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-SAMPLE REPORT-

CBD Motivations, Use and Benefits Study ™

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Introduction

In addition to CBD companies, many leading Food, Beverage, Alcohol, Tobacco, OTC and Rx manufacturers are considering new product innovations which would include hemp-derived CBD. This study is designed to inform strategic marketing, branding and R&D decisions by shedding light on **who** is using CBD, **why** they're using it, **how much** they use, how use **varies** among groups, how use varies by product **form**, and what are the perceived **primary and secondary benefits** (and side-effects) from CBD use.

While most studies of this sort are attitudinal in nature (i.e., focused on groups of claimed CBD users), this Cannabis Business Experts study is different: here we focus on consumers who are known to be actual, validated CBD users. In response to a call by the United States Food and Drug Administration, Validcare™ recently delivered findings from its CBD Cohort Brands investigation. Their groundbreaking study provided a unique look at liver safety in healthy adults ingesting either full or broad-spectrum hemp-derived CBD.

In addition to the safety related information, the investigation invited study participants and prospects to self-report on their motivations, consumption levels, and symptom experiences with the CBD products they were confirmed to use. These responses from 1,400 use-validated individuals include the 830 who partook in the full safety regimen (including blood analysis) and 570 prospects who were recruited through the same mechanism but only completed part of the safety regimen.

Cannabis Business Experts™ worked with the Validcare database to combining this self-reported data with precise product details to provide an unprecedented opportunity for manufacturers, retailers, and investors to better understand CBD users' needs and preferences as well as the current offering landscape. Furthermore, the CBD users' reasons for consuming CBD, and the corresponding perceived wellness effect, shed light on how these products are impacting their lives.

What follows is a descriptive analysis of the data to provide strategic business and branding direction. As no hypotheses were predetermined, no significance testing was done. Rather, the data has been explored for product design and marketing relevant patterns. The goal was to deliver insights that could immediately inform consumer-focused decisions for manufacturers who are considering CBD product innovations across a myriad of industries.

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Executive Summary

Following is a summary of the key findings identified in this research. The data and analysis behind this summary follow on the subsequent pages.

- CBD usage xxxx per year on average

- A xxx group of Heavy Users (xxx%) accounts for nearly xxx of category consumption

- Improved xxxx is a clear perceived benefit of CBD usage given improved xxxx and yyyy being observed by nearly xxx% of users as additional benefits of use

- A dose of xxx-yyy mg of CBD per day would address the largest % of users though there is a large range of distribution

- Different CBD brands experience xxxx from their users

- CBD users who pursue xxxx use more CBD on average, representing opportunities for aligning sales, marketing, and consumer messaging

- CBD users who use Alcohol use xxx CBD on average vs. others

- CBD users who use yyy use less CBD on average

- Nearly xxx of OTC drug users report xxxx or yyyy after using CBD

- CBD users who use xxxx and yyyy use xxxx CBD on average vs. non-users of these substances; yyyy vs. other CBD users, xxxx% of CBD users do use xxxx (yyyy% of CBD users use yyyy)

- xxxx% of CBD users xxxx CBD dosage over time

- xxxx, yyyy, and zzzz were the most mentioned primary reasons for CBD use with a variety of specific conditions standing out: aaaa, bbbb, cccc, dddd, eeee, ffff, gggg, hhhh being most common.

- xxxx% of CBD users report xxxx with usage

- xxxx% of Rx users report xxxx after using CBD

- On average CBD users experience xxxx from CBD beyond their primary benefit; while there is a long list of added benefits for strategic marketing of CBD including: aaaa, bbbb, cccc, dddd, eeee

- CBD xxxx users use the xxxx CBD on average vs. users of other product forms

- Users of CBD isolate xxxx CBD on average vs. users of other forms of CBD

Distribution of CBD Consumption

In addressing CBD dosing questions for product development, the following should be considered. The quantity of CBD used daily by respondents varied xxxx. The largest concentration occurs from yyyy with over a quarter reporting use within this range. But there is a xxx to the distribution with over xxxx using 100.0 mg a day or more. The mean quantity of CBD used across respondents is xxxx mg/day.

Figure X: Percent of CBD Users by Quantity Used Daily (mg/day)

One outcome of this xxxx distribution is that a xxxx group of heavy using consumers is responsible for a xxx portion of consumption. Graphing the percent of consumption (mg per day) versus the percent of users illustrates this. The top xxxx of users is responsible for approximately xxxx of all CBD consumption. And the top xxxx% of users makes up yyyy the consumption. In fact, a xxxx% rule of thumb' seems to be supported with each additional xxxx% of consumers bringing in a corresponding xxxx amount to the next fraction – ⅓, ½, ⅔, ¾, ⅝.

