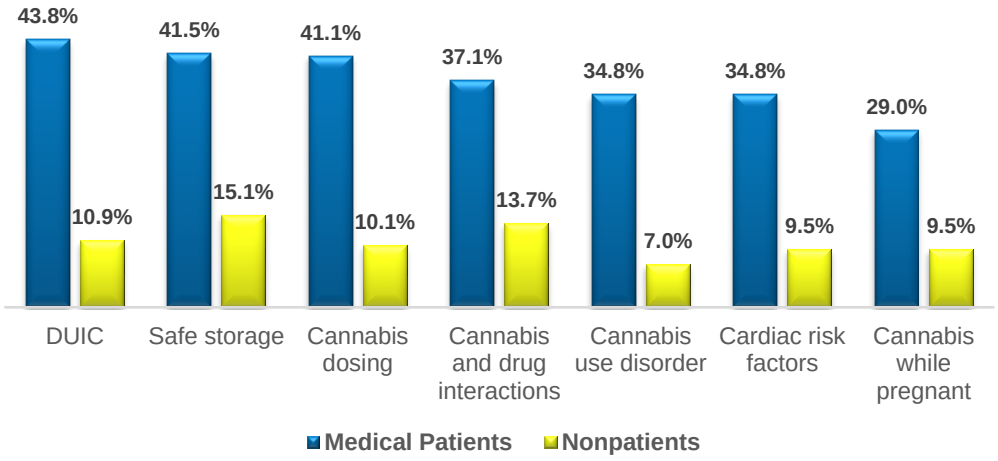
8.2. Medical Provider Interactions

The New Mexico DOH greatly values the patient–provider relationship and encourages cannabis consumers to routinely discuss their cannabis use with a medical provider. It is imperative that medical providers discuss the benefits and risks of harms associated with cannabis use to consumers, and this relationship necessitates that consumers are also comfortable speaking to medical providers about their cannabis use.

To better understand the level of comfort that cannabis consumers have in speaking to medical professionals about cannabis, participants in this sample were prompted with a question asking them to rate their comfort level in telling a healthcare provider that they use cannabis (1 being not comfortable at all and 10 being very comfortable). The median response among all participants was an 8.5. This is a very positive finding, as this indicates that most cannabis consumers in New Mexico are very comfortable discussing their cannabis use with a healthcare provider. There were no significant differences in ratings between medical patients and nonpatients, suggesting that comfort in speaking to a medical provider about cannabis consumption does not vary depending upon general reasons for use (medical versus recreational).

Although participants in this sample reported an overall high level of comfort in discussing cannabis use with a medical provider, we did find discrepancies in the reporting that medical providers have spoken to them about a variety of important topics related to cannabis use. Medical patients were significantly more likely to report that medical providers have spoken to them about each topic compared to nonpatients. Please refer to figure 19 for more detailed information. Over 40% of patients reported that medical providers have spoken with them about DUIC, cannabis dosing, and the safe storage of cannabis, compared to 15% or fewer of nonpatients. These findings are understandable considering that medical patients in New Mexico are required to consult with a medical provider prior to enrolling in the program. Therefore, this would lead to additional opportunities for discussions about cannabis safety topics among medical patients and their providers. However, these findings underscore a need for additional communication, and potentially education, related to cannabis use among all medical providers, regardless of whether the provider is certified as a recommending provider for medical cannabis.

Figure 19. Percent of Participants Indicating That a Medical Provider Has Spoken with Them About the Following Concerns, Separated by Patient Status.



8.3. Cannabis Experiences and Perceptions of Use

Participants were asked about their experiences following cannabis consumption. Generally, many participants indicated that they have not experienced a worsening of symptoms or experiences following cannabis consumption; however, the most commonly reported side effects were changes in memory or concentration (28%) and anxiety (18%). These findings parallel what was found in our 2023 survey. Please refer to table 13 for more detailed information. Forty-eight percent of respondents reported experiencing at least one of these symptoms or experiences, which is slightly lower than what was found in our 2023 survey, in which 53% of respondents experienced at least one of these symptoms. Additional research is necessary to better understand the factors that may contribute to a worsening of symptoms among certain cannabis consumers. We recommend that anyone experiencing a worsening of physical and mental health symptoms after cannabis consumption should contact a medical professional.

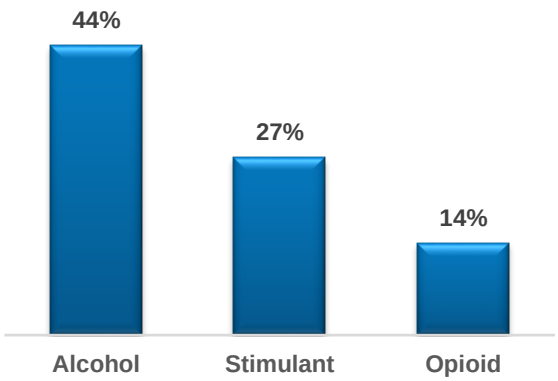
Table 13. Responses to the question, "*Has cannabis worsened any of the following symptoms or experiences?*"

	%
Memory or concentration	28%
Anxiety	18%
Weight	16%
Dizziness	16%
Headaches	16%
Sleep/insomnia	16%
Paranoia	15%
Depression	13%
Post-traumatic stress disorder	8%

8.4. Problematic Substance Use

A modified version of The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST-Lite) was used to screen for risky or problematic substance use behaviors among all participants in the sample. The ASSIST is a World Health Organization–endorsed framework used to identify risk of substance use disorders among the general population.[12] This screening tool inquires about substance use behaviors within the past 3 months. Scores are separated into risk categories, including low risk, moderate risk, and high risk. Although the full ASSIST scale includes many legal and illicit substances, we only included questions about the use of alcohol, stimulants, and opioids for the purposes of this study. As figure 20 shows, 44% of all participants screened for potentially risky alcohol use: 24% qualified for low-to-moderate alcohol risk, 10% for moderate alcohol risk, and 11% for high alcohol risk. Potentially risky stimulant use was indicated for 27% of all participants: 7% qualified for low-to-moderate stimulant risk, 12% for moderate stimulant risk, and 8% for high stimulant risk. Potentially risky opioid use was indicated for 14% of all participants: 4% qualified for low-to-moderate opioid risk, 2% for moderate opioid risk, and 8% for high opioid risk.

