

Understanding Cannabidiol | CBD

Summary Report



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Introduction – Why study CBD?

CBD, known for the medical relief it provides for a plethora of conditions without the psychoactive effects or “high” caused by THC, makes up a growing¹ part of the cannabis market. Despite the potential of CBD products, there is little being done to better understand this market, its users, product varieties and growth potential, due to the challenges imposed by federal policy.

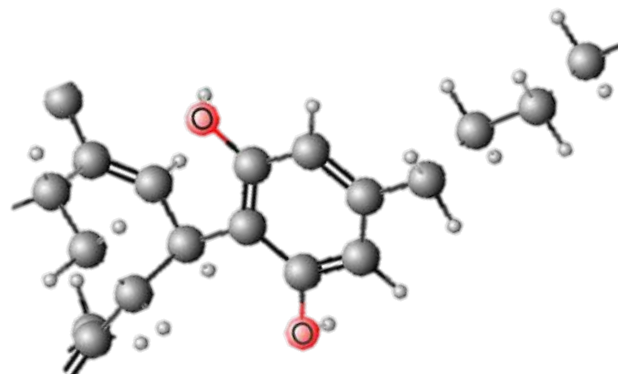
The legal circumstances and history surrounding CBD are complicated and unique due to its multiple compositions and sources. **While many marijuana-derived CBD products work in combination with varying amounts of THC², others have only negligible amounts, but regardless can only be sold where cannabis has been medically or recreationally legalized.³**

There has been some legal progress in the industrial hemp industry since the Farm Bill was signed in 2014⁴ distinguishing hemp from marijuana. However, hemp – including hemp-derived CBD – is still designated as “marihuana” today by the U.S. Drug Enforcement Agency (DEA), which continues to treat it as a controlled substance.⁵

The confusion and disagreement resulting from federal inconsistencies have led to **today’s reality, in which hemp-derived products continue being sold across state lines, online, and through mainstream retailers, but the industry must operate in a legal grey area.**

Two additional barriers to understanding and approaching the CBD market are **misinformation and lack of information among potential and current cannabis consumers.**

For example, a reason often cited for not using CBD products is because doing so will deliver a psychoactive effect or will lead the user to fail a drug test – neither of which is true in the case of CBD-only products, but rather only with CBD-dominant products that contain THC.⁶ Furthermore, in a recent general U.S. population survey⁷, up to 47% of those polled were not familiar with hemp-derived CBD. **Even among regular cannabis users, knowledge and understanding of CBD – particularly the benefits of its various formulations – is often hazy**, as is discussed in more detail below.



Study Partners and Subjects

In an effort to shed light on this opaque market, **Brightfield Group**, in partnership with **HelloMD**, has collected data from over 2,400 HelloMD medicinal cannabis community members from the United States (primarily California) and abroad. The resulting analysis provides insight into their experiences and perceptions of CBD products - both hemp-derived and marijuana-derived. The insights that follow provide further context for those looking to better understand, invest or expand in the CBD market.



HelloMD is one of the nation's largest online community of medical cannabis patients, experts, brands and trusted retailers, offering today's cannabis patient a full turnkey experience. At HelloMD.com medical cannabis consumers can consult with a doctor via real-time video, obtain answers to questions from a network of doctors and experts, as well as research then buy cannabis products from within the HelloMD Marketplace.



Brightfield Group is a strategic market research firm specializing in building actionable data and analysis for organizations focused on the cannabis industry. Our team of experts across the country, who have years of experience analyzing opaque markets, utilize a multi-source methodology incorporating existing published sources, sophisticated statistical modeling and primary research (interviews with industry experts) in our analyses to better triangulate the market.

Glossary of Terms

Cannabis

Throughout history, **different varieties*** of the cannabis plant have been grown for industrial and medical uses. The **two main cannabinoids** found within cannabis are:⁸

CBD | Cannabidiol

Has anti-inflammatory, anti-anxiety, anti-psychotic, and anti-convulsant properties. CBD is not felt to have any intoxicating or psychoactive side effects.

THC | Tetrahydrocannabinol

A very effective analgesic. It may be better known for its psychoactive side effect which can give users a sense of euphoria or “high”.

* **Hemp** | Tall, sturdy plants that were grown by early civilizations to make a variety of foods, oils and textiles such as rope and fabrics.⁹

* **Marijuana** | Recognized for its psychoactive properties; bred selectively for medical and religious purposes.¹⁰



Glossary of Terms

For the purposes of this study:

CBD Products | The term 'CBD products' refers to any and all products that fall into the following categories: Hemp-derived CBD, marijuana-derived CBD-only, or CBD-dominant.

CBD-Only Products | Can be derived from hemp or marijuana, although on a molecular level all CBD-only products are identical, containing **negligible amounts of THC**. Though we distinguish between hemp-derived and marijuana-derived CBD-only products throughout the study, the only meaningful difference between them is the terpene profile that accompanies the two plants.

THC-Dominant Products | Refers to products dominant in THC and containing varying concentrations of other compounds, such as CBD. **For the purposes of this study**, THC-dominant products are considered those with a ratio of 2:1 THC:CBD or higher.

CBD Users | The term 'CBD users' refers to any respondent who **uses one or more** of the following three types of products: **Hemp-derived CBD, marijuana-derived CBD-only, or CBD-dominant**.

CBD-Dominant Products | Refers to CBD in combination with other compounds extracted from the marijuana plant. Generally, CBD-dominant products have varying concentrations of CBD, and a lesser amount of THC. These products typically declare a ratio of CBD:THC, such as 5:1, meaning it contains 5x as much CBD as it does THC. **For the purposes of this study**, CBD-dominant products are considered to be those with CBD:THC ratios of 1:1 or higher.

