

Analysis of Pharmacist's Knowledge, Perspectives, Comfort and the Future of Cannabidiol (CBD) Products

Primary Investigator (Resident): Kyle Lee

Co-Investigator: Richard Dang

Residency Preceptor: Richard Dang

Introduction

CBD products are becoming more prominent in our daily lives and in the pharmacy. The objective of this study is to determine pharmacists' knowledge, perspectives, comfort, and future of cannabidiol (CBD) products, which are distinct from marijuana or tetrahydrocannabinol (THC) products. CBD and THC are cannabinoids derived from the *Cannabis sativa* plant but, unlike THC, CBD is non-psychoactive.

Over the last decade there has been increasing public interest in medicinal and recreational marijuana products. This has resulted in an increasing number of states, including California, to legalize marijuana despite marijuana remaining illegal federally (as a Schedule I drug). In 2018, the United States Farm Bill de-scheduled hemp, providing a distinction between hemp and marijuana. Hemp is derived from a strain of the *Cannabis sativa* plant and contains the non-psychoactive component, cannabidiol (CBD), but contains less than 0.3% concentration of the psychoactive component, tetrahydrocannabinol (THC); while marijuana contains more than 0.3% THC.

Despite this bill, the FDA considers CBD and hemp oil as schedule I substances.¹ Recently as of 2018, the FDA and the California Department of Public Health (CDPH) has not approved CBD oil derived from industrial hemp for human and animal consumption as food, and cannot be used as a food ingredient, food additive, or dietary supplement.² Due to conflicting, and opposing, opinions from various federal and state regulations and agencies, including the CDPH, there is a grey area surrounding the legality of CBD products.

Regardless, there has been an increase in the availability and popularity of CBD products in the last few years. In 2019, it is forecasted that cannabis products sales will exceed \$3.1 billion with increases to \$80 billion by 2030 across the United States. CBD products can be found in a variety of retailers (including online vendors) and formulations (such as creams, oils, and lotions). Notably, major pharmacy chains have started carrying CBD products in their stores in a number of states, including in California. Consumers are seeking CBD products to manage conditions such as pain or anxiety.³ Although studies are limited, there is preclinical evidence that demonstrated cannabinoid products producing antinociceptive effects in inflammatory and neuropathic rodent pain.⁴ Additionally, clinicians may recommend patients with chronic pain to use CBD products as adjunct therapy or to taper off of opioids.

A 2017 study surveyed California Pharmacists about their knowledge and attitudes towards medical marijuana.⁸ The results of their study indicated that many providers believed that marijuana had medical efficacy, yet most providers felt that they didn't have an adequate knowledge background concerning medical marijuana and were unsure of where to access that information.⁸ In addition, the study found that pharmacists would feel more comfortable discussing medical marijuana if it was approved by the FDA and if more research was conducted regarding the use of marijuana. A similar study surveyed pharmacy

students regarding their knowledge and attitudes about medical marijuana. This study found that pharmacy students have a knowledge gap about medical uses and adverse effects of medical marijuana which was similar to how pharmacists felt about it as well.⁸ The common trend has been pharmacists and pharmacy students feel like medical marijuana has medical benefit, yet they cannot make recommendations due to a lack of foundational knowledge. These studies investigated perspectives on medical marijuana, however, attitudes specifically about CBD products have yet to be studied in any medical providers, including pharmacists.

Due to the increasing popularity of CBD products, consumers may expect pharmacist to stock these products and to be knowledgeable about the use of these products. Therefore, the goal of this study is to determine pharmacists' knowledge, attitudes, beliefs, and practices about CBD products.

Project Methods:

Research Design: Cross sectional survey

An anonymous electronic questionnaire was created on Qualtrics and emailed using a commercial software system to California pharmacists using lists obtained through the University of Southern California School of Pharmacy preceptor list and the California Pharmacist Association list serve. The survey was administered from January 2020 to April 2020 and consisted of questions to collect information on respondent and practice site demographics; additionally, it utilized a Likert scale to measure and assess knowledge, perspectives, comfort and future of CBD products. The Likert scale consisted of answers strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree and strongly disagree. These were split into two categories, agree and disagree, in order to be analyzed using descriptive statistics. Agree consisted of answers strongly agree and somewhat agree, while disagree consisted of all other responses. These question results were then divided into further subcategories with questions of similar themes being grouped together.