Figure 20. Percent of the Total Sample Qualifying for Risky Alcohol, Stimulant, or Opioid Use.



Section 8 Summary

- There are strong, observable connections between physical health, mental health, and overall well-being.
- Most cannabis consumers in New Mexico appear to be very comfortable discussing their cannabis use with a healthcare provider.
- Medical patients were more likely to report that medical providers have spoken to them about a variety of cannabis health and safety topics compared to nonpatients.
- A notable benefit of involvement in the medical program is the additional opportunities to discuss cannabis use and safety topics with a medical professional.
- Relatively few participants reported negative experiences following cannabis consumption; however, memory and concentration issues were most commonly mentioned among those reporting a negative experience.
- Over 40% of the sample qualified for risky alcohol use, 27% qualified for risky stimulant use, and 14% qualified for risky opioid use.

[12] Stevens, M. W. R., Harland, J., Alfred, S., & Ali, R. L. (2022). Substance use in the emergency department: Screening for risky drug use, using the ASSIST-Lite. *Drug and Alcohol Review*, *41*(7), 1565–1576. https://doi.org/10.1111/dar.13513

Section 9. Cannabis as a Replacement for Other Substances

9.1. Prevalence of Cannabis as a Replacement

With the rise in the medicinal uses of cannabis, there has been an increase in the use of cannabis as a substitution for other prescription and nonprescription substances. Research has shown that substituting prescription and nonprescription substances with cannabis is a prevalent motive for cannabis use, especially among medical cannabis patients, and may be effective at reducing the use of other substances.[13] Considering the risks of harm associated with prolonged use or misuse of certain substances, such as opioids, some have argued for the use of cannabis as a means of harm reduction for reducing the use of more problematic substances. Specifically, it has been suggested that cannabis may be an effective replacement strategy with fewer risks of harm for those with problematic substance use or among those who are at greater risk of developing problematic substance use.[14] [15] [16] Despite such claims, almost all existing studies in this domain have notable flaws. For example, many studies try to investigate this subject using a single survey, rather than surveying the same participants across two or more instances. This methodology fails to pinpoint how trends in using cannabis to replace other substances develop over time, and which behaviors precede others. Many studies also fail to recruit participants who meet criteria for problematic use of the substance being replaced by cannabis, which restricts the clinical relevance of the study. Other studies neglect to compare individuals who specifically intend to use cannabis as a replacement for other substance(s) relative to those who are cannabis consumers but do not have this intention for its use. This factor is critical in determining whether the effort associated with purposefully consuming cannabis for this objective plays a key role in reducing other substance use. By addressing each of these barriers, along with others not mentioned above, research could better clarify whether certain patterns of cannabis use may help reduce or replace the use of other, more harmful substances than cannabis and identify outcomes associated with this purpose for cannabis consumption.

This study aimed to address some of the gaps in the prior research on this topic by investigating the prevalence and efficacy of cannabis use as a replacement for other substances across two timepoints, among those who do and do not intentionally use cannabis for this purpose. Importantly, all data in this study were collected on a self-report basis, and because of this, we are unable to objectively verify the accuracy of participants' responses to these questions. Further research is necessary to evaluate objective changes in substance use among those who consume cannabis as a replacement for other substances. To mitigate potential issues associated with self-report responses, we utilized a relatively short recall timeframe of 1 month. Research has shown that the use of shorter recall timeframes (e.g., past 30 days) is associated with better recall accuracy when compared to timeframes beyond 30 days.[17]

[13] Kvamme, S. L., Pedersen, M. M., Rømer Thomsen, K., & Thylstrup, B. (2021). Exploring the use of cannabis as a substitute for prescription drugs in a convenience sample. *Harm Reduction Journal*, *18*, 1–18. https://doi.org/10.1186/s12954-021-00520-5
[14] Lucas, P., Walsh, Z., Crosby, K., Callaway, R., Belle-Isle, L., Kay, R., Capler, R., & Holtzman, S. (2016). Substituting cannabis for prescription drugs, alcohol and other substances among medical cannabis patients: The impact of contextual factors. *Drug and Alcohol Review*, *35*(3), 326–333. https://doi.org/10.1111/dar.12323
[15] Reiman, A., Welty, M., & Solomon, P. (2017). Cannabis as a substitute for opioid-based pain medication: Patient self-report. *Cannabis and Cannabinoid Research*, *2*(1), 160-166. https://doi.org/10.1089/can.2017.0012
[16] Lau, N., Sales, P., Averill, S., Murphy, F., Sato, S. O., & Murphy, S. (2015). A safer alternative: Cannabis substitution as harm reduction. *Drug and Alcohol Review*, *34*(6), 654–659. https://doi.org/10.1111/dar.12275
[17] Robinson, S. M., Sobell, L. C., Sobell, M. B., & Leo, G. I. (2014). Reliability of the Timeline Followback for cocaine, cannabis, and cigarette use. *Psychology of Addictive Behaviors*, *28*(1), 154–162. https://doi.org/10.1037/a0030992

