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A Phenomenological Inquiry into Healthcare Professionals Who Are Experts in Cannabinoid Therapy and the Endocannabinoid System (ECS)

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Abstract

Cannabis is a prevalent alternative treatment for many symptoms and conditions given its medicinal qualities and few side effects. As legalization for both medical and recreational purposes continue to develop quickly across the United States of America, there is serious discrepancy between legalization and clinical research. Clinical data is difficult since the U.S. federal government still classifies cannabis as a Drug Enforcement Agency (DEA) Schedule I drug with no clearly established medical value. This lag in evidence-base data has affected cannabinoid therapy and endocannabinoid system education (ECS) for healthcare professionals. There are gaps in medical school and continuing medical education initiatives despite the increase in cannabis consumption. As a result, healthcare professionals at all levels from undergraduates to practicing primary care physicians, are unprepared and inexperienced to advise patients in medical cannabis use. Patients who acquire knowledge and guidance from their healthcare professionals about cannabis use know related risks and have benefitted from the plant's efficacy and quality of life. Even though there are number of obstacles that hinder cannabinoid therapy instruction from being implemented in medical schools, hospitals, and clinics, expert healthcare professionals have transpired over time as a result of patient advocacy.

This phenomenological research study explains how expert healthcare professionals, specializing in cannabinoid therapy and the endocannabinoid system (ECS), acquired the knowledge and experience to best advise patients seeking medical cannabis advice in the United States. The data collected was analyzed through a conceptual framework, Joseph Schwab's Five Commonplaces of Curriculum: teachers, learners, subject matter, milieus (contexts), and curriculum making (Schwab, 1964). The commonplace of these stakeholders allows for a greater capacity in designing curriculum that fits the need for practical situations rather than the direct application of theories. The expert's insights and lived experience informed how cannabinoid therapy and ECS knowledge was acquired without traditional education; additionally, the data revealed practical implications to inform professional development, curriculum development, deliberation, and inquiry for novice learners in this plant-based therapy. The study explains potential educational opportunities and resources so that all healthcare professionals have the necessary tools to advise their patients in safe and effective medicinal cannabis use.

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Chapter One: Introduction

Background

As more states legalize medical and recreational cannabis, individuals are responsible for self-administering this plant-based medicine without medical advice. The use of cannabis was launched into the medical field by patient inquiry rather than clinical research (Zolotov et al., 2021). The idiom "the cart before the horse" best describes how people consuming medical cannabis far outpaces the available knowledge from medical experts. Healthcare professionals currently lack knowledge about cannabinoid therapy due to the shortage of supportive data and strong clinical trials, research, training, and educational opportunities. Public health concerns have surfaced due to healthcare professionals' inability to discuss medical cannabis with their inquisitive patients. There is a large gap between science and de facto practice in the medical use of cannabis. Those working in public health and medicine have an obligation to reduce harm and maximize benefits to the health of individuals and society. Thus, serious consideration and scientific investigation of medical cannabis are needed.

There are, however, doctors who specialize in medical cannabis and are recognized as experts in the international medical field. It is essential to identify and capture these experts' understandings, knowledge, and practical applications of medical cannabis in order to bridge the educational gap. This valuable insight will inform curriculum development and future educational opportunities so that all healthcare professionals

have the necessary tools to advise their patients on safe and effective medical cannabis consumption.

It is essential to begin with key terminology so that the reader understands the legal and historical aspects of cannabis. Van Mil & Henman (2016) conclude that when presenting a study, it is important to be specific since the audience may not have the background knowledge and accurate connotation in mind; they state, "definitions matter, because concepts, and thus definitions, are shaped by the perceptions of the audience, and these perceptions might differ as a result of language, education (especially the education of a health professional) and cultural differences" (p. 2).

In order to provide context for this research study, it is necessary to address the history of cannabis in the United States and how that led to present-day gaps in clinical research and medical education for healthcare professionals. Subsequently, this historical context explains how healthcare professionals were compelled to become experts in cannabinoid therapy and the endocannabinoid system (ECS) over time, creating a demand for continuing medical education in this specialized plant-based medicine.

Key Terminology

Defining the terminology in this topic will help distinguish a few common misconceptions and preconceived notions. The taxonomy in Figure 1 classifies and organizes the categorization of this living organism, and it is widely embraced by the scientific community (McPartland, 2018).

The plant's genus is called cannabis, and that covers the three species known as cannabis sativa L., cannabis indica Lam., and cannabis ruderalis Janisch (Piper, 2005).

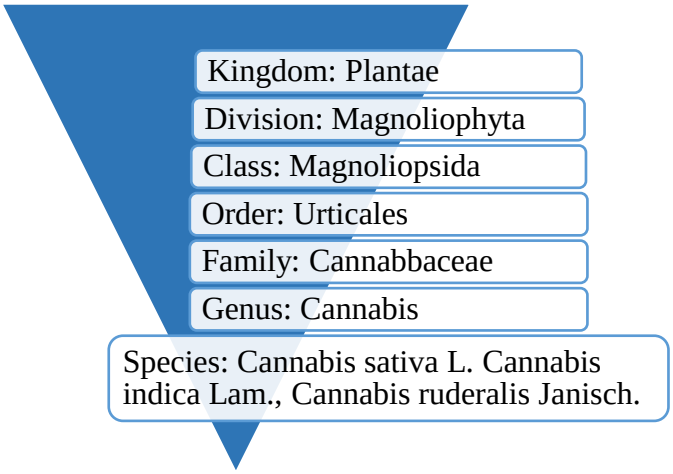

Figure 1: Cannabis Plant Taxonomy

Note. Taxonomy figure was created from information in Systematics at the Levels of Family, Genus, and Species by McPartland, J. M. (2018) in Cannabis and Cannabinoid Research, 3(1), pp. 203-212, doi:10.1089/can.2018.0039.

The term "marijuana" or "marihuana" is commonly used instead of its scientific term, cannabis; Piper points out, "Of all the multifarious terms associated with the cannabis plant, marihuana is one of the most universally recognized and used in the English-speaking world, yet its origins remain deeply obscure." (2005, p. 1). Uncertain of the term's origins, Piper suggests that marijuana can be found in Mexican and South American Spanish linguistic roots (2005). It may have been derived from the Chinese word for hemp flower, "má huā," translated directly from Chinese immigrant workers in Western Mexico (Piper, 2005). "The word marijuana, together with the use of herbal cannabis as an intoxicant, is consistently identified as coming into the U.S.A. from Mexico, being brought there by migrant workers" (Piper, 2005, p. 4).

The U. S. government officially referred to cannabis as marijuana in 1930 when Harry Anslinger, commissioner of the Federal Bureau of Narcotics, sought to associate

the word with Mexican immigrants negatively (Solomon, 2020). The negative reference filled his political anti-cannabis agenda based on racism which gave him the public's confidence to pass the Marihuana Tax Act of 1937 (Solomon, 2020). Cannabis is an accurate scientific term and is almost always used in medical journal articles, as opposed to the culturally adapted word, marijuana. Throughout this research study, I will use the term *cannabis*, which encompasses all other slang terminology associated with the plant, like, marijuana, weed, herb, grass, pot, bud, ganja, Mary Jane, etc.

Cannabinoids are molecules that make up the chemical components and compounds of the cannabis plant; even though more than 100 cannabinoids have been documented, research has only been done on the two most well-known ones: tetrahydrocannabinol (THC) (Delta-9-THC) and cannabidiol (CBD) (Grotenhermen, 2005). THC is the primary psychoactive cannabinoid found in cannabis, notorious for making people feel "high" or euphoric. In contrast, CBD is a non-psychoactive cannabinoid associated with remedial and therapeutic benefits (Grotenhermen, 2005). *Cannabinoid therapy* is, therefore, a healing approach to treat medical symptoms/conditions using cannabinoids (i.e., THC, CBD, etc.), which typically includes the type of cannabinoid (i.e., THC, CBD, etc.), administration methods (i.e., vapor, sublingual, topical, transdermal, etc.) and dosing (amount and frequency) (Boatright, 2021).