Results:

Results were gathered on 4/20/20 when there were 115 responses to the survey. The following graphs show the outcomes of the questions asked in each section of the survey. The survey included questions focused on pharmacists' knowledge, comfort, perspectives, and future implications for CBD products. These questions were then divided into question sets with similar themes.

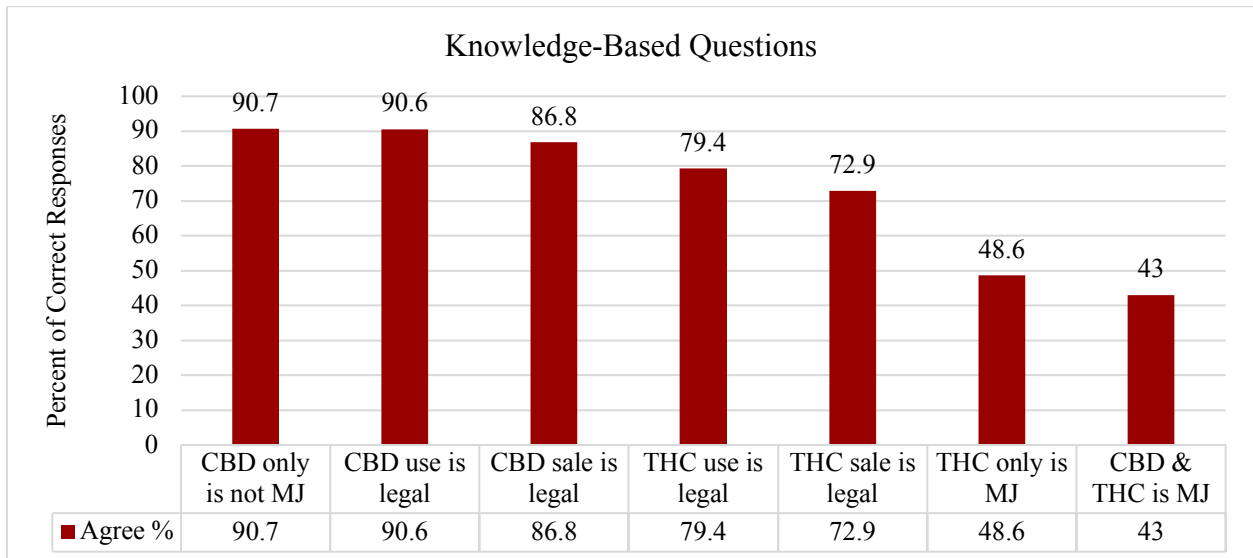
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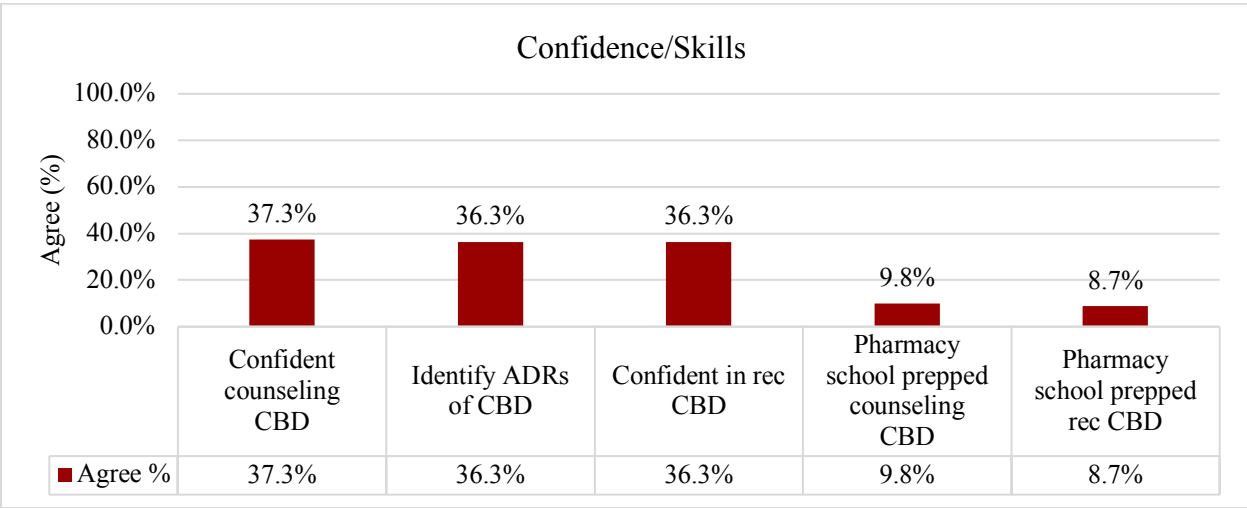
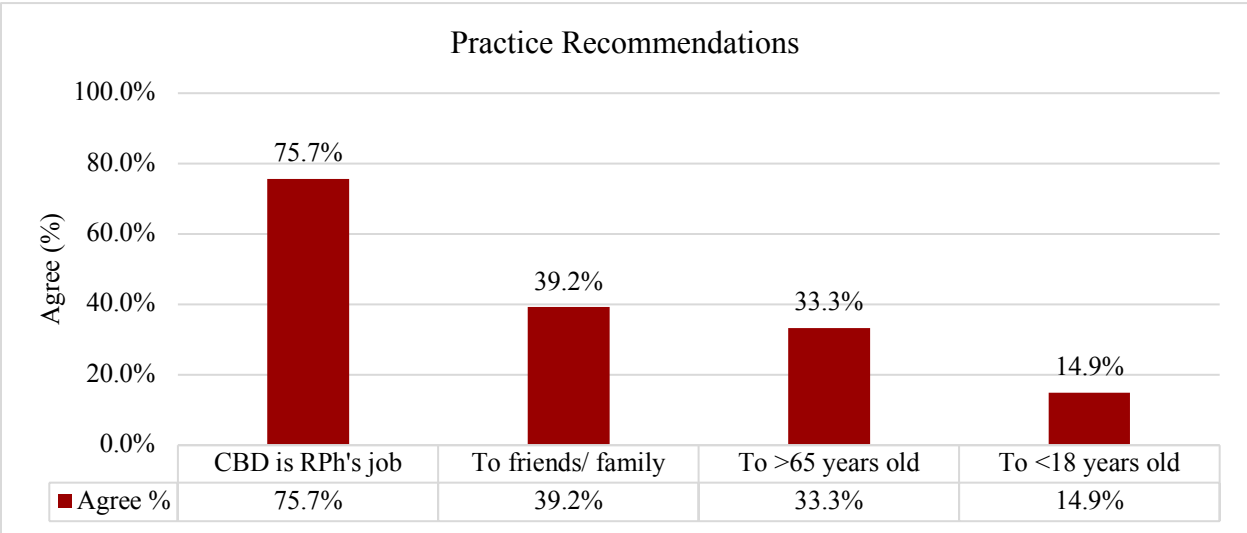
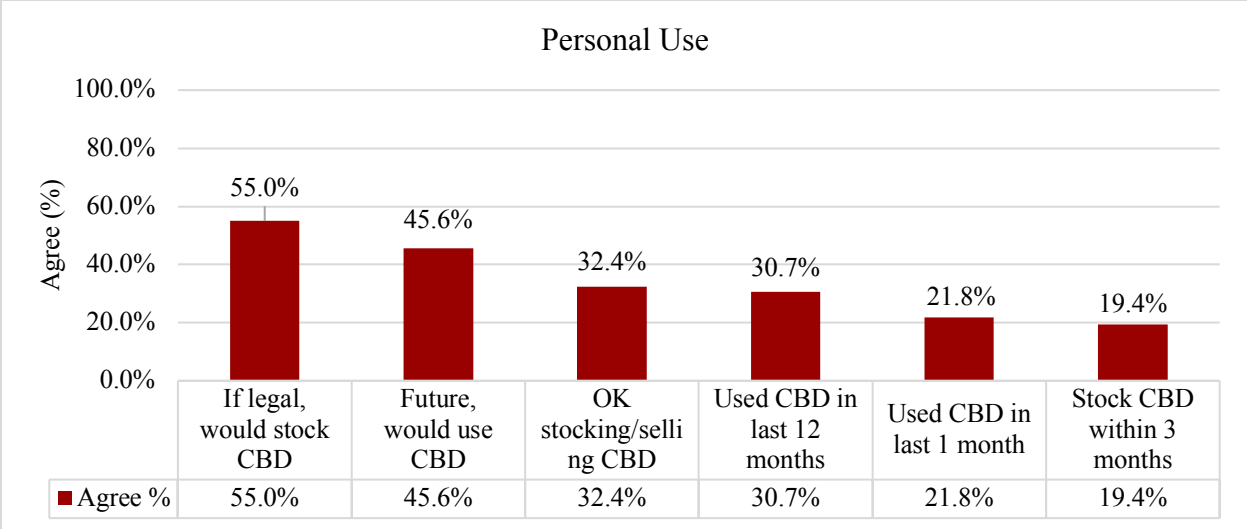
Demographic Data	Response (n=115)
Gender	
Female	60 (52.2%)
Male	54 (47.0%)
Age (years)	
19-29	21 (16.4%)
30-39	30 (23.4%)
40-49	12 (9.4%)
50-59	12 (9.4%)