To assess prevalence for the use of cannabis as a replacement in this sample, all participants were presented with a question asking, “Was at least part of why you started using cannabis because you wanted to reduce, replace, or stop the use of another substance?” with response options of “yes” and “no.” Nearly one-third of participants (30%) responded “yes” to this question. These respondents were then presented with follow-up questions inquiring about the number of days within the past month that they consumed cannabis for these purposes, and the specific substances they used cannabis to replace. Participants reported consuming cannabis to reduce, replace, or stop the use of another substance nearly half of the days within the past month (13 days on average). Table 14 presents the substances that participants reported using cannabis to reduce, replace, or stop. Alcohol was most commonly reported as the substance participants in this sample used cannabis to reduce, replace, or stop, followed by opioids/pain medication, sleep medication, tobacco, and antianxiety medication.

Table 14. Substances That Participants Reported Using Cannabis to Reduce, Replace, or Stop Within the Past Month.

Substances	%
Alcohol	52%
Opioids/pain medication	46%
Sleep medication	46%
Tobacco	43%
Antianxiety medication	43%
Antidepressant medication	36%
Stimulants	34%
Antipsychotic medication	23%
Other	9%

Medical cannabis patients were more likely to report consuming cannabis for the purpose of reducing, replacing, or stopping the use of another substance; compared to nonpatients, these differences were statistically significant (35% and 26%, respectively; $p < .05$). This aligns with the extant literature suggesting that this as a common motive for cannabis use specifically among medical cannabis patients. No differences were found between the two groups in terms of the number of days within the past month that they consumed cannabis for these purposes. Over 80% of medical cannabis patients (84%) reported that they have discussed their use of cannabis for these purposes with a medical provider, compared to only 43% of nonpatients. This difference was statistically significant ($p < .001$). This finding underscores one of the benefits associated with the medical cannabis program, such that registered patients may receive additional opportunities to interact with medical providers and discuss their use of cannabis with them.

9.2. Prescription Medication Adherence

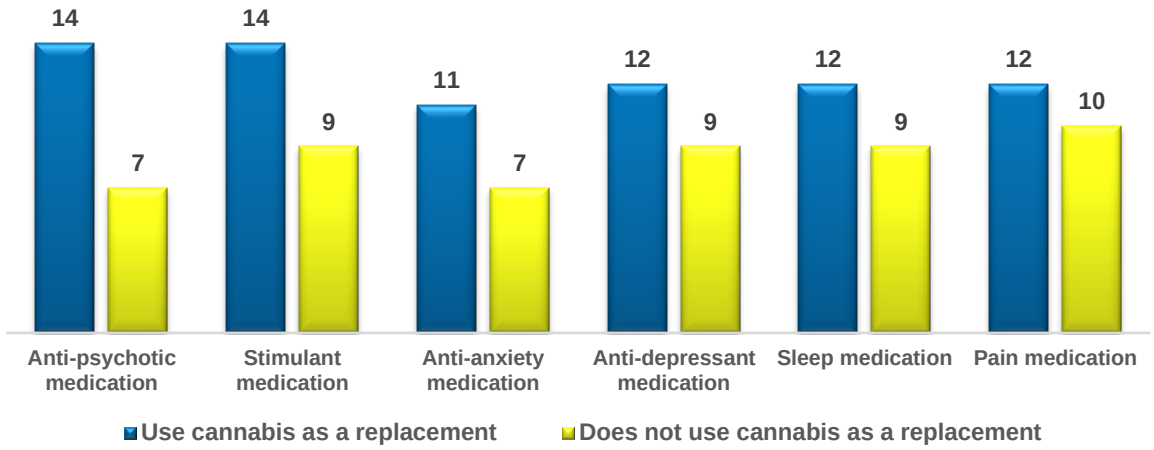
Among the general population, it has been estimated that only 50% of individuals fully adhere to their prescription medication treatment.[18] [19] This is cause for concern, as those who do not properly adhere to their prescription medication treatment may not receive the full benefits of the treatment. While examining the use of cannabis as a replacement for other substances, medical cannabis patients have been found to be more likely to replace prescription medication with cannabis as opposed to nonprescription medication.[20] In this study, we inquired about participants' prescription medication use to obtain a general understanding of prescription medication adherence, particularly among those who report using cannabis as a replacement for other substances. It is important to note that cannabis is not currently approved to replace any prescription medication treatment. We encourage cannabis consumers to adhere to their prescription medication treatment and consult with a medical professional about any substance or medication use to ensure that potential drug interactions and other risks are avoided.

In an effort to evaluate general prescription medication adherence among cannabis consumers in this sample, participants were presented with a question inquiring about the medications that they are currently prescribed, from options including pain medication, antidepressant medication, antianxiety medication, stimulant medication, sleep medication, and antipsychotic medication. Among those who indicated that they are currently prescribed any of these medications, they were then asked to report the number of days within the past month that they used *less than* and *more than* the number of pills they are prescribed, as well as whether they fully stopped their regular, prescribed use of any of these medications within the past month. Our findings indicated that participants who reported using cannabis to replace, reduce, or stop antipsychotic medication reported more variability in their prescribed antipsychotic medication use compared to those who do not use cannabis to replace, reduce, or stop their antipsychotic medication. Specifically, participants who use cannabis as a replacement for antipsychotic medication reported significantly more days on average of using *less than* their prescribed number of pills (16 days) and significantly more days on average of using *more than* their prescribed number of pills (13 days) than those who do not use cannabis as a replacement ($p < .05$). These effects were unique to those using cannabis to replace antipsychotic medication.