Hemp is derived from the cannabis plant, specifically the species cannabis sativa. Legally, hemp is cannabis that contains 0.3 percent or less THC content by dry weight, which is essential because the 2018 Farm Bill made it legal to grow hemp, or cannabis containing less than 0.3 percent THC, throughout the United States. It also made hemp-

derived CBD products federally legal (Hudak, 2018). If the substance contains more than 0.3 percent THC, it is federally illegal, though state laws still vary (Hudak, 2018). Hemp has been grown and used for thousands of years worldwide and has industrial and commercial importance, including textiles, rope, paper, clothing, shoes, food, bioplastics, insulation, and biofuel (Fike, 2019).

The *endocannabinoid system* (ECS) is an essential physiologic system and the most extensive regulatory system for establishing and maintaining human health (Battista et al., 2012). It regulates many processes in the body like pain, seizure threshold, appetite, digestion, mood, immune system, nervous system, coordination, tumor surveillance, fertility, bone physiology, cardiovascular functions, sensory integration, hypothalamic-pituitary-adrenal axis, neural development, and intraocular pressure (Battista et al., 2012). Researchers discovered that it directly balances every metabolic process in the body, maintaining its functioning under normal conditions (Battista et al., 2012). Cannabinoids like CBD activate the body's ECS by binding to cannabinoid receptors and help bring the body to a balanced state of health or homeostasis (Battista et al., 2012). Therefore, healthcare professionals must understand the importance, purpose, and functionality of the ECS.

Cannabis dispensaries are licensed retail stores that sell cannabis products, all regulated by local governments (Thomas, 2020). There are two different types of cannabis dispensaries, *medical* and *recreational*. Medical dispensaries require legal documentation and recommendation from a licensed doctor and state registration paperwork, authorizing the patient's medical needs to access cannabis from a medical

dispensary (Thomas, 2020). Recreational dispensaries are less restrictive, allowing anyone older than 21 with valid and current identification to buy cannabis products (Thomas, 2020).

Budtenders work in medical and recreational dispensaries, assisting customers with recommending, selecting, and buying a wide range of cannabis products (Haug et al., 2016). They follow similar food industry safety and sanitation standards (Haug et al., 2016). No formal medical training or education is needed; some dispensaries provide budtenders with in-house training and coaching, especially on their products (Haug et al., 2016). Their knowledge is typically self-taught through work-related experience (Haug et al., 2016).

On the contrary, a budtender is a *healthcare professional*. This study will use the American Medical Association's definition of a healthcare professional: anyone suited by education, training, and the necessary licensing to perform a medical service using evidence-based practices (World Health Organization, 2013). The list of healthcare professionals encompasses primary care professionals, nurse practitioners, registered nurses, drug therapy professionals or pharmacists, specialty care professionals, and therapists (World Health Organization, 2013).

Continuing Medical Education (CME) is an essential term that the Accreditation Council for Continuing Medical Education defines as a CME consists of educational activities which serve to maintain, develop, or increase the knowledge, skills, and professional performance and relationships that a physician uses to provide services for patients, the public, or the profession. (Accreditation Council for Continuing Medical

Education, 2022). It is important to note that the disseminated knowledge and skills are primarily accepted by the medical sciences, clinical medicine, and provision of public health care (Accreditation Council for Continuing Medical Education, 2022). The accrediting agency approves these educational opportunities so that healthcare professionals receive credits, an essential aspect of maintaining medical licenses across the U.S. (Accreditation Council for Continuing Medical Education, 2022).

Lastly, the term *Cannabis Use Disorder* (CUD) describes an individual's misuse and prolonged use of cannabis despite the psychological, physical, and social behavior harm and impairment (Patel & Marwaha, 2022). The disorder is defined by nine clinical patterns under impaired control, social impairment, risky behavior, or physiological adaptation in the Diagnostic and Statistical Manual of Mental Disorders (DSM–5) (Patel & Marwaha, 2022).

Medical and Legal History

A brief medical and legal history of cannabis provides context for current challenges in the healthcare professional community. Initially, cannabis and hemp were widely accepted throughout society. That changed when a newly appointed Federal Bureau of Narcotics commissioner, Harry Anslinger, aligned the substance with racist sentiment, politically tying the plant to Mexican immigrants and people of color (Solomon, 2020). Since then, misinformation and propaganda have hindered research and medical advancements.

Dating back to the 1600s, hemp was domestically grown in the 13 U.S. colonies and used as cordage, cloth, canvas, sacks, and paper (Van Tooke, 2017). The first record of

cannabis as a recognized medicine was in 1850; it was added to the U.S. Pharmacopeia, an annual collection of published drug information, to treat opiate addiction, alcoholism, leprosy, and excessive menstrual bleeding (Van Tooke, 2017). Only 16 years later, President Teddy Roosevelt signed the Wiley Act, Pure Food and Drug Act, and over-the-counter plant medicine was labeled addictive and dangerous (Van Tooke, 2017). After Anslinger was appointed in 1930, 29 states prohibited cannabis due to negative associations with low socioeconomic and non-white communities (Van Tooke, 2017). Reefer Madness (1936), a dramatic film depicting the negative consequences of two high school students addicted to cannabis, led to a critical decision in 1937: Marijuana Tax Act (Van Tooke, 2017). This U.S. federal law-imposed tax on the sale of cannabis, hemp, or marijuana; though it did not criminalize the possession or usage of these substances, a special tax and strict oversight was issued (Musto, 1972).

Fast forward to a critical decision in 1970, the Controlled Substances Act classified cannabis as a Schedule 1 drug: substances with no currently accepted medical use and a high potential for abuse like heroin, LSD, ecstasy, and peyote (Van Tooke, 2017). The Controlled Substance Act ensured that cannabis would never be studied for its medicinal properties. President Richard Nixon created the Drug Enforcement Administration (DEA) in 1973, a federal law enforcement agency under the U.S. Department of Justice that would fight drug trafficking and distribution (Van Tooke, 2017). Over the next two decades, penalties against cannabis infractions surge, and the drug war accelerates.

However, the tides began to shift in favor of cannabis in 1996 when California voters passed Proposition 215, permitting consumers with severe diagnoses like AIDS and

cancer to buy medical cannabis (Public Broadcast System, 1998). Following this trend, several states followed California's lead and legalized cannabis for medical use; in 2012, Washington and Colorado were the first states to legalize recreational cannabis (ProCon.org, 2022). The Rohrabacher–Farr amendment was passed in 2014, a federal law that prevents the Justice Department from interfering with the state's medical cannabis laws (ProCon.org, 2022). The federal government removed the Public Health Service review requirement in 2015, encouraging medicinal cannabis research and limiting production to just one facility at the University of Mississippi (ProCon.org, 2022). One year later, the DEA expanded the number of DEA-registered cannabis manufacturers, allowing more research to occur (ProCon.org, 2022).

In 2018, the U.S. Food and Drug Administration approved its first cannabis-based drug, Epidiolex (cannabidiol, CBD), for the treatment of seizures associated with Lennox-Gastut syndrome and Dravet syndrome, two severe forms of epilepsy (ProCon.org, 2022). The same year, President Donald Trump legalized industrial hemp (ProCon.org, 2022). Again in 2021, the DEA approved cannabis researchers to access more plant varieties from approved domestic sources; these strains are closer to what the general public in legalized states are consuming (ProCon.org, 2022). Even though the House of Representatives has passed two cannabis decriminalization bills in the past three years, they were unfortunately both voted down in the Senate.

Despite the legal and political implications of cannabis, consumers seeking medical advice about general cannabis effects and use drive current and future healthcare professionals to search for reliable cannabis information and knowledge. In January

2017, the National Academies of Sciences, Engineering, and Medicine published *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research*. It reported the implications of 10,000 cannabis-relevant studies that are pending further research and funding (Burns, 2017). Reviewer, Janet Burns (2017), summarizes the health benefits from 16 medical specialists from a range of prominent institutions: "Based on a 10,000-long list of studies, it concluded that cannabis offers meaningful relief for patients coping with chronic pain, spasticity and pain related to multiple sclerosis, and nausea resulting from chemotherapy" (para. 3). Even though cannabis researchers surpass bureaucratic challenges, studies continue to emerge in order to address rising public health questions regarding both the therapeutic and adverse effects of cannabis (National Academies of Sciences, Engineering, and Medicine, 2017).