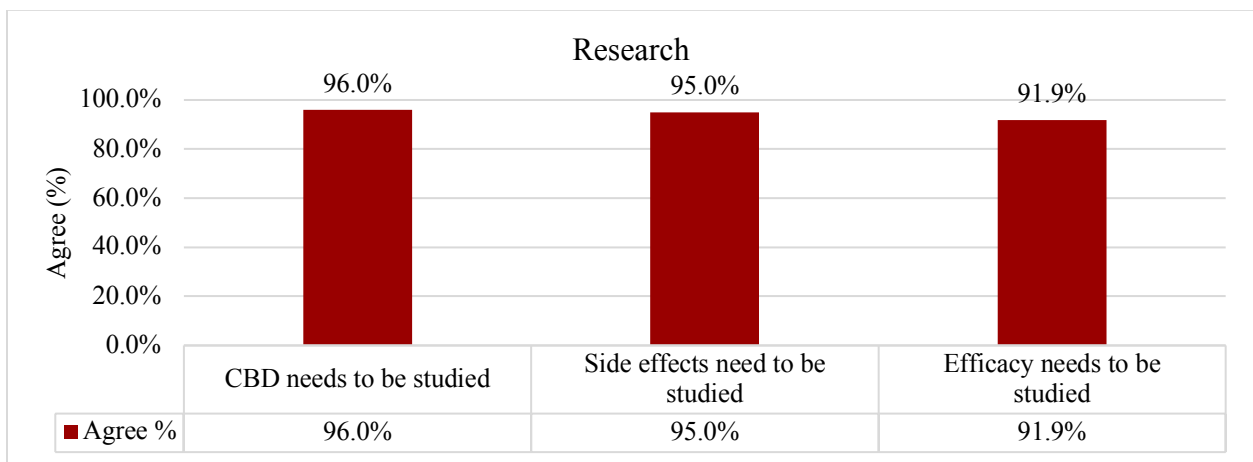
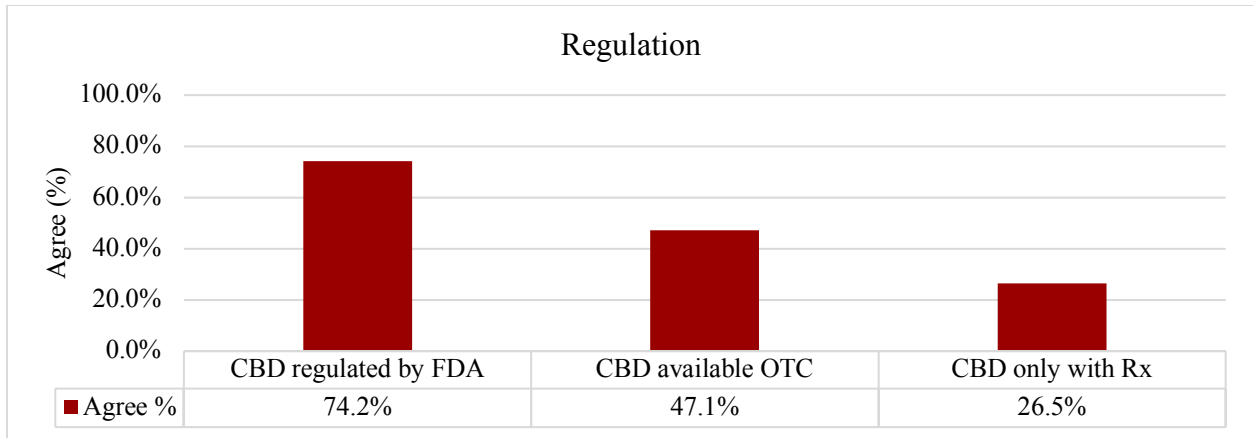
60-69	24 (18.8%)
70-79	16 (12.5%)
Region	
Los Angeles County	62 (54.4%)
San Francisco/Bay Area	10 (8.8%)
Other	42 (36.8%)