The only other statistically significant finding was that participants who use cannabis to reduce, replace, or stop stimulant medication reported more days of using *more than* their prescribed number of pills compared to those who are prescribed stimulant medication, but do not use cannabis as a replacement ($p < .05$). There were general trends in the data indicating greater variability in past-month prescription medication adherence among those who use cannabis to reduce, replace, or stop each respective substance; however, these differences were not all statistically significant. Detailed findings are presented in figure 21, which shows the average number of days within the past month that participants reported variability (using more or less than their prescribed number of pills) in their prescribed medication use among those who do and do not report using cannabis as a replacement for each respective substance.

[18] Brown, M. T., & Bussell, J. K. (2011). Medication adherence: WHO cares? *Mayo clinic proceedings, 86*(4), 304–314. https://doi.org/10.4065/mcp.2010.0575
[19] Lehmann, A., Aslani, P., Ahmed, R., Celio, J., Gauchet, A., Bedouch, P., Bugnon, O., Allenet, B., & Schneider, M. P. (2014). Assessing medication adherence: Options to consider. *International Journal of Clinical Pharmacy*, *36*, 55–69. https://doi.org/10.1007/s11096-013-9865-x
[20] Lucas, P., Baron, E. P., & Jikomes, N. (2019). Medical cannabis patterns of use and substitution for opioids & other pharmaceutical drugs, alcohol, tobacco, and illicit substances; Results from a cross-sectional survey of authorized patients. *Harm Reduction Journal*, *16*, 9. https://doi.org/10.1186/s12954-019-0278-6

Figure 21. Average Number of Days Using More or Less than the Prescribed Number of Pills Within the Past Month, Among Those Who Do and Do Not Use Cannabis as a Replacement.



When examining the rate of participants who completely discontinued their regular, prescribed use of prescription medication, participants who reported that they are currently prescribed pain medication (e.g., hydrocodone, tramadol, oxycodone, morphine) were most likely to report that they stopped their regular, prescribed use of this medication within the past month, compared to those prescribed the other substances. Forty-three percent of respondents with an active prescription for pain medication reported stopping their use of this medication within the past month. There was no statistical evidence suggesting that participants in this sample who intentionally use cannabis as a replacement for pain medication were more likely to have discontinued their use of pain medication within the past month compared to those not using cannabis as a replacement.

Section 9 Summary

- Thirty percent of participants in this sample use cannabis for the purpose of reducing, replacing, or stopping the use of another substance.
- Alcohol, opioids/pain medication, sleep medication, tobacco, and anti-anxiety medication were most commonly reported as the substances participants use cannabis to reduce, replace, or stop.
- Medical cannabis patients were more likely to report consuming cannabis for the purpose of reducing, replacing, or stopping the use of another substance compared to non-patients, and were more likely to have discussed their use of cannabis for this purpose with a medical provider.
- Those using cannabis as a replacement for another substance generally reported more variability in their prescription substance use (i.e., using more or less than their prescribed number of pills within the past month).
- Participants who use cannabis to replace, reduce, or stop prescription anti-psychotic medication reported significantly greater variability in their prescribed anti-psychotic medication use within the past month compared to those who do not use cannabis as a replacement.

Section 10. Follow-Up Survey

Executive Summary

The following section of this report details findings from our follow-up survey, which occurred in May 2024. This follow-up survey was conducted with a goal of assessing exploratory outcomes associated with the intentional use of cannabis to reduce, replace, or stop the use of other prescription and nonprescription substances, among those who screened for potentially risky alcohol, opioid, and/or stimulant use in our population-level survey. Detailed findings from this survey are presented in section 10; however, primary findings of interest and notable takeaways from the data are presented below.

- Among participants who met criteria for risky alcohol use, efforts to reduce or replace alcohol consumption through the use of cannabis appear to be effective for at least some subset of participants in our sample. Similar effects were found such that those with one risky substance qualification and who used cannabis as a replacement for tobacco decreased their past-month tobacco use days from baseline to follow-up. Although it is still unclear how far these findings generalize, the current study controls for many alternative explanations not present in other scientific studies on this topic. These findings indicate that certain patterns of cannabis use may show promise as an effective harm reduction strategy for targeting reduced alcohol and tobacco use.
- Critically, relatively small and unbalanced sample sizes for those with and without a qualifying risky substance diagnosis hamper the ability to make conclusions or inferences about whether intentionally using cannabis to reduce, replace, or stop the use of other substances is a promising harm reduction strategy.
- Initial findings suggest that a more targeted or additional intervention may be necessary to effectively reduce problematic substance use among those in vulnerable groups, such as those with high-risk polysubstance use. Future research should investigate the impact that polysubstance use may have in affecting outcomes associated with the use of cannabis as a replacement.
- Overall, these findings are noteworthy such that they provide initial evidence for the intentional use of cannabis at reducing risky substance use, specifically for alcohol and tobacco. Additional funding for research on this topic is imperative, particularly in the context of medical cannabis programs, to continue the investigation into whether intentional cannabis use as a replacement for alcohol and tobacco is effective at minimizing other substance use, and explore all outcomes associated with this replacement.