While the general public takes a more favorable approach to cannabis, laws keep evolving, and rescheduling the plant could happen soon. However, research is still hindered by bureaucratic red tape. By understanding the history of the plant and the false basis for injudicious policies, we can move past the stigma and consider the medical benefits cannabis offers. Solomon (2020) summarizes this, "Our inquiry needs to start with an acknowledgment of the history of racial discrimination in our drug policy and move toward serious, evidence-based research" (p. 4).

Need for Healthcare Professional Cannabinoid Therapy Education

In 2013, the Realm of Caring (RoC), an independent 501(c)3 nonprofit, was established in Colorado Springs, Colorado, by two mothers, Paige Figi and Heather Jackson, whose children had intractable epilepsy. Their children, Charlotte and Zaki,

were among the first to take CBD to reduce seizure activity successfully. In 2013, Dr. Sanjay Gupta, CNN's chief medical correspondent, highlighted these children in a documentary titled "Weed" (Gupta, 2013). After the documentary aired, Figi and Jackson received hundreds of inquiries from families seeking cannabinoid therapy support from around the world. Figi and Jackson recognized the need to create a formal organization to not only collect research and data on individuals using cannabis products but also to educate and advocate about this often-misunderstood form of therapy.

Their mission is to improve the quality of life through research, educational services, and community connections. Their vision is to spread worldwide cannabinoid therapy knowledge through science, acceptance through knowledge, and access through acceptance. They are reimagining how we think, talk, and respond to cannabis and those who use it. The RoC serves all communities that need data-driven and fact-based information about cannabinoid therapies. It administers the largest cannabis observational research registry in the U.S. in collaboration with Johns Hopkins University and the University of Pennsylvania. It has published a handful of peer-reviewed journal articles. They also support studies with Harvard, Colorado State University, and the Veterans Association in Palo Alto, California. Aside from one of the largest online research libraries on the internet of peer-reviewed journal articles about cannabinoid therapy and specific symptoms/conditions, the RoC website provides tools and resources for those searching for cannabinoid therapy support. Ultimately, they promote education and mainstream acceptance with individuals, families, communities, and healthcare professionals.

In 2013, families and healthcare professionals were turning to the Realm of Caring (RoC) for support. As a result of the increased demand for cannabinoid therapy education for healthcare professionals, RoC developed an educational series with live webinars and YouTube videos to address all aspects of cannabinoid therapy and the endocannabinoid system. Initial videos addressed introductory level cannabinoid therapy topics, the "101" series, a collection of fundamental principles and concepts for beginners. Eventually, they produced in-depth literature reviews on specific health conditions and cannabinoid therapy, sourcing only peer-reviewed journal articles; for example, presentations included *Palliative Care and Cannabis" and "Breast Cancer and Cannabis*. Doctors, nurses, chiropractors, medical groups, and nonprofits contacted RoC for education and resources to help their patient/client base.

There was an obvious need for continuing medical education that provided practical guidance and factual information based on observation research registry data and peer-reviewed journal articles. Over time, a few healthcare professionals emerged as experts to treat many patients who were already consuming cannabis without any medical oversight; they were also essential for issuing medical cannabis cards for children and adults to access any cannabis product from a medical dispensary (i.e., CBD, THC, etc.). As a result, healthcare professionals established their own practices specializing in cannabinoid therapy.

This research study will investigate how these healthcare professionals became experts without formal, traditional medical education. Is there a method to systematically approach cannabinoid therapy education based on the collective experience of these

experts? Given the current clinical research limitations and information, how can the process be streamlined? Literature suggests there is still a lack of general knowledge; the review in this study addresses the gaps in cannabinoid therapy and ECS education for healthcare professionals.

Research Problem and Significance

The research problem addresses the educational shortfalls in cannabinoid therapy and the endocannabinoid system for healthcare professionals. Widespread cannabis legalization and access throughout the U.S. has increased cannabis consumption with little medical oversight. As a result, many public health concerns have emerged due to the lack of healthcare professional knowledge, false internet claims, and misinformation from cannabis dispensaries and companies. Additionally, the scarcity of clinical research directly affects continuing medical education initiatives. There is a lack of factual information, practical knowledge, and data to inform curriculum and instruction; therefore, there is a shortage of healthcare professionals willing to discuss cannabinoid therapy options with their patients. In the following sections, I briefly highlight the current problematic contexts of the educational deficits in cannabinoid therapy opportunities for healthcare professionals.

Research Problem #1: Increased Legalization and Access

Widespread medical and recreational legalization of cannabis has increased across the United States since 1996, when California voters passed Proposition 215, permitting consumers with severe diagnoses like AIDS and cancer to buy medical cannabis (Public Broadcast System, 1998). Cannabis legalities vary from state to state and change quickly

from year to year; for example, four additional states voted to legalize recreational cannabis on November 3rd, 2020. Currently, fifteen states and three territories adopted recreational cannabis laws. In comparison, 36 states, the District of Columbia, and four territories approved medical cannabis laws, as shown in Figure 2 (National Conference of State Legislatures, 2021).

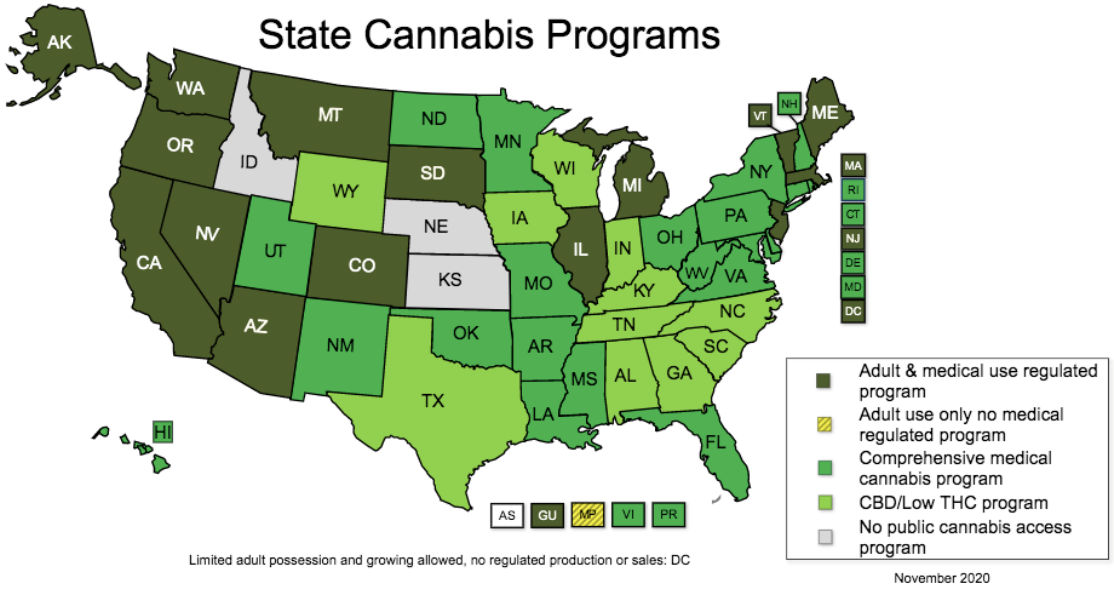

Figure 2: United States Cannabis Programs by State

As of January 2020, there were 7,490 medical and recreational cannabis dispensaries across the country operating under individual states' legislations; more are expected to open in 2021 (Hobson, 2019). Consequently, access to cannabis across the country is becoming more readily available and support to legalize on a federal level garners momentum. The Pew Research Center reported in November 2019 that two-thirds of Americans believe cannabis should be federally legal, whereas 32% of those surveyed oppose the notion (Daniller, 2019). Additionally, a surge in public support is following the widespread favor of individual states legalizing for recreational use, "An

overwhelming majority of U.S. adults (91%) say marijuana should be legal either for medical and recreational use… Fewer than one-in-ten (8%) prefer to keep marijuana illegal in all circumstances" (Daniller, 2019, para. 2). This upward trend of support and legalization across the U.S. will increase cannabis growth and accessibility in the years to come.