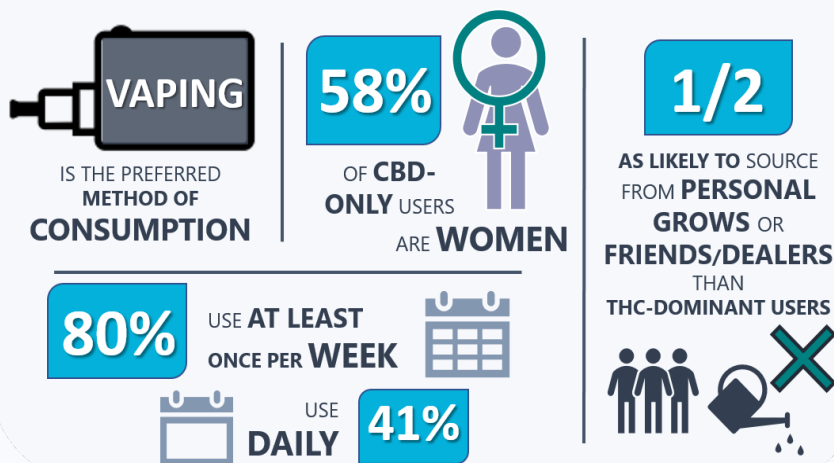
Entourage Effect | A theory that posits that any **cannabinoid is more effective when combined with companion cannabinoids from the same plant**. For instance, CBD works best when used in conjunction with THC (and other cannabinoids).¹¹

Executive Summary

The most impactful insights derived from the study were:

- Rates of CBD usage
- CBD user profiles
- Medical conditions treated by CBD
- Brand preferences
- CBD consumer satisfaction

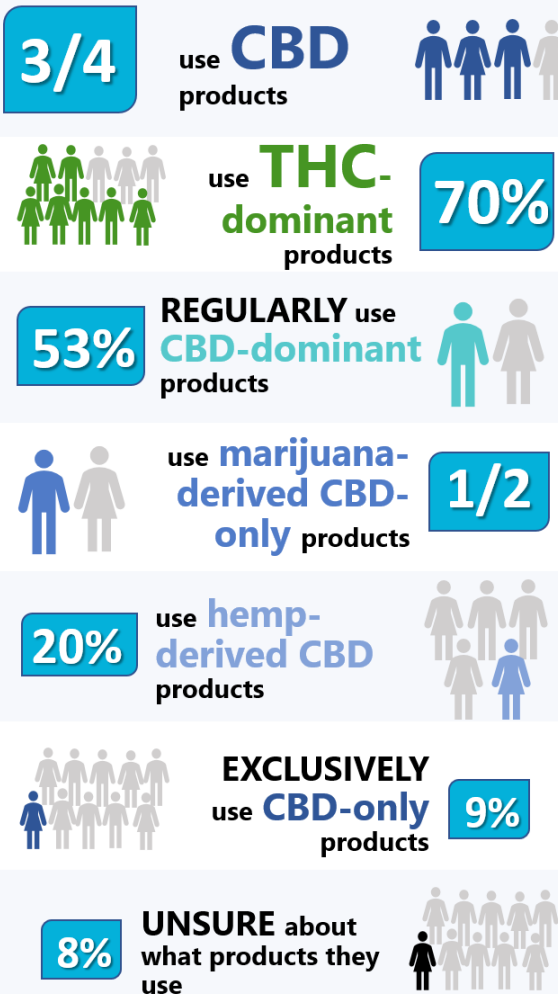
CBD USER PROFILE



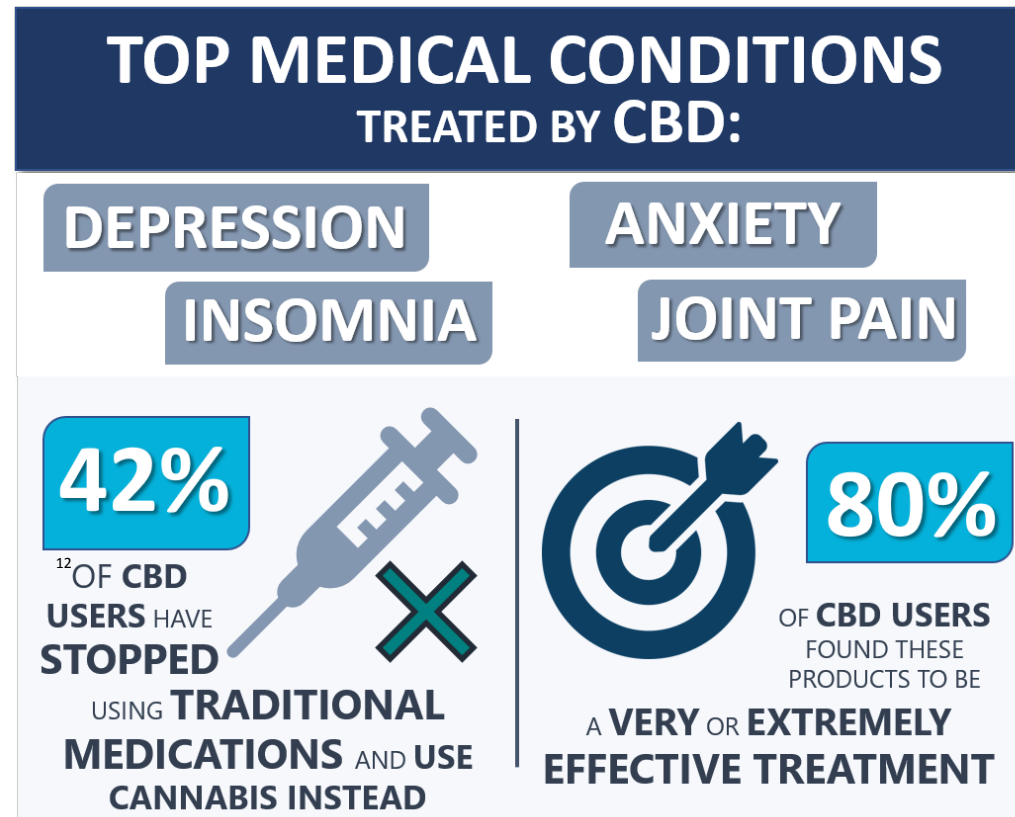
Unless otherwise indicated, figures exclude users who were unable to identify which cannabis product(s) they were regularly using.