10.1. Follow-Up Survey Participant Characteristics

Participants who screened for problematic alcohol, opioid, and/or stimulant use via the ASSIST-Lite scale in the population-level survey (also referred to as “baseline”) were invited to participate in a follow-up survey, which occurred approximately 1 month following the population-level survey. The goal of the follow-up survey was to evaluate changes in substance use between those who do and do not use cannabis to reduce, replace, or stop the use of another substance, among individuals who qualified for problematic alcohol, opioid, and/or stimulant use. In total, 142 participants from the population-level survey qualified for and consented to be contacted to participate in the follow-up survey. Among these respondents, 60 completed the follow-up survey, and following standardized data cleaning procedures, a total of 55 respondents remained in the final sample. Participants were appropriately compensated for their time and effort on both the population-level survey and the follow-up survey via immediate monetary payments following survey completion. Key demographic characteristics of the follow-up survey respondents are shown in table 15.

Table 15. Demographic Distribution of Follow-Up Survey Participants (n = 55).

Age (Median)	40
Race	
American Indian, Native American, or Alaska Native	7.2%
Asian	1.8%
Black or African American	9.1%
White	72.7%
Native Hawaiian or other Pacific Islander	0.0%
Multi-race	9.1%
Gender Identity	
Male	40.0%
Female	56.4%
Transgender man/trans man/female-to-male (FTM)	1.8%
Nonbinary	1.8%
Family Income (Median)	$45,000
High School Degree or Higher	100%

10.2. Substance Use Consumption Trends

Eighty-nine percent of participants who completed the follow-up survey reported that they have consumed cannabis within the past month, with over 65% reporting daily or near-daily cannabis use. There were no differences in the number of past-month cannabis use days between the population-level survey and the follow-up survey (18.7 and 18.3 days, respectively). This indicates consistency and validity in participant reporting, and overall stability in general substance use patterns. Nearly all participants in this sample (96%) were past-month polysubstance consumers (i.e., consume more than one substance). Figure 23 displays the past-month prevalence of polysubstance use among participants in this follow-up sample. The most common substances consumed by participants in the past month, in addition to cannabis, were tobacco, alcohol, nonprescription stimulants, and psilocybin.

Figure 22. Past-Year Cannabis Consumption Patterns Among Follow-Up Participants.

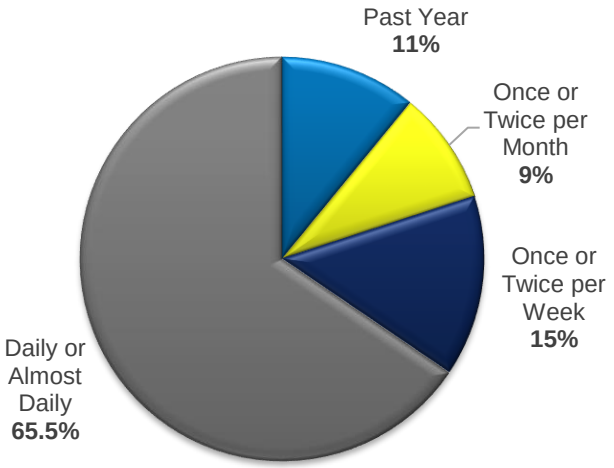
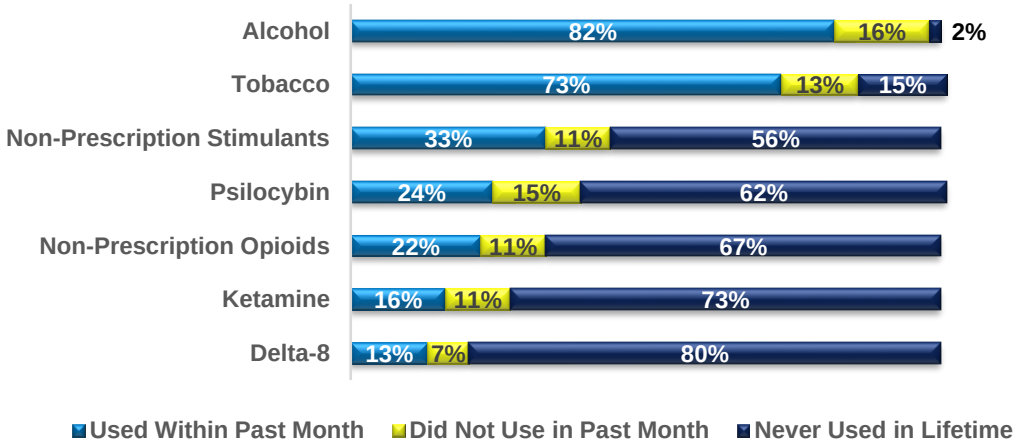


Figure 23. Percent of Participants Using Each Substance Within the Past Month.

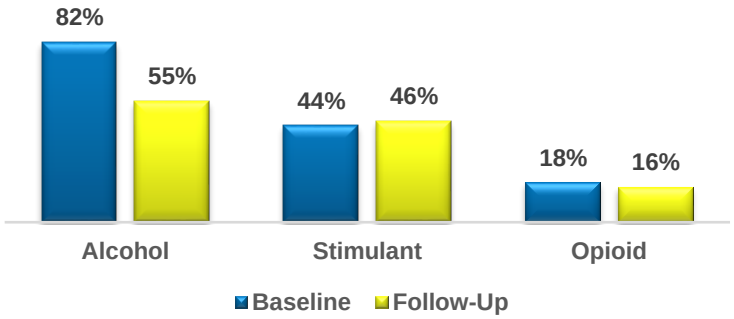


10.3. Risky Substance Use

Among the 55 participants who completed the follow-up survey, 82% qualified for risky alcohol use in the baseline population-level survey, 44% qualified for risky stimulant use, and 18% qualified for risky opioid use via the ASSIST-Lite scale. At the follow-up survey, 55% qualified for risky alcohol use (26% for low-to-moderate alcohol risk, 9% for moderate alcohol risk, and 20% for high alcohol risk), 46% qualified for risky stimulant use (13% for low-to-moderate stimulant risk, 27% for moderate stimulant risk, and 6% for high stimulant risk), and 16% qualified for risky opioid use (4% for low-to-moderate opioid risk, 7% for moderate opioid risk, and 6% for high opioid risk), as shown in figure 24. Overall, few changes in substance use risk scores occurred among participants between the baseline and the follow-up surveys.