Figure X: Percent of CBD Users vs. Percent Consumption (mg/day)

This distribution in the rate of consumption has consequences for the frequency of use of the product. xxxx% of all users report consuming CBD xxx while xxxx% report using it yyy times. But among the xxxx% of users with the heaviest consumption, this is essentially xxxx with xxx% and yyy% respectively. More dramatically, the proportion using CBD xxx or is nearly xxxx times as great.

Figure X: Times Used Each Day

This has implications for both product formulation (e.g., concentration, form) and marketing segmentation (e.g., price, use occasions). By targeting product line offerings against specific consumption niches, it may be possible to optimize efforts and capture a greater share of market. There is evidence of xxxx among the existing branded products, with several overachieving on yyyy.

The below table and graph show (blinded) product penetration in terms of percent of users and percent of consumers from the story. Some CBD brands are near the one-to-one line suggesting that their products are focused on users who consume at typical rates. While other CBD brands have disproportionate rates of users or consumption, suggesting customers in the 'tails' of the consumption distribution.

Figure X: Product Penetration Varies Between Percent of Users and CBD Consumed

Examples	Penetration	
	% Users	% Consumed
Product A	x%	x%
Product B	x%	x%
Product C	x%	x%
Product D	x%	x%
Product E	x%	x%
Product F	x%	x%
Product G	x%	x%

Drivers of CBD Consumption Rate

So what factors are driving these differences consumption rates among users? While a full-scale statistical path analysis is not possible given the size of the current dataset, there are several clear relationships.

<u>xxx User</u>

The rate of CBD consumption tends to xxx with xxx. Users xxxx on average consumed xxxx mg per day while users xxxx consumed xxxx mg per day.   A respondent level regression analysis shows xxxx of xxxx mg/day per year of age.   This clearly has implications for target marketing; specifically ensuring that the most appropriate product offering, messaging, and use information is directed to each group.

Figure X: Consumption (mg/day) Tends to xxxx

<u>yyyy</u>

Users who yyyy tend to consume CBD at a xxxx rate. Users who did not participate in any former of xxxx on averaged used xxxx mg per day. Those who use xxxx (aaa, bbb, ccc, ddd, eee, fff) all average rates xxx than this, xxx to xxx mg per day. While those who yyyy (ggg, hhh, iii) had still xxx rates, xxx to xxx mg per day.

Figure X: Consumption (mg/day) Related to yyy

The below table provides the percent of CBD users who participated in the various xxx. Please note that some participated in more than one of these. Given that xxx% of CBD users yyyy, it suggests an opportunity for CBD manufacturers and retailers to set up informational or product distribution programs with professionals in these areas and to consider relevant marketing and brand messaging.

Figure X: yyyy of CBD Users

yyyy	Percent of CBD Users
None	X%
a	X%
b	X%
c	X%
d	X%
e	X%
f	X%
g	X%
h	X%
i	X%

Use of OTC Offerings

CBD Users who consume other Over-The-Counter (OTC) offerings tend to xxx those who do not. This suggests that CBD yyyy. The xxx CBD is used, the yyy. Given this xxx, it could behoove CBD distribution to be xxxx and to consider marketing/branding as yyyy.

Figure X: Consumption (mg/day) Related to OTC Product Use

Figure X: OTC Use by CBD Users

OTC Offering	Percent of CBD Users
None	X%
a	X%
b	X%
c	X%
d	X%
e	X%

Use of Controlled and Age Restricted Substances

CBD Users who consume controlled (e.g., prescription drugs) and age restricted (i.e., alcohol and tobacco) substances tend xxx than those who do not. This suggests yyyy. The exception to this pattern is those who use aaaa. It may be that those who are using aaaa yyyy that they have adopted an 'xxxx' approach to trying to yyyy. Regardless, that CBD is yyyy suggests that it could yyyy.

Figure X: Consumption (mg/day) Related to Controlled and Age Restricted Substance Use

Figure X: Controlled and Age Restricted Substance Use by CBD Users

Offering	Percent of CBD Users
None	X%
a	X%
b	X%
c	X%
d	X%
e	X%
f	X%
g	X%

Looking at reported alcohol and tobacco users versus non-users (instead of versus non-users of any controlled or age restricted substances) provides additional context. Users and non-users of xxxx exhibit xxxx in consumption rate. But users of yyyy have a yyyy vs. non-users.

Figure X: CBD Consumption (mg/day) by Alcohol and Tobacco Users and Non-Users

One interpretation for Alcohol and Tobacco companies who are looking to innovate with CBD, is xxxx.

Perceived Efficacy of Using CBD Over Time

Most respondents reported that xxxx. However, nearly yyyy reported zzzz and about xxxx percent reported aaaa.