AMONG CANNABIS USERS

SURVEYED:



Executive Summary (Continued)



Executive Summary (Continued)

CBD MARKET DYNAMICS

850+

MARIJUANA
-DERIVED CBD-ONLY
BRANDS

200+

HEMP-DERIVED
CBD BRANDS

TOP BRANDS

Kiva
Care By Design
Bloom Farms
CW Charlotte's
Web

Disclaimer | The data and insights in this report are based upon the survey responses collected, and reflect consumer perceptions only. No randomized control trial was conducted and the survey performed was not medical in nature, thus its results should not be construed as medical advice and are intended to be used for informational purposes only. More research will be required to determine whether there is a causal link between CBD products and relief of the various health conditions discussed.

CBD USER SATISFACTION

90%

OF RESPONDENTS WOULD BE
LIKELY TO BUY
MARIJUANA-DERIVED
CBD-ONLY PRODUCTS,
OR **BUY AGAIN**



PROS PROVIDES
MEDICAL
RELIEF &
RELAXATION
WITHOUT THE POSSIBLE
PSYCHOACTIVE
EFFECTS THAT CAN
RESULT FROM THC

CONS

SOME
USERS
DISINTERESTED BECAUSE
OF **PRICING**,
AVAILABILITY, OR
EFFICACY, IN THE CASE
OF HEMP



CONSUMER PRIORITY:

EFFECTIVE PRODUCTS

Who is Using CBD?

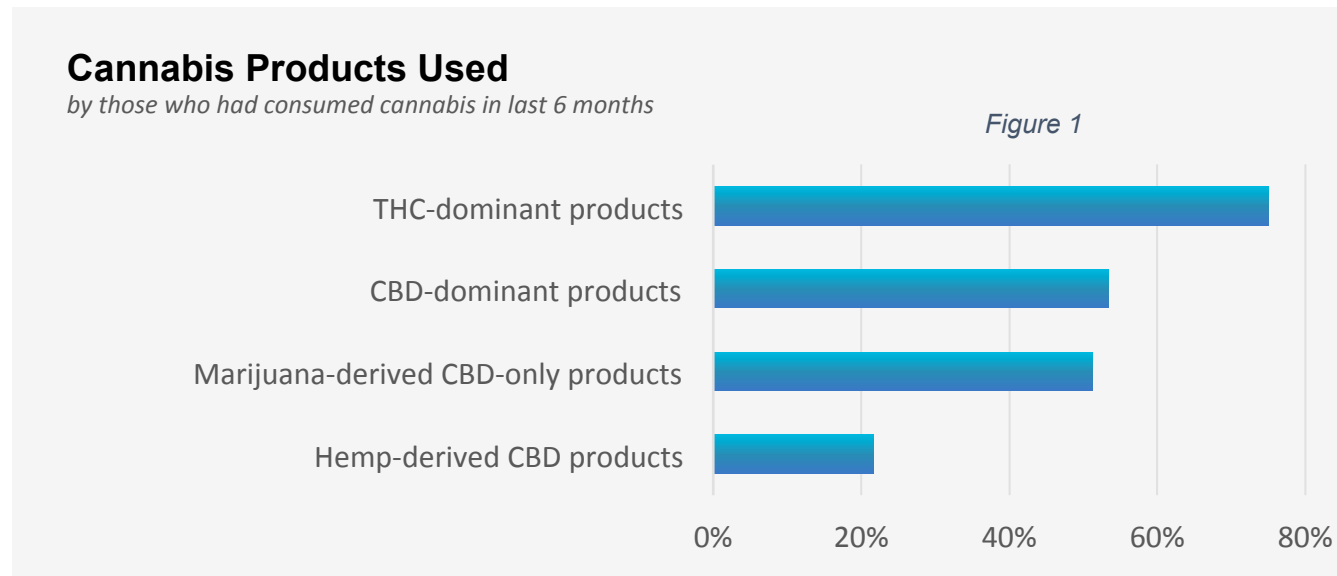
Product Preferences

Among cannabis users who were able to identify the products they regularly consumed, approximately half use marijuana-derived CBD-only products, and over one-fifth use hemp-derived CBD products. More than half (53%) regularly use CBD-dominant products containing varying amounts of THC.

Confusion about the different product types is common amongst cannabis users, with more than 8% of respondents in this survey unclear about what types of cannabis products they had used.

Over 70% of respondents regularly use CBD products, and over 70% use THC-dominant products, meaning there was a great deal of overlap between the various CBD and THC users surveyed.

Just over 9% use exclusively CBD-only (hemp- or marijuana-derived) products that do not contain more than 0.3% THC.



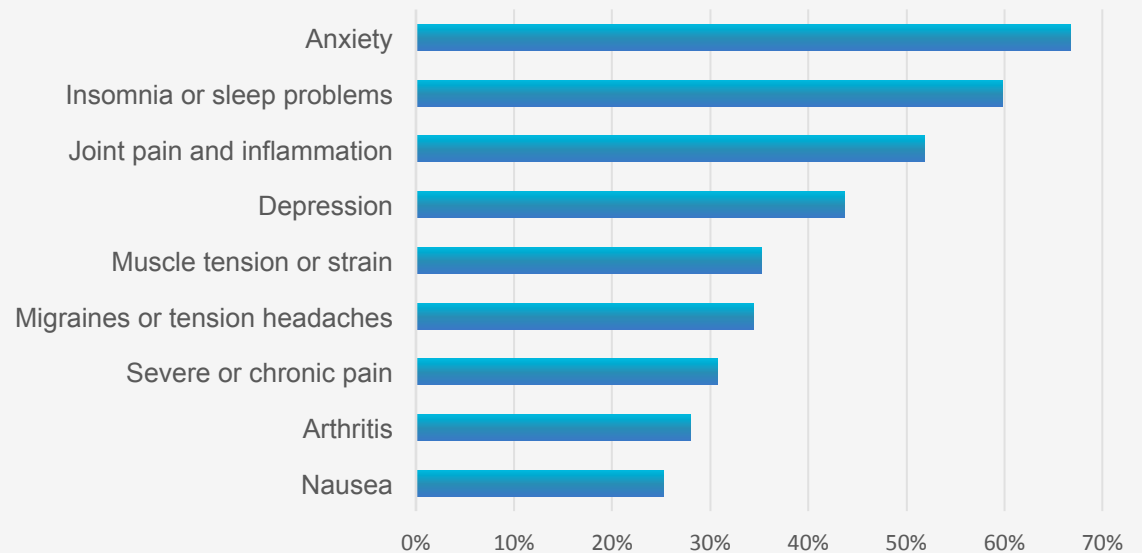
Who is Using CBD?