The most notable change was for alcohol use, in which fewer participants qualified for risky alcohol use at the follow-up survey. One-third of participants (33%) screened for risky use of multiple substances in the follow-up survey, compared to 35% in the baseline population-level survey.

Figure 24. Percent of Follow-Up Sample (n = 55) who Qualify for Risky Alcohol, Stimulant, and Opioid Use from the Baseline Survey and the Follow-Up Survey.

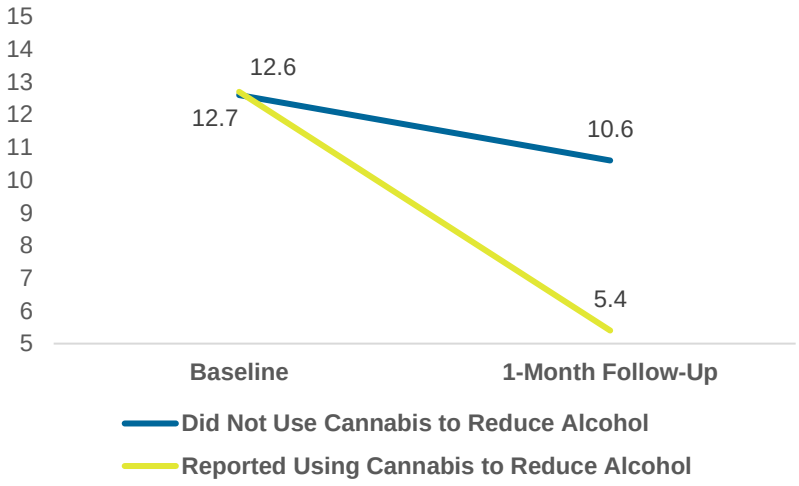


It is important to note that the ASSIST-Lite scale assesses substance use behaviors within the past 3 months, and our surveys occurred within 1 month of each other. Therefore, we are not able to entirely evaluate changes in risky substance use behavior between the baseline population-level survey and the follow-up survey over a 3-month period that the ASSIST-Lite scale assesses; however, we are able to glean general trends in behavior change between the timepoints using this scale. That being said, there were significant, positive correlations between level of risky alcohol use behavior (i.e., low, moderate, high risk) and the number of past-month alcohol use days, number of alcoholic drinks consumed per day in the past month, number of binge drinking occasions in the past month, number of past-month days using cannabis and alcohol on the same day, and the number of alcoholic drinks consumed on days when also consuming cannabis (rs = .37 - .49; p < .05). In other words, those who qualified for higher alcohol use risk behavior also drank alcohol on more days within the past month, consumed more alcoholic beverages on drinking days, had more days consuming alcohol and cannabis on the same day, and drank a higher number of alcoholic beverages on days they also consumed cannabis. There were also significant, positive correlations between risky opioid use behavior and the number of opioid use occasions per day, number of past-month days using cannabis and opioids on the same day, and the number of past-month opioid use days (rs = .52 - .86; p < .05). There were significant, positive correlations between risky stimulant use behavior and the number of past-month stimulant use days (r = .46; p < .05). Those using stimulants more often throughout the day also reported more days of using cannabis and stimulants on the same day. Altogether, these findings validate the ASSIST-Lite scale and the additional substance use measures included in this survey and confirm the presence of a high-risk and high-polysubstance-consuming subset of the sample.

10.4. Change in Alcohol Use

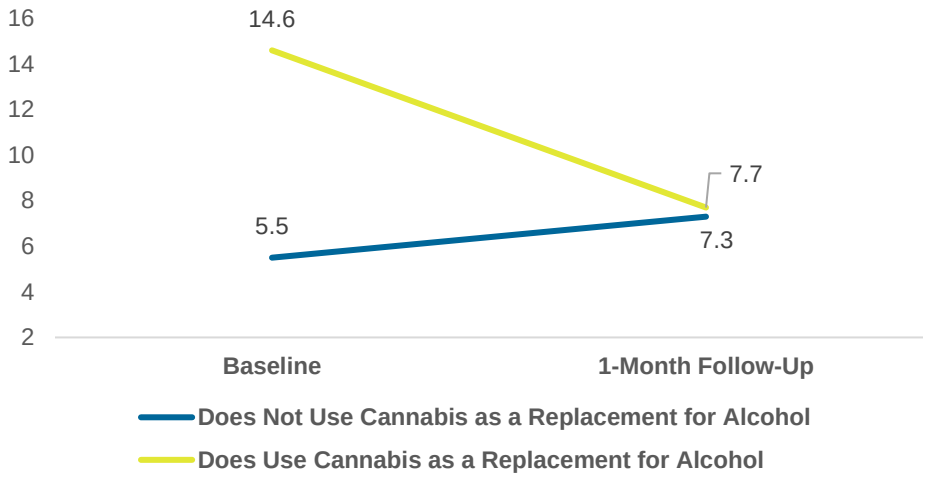
Among those who qualified for risky alcohol use via the ASSIST-Lite scale, there was a significant interaction effect between number of past-month alcohol use days at baseline and follow-up, and intentionally using cannabis as a replacement for alcohol. Among those who qualified for risky alcohol use, those who used cannabis to reduce, replace, or stop their use of alcohol had a statistically significant reduction in past-month alcohol use days between the baseline population-level survey and the follow-up survey compared to those did not use cannabis to replace alcohol, when accounting for age, income, anxiety, depression, and cannabis use days ($F(1, 96) = 5.404$, $p = .026$). As presented in figure 25, when accounting for covariates, those who did not report using cannabis as a replacement for alcohol reported consuming alcohol on 12.6 days within the past month at baseline, and 10.6 days at follow-up. Those who did report using cannabis as a replacement for alcohol reported consuming alcohol on 12.7 days within the past month at baseline, and 5.4 days at follow-up. This finding provides initial evidence for the intentional use of cannabis at potentially being effective at reducing alcohol use among those with risky alcohol use behaviors. Due to small sample sizes between groups and a general preference for flower products among all participants, we were unable to draw conclusions about the cannabis products these participants consumed for the purpose of reducing alcohol and whether these product preferences have any impact on alcohol reduction outcomes.