Figure X: Amount of CBD Consumed to Achieve Desired Effect Over Time

	Percent of CBD Users (1,166)
a	X%
b	X%
c	X%

Motivations for Using CBD

In addition to delving into CBD users' levels of consumption, the motivations for using CBD were also investigated. This research was conducted among all 1400 respondents. However, not every respondent opted into every section. Therefore, the sample size will be denoted for each question.

Primary Reason for Using CBD

There are xxx major classes of primary reasons given for using CBD that should be considered for marketing and brand messaging and creative opportunities. xxxx% cite addressing aaaa (bbb, ccc, ddd, eee, fff). xxx% cite addressing yyyy conditions and yyyy. xxxx% cite yyyy.

Figure X: Primary Reason for CBD Usage

	Percent of CBD Users (n=1175)
a	X%
b	X%
c	X%
d	X%
e	X%
f	X%
g	X%
h	X%

The following xxxx were cited and should therefore be considered for marketing and brand messaging and creative opportunities.

Figure X: Acute Conditions Details

	Percent of CBD Users (n=469)
a	X%
b	X%
c	X%
d	X%
e	X%
f	X%
g	X%
h	X%
i	X%
j	X%
k	X%
l	X%

a	X%
b	X%
c	X%
d	X%
e	X%
f	X%
g	X%
h	X%
i	X%
j	X%
k	X%
l	X%
a	X%
b	X%
c	X%
d	X%
Other	X%

The following specific xxxx and yyyy were cited and should inform brand messaging and creative.

Figure X: xxx & yyyy Details

	Percent of CBD Users (n=460)
a	X%
b	X%
c	X%
d	X%
e	X%
f	X%
g	X%
h	X%
i	X%
j	X%
k	X%
l	X%
a	X%
b	X%
a	X%

The following specific xxxx details were cited and should drive strategic marketing and brand messaging considerations.

Figure X: xxxx Details

	Percent of CBD Users (n=246)
a	X%
b	X%
c	X%
d	X%
e	X%
f	X%

Perceived Results and Benefits from Using CBD

Reported Change in Primary Condition Symptom Severity

xxxx CBD users reported on the severity of symptoms for their primary condition before and after using CBD. xxxx% reported a yyyy in symptom severity, zzzz% reported that yyyy, and yyy% reported xxxx.

Figure X: Reported Change in Symptom Severity with CBD Use

Symptom Rating After CBD

████ = Improved
████ = Stayed the Same
████ = Declined

Change in Use of OTC and Prescription Medications

Respondents also reported on how the use of CBD corresponded to changes in their use of OTC and prescription medications. xxxx% and yyyy% reported xxxx the dose or yyyy, respectively. Correspondingly, only xxxx% and yyyy% reported an zzzz.

Figure X: Reported Change in OTC and Rx Medications

Perceived Benefits and Side Effects Other Than Primary Condition Symptom

In addition to perceived effects on primary condition symptoms, 1,141 respondents reported experiencing other effects. On average, these respondents reported experiencing xxx different effects, though there was a yyyy of different effects experienced by these respondents.

Figure X: Distribution of Number of "Other" Perceived Effects

The following table details the types of effects reported by these CBD Users. The most common perceived effects are xxxx. The most common negative effect, yyyy, is zzzz nature and zzzz. xxxx is denoted as yyyy (neither positive nor negative) in nature because it is xxxx. Though nearly xxx% of people citing aaaa have a primary condition symptom of bbbb so it is more likely that these xxxx are yyyy.
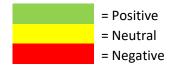
This has obvious implications for marketing strategies and messaging for all brands and categories considering CBD product innovations. It also speaks directly to xxxx. For example, xxxx and yyyy would have interest in the perceived aaa, bbb, ccc. While xxxx, yyy, and zzz would resonate with the perceived yyyy, zzzz, aaaa.

Figure X: Other Perceived Benefits and Side Effects

	Percent of CBD Users Experiencing Effect (n=1,141)
a	X%
b	X%
c	X%
d	X%
e	X%
f	X%
g	X%
h	X%
i	X%
j	X%
k	X%
l	X%
m	X%
n	X%
n	X%
o	X%
p	X%
q	X%
r	X%

s	X%
t	X%
U	X%
u	X%
v	X%
w	X%
x	X%
Other	X%

🟩	= Positive
🟨	= Neutral
🟥	= Negative

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Choice in Form and Composition and CBD Consumption Rate

Consumers' choices in different forms and compositions of CBD products appear to be related to consumption rates.