Medical Conditions

There are a vast range of medical conditions that CBD consumers reported using cannabis to relieve, the principal among which were anxiety, insomnia, joint pain/inflammation and depression. When given the option to specify “other” conditions treated with cannabis, the most common responses among CBD users were: menstrual cramps, skin concerns, diabetes, ADHD, and stomach issues (IBS, loss of appetite, etc.).

Conditions CBD Users Relieve with Cannabis

Figure 2



Uses of Different Cannabis Products to Treat HelloMD Community Ailments:

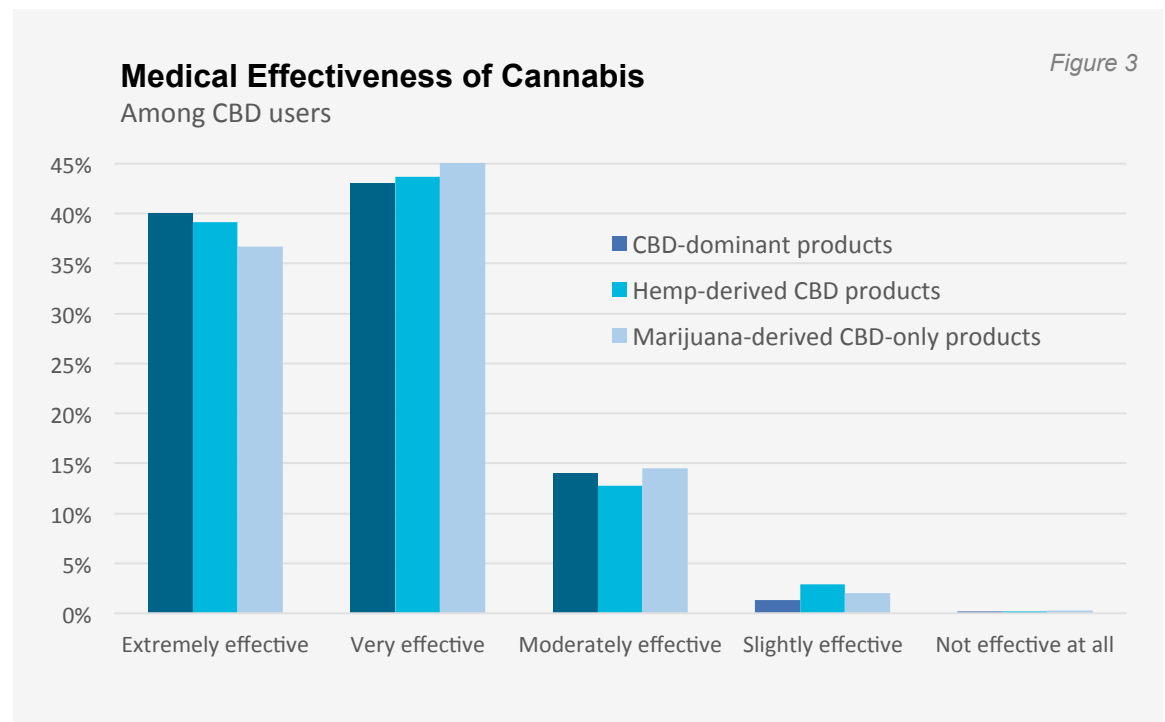
- **Joint pain and inflammation:** Only 48% of THC-dominant product users treat their joint pain/inflammation with cannabis, versus about 54% of CBD-only (marijuana and hemp-derived) product users
- **Migraines:** 38% of CBD-dominant users treat migraines with cannabis, versus 35% of hemp-derived CBD users and 34% of THC-dominant users
- **Severe/chronic pain:** 28% of THC-dominant users turn to cannabis to treat their chronic pain, versus 32% of CBD-dominant users
- **Arthritis:** 24% of THC-dominant product users treat their arthritis with cannabis, versus 28% of CBD-dominant users and 31% of hemp-derived CBD users
- **Nausea:** 26% of marijuana-derived CBD-only users treat nausea with cannabis, versus 31% of hemp-derived CBD users

CBD Products – Comparing Effects

When asked about medical relief, more than four out of five CBD users found cannabis to work either extremely effectively or very effectively against their various conditions. Each of the individual categories under the CBD umbrella fared well, with the vast majority (82-83%) of users experiencing effective relief with the use of hemp-derived CBD, CBD-dominant and marijuana-derived CBD-only products to help treat their conditions. Very few (3% or less in each category) found any cannabis product to be slightly effective or ineffective in treating their medical ailments.

Most CBD users are not limited to one product, but rather, find relief in two or even several products combined – thus, the use of one cannabis product generally does not preclude the use of others. In fact, even CBD-only product users do not limit themselves to THC-free products alone.

- 68% of hemp-derived CBD users also use THC-dominant products
- 70% of marijuana-derived CBD-only product users also use THC-dominant products



Given their similar effects, are these products substitutes for each other? And why would consumers continue to purchase various products (especially more expensive ones) if they are interchangeable?

CBD Products – Comparing Effects

As discussed in the *Medical Conditions* section above, a number of cannabis products appear to serve a role in treating a particular ailment. Although anxiety, insomnia, depression and joint pain were the top four ailments for which the various types of cannabis were most effective among all users, some subgroups tend to have better results with specific products. For example:

14%

of **hemp-derived CBD** users claimed that they receive extremely effective nausea relief with cannabis use, **versus 11% of marijuana-derived CBD-only** product users.

11%

of **CBD-dominant and marijuana-derived CBD-only** users find cannabis to be extremely effective against arthritis, while this figure is only **9% among THC-dominant users**.