Demographic Data	Response (n=115)
Highest Educational Degree	
PharmD	85 (74.6%)
Other	29 (25.4%)
Licensure in California	
Registered Pharmacist (RPh)	110 (95.7%)
Other	5 (4.3%)
Number of Years in Practice	
Less than 5 years	23 (22.8%)
6-20 years	26 (25.7%)
More than 20 years	52 (51.5%)
Primary Area of Pharmacy Practice	
Community - Independent	30 (26.1%)
Hospital/Inpatient	20 (17.1%)
Community – Retail/Chain	19 (16.2%)
Other	46 (39.3%)

Results: Questions







Discussion:

Demographic results indicated that there was nearly an even split between male and female respondents. Many of the respondents were age 30-39 and most came from either the Los Angeles County or San Francisco/Bay Area. Additionally, most pharmacists had more than 20 years of experience and the most common primary area of practice was the community based setting. In Knowledge based questions revealed pharmacists were more accurate answering questions about CBD, but they struggled with defining legality of THC-containing products. Personal use questions showed that most pharmacists don't have personal experience using CBD products; this may be due to lack of knowledge in the area. Additionally, a small majority would be open to stocking CBD if explicitly legal. From the survey, very few pharmacists are comfortable recommending CBD products. Although uncomfortable, most pharmacists still believe that being able to counsel and recommend CBD products is part of the pharmacists' responsibility. Despite most pharmacists indicating CBD products are part of the pharmacists' responsibility, nearly all pharmacists felt that pharmacy school did not prepare them to do so. This indicates that gaps in knowledge need to be addressed at the foundational level of pharmacy school. The response trends indicate pharmacist are not confident in their skills recommending CBD products, identifying adverse reactions, and counseling on CBD products. This indicates the need for

future education and research to address these gaps in knowledge. For future research, a similar study could be conducted in states where regulations on CBD products are more explicitly defined for pharmacists.

Conclusion

Pharmacists are not comfortable recommending and counseling on CBD products due to lack of knowledge. Gaps in knowledge need to be addressed starting with pharmacy school and continuing education courses.

References:

1. Clinicians' Guide to Cannabidiol and Hemp Oils VanDolah, Harrison J. et al. Mayo Clinic Proceedings, Volume 0, Issue 0
2. FAQ – Industrial Hemp and Cannabidiol (CBD) in Food Products. Cdph.ca.gov. <https://www.cdph.ca.gov/Programs/CEH/DFDCS/CDPH%20Document%20Library/FDB/FoodSafetyProgram/HEMP/Web%20template%20for%20FSS%20Rounded%20-%20Final.pdf>. Published 2018. Accessed November 9, 2019.
3. Kroenke K, Cheville A. Management of Chronic Pain in the Aftermath of the Opioid Backlash. *JAMA*.2017;317(23):2365–2366. doi:10.1001/jama.2017.4884
4. Donvito, G., Nass, S.R., Wilkerson, J.L. et al. The endogenous cannabinoid system: a budding source of targets for treating inflammatory and neuropathic pain. *Neuropsychopharmacology*. 2018; 43: 52–79
5. Zuardi, A.W., Morais, S.L., Guimarães, F.S., and Mechoulam, R. Antipsychotic effect of cannabidiol. *J Clin Psychiatry*. 1995; 56: 485–486
6. Bergamaschi, M.M., Queiroz, R.H., Zuardi, A.W., and Crippa, J.A. Safety and side effects of cannabidiol, a Cannabis sativa constituent. *Curr Drug Saf*. 2011; 6: 237–249
7. Szyliowicz, D., & Hilsenrath, P. (2019). Medical Marijuana Knowledge and Attitudes: A Survey of the California Pharmacists Association. *Journal of Primary Care & Community Health*, 10, 215013271983187. <https://doi.org/10.1177/2150132719831871>
8. Moeller, K. E., & Woods, B. (2015). Pharmacy Students' Knowledge and Attitudes Regarding Medical Marijuana. *American Journal of Pharmaceutical Education*, 79(6), 85. <https://doi.org/10.5688/ajpe79685>
9. Sodergran A. Pharmacy.ca.gov. https://www.pharmacy.ca.gov/laws_regs/cannabidiol_letter3_accessible.pdf. Published 2020. Accessed April 10, 2020.