Figure X: CBD Consumption (mg/day) by Form

	Average	Minimum	Maximum
FORM A (n=185)	x	y	z
FORM B (n=417)	x	y	z
FORM C (n=117)	x	y	z
Other (n=119)	x	y	z

Figure X: CBD Consumption (mg/day) by Composition

	Average	Minimum	Maximum
COMPOSITION 1 (n=340)	x	y	z
COMPOSITION 2 (n=31)	x	y	z
COMPOSITION 3 (n=467)	x	y	z

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About the Data

Data Recruitment

Thirteen CBD product companies sponsored the Validcare CBD safety project including: Asterra Labs, Boulder Botanical & Bioscience Labs, Care by Design, CBDistillery, CBD American Shaman, Charlotte's Web, Columbia Care, Global Widget, HempFusion, Infinite CBD, Kannaway, Medterra CBD and SunMed CBD. Each company provided lot-specific product information for the study and recruited consumers to participate. Consumers were then screened to ensure they met Inclusion/exclusion criteria before they were approved and enrolled.

Physical Characteristics of CBD Users

Basic physical characteristics were available for 838 of the respondents age 20 years and above[1], 65% of whom were women and 35% men.

In terms of age, the mean for respondents is approximately 1.5 years younger than the corresponding U.S. population. The age for female respondents is 46 years of age versus 48 for the census-based benchmark. The corresponding numbers for male respondents are 45 and 46, respectively.

Figure X: Age in Years, Mean and Percent Distribution by Gender

However, these means xxxx for applications such as media targeting. yyyy. Xxxx seek out CBD products. Also, xxxx. One hypothesis for this is that yyyy. However, as will be shown later, the respondents xxxx of CBD consumption. The net of this analysis is that xxxx would likely be the most efficient.

In terms of weight and height, the means are close to benchmarks, being within 4 pounds and 2 inches, respectively. The percentile distributions show a similar pattern between respondents and benchmarks. From a physical perspective, the men and women in this research resemble typical Americans.

Figure X: Weight in Pounds, Mean and Percentiles[2] by Gender

	Mean	5th	10th	15th	25th	50th	75th	85th	90th	95th
Females										
Respondents	170	115	124	129	138	160	188	217	225	250
Benchmark[3]	171	110	119	127	137	161	195	216	232	264
Males										

[1] Two respondents who began study when 19 years of age are classified as 20 years old.
[2] Respondent percentiles are based on nearest respondent to that cumulative percent. Benchmark percentiles are weighted.
[3] Source: National Center for Health Statistics: Vital and Health Statistics January 2021. Based on examined adults age 20 and over.

Respondents	204	145	154	157	168	194	225	249	262	295
Benchmark[3]	200	136	147	154	166	193	225	244	263	287

Figure X: Height in Inches, Mean and Percentiles[2] by Gender

	Mean	5th	10th	15th	25th	50th	75th	85th	90th	95th
Females										
Respondents	65.0	59.8	61.0	61.8	63.0	64.2	66.1	66.9	68.1	68.9
Benchmark[3]	63.5	59.0	60.0	60.6	61.6	63.5	65.3	66.3	67.0	67.9
Males										
Respondents	71.0	65.0	66.1	66.9	68.1	70.1	72.0	72.8	74.0	75.2
Benchmark[3]	69.0	64.1	65.3	66.0	67.0	69.1	71.0	72.0	72.7	73.8

About the Research

Cannabis Business Experts
Founded in Boulder, Colorado by key members of the team that helped build Charlotte's Web™ and HempFusion™ into publicly traded companies and helped build multi-million dollar cannabis businesses in Colorado with Stillwater Brands™ and Dalwhinnie Farms™, Cannabis Business Experts focuses on helping cannabis entrepreneurs and Fortune 500 companies who are innovating with cannabis explore and enter the cannabis industry in the most profitable and compliant manner. While there are many cannabis consultants, there are not many who have _done it before_ like Cannabis Business Experts has. Proven experience spans THC, CBD, other cannabinoids, soluble food & beverage technology, regulatory, GMP, banking, financial, interstate licensing, operations, marketing, and sales.

The team on this project included over 50 years of consumer research experience serving the most sophisticated category players like P&G, Walmart, Pfizer, General Motors, and Universal Studios. Dataset cleaning, alignment, analytic coding and analysis was led by Frank Findley, a seasoned data scientist with over 25 years' experience. Frank is currently the Executive Director of MASB, the Marketing Accountability Standards Board, where he represents the U.S. in the creation of international (ISO) marketing standards. Specializing in consumer motivations and preferences, Frank has made significant contributions to the research practices for emerging categories and technologies including streaming video platforms, search engines, direct-to-consumer pharmaceutical advertising, ecommerce, and computer-aided media planning. He is a co-inventor of the patented Outlook media planner. His work at ARS group, comScore, and MSW Research resulted in improvements to the copy testing, tracking, media, and competitive intelligence systems of several of the world's largest marketers. His research has been featured in industry publications including the Journal of Advertising Research, Forbes, Quirk's, and Accountable Marketing and at ARF, AMA, ANA, IIR and CASRO conferences. He holds a BS in Physics from Purdue University and a MS in Industrial Administration from the Krannert Graduate School of Management.

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