Consumers are willing to invest in products that contain the components that meet their specific needs, some seeking the “CBD-dominant effect” or “entourage effect” described in the Glossary of Terms, and looking to balance the effects of THC with CBD and take full advantage of each, and some preferring to keep THC out of the equation entirely.

If in some cases these products are interchangeable when it comes to desired medical effects, then consumers will look instead to price, convenience, etc. as deciding factors. It is conceivable, therefore, that medical cannabis users see these products as equally effective and are seeking out hemp-derived CBD for some conditions because it might be less expensive, THC-dominant products for others because they are more easily grown at home or have psychoactive effects, and marijuana-derived CBD-only products for still others because they will not appear on an employer’s drug screen and give users a consistent experience.

Product use may also have to do with practical matters - consumers may, for example, alternate between CBD-only products and THC-dominant products because the “entourage effect” gives them more complete healing, but by differentiating the two it allows them to remain clear-headed during the workday and consume THC when they are relaxing in the evening.

CBD vs. Pharma

Perhaps not surprisingly, most CBD users utilize (or have utilized) other medications aside from cannabis – in fact, only 11% have *not* done so. Nearly three-fourths have turned to over-the-counter pain relievers, and almost half have used other herbal or natural remedies. Approximately a third of CBD users have turned to prescription painkillers, such as Vicodin, to relieve their conditions. However, satisfaction levels vary greatly when it comes to alternative medications.

Other Medications Used

Among CBD users

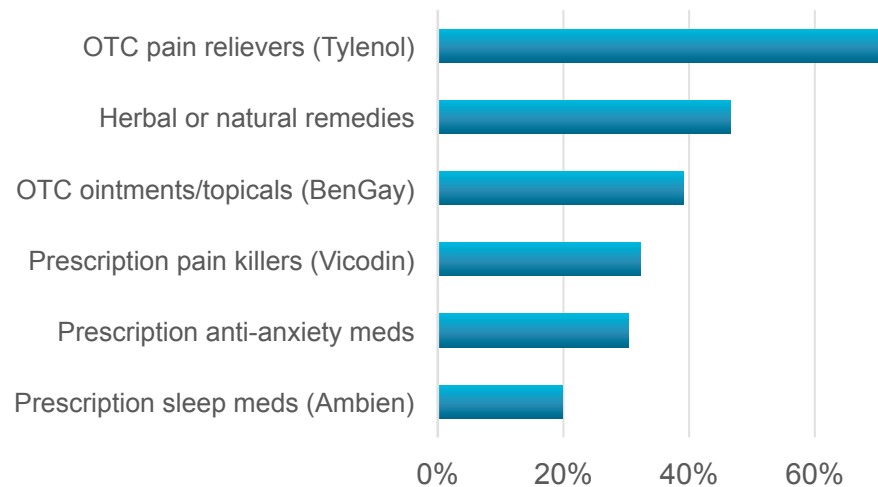


Figure 4

Cannabis vs. Other Product Usage

Among CBD users

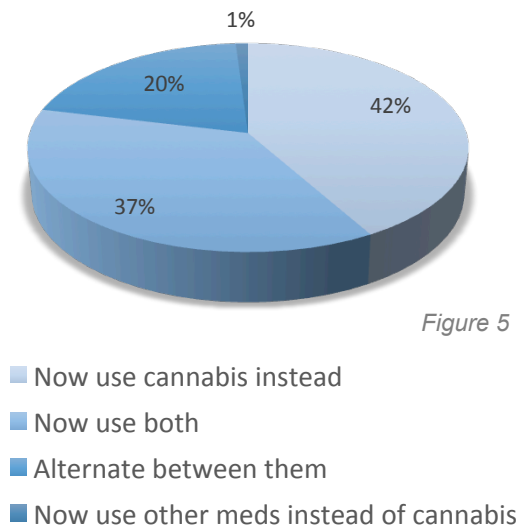


Figure 5

CBD vs. Pharma

While the largest portion (57%) of CBD users responding continues to use both cannabis and other medications – either simultaneously or alternating between them, 42% of these CBD users have left their traditional medications behind altogether and now use cannabis instead. The breakdown among CBD users is as follows:

43%

of CBD-dominant and hemp-derived CBD users now use cannabis instead of other medications to treat their conditions

40%

of marijuana-derived CBD-only users now use cannabis instead of other medications to treat their conditions



CBD vs. Pharma

But how exactly does CBD stack up against prescription and over-the-counter treatment options, according to CBD consumers who continue to utilize traditional medications?

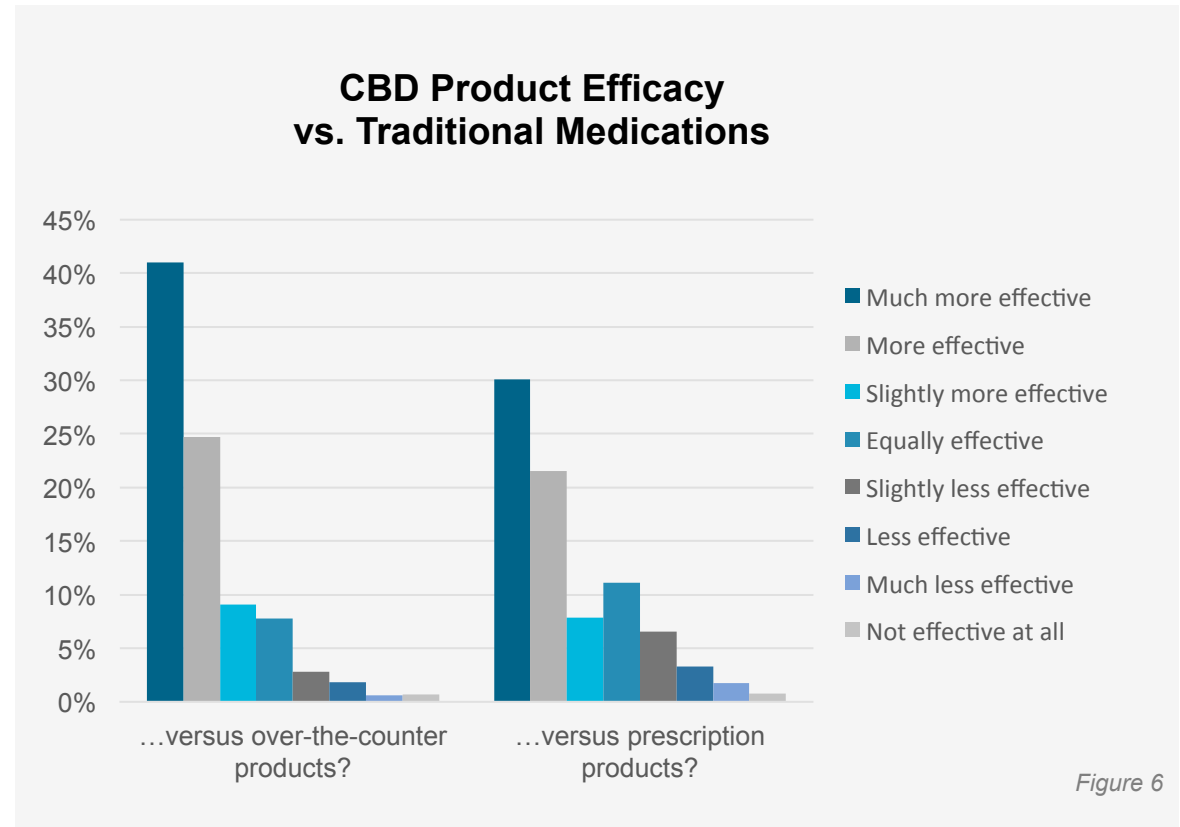
About 66% of CBD users indicated that CBD products are either “more effective” or “much more effective” in relieving their medical conditions than are over-the-counter (OTC) products. More specifically, these figures were:

67%

among marijuana-derived CBD-only & CBD-dominant users

69%

among hemp-derived CBD users



CBD vs. Pharma

Approximately 52% of this consumer group indicated that their CBD products are either “more effective” or “much more effective” in relieving medical conditions than are prescription medications. Here is the breakdown by CBD category:



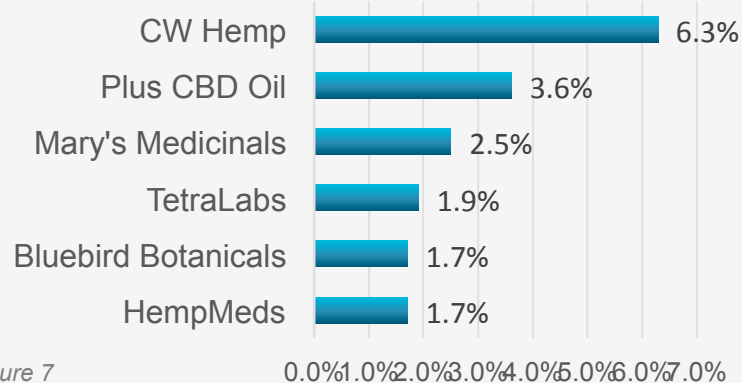
Per this survey’s responses, **users have found CBD to be quite effective in relieving various medical conditions** – even more so, in some cases, than their over-the-counter and prescription medications. Based on the consumer satisfaction reported, investors in the medical industry should be keenly aware of the potential that CBD products hold. Over time, as the CBD compound becomes better-understood (especially with regard to its efficacy against medical ailments), and cannabis prohibition continues to wane across the states, CBD products are well-positioned to become an important player in the industry.



CBD Brands – Who is Doing CBD Well?

It seems like everyone has a CBD brand these days, and most of these brands have a negligible market share. The market for CBD is so fragmented – that according to Brightfield Group data, more than 150 brands of hemp-derived CBD products and more than 850 brands of marijuana-derived CBD-only products are currently being sold through dispensaries nationwide, with more than two hundred additional hemp brands being sold online, through glass shops, doctor's offices or health food shops. So which of these brands stands out from the crowd?

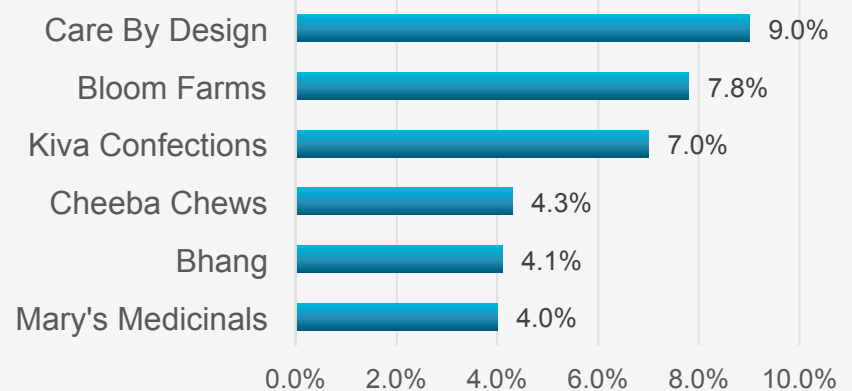
Top Hemp Derived CBD Brands



Among respondents¹³ who use hemp products, by far the favorite brand is Charlotte's Web (CW Hemp), followed by Plus CBD Oil and Mary's Nutritional. More than a quarter of respondents (28%) use unbranded products, are not aware of the brand of their products or do not yet have a favorite brand.

Care By Design, which specializes in CBD products, is the favorite marijuana-derived brand of 9.5% of California-based respondents¹⁴, followed closely by Bloom Farms, with 8.4% and Kiva Confections with 7.9%. Beyond the top five marijuana-derived CBD brands, the market fragments significantly with loyalties of the remaining two-thirds of respondents split between nearly a hundred other brands.

Top Marijuana Derived CBD Brands



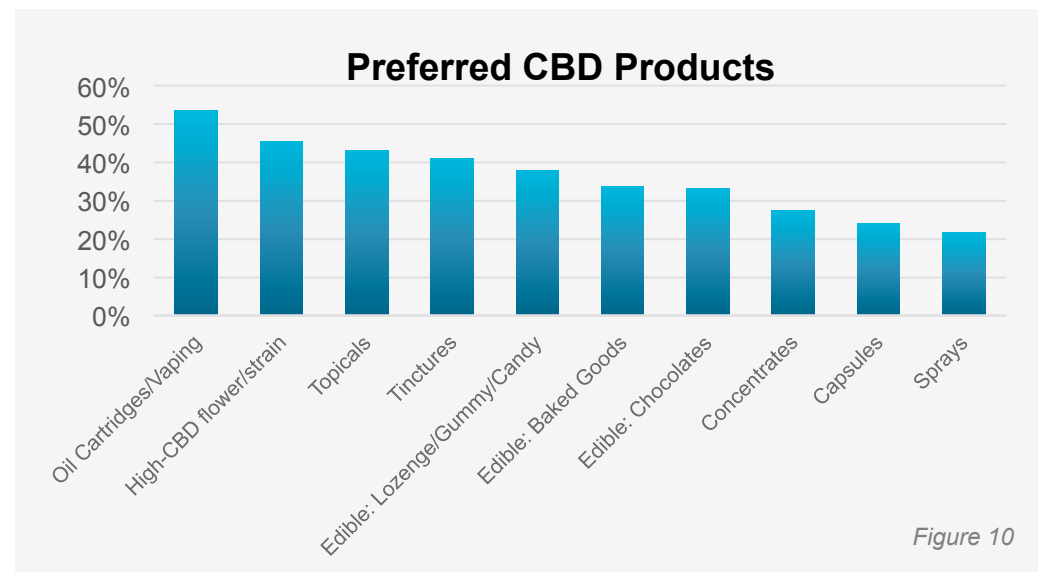
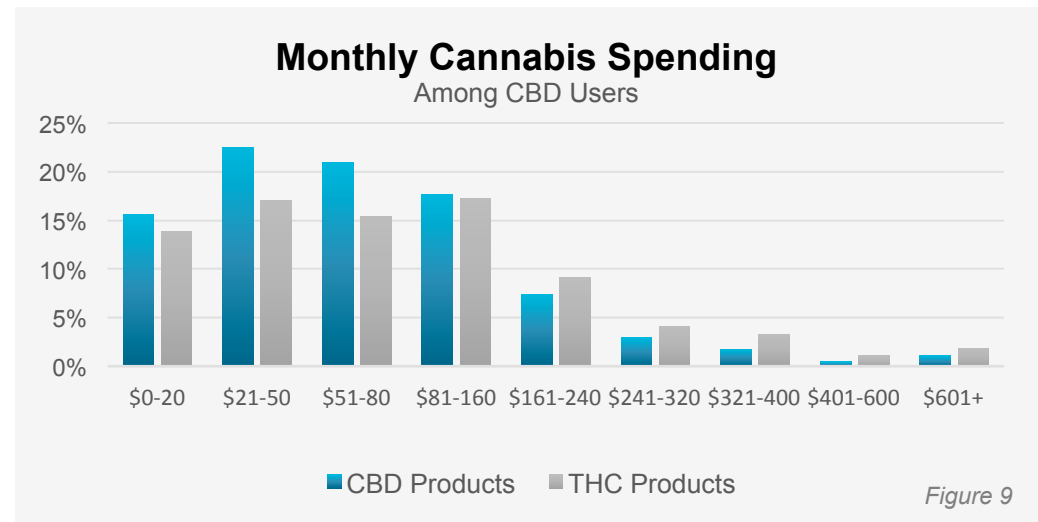
Usage and Purchasing Patterns of CBD Users

Preferred Vendors | 55% of CBD users purchase their CBD products at storefront dispensaries, 31% through local delivery services, and 17% online, while only 9% of THC users purchase online. THC products are about twice as likely to be sourced from personal grows, friends or dealers (versus storefront dispensaries) than CBD products are

Purchasing Habits and Preferences | It is much more common for topicals and tinctures purchased to be CBD-dominant (or CBD-only) than THC-dominant, whereas flower is more often THC-dominant.

Frequency Used | Among CBD users, 80% use CBD products at least once a week, and about 41% use them every day.

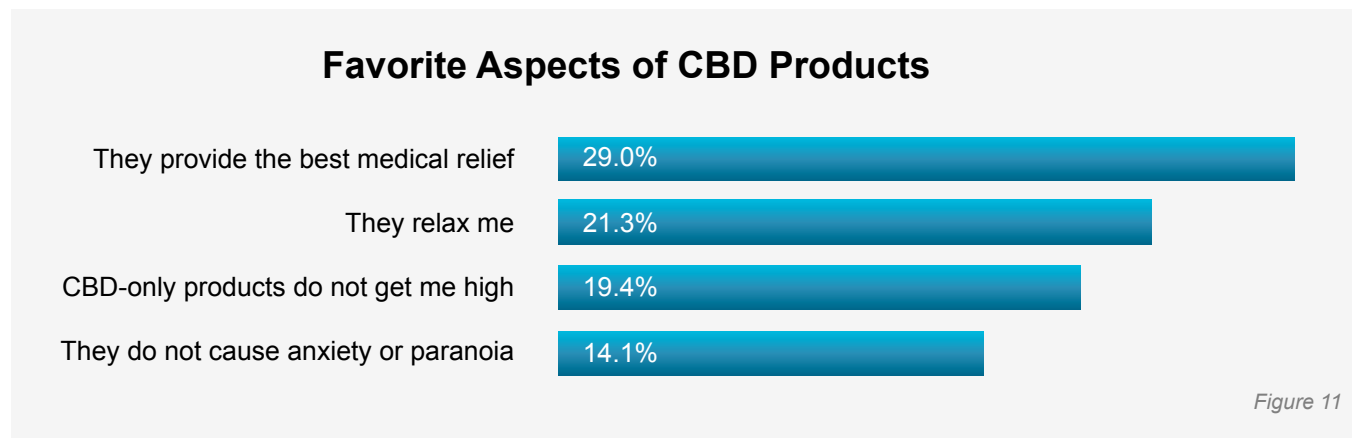
Dosage and Concentration | Over 40% of CBD consumers use 1:1 CBD to THC, and nearly 30% use 20:1 CBD to THC. CBD users tend to enjoy having low or micro-doses of CBD (10mg or less), once or twice per day.