Figure 25. Change in Past-Month Alcohol Use Days Between Those Who Do vs. Do Not Use Cannabis to Reduce/Stop Alcohol Use.



We also found trends indicating that, among those who qualified for risky alcohol use via the ASSIST-Lite scale, those who intentionally use cannabis to reduce, replace, or stop their use of alcohol also reported a reduction in their number of past-month binge drinking occasions from the baseline and follow-up surveys compared to those who did not use cannabis to replace alcohol, when accounting for age, income, anxiety, depression, and cannabis use days. As presented in figure 26, when accounting for covariates, those who did not report using cannabis as a replacement for alcohol reported 5.5 binge drinking occasions within the past month at baseline, and 7.3 occasions at follow-up. Those who did report using cannabis as a replacement for alcohol reported 14.6 binge drinking occasions within the past month at baseline, and 7.7 occasions at follow-up. Importantly, this interaction was not quite statistically significant, so caution must be used when interpreting this finding. However, the trends in the data are important to note as they may indicate that those who use cannabis as a replacement for alcohol may not only have a reduction in alcohol use days, but also in risky alcohol use behaviors, such as binge drinking occasions.

Figure 26. Change in Number of Past-Month Binge Drinking Occasions Between Those Who Do vs. Do Not Use Cannabis to Reduce/Stop Alcohol Use (Among Those Who Met Criteria for Risky Alcohol Use at Baseline).



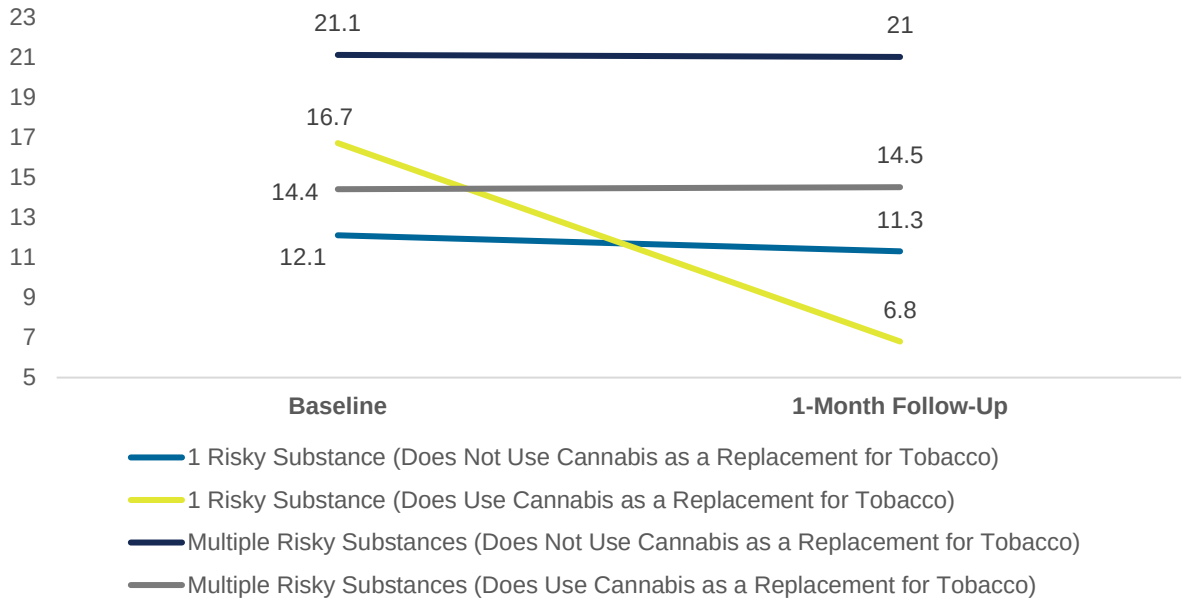
10.5. Change in Tobacco Use

Changes in past-month tobacco use days were investigated among those who do and do not use cannabis as a replacement for tobacco, as well as among those who qualify for risky substance use for one versus multiple substances at baseline. Significant reductions were found in the number of past-month tobacco use days at baseline and follow-up and the intentional use of cannabis as a replacement for tobacco, but only among those with one risky substance use qualification. No significant differences in tobacco use days were determined among those with multiple substance use qualifications between baseline and follow-up. Figure 27 displays the findings. When accounting for age and past-month cannabis use, those with one risky substance qualification and who do not use cannabis as a replacement for tobacco reported approximately 12 days of tobacco use at baseline and 11 days at follow-up; those with one risky substance qualification and who do use cannabis as a replacement for tobacco reported approximately 17 days of tobacco use at baseline and 7 days at follow-up. Those with multiple risky substance qualifications and who do not use cannabis as a replacement for tobacco reported approximately 21 days of tobacco use at baseline and at follow-up; those with multiple risky substance qualifications and who do use cannabis as a replacement for tobacco reported approximately 14 days of tobacco use at baseline and follow-up.