Actual cannabis use continues to rise as well. In a 2019 survey, one in seven adults admitted to using cannabidiol (CBD) based products, roughly 14% of the population (Brenan, 2019). A Gallup survey in July of 2017, reported that 45% of Americans had tried cannabis at least once in their lifetime, a large jump from the 4% who admitted trying it when Gallup first asked this question in 1969 (Swift, 2017). In the same survey, participants were asked if they smoke cannabis, and 12% admitted to smoking, though no time frame or frequency was identified in the question (Swift, 2017). Similarly, Yahoo News and The Marist Poll at Marist University conducted a survey in the United States amongst adults 18 years of age or older in March, 2017; results indicated that 52% percent of Americans have tried cannabis at some point in their lives and 14% admit to regular use which was identified as at least once or twice a month (Marist Poll, 2017). Increased public opinion and voting favors recreational cannabis legalization, which in turns means widespread access and an increase of consumption with little to no medical guidance.

Lastly, as recreational cannabis increases in individual states, medical cannabis sales decrease. In Alaska, medical cardholders dropped by 63% once recreational cannabis was legalized in 2016; similarly, Nevada's medical cardholders dropped by 40% and

Colorado's medical cardholders dropped 19% (Flaccus & Kastanis, 2019). Consumers who initially enrolled in a medical program and consulted with a doctor in order to buy cannabis are terminating their medical cards and instead buying from a recreational dispensary; one report suggests that the drop indicates that many patients were really recreational users wanting access to legal cannabis consumption under a medical card (Borchardt, 2016).

Another explanation for the decline is the convenience of buying at recreational dispensaries and the avoidance of paying for an annual medical card and doctor visit (Borchardt, 2016). As more states legalize recreational cannabis, predictions suggest there will be a continuous drop in medical cards and an increase of use without medical supervision.

Research Problem #2: Public Health Concerns

Recreational Cannabis Use. Legalized cannabis use in the U.S. has already triggered public health concerns and it will only increase as more states open the gates to cannabis reform. Recreational cannabis use without medical counseling in some cases leads to misuse and overuse.

In 2018, Canada legalized recreational cannabis use nation-wide after nearly two decades of medical legalization; a 2016 article continued to stress the importance of consumer education for effective administration once consumers began to bypass doctors since they no longer needed referrals (Collier). A medical dispensary owner stated, "Buying cannabis at the corner store might be good for a person who has already learned

how to self-medicate and knows which strains work for them, but others need knowledge from a place other than a street corner or the Internet" (Collier, 2016, p. 793).

Therein lies the problem: who advises recreational cannabis consumers about dosing, strains, potency, and health and safety concerns now that medical referrals are eliminated? In the absence of a medical doctor, Internet websites, for-profit cannabis companies, and recreational cannabis dispensary employees, known as budtenders, are the primary sources of cannabis consumer education.

Internet False Claims. In an article titled, *Internet Claims On the Health Benefits Of Cannabis Use*, researchers revealed that, "less than 5% of the internet claims about the health benefits of cannabis use were proven to be true based on available evidence" (Lau et al., 2021, p. 3611). Unsubstantiated information about the benefits of cannabis were widespread and pervasive; the authors warned that consumers access internet cannabis information with caution and recommend for an expansion of empirical evidence to better educate both consumers and health care professionals (Lau et al, 2021). Rampant misinformation deceives consumers and has the potential to cause a public health crisis.

Dispensary's Lack of Knowledge. Another concern stems from dispensaries and companies providing misleading health claims and inaccurate cannabis recommendations. Even though cultivation and distribution of cannabis in individual states is heavily regulated and monitored by state officials, there is little to no supervision of associated patient care (Haug et al., 2016). In a 2016 survey, (Haug, et al.), 55 medical and non-medical dispensary staff in Colorado were assessed on their formal cannabis training and recommendation practices; the researchers noted the following:

> Indeed, with the exception of a few states that have mandated cannabis-specific physician continuing medical education (e.g., New York), the majority of states do not require any training for either those providing "recommendations" for patient cannabis use (i.e., physicians) or those actually dispensing cannabis to consumers (i.e., dispensaries and/or "budtenders"). This is troubling, as cannabis comprises more than 400 chemical compounds and is associated with widely variable effects among humans. (p. 245)

Only 20% of those budtenders included in the survey disclosed having medical and/or scientific training (Haug, et al., 2016). Therefore, the majority of cannabis consumers first interactions and recommendations are with a non-medical layperson who is not versed on the individual's medical history, conditions, symptoms and medications, nor the latest empirical medical research and evidence-based practices. The lack of medical cannabis training and education in healthcare professionals and dispensaries presents public health concerns. For example, the American College of Obstetricians and Gynecologists advises to avoid cannabis use in pregnant women due to potential harmful effects on the fetus (American College of Obstetricians and Gynecologists, 2017). Similarly, the Colorado Department of Public Health and Environment (CDPHE) cautions pregnant and breastfeeding women on cannabis use; every cannabis container in the state has the following warning printed on it: "There may be additional health risks associated with the consumption of this product for women who are pregnant, breastfeeding, or planning on becoming pregnant" (2017, p. 160). Yet in 2016, a statewide cross-sectional study in Colorado captured the recommendations and responses from 400 medical and recreational dispensaries when an anonymous female caller pretended to experience morning sickness during her first trimester of pregnancy; as a result, 69% of the dispensaries recommended cannabis products to manage nausea

(Dickson et al., 2016). Only 31.8% of the dispensaries recommended the caller speak to a health care professional about taking cannabis and another 49.7% of them recommended contacting a doctor after being prompted by the caller (Dickson et al., 2016). Dispensaries based recommendations on their personal opinions and 36% of those dispensaries stated that cannabis use is safe to use while pregnant (Dickson et al., 2016).

If all healthcare professionals had the knowledge and resources to speak with their patients about cannabis, would a nauseous pregnant woman resort to advice from a dispensary budtender? Additionally, Haug et al. (2016) uncovered in their survey that the budtenders' recommendations for specific symptoms and conditions were often contradictory with current empirical research. Public health risks could be mitigated if budtenders were not the first line of inquiry and medical providers were equipped with cannabis knowledge.

Cannabis Addiction. Additional public health concerns over cannabis abuse and addiction is reported as a result of increased access to cannabis. Just like people become addicted to alcohol and sugar, there inevitably will be a rise in cannabis dependence. It still manifests as a public health issue and something that healthcare professionals will need to address. In a 2018 survey, researchers at the University of Michigan reported that 47% of the 392 medical cannabis users screened positive for Cannabis Use Disorder on the CUDIT-SF (Cannabis Use Disorder Identification Test-Short Form), an abbreviated version of the CUD (Cannabis Use Disorder) that serves as an efficient primary screening tool for healthcare professionals (Kruger & Kruger, 2019). A 2020 study included a much larger number of respondents, 505,796, from four states Colorado, Washington, Alaska,

and Oregon, which reported an increase in frequent use of cannabis and CUD (Cannabis Use Disorder) among adults 26 or older after recreational cannabis was legalized (Cerdá et al., 2020). These four states had existing medical cannabis programs and voted for recreational use; as a result, the study found an increase in continued use of cannabis despite clinically significant impairments, also known as CUD (Cannabis Use Disorder).

Increased legalization and cannabis potency require more attention towards the potential rise in cannabis addiction; surveys of US adults in 2012-2013 reported that 3 out of 10 cannabis users had a diagnosis of DSM-IV cannabis use disorder as a result of increased THC potency, widespread availability, and favorable attitudes towards cannabis use (Hasin et al., 2015). The researchers predict that cannabis addiction rates will rise as the number of consumers grow (Hasin et al., 2015).

Self-treatment of Pharmaceuticals. An additional public health concern is the substitution of cannabis for prescribed pharmaceutical drugs; individuals are self-treating their conditions and symptoms with either their own mixture of pharmaceuticals and cannabis or solely cannabis. The same University of Michigan survey (Kruger & Kruger, 2019) emphasizes the participants' intention to self-treat with cannabis:

> Many participants reported using cannabis as a supplement to or substitution for pharmaceutical drugs. It was not determined whether these practices were initiated upon the advice of healthcare providers; however, slightly less than half of respondents did not discuss their medical cannabis use with their mainstream healthcare provider and many of these respondents discontinued or reduced pharmaceutical drug use. About one-quarter of participants reported barriers to healthcare and may have substituted cannabis for pharmaceutical drugs for financial reasons. (p. 4)

This form of noncompliance refers to a patient who ignores the prescribed course of medication or treatment. According to a 2018 article, medical noncompliance or

nonadherence affects as many as 40% to 50% of patients with chronic health conditions, causing at least 100,000 preventable deaths and $100 billion in preventable medical costs per year (Kleinsinger).

Additionally, cannabis still contains numerous psychoactive compounds that could lead to potential harmful drug interactions and contraindications (Russo, 2013). Statistics vary, but according to the Centers for Disease Control and Prevention (CDC), half of all U.S. adults regularly take at least one prescription medication (2021). Similarly, at least 75% of all Americans take at least one over-the counter drug (Devitt-Lee, 2018). With so many prescription drugs and medications being consumed, it is imperative to avoid these three potential drug interactions from consuming two or more substances: metabolic interactions, drug distribution, and convergent pathways (Devitt-Lee, 2018). Typically, medications prescribed by healthcare professionals have exact dosages and a timed schedule.

Researchers Kruger and Kruger (2019) point out, “A physician would lose her or his medical license for giving patients bags of assorted pharmaceutical drugs with unknown chemical properties and physiological effects, yet this resembles the current state of medical cannabis administration for many users” (p. 5). Mixing substances and irregular spacing between medications can cause negative reactions and undesirable outcomes.

Given the lack of medical oversight in cannabis consumption, issues like misuse, overuse, and misguided advice will continue to derail safe public health initiatives. Both public health and healthcare professionals have a duty to diminish the abuse and amplify health outcomes and benefits.

Research Problem #3: Lack of Cannabis Knowledge Amongst Healthcare Professionals

Increasing legalization and acceptance does not mean that cannabis is harmless; it is problematic that healthcare professionals remain uneducated on this subject for it contributes to the growing public health concerns mentioned in the previous problem. Figure 3 delineates why there is a lack cannabis knowledge amongst healthcare professionals in the United States.

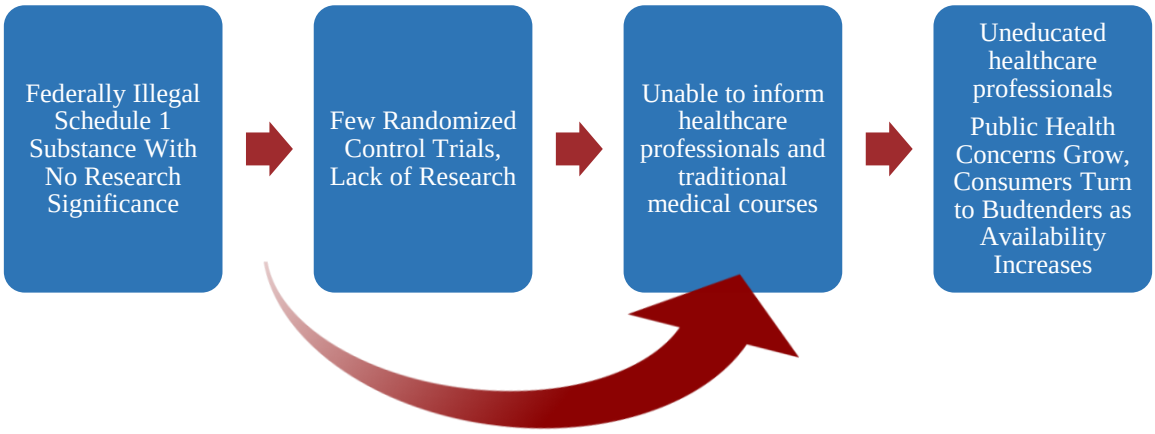

Figure 3: Understanding the Lack of Cannabis Knowledge Amongst Healthcare Professionals

The United States Food and Drug Administration (FDA) and the United States Drug Enforcement Administration (DEA) classify cannabis as a Schedule 1 drug, a substance with no accepted medical use and a high potential for abuse (2021). Since authorities claim that cannabis has no medical value, conducting the gold research standard is challenging: randomized controlled trials (RCT). Strict classification and federal law have prevented widespread, systematic research. Suppose researchers were to conduct a

cannabis study. In that case, a long, systematic application process ensues, starting with the National Institute on Drug Abuse (NIDA), followed by a permission request to the FDA to study it; even still, researchers are highly restricted and limited to how they study it (National Institutes of Health Guide, 1999).

As a result of restricted research studies, there is a shortage of reliable and trusted knowledge, information, and resources for healthcare professionals. Researchers Haug et al. (2016) point out, "Although it is important to note that rigorous research on the use of cannabis as a therapeutic remains in its relative infancy, issues of inconsistent and non-empirically supported practices by physicians plague the cannabis and substance use field more broadly" (p. 245). Emerging and relevant cannabis content lacks widespread coherency, organization, and commonality across the medical community due to the lack of guidelines, standards, evidence-based recommendations, and practices (Rubin, 2017).

Additionally, since cannabis is federally identified as a substance for high potential abuse with no accepted medical use, most medical schools exclude cannabis from their curriculum programs for fear of losing funding (Rubin, 2017). As a result, there are significant gaps in medical education when it comes to learning about cannabis through the traditional approach, and physicians are hesitant to recommend cannabis to their patients because they have never received unbiased quality training concerning the substance (Rubin, 2017).

Medical professionals cannot rely on the *Physicians' Desk Reference*, an annually published anthology of prescription drug information, for any data regarding dosing, drug interactions, or side effects and consequently lack the knowledge to guide patients

seeking medical cannabis advice (Rubin, 2017). Several variables converge to prevent cannabis educational initiatives from happening.

Current healthcare professionals interested in discussing cannabis with their patients seek knowledge through accredited online continuing education courses and receive certification and credits, thus giving them the authority to recommend cannabis, a policy guideline proposed by the Federation of State Medical Boards' House of Delegates (Rubin, 2017). Each accredited online course establishes its guidelines, objectives, curriculum, instruction, assessment, evaluation, scope, and sequence.

Presently, there are no overarching, national gold standards for cannabis education, a core body of knowledge containing statements that identify learning outcomes, objectives, specific content, and a learning progression (Browder et al., 2006). The continuing education courses lack depth and specific information regarding dosing, accurate product concentrations, and evidence-based health risks/benefits; even after taking the four-hour course, professionals still do not feel prepared to counsel patients (Rubin, 2017).

Certification programs vary from one organization to another; therefore, learning outcomes differ, and knowledge learned is irregular. A systematic review titled, *Health professional beliefs, knowledge, and concerns surrounding medicinal cannabis – A systematic review* concluded that health professionals were in favor of recommending cannabis to their patients, but there is a lack of self-perceived knowledge (Gardiner et al., 2019). A more recent systematic review published in 2021 by Zolotov et al. surrounding

the education of medical cannabis in allied health professional training programs worldwide reported the following:

> In general, it was found that there was no structured curriculum or competencies on medical cannabis in most schools. Four studies revealed that students receive most of their education on medical cannabis from extracurriculars and sources outside of school. We also found that this aligns with the belief commonly expressed among students that they lack adequate education, mentorship, and guidance on this subject. In the studies assessed, students overwhelmingly reported that they do not feel knowledgeable or comfortable to counsel patients on medical cannabis, mostly due to a lack of evidence-based knowledge. (p. 6)

Even though healthcare professionals are interested in cannabis recommendations for their patients, they are unprepared and uninformed due to the lack of a standardized curriculum and available educational initiatives. According to Kruger and Kruger (2019), these suggested topics are essential for healthcare professionals to feel confident in administrating cannabis:

> Systematic research on the effective dosage levels for the numerous cannabinoids; effectiveness ranges for the treatment of various health conditions; standardized testing, systematic assessment, and accurate and informative labeling of cannabis products; education on cannabinoid properties, effective dosage levels, and administration schedules. (p. 5)

Respected doctors in the field who specialize in cannabis recommendations acquired knowledge over the years by attending international conferences, recording day-to-day practical experience with patients, analyzing individual case studies, and reading peer-reviewed medical journal articles (Rubin, 2017). There are still glaring gaps in common, widespread, and systematic education initiatives and coursework for medical students and current medical practitioners seeking continued education credits.

The likelihood of healthcare professionals encountering patients that consume cannabis for medical and recreational purposes has increased due to expanded access and

legalization across the United States. Over nine million results arose after a quick Google search for “talk to your doctor about cannabis.” The swelling number of cannabis consumers seeking medical advice to alleviate specific health conditions and symptoms is a prevalent topic.

In a 2018 survey, researchers at the University of Michigan reported that 30% of medical cannabis users disclosed that their primary healthcare provider was unaware of their medical cannabis use, and an additional 14% were uncertain if their primary doctor knew (Kruger & Kruger, 2019). As mentioned previously, patients begin to self-treat and self-diagnose their medications and cannabis use due to the lack of support from their healthcare professionals. It should worry public health officials that medical cannabis users have more faith in consuming cannabis on their own than consulting with mainstream healthcare professionals (Kruger and Kruger, 2019). The authors encapsulate the need to blend traditional medical perspectives with new consumer use:

> The fact that so many study participants did not discuss their medical cannabis use with their healthcare provider indicates the lack of integration between these types of treatment. A holistic and integrative approach would likely be most effective at maximizing benefits and minimizing risks, as there are several potential challenges when cannabis use is unknown. Healthcare providers may misattribute the effects of treatment; misinterpret physiological, psychological, and behavioral patterns resulting from cannabis use; or may unintentionally put patients at risk through harmful drug interactions. (Kruger & Kruger, 2019, p. 5)

Healthcare professionals lack the knowledge to understand how cannabis compounds affect so commonly used pharmaceuticals to evade adverse outcomes and maximize health benefits.

An additional concern exists for cannabis consumers admitted for surgery. Cannabis use can affect an individual’s anesthetic perioperative plan and medical care given

before, during, and after surgery in the hospital; there are considerations and modifications to a user's cardiovascular health, gastric emptying, airway protection, induction dose, maintenance of anesthesia, risk of heart attack, stroke, anxiety, and postoperative pain (Davidson et al., 2020). What if a patient fails to disclose their cannabis use to the medical team? What if the medical team is uneducated on the modifications necessary for a cannabis consumer? If patients are reluctant to have candid conversations with their doctors, nurses, and pharmacists about their cannabis consumption, there is a potential risk for complications. Who will patients turn to? Research suggests dispensary employees and cannabis companies fill in the educational gaps, which is a resounding public health concern. The lack of standardized cannabinoid therapy and ECS education for healthcare professionals is a glaring problem for the average cannabis consumer.

Purpose of the Study

This phenomenological research study aims to reveal how expert healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS) acquired the knowledge and experience to advise best patients seeking medical cannabis advice in the United States. The central phenomenon was defined as the processes by which an established healthcare professional acquires practical medical cannabis knowledge and expertise.

Research Questions

- What is the lived experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS)?

- How did healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS) acquire the expert knowledge and experience to advise best patients seeking medical cannabis advice in the United States?
- What guidance do healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS) offer regarding the professional development of healthcare professionals?
- How can the practical knowledge from expert cannabis healthcare professionals impact curriculum development, deliberation, and inquiry?

Conceptual Frameworks

The Five Commonplaces of Curriculum

The data was filtered through Joseph Schwab's "Five Commonplaces" conceptual framework and used to explain the phenomenon in this study. The five individual commonplaces of teachers, learners, subject matter, milieus (contexts), and curriculum making were used as a lens to explain relationships between the data and curriculum and instruction development (Schwab, 1964). Schwab calls for a balance amongst the five components and challenges the education community to use the five-factor framework when deliberating about curriculum (1964). The five commonplaces are worth thinking about when applying a universal perspective to the commonplaces of everyday practice in a specific subject matter, like cannabinoid therapy (Schwab, 1964). The commonplace of teachers, learners, subject matter, milieus (contexts), and curriculum making allows greater capacity for designing a curriculum that fits the need for practical situations rather than the direct application of theories (Schwab, 1964). This research study used the five

factors to explore how practical knowledge from expert cannabis healthcare professionals impacts curriculum development, deliberation, and inquiry.

Research Design and Methodology Overview

Creswell (2013) describes phenomenology as an investigation of shared lived experiences among a group of individuals. What do all the participants experiencing this phenomenon have in common? What did they experience, and how did they experience it? Moreover, it attempts to unearth the underlying shared essence and the collectively expressed meaning for participants who have undergone the same phenomenon (Creswell, 2013). Phenomenology allows for the synthesis of information from multiple subjective sources and seeks to develop a consistent and well-developed conjoint description of an experience (Creswell, 2013). Phenomenology has been applied within various fields, including social sciences, education, and the health sciences (Creswell, 2013).

To understand the processes of how expert healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS) effectively and proficiently advise patients seeking medical cannabis advice, a series of semi-structured online video-conference interviews with three to five cannabinoid therapy and ECS healthcare professional experts was conducted. The expert healthcare professional participants were identified through nominations from The Realm of Caring. This non-profit advocates for cannabinoid therapy education and research for healthcare practitioners, consumers/caregivers, and industry affiliates.

Study participants were comprised of a homogenous sample of healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS) in states where cannabis is legal for medical use; these individuals have commonly experienced the process that was investigated (Creswell, 2013, p. 154). Creswell points out that interviewing individuals with a shared common experience is essential for developing practices and policies about the phenomenon's characteristics (Creswell, 2013, p. 81).

Significance of the Study

This research is significant for the widespread medical community and cannabis consumers, but also for public health officials. By investigating the lived experience of healthcare professionals who are experts in cannabinoid therapy and the ECS, I revealed how they acquired this knowledge and how they can inform curriculum development for future continuing medical education initiatives.

The study provided insight into practical applications for healthcare professionals interested in learning more about cannabinoid therapy and the ECS. This, in turn, directly supports patients interested in talking to a knowledgeable healthcare professional about cannabis consumption. Implications suggest consumers have healthcare professionals educated in cannabinoid therapy and the ECS to speak with about whether or not cannabis is a viable option for the individual’s condition or symptoms. When consumers talk to budtenders at medical and recreational dispensaries, they receive advice on products, not necessarily addressing personal health concerns or potential drug interactions with other medications, which is a public health dilemma. More

opportunities for effective and practical continuing medical education in cannabinoid therapy and the ECS for healthcare professionals will mitigate public health risks regarding cannabis consumption.

Summary

The problems addressed in this chapter explain how increased cannabis consumption has led to numerous public health concerns due to the lack of medical oversight, education, and guidance. Since healthcare professionals lack the necessary education to address cannabinoid therapy use, patients do not have expert medical advice or recommendations. Fortunately, there are healthcare professionals who have spent years becoming experts in this specific medical field, and a research study must investigate their lived experience.

By interviewing expert healthcare professionals, I learned how they acquired this specialized knowledge and what guidance they offer to the professional development of other healthcare professionals. This research study dug deeper into the expert's methodologies, approaches, and practices. Based on the data, there's potential to develop a curriculum pathway that will guide novice healthcare professionals in this subject towards a mastery understanding. It was necessary to discover how the practical knowledge from expert cannabis healthcare professionals impacts curriculum development, which supports the need for Joseph Schwab's "Five Commonplaces" framework in this study. The practical approach to developing a curriculum derived from the lived experiences of experts captures the essential understandings that healthcare professionals need to be successful in their everyday practice. Currently, the general

population is already consuming cannabis without medical oversight, and this raises several public health concerns; Schwab's framework highlights the actual, pragmatic application of healthcare professional education as opposed to a theoretical approach. This realistic and viable perspective bridges the existing educational gap.

Chapter Two: Review of the Literature

This literature review encompasses resources that are relevant to healthcare professionals and continuing medical education initiatives about cannabinoid therapy and the endocannabinoid system (ECS). Identifying research in this area provides context for this study. It will explain gaps in current knowledge and pinpoint what research has already been done. The literature review addresses the lack of continuing medical education in cannabinoid therapy, the ECS, and what currently exists. Due to the lack of research and funding around cannabis, few peer-reviewed articles have been published on this topic.

Literature Search Procedures

This review of the literature accounts for healthcare professionals and cannabinoid therapy education, curriculum, and instruction during the last 42 years. The literature search procedures were followed to collect relevant articles to synthesize essential understandings and gaps contributing to the conversation and future research of cannabinoid therapy and ECS education for healthcare professionals.

Inclusion criteria

The criteria for this literature review included studies from 1980 to 2022 with either qualitative, quantitative, or mixed methods methodological approaches. The search criteria include healthcare professionals (i.e., doctors, nurses, pharmacists, therapists, dieticians, physicians, physician assistants, social workers, and chiropractors). To include

more literature, studies are published worldwide and written in English. The participants or content must contain cannabinoid therapy and ECS education emphasizing benefits, curriculum, instruction, and continuing medical education courses for healthcare professionals.

Search Methods

Initially, the most similar articles in this search were one dissertation, several literature reviews, and relevant research studies found through two search engines: Google Scholar and Compass, the University of Denver University Libraries search engine. I found relevant citations and references from one dissertation and three literature reviews, which led to further significant studies that supported my research purpose and questions. The key terms and search criteria (see below) were modified to include these studies. In addition to using these two search engines, the following journals yielded more relevant literature that matched the inclusion criteria and key terms: ERIC, PsychINFO, and ProQuest. Search terms and keywords include the following participant description, cannabis education, and medical practitioners: *Medical practitioners, healthcare professionals, public health professionals, doctors, nurses, pharmacists, therapists, dieticians, physicians, medical assistants, social workers, chiropractors, patients, physicians, surgeons, AND cannabis education, cannabinoid therapy education, AND curriculum, coursework, CME, Continuing Medical Education, THC, cannabinoid, CBD, cannabidiol, the endocannabinoid system, schedule 1, FDA, NISD, research gaps, medical cannabis, public health risk, therapeutic, medical marijuana, web-based forums, videoconferencing, medical mentoring, evidence-based, gaps, benefits, harms, risks.*

Increased Patient Demand for Advice

Since cannabis is still illegal under federal law via the Controlled Substances Act of 1970, the United States Food and Drug Administration (FDA) disregards cannabinoid therapy as a viable treatment for symptoms/conditions with no medical benefits (Brady, 2020). The FDA's standards for approving medications in the U.S. is costly, rigorous, and long, but until there is a more meticulous study on the long-term consequences, side effects, and medicinal uses of cannabis, "then how can these products be considered 'medicinal' in a country that has such an extensive regulatory system to manage medications?" (Brady, 2020, p. 570) As a result, patients ask healthcare professionals about cannabinoid therapy "treatments," but there is no evidence of efficacy, quality control, or side effect warnings (Brady, 2020). States continue to pass medical and recreational cannabis use, and more consumers have access to this substance and self-treat their conditions/symptoms despite the lack of evidence.

As a result of the increasing legalization of recreational and medical cannabis across the United States, more patients are seeking medical advice from primary care physicians and health care professionals (Nussbaum et al., 2011). In one California survey involving 1,746 patients, 82% sought cannabis advice for pain relief, and 71% sought cannabis recommendations as a sleep aid (Reinerman et al., 2011).

Additionally, a survey of Colorado medical marijuana registrants revealed that 94% reported severe pain conditions (Nussbaum et al., 2011). Few patients are educated about cannabis and its therapeutic effects and risks; according to Nussbaum et al. (2011), information about an individual's health is disseminated through unconventional methods, like word of mouth or a non-evidence-based source such as a website or

budtender. The California study found that two-fifths of the patients were new to using cannabis and seeking advice from their primary care physician. At the same time, the rest had already experimented with it recreationally before speaking with a healthcare professional (Nussbaum et al., 2011).

Bottorf et al. (2013) stated that patients do not trust their healthcare providers due to the stigma of cannabis use. Patients looking to open lines of communication with their doctors are often nervous, anxious, uninformed, and hesitant to ask questions, and they challenge their doctors on specific issues (Baker & Watson, 2015).

A mixed methods study surveyed 371 patients in Canada and Australia about their communication and self-perceptions of doctor consultations, and results revealed that medical practitioners who possessed a strong competence in health communication were the best predictor of a patient's eagerness to voice their questions and concerns (Baker & Watson, 2015). Ware and Ziemianski (2015) suggest that "reflection and communication skills to enable meaningful dialogue between practitioner and patient in the context of a *bona fide* relationship deserve attention" (p. 550).

In a more recent study, Herman (2018) reported that out of 237 oncologists in the United States, 80% spoke with their patients about cannabis, but only 30% of these specialists felt that they had a sufficient amount of cannabis knowledge to advise them. More frequently, patients are advocating for their own health regarding cannabis recommendations. Even when patients participate in medical cannabis programs, the lack of integration into the healthcare system is problematic (Reed et al., 2022). In an article titled "A Failure to Guide: Patient Experiences within a State-Run Cannabis Program in Pennsylvania, United States, Substance Use & Misuse," researchers interviewed

frustrated consumers and noticed two central themes, no overarching education about medical cannabis use and inconsistent supply of cannabis products (Reed et al., 2022).

This literature indicates that consumers continue to use cannabis despite the lack of medical advice, which creates a necessity for healthcare professionals to obtain quality cannabinoid therapy and ECS education. However, the lack of research has contributed to the widespread reluctance of accredited continuing medical education.

Cannabinoid Therapy and Endocannabinoid System Research

Many healthcare professionals cite the lack of cannabinoid therapy and endocannabinoid system research as a primary reason for not knowing about this plant. As mentioned earlier, one of the challenges of studying cannabis is its Schedule 1 status. Cooper et al. (2021) reviewed the layer of barriers to research, and one challenge that slows down the process is the inability of researchers to access cannabis products that are legal in their state; federal laws and bureaucracy make it cumbersome and expensive (Cooper et al., 2021).

Clinical researchers face regulatory speed bumps when new products and administration methods surface on dispensary shelves; they struggle to keep up with the demand for studies focused on effectiveness and safety (Cooper et al., 2021). "Researchers must work tirelessly through institutional, regulatory, funding, and drug supply hurdles, all of which significantly influence the scientific impact, public health relevancy, and efficiency of investigations" (Cooper et al., 2021, p. 116). As a result, these barriers dissuade researchers from working in this area. Additionally, the biggest hurdle to research is funding options limited to small state-funded research, private philanthropy, and foundation support (Cooper et al., 2021). Cooper et al. (2021)

statement sums it up best: "With widespread availability of novel cannabis and cannabis-based products, there is an urgent need to understand their safety and potential effectiveness for medical indications" (p. 121).

In the most comprehensive book to date that the National Academies of Sciences, Engineering, and Medicine (2017) published about the current state of evidence and recommendations for research, every chapter in the table of contents that addresses specific health conditions contains a section titled "Research Gaps." The FDA Schedule 1 drug classification hinders cannabis research and study initiatives (NASEM, 2017). Due to the limitations for which cannabis can be studied in a gold standard, randomized, double-blind, placebo-controlled clinical trial, there are limitations to generalizing outcomes and scarce evidence to support widespread conclusions and therapeutic effects (NASEM, 2017).

Observational studies and anecdotal accounts contribute to the body of research but do not necessarily meet the gold standard of medicine that many doctors abide by (Colorado University School of Medicine, 2016). Additionally, federal laws prevent universities and academic research institutions from proposing cannabis studies (Colorado University School of Medicine, 2016). The NIDA Drug Supply Program is the only platform in the United States to administer, approve, and supply cannabis for research purposes; since 1968, all cannabis substances must be cultivated and sourced from the University of Mississippi (NASEM, 2017). As a result, the authors conclude how difficult it is "for researchers to gain access to the quantity, quality, and type of cannabis product necessary to address specific research questions on the health effects of

cannabis use (NASEM, 2017, p. 384). Again, research is limited due to funding barriers (NASEM, 2017).

The National Institute of Health is typically responsible for most health research initiatives, and currently approved cannabis research focuses on substance abuse and adverse health effects, not therapeutic health benefits; therefore, various funders are required to support cannabis research (NASEM, 2017). This limited cannabis research ultimately affects the ability to develop evidence-based policies; doctors consequently are hesitant to advise patients, and patients are uninformed about potential treatment opportunities (NASEM, 2017).

On the contrary, literature shows that recent federal government decisions, congress, and the FDA are pursuing state and nongovernmental partners in understanding cannabinoid therapy; they are interested in supporting the scientific evaluation of cannabis to protect consumers and learn more about the health benefits (Cooper et al., 2021). Researchers in this field are optimistic that these quick changes in oversight and policies will reduce regulatory barriers for future studies (Cooper et al., 2021). Additionally, there is an increase in state funding, specifically for CBD studies (Cooper et al., 2021). Even though clinical research in this field is challenging, strong national and international research collaborations are occurring (Cooper et al., 2021).

Healthcare Professionals Lack of Cannabis Knowledge

As early as 1989, Linn et al. published a study about doctors' attitudes toward cannabis legalization in Los Angeles, California; results indicated that of 303 practicing physicians, 41% believed medical marijuana should be legalized. Twenty-six years later,

in 2015, 61% of the public favored legalization, and 68% of United States physicians supported legalized cannabis (SERMO, 2015).

A growing number of patients and healthcare professionals favor cannabis legalization, lifting research restrictions. However, in 2013, 46% of 520 Colorado family physicians responded in a survey indicating that they did not support physicians recommending medical marijuana due to the lack of evidence-based research, knowledge, and already known health risks (Kondrad & Reid). In the same study, 81% agreed that doctors should be equipped with traditional education initiatives, formal training, and continuing medical education opportunities (Kondrad & Reid, 2013). Healthcare professionals continue to be unprepared and, therefore, unwilling to recommend cannabis, but they do feel that it is necessary to engage in educational opportunities to advise their patients best (Kondrad & Reid, 2013).

Rubin (2017) states that less than 1% of Florida's physicians have pursued continuing medical education courses in cannabis; most are worried about losing their medical license to prescribe and practice. Additionally, few medical schools address cannabis topics and implications for therapeutic benefits, leaving it out of their curriculum altogether (Rubin, 2017). The Association of American Medical Colleges (AAMC) Curriculum Inventory database shows that only 9% of medical school curricula nationwide include instruction on medical marijuana (Evanoff et al., 2017). Most medical students want to learn more about medical cannabis despite their lack of preparation and experience. In a study conducted in 2020 of medical students at the George Washington University School of Medicine, 60% of participants said they had no official instruction on cannabis, while 77.2% thought there should be (Benavides et al., 2020). Most students

said they were "not at all prepared" to advise patients about the risks or benefits of cannabis (Benavides et al., 2020). In addition to medical students, a survey of pharmacy students revealed that around 80% of respondents thought the subject of medical cannabis should be included in the existing curricula (Caliguri et al., 2018). This pervasive lack of readiness reflects medical schools' inability to adjust to shifting regulations and marijuana culture.

A Canadian assessment survey of 426 physicians reported that the most significant gaps in cannabis knowledge are around the following: development of treatment plans, comparisons between cannabis and existing prescription cannabinoids, dosing, and overall risks and benefits (Ziemianski et al., 2015). Ultimately, a qualitative narrative analysis by Zolotov et al. (2018) from Israel captures the dilemma best:

> Physicians emphasized the lack of scientific evidence of medical cannabis and lack of standardization as main strategies for creating a narrative of cannabis as non-medicine, and they used the narrative environment of conventional medicine as a dominant ground to exclude cannabis from the boundaries of medicine. (p. 8)

Physicians lack the tools, resources, and evidence-based research to best advise their patients on cannabinoid therapy.

A cross-sectional study surveyed Denver, Colorado pharmacists, and findings suggested that even though they noticed increased cannabis use among customers, most pharmacists are not talking to individuals about their use or consumption (Shea, 2020). There were 51 pharmacists in the study; 53% were confident in responding to their patient's questions about medical cannabis, and 41% were confident in talking about recreational cannabis (Shea, 2020). They assert that continuing medical education is the key to helping patients access evidence-based factual information (Shea, 2020).

Healthcare professionals' attitude toward cannabis is still mixed, but they mostly lack the knowledge and education to discuss it with their patients effectively and clinically (Rubin, 2017).

Shortcomings of Continuing Medical Education in Cannabinoid Therapy and ECS

There continues to be a shortage of accredited, quality continuing medical education for healthcare professionals in the United States. Chapter 16 of *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research* is titled "Recommendations to Support and Improve the Cannabis Research Agenda" (NASEM, 2017). The authors summarized a list of goals and conclusions they recommend researchers pursue to deepen the existing body of knowledge around cannabis. One suggested plan under Public Health and Public Safety Research states, "Identify gaps in the cannabis-related knowledge and skills of health care and public health professionals, and assess the need for, and performance of, continuing education programs that address these gaps (NASEM, 2017, p. 397). There are limitations in crafting cannabis curricula and instruction due to federal laws restricting clinical research to guide knowledge and understanding. Ware and Ziemianski (2015) state,

> The existence and physiological role of the endocannabinoid system provides a substrate for understanding cannabinoids and their effects; it is remarkable that despite over two decades of emerging knowledge of this important, system, it remains largely untaught in undergraduate pharmacological curricula. (p. 550)

Rubin (2017) describes the frustrations and challenges of current healthcare professionals pursuing CME courses in cannabis; after taking a required eight-hour course overseen by the Florida Medical Association and passing the final exam, one physician recalled not feeling sufficiently prepared with the necessary knowledge to advise his patients seeking

cannabis recommendations. Online CME courses scratch the surface and are merely a hoop physicians must jump through to recommend cannabis to their patients (Ware & Ziemianski, 2015).

A comprehensive systematic review investigating healthcare professionals' knowledge of cannabinoid therapy reported their strong yearning for more formal education, especially in professional development curricula (Gardiner et al., 2019). Generally speaking, Canadian physicians would feel more confident if formal, traditional cannabinoid therapy education was available; consequently, some participants reported using news, media, and internet sites as sources to advise medical evaluations (Gardiner et al., 2019). Self-reported cannabis knowledge was admittingly poor, and healthcare professionals wanted more educational opportunities and accessible, reliable information (Gardiner et al., 2019).

In a Canadian survey with 76 participants, medical students were disappointed with their cannabinoid therapy and ECS instruction and desired more training to confidently discuss cannabis with their patients (St. Pierre et al., 2020). Most students surveyed wanted more applicable treatment plans and a stronger understanding of the risks and benefits (St. Pierre et al., 2020). Subsequently, students reported a disconnect between the education they received and the needs of their patients; however, improving their education directly supports the standard of care for their patients (St. Pierre et al., 2020).

A cross-sectional mixed-mode survey with 57 healthcare professionals was conducted in Washington State; 58% reported that they lacked the knowledge and skills to provide cannabis recommendations (Kaplan et al., 2019). The researcher calls for standardized education to guarantee that healthcare professionals are well-versed in the risks and

benefits of cannabis (Kaplan et al., 2019). Schmitz & Richert (2020) explain that pharmacists can play an integral role in patients' health by discussing safety, pharmacology, pharmacokinetics, and drug-to-drug interactions. An additional study that surveyed Ohio pharmacy students about cannabis captured the same resounding rhetoric: more education is needed to advise clients on cannabinoid therapy (Berlekamp et al., 2019). Incorporating cannabis in pharmacy school curricula will help future pharmacists to be inclusive of all patient populations:

> It is pertinent that the traditional pharmacy curriculum adjusts to clinical developments to prepare students to practice competently. The real-life applicability and education about medical cannabis is important to student pharmacists, especially for those primarily interested in caring for the older population. (Raghavan, 2019, p. 220)

Johnston & Vanderdah (2020) identify that budtenders are becoming the preferred advisors to consumers. One approach is to start early in undergraduate school programs; for example, Northern Michigan University offers a major in medicinal plant chemistry (Berman, 2018). Universities have shown interest in pursuing more cannabis research and educational initiatives, but fear of losing federal funding impedes this decision-making (Berman, 2018). Corroon et al. (2019) suggest that a self-generating community standard of practice may develop due to the lack of formal clinical standards, which is a strong cry for more evidence-based quality training.

An informative anonymous online survey in 2018 captured the levels of cannabis-specific education of 171 respondents (Szaflarski, 2020). Participants lacked basic knowledge about cannabinoid therapy, which prompts the need to weave cannabis education through medical programs for all healthcare professionals (Szaflarski, 2020).

Szaflarski's recommendations for potential healthcare professional education initiatives are the following:

> Future efforts should focus on the development of curricula for health professional schools, specialty training (e.g., board exams), and continuous education programs. In addition, further research using diverse designs, including qualitative/mixed-is recommended to guide educational, clinical, and health system interventions. (2020, p. 5)

Since many healthcare providers lack the education to advise their patients on specific cannabis products and dosing, consumers are left to their own devices to figure it out (Szaflarski, 2020). It is imperative that educational opportunities assist healthcare professionals in their quest to mitigate harm and maximize health benefits (Szaflarski