Knowledge and Misconceptions About CBD

Over three-fourths of those surveyed were regularly using some sort of CBD product (marijuana-derived CBD-only, CBD-dominant or hemp-derived CBD), either in combination with other CBD/THC products or exclusively, demonstrating that the CBD market already has significant buy-in within the cannabis community.

Per responses from the cannabis community, the advantage of CBD-dominant and CBD-only products is that they provide relief for various medical conditions and allow for relaxation, without causing a psychoactive or anxious effect .



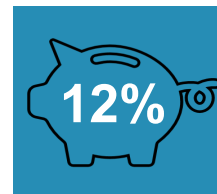
Those looking to manufacture and sell products catered to this consumer group should thus be focused on these perceived advantages – emphasizing the distinct medical properties treated with individual products, and being clear and strategic about the utilization (and dosage) of THC and CBD in each product.

Knowledge and Misconceptions About CBD

Marijuana-derived CBD-only

Over 90% of HelloMD community members surveyed would be likely to purchase marijuana-derived CBD-only products, or buy them again. Among the few (approximately 100) current cannabis users who were not interested in marijuana-derived CBD-only, the most common reasons cited were:

- It does not get me high (16%)
- It's too expensive (12%)
- It does not relax me (12%)
- My local vendor doesn't carry it (12%)



"I am not interested because marijuana-derived CBD-only is too expensive"

Hemp-derived CBD

76% of HelloMD community members surveyed would be likely to buy hemp-derived CBD products, or buy them again. There were over 500 respondents who were current cannabis users and *not* interested in hemp-derived CBD. The most common reasons for this disinterest were the following:

- Hemp-derived CBD is **less** effective than CBD-dominant or marijuana-derived CBD-only products (28%)
- My local vendor doesn't carry hemp-derived CBD (18%)
- Hemp-derived CBD is **not** effective in treating my medical condition (8%)

Notes

1. <https://www.forbes.com/sites/debraborchardt/2016/12/12/the-cannabis-market-that-could-grow-700-by-2020/#75057e584be1>. Referenced June 2017.
2. Tetrahydrocannabinol (THC)
3. The glossary of terms on Page 3 provide more detailed information about each different product.
4. The Farm Bill redefined industrial hemp as distinct from marijuana and authorized institutions of higher education or state departments of agriculture to regulate and conduct research and pilot programs. Source: http://www.votehemp.com/2014_farm_bill_section_7606.html
5. Over the past several years, Representative Scott Perry has introduced multiple variances of the bill "Charlotte's Web Medical Access Act" in Congress – none of which have made it past this first stage of the legislative process. These bills were designed to amend the Controlled Substances Act to exclude cannabidiol and cannabidiol-rich plants: (1) from the definition of "marihuana," and (2) from treatment as a controlled substance. The bill was most recently introduced in May of 2017 and is still in initial stages as of this writing.
6. <https://www.leafly.com/news/cannabis-101/does-using-cbd-hemp-oil-result-in-a-positive-drug-test-for-thc-or>. Referenced June 2017.
7. Administered through Google Surveys in four U.S. regions: West, Midwest, South, Northeast. May 2017.
8. <http://www.leafscience.com/2014/09/16/5-differences-hemp-marijuana/>
9. Ibid.
10. Ibid.
11. HelloMD: What is the Entourage Effect? <https://www.hellomd.com/health-wellness/what-is-the-entourage-effect#!>. February 26, 2016.
12. References to "cannabis" throughout the study refer to all variants of cannabis products, regardless of levels of different cannabinoids (e.g. THC-dominant, CBD-dominant, hemp-derived CBD, etc.).
13. Note that 86% of respondents live in California; there are significant geographical variations in CBD brands within the United States.
14. For this question, only responses from California were used, as marijuana-derived products must be sold through dispensaries and as such the lineup of brands available varies widely between states. Based on sample of 548 respondents living in California who have used cannabis in the past 6 months and regularly use marijuana-derived CBD.

Image credit:

Page 2: CBD molecular diagram by [Medihuana](#) under license [Creative Commons Attribution-ShareAlike 3.0](#).

Charts and Diagrams:

- Figure 1 | Responses to question: "Thinking about all of the cannabis products you use, which type(s) do you regularly use? I regularly use (Select all that apply)". In subsequent questions, statistics and graphics limited to "CBD users only" include only the responses of those who answered this question with either "CBD-dominant products", "marijuana-derived CBD-only products" or "hemp-derived CBD products".
- Figure 2 | Responses to question: "Which of the following conditions, if any, do you relieve with cannabis? (Select all that apply)"
- Figure 3 | Responses to the question: "How effective are the cannabis products you use at relieving your condition?" (CBD users only).
- Figure 4 | Responses to question: "Have you used any of the following products either instead of, or in addition to cannabis to alleviate your medical condition? Please select all products that you have previously used or are currently using" (CBD users only)
- Figure 5 | Responses to question: "Which of the following best describes your usage of cannabis related to other medications (those selected in the previous question)?" Answer options: 1. I used this product prior to trying cannabis for my condition; I now use cannabis instead. 2. I used this product prior to trying cannabis for my condition; I now use both this product and cannabis. 3. I previously used cannabis for my condition but now use this product instead of cannabis. 4. I alternate between this product and cannabis. (CBD users only)
- Figure 6 | Responses to the question: "How effective are the CBD products you use at relieving your medical condition....versus over-the-counter products? ...versus prescription products?"
- Figure 7 | Responses to question: "Which is your preferred CBD brand?" (Only hemp-derived CBD brands represented in graphic)
- Figure 8 | Responses to question: "Which is your preferred CBD brand?" (Only marijuana-derived CBD brands represented in graphic)
- Figure 9 | Responses to question: "On average, how much do you spend on cannabis per month?"
- Figure 10 | Responses to question: "Which types of CBD-rich and CBD-dominant products (either marijuana- or hemp-derived) would you or do you prefer to use? (Select all that apply)"
- Figure 11 | Responses to question: "What do you most enjoy about CBD-rich or CBD-dominant products (either marijuana- or hemp-derived)?"