Although not all effects are statistically significant, these findings highlight important trends in the data. For example, even when accounting for covariates, those with multiple risky substance qualifications generally consumed tobacco on more days within the past month compared to those with one risky substance qualification. This is most apparent in the multiple risky substance group of consumers who do not use cannabis as a replacement for tobacco. This validates our previous findings suggesting that a high-risk polysubstance consuming group is present in a portion of this sample. Another poignant finding is related to the differences between the one risky substance group and the multiple risky substances group, among those who use cannabis as a replacement for tobacco. While those with one risky

substance did report a decrease in tobacco use days, those with multiple risky substances did not. This suggests that among those using cannabis as a replacement, a stronger or additional intervention may be necessary for vulnerable groups, such as those with high-risk polysubstance use. Future research should continue to investigate the outcomes of cannabis at effectively reducing tobacco use, while accounting for risky substance use and polysubstance use, as the impacts associated with the inclusion of an additional substance may pose added risks of harm among these groups.

Figure 27. Past-Month Tobacco Use Days Among Those Who Do and Do Not Use Cannabis as a Replacement for Tobacco, and Among Those Who Qualify for Risky Substance Use for One vs. Multiple Substances.



10.6. Health and Well-Being

Overall, there were few differences in health and well-being outcomes among the full follow-up sample between the baseline population-survey and the follow-up survey. When comparing mean ratings between the two timepoints, there were no significant differences in overall health ratings (e.g., quality-of-life rating, physical health satisfaction, mental health satisfaction, level of stress, sleep hours) among the full follow-up sample between baseline and follow-up. This indicates overall consistency and validity of our measures. Among our mental well-being screening questionnaires, no significant differences were found in depression scores; however, significant differences were found in anxiety scores, such that participants had lower anxiety scores at follow-up. Similarly, there were no significant differences in the proportion of the sample qualifying for CUD between the timepoints. Fifty-five percent of participants qualified for CUD at the baseline population-level survey, and 56% of participants qualified for CUD at the follow-up survey. That being said, as CUD scores improved at follow-up, so did mental health ratings, stress ratings, and depression scores, suggesting a connection between potentially risky cannabis use and mental well-being. Other

variables not examined in this study may impact this relationship, however, and should be explored in future research.

These data were separated in numerous ways to further investigate potential differences between subgroups of the sample. There were no significant changes in pain interference, physical health satisfaction, or quality of life among those using cannabis as a replacement for opioids. No differences in number of sleep hours were found among those who do and do not use cannabis as a replacement for sleep medication, and between baseline and follow-up for both groups. No differences in anxiety (Generalized Anxiety Disorder scale-2 [GAD-2]) or depression (PHQ-2) were found among those who use cannabis as a replacement for antianxiety medication and antidepressant medication between baseline and follow-up. Generally, there were no differences in health ratings among those who screened for risky alcohol, opioid, or stimulant use between baseline and follow-up.

Data were also categorized by those who qualified for multiple risky substances and those who qualified for only one risky substance. At follow-up, those with multiple risky substance qualifications reported lower relationship satisfaction than those with one risky substance. There was also a significant correlation between mental health ratings and scores on the ASSIST-Lite scale, such that those with riskier substance use generally reported overall poorer mental health ratings. At follow-up, those with one risky substance qualification reported improvements in anxiety and reported lower stress. No differences in outcomes among those with multiple risky substances were found.

It is important to approach our findings with a level of caution, as cannabis use has been associated with risks of harm and substitution effects have not been fully explored in the research literature. Additional research occurring over longer periods of time and with larger sample sizes is necessary in order to make conclusive claims about the prevalence, efficacy, and safety of the use of cannabis as a replacement substance.

Section 10 Summary

- There was a high prevalence of polysubstance use among those who participated in the follow-up survey, with 96% of participants reporting consuming cannabis and at least one other substance in the past month.
    - Alcohol, tobacco, nonprescription stimulants, and psilocybin were most frequently consumed in the past month in addition to cannabis.
- Among those who qualified for risky alcohol use at baseline, participants who used cannabis to reduce, replace, or stop their use of alcohol had a statistically significant reduction in past-month alcohol use days between the baseline population-level survey and the follow-up survey, compared to those who did not use cannabis for this purpose.
- Trends in the data indicated that among those who qualified for risky alcohol use, those who intentionally use cannabis to reduce, replace, or stop their use of alcohol reported fewer riskier alcohol use behaviors, including the number of past-month binge drinking occasions.
- Participants with one risky substance qualification and who use cannabis as a replacement for tobacco decreased their past-month tobacco use days from baseline to follow-up.
- Few reported changes in overall health and well-being were established between the baseline and follow-up surveys, and there were no differences in these outcomes among those who do and do not intentionally use cannabis as a replacement. Additional research with a larger sample size and over a longer period of time is likely necessary to fully evaluate whether changes in health and well-being outcomes are associated with the use of cannabis as a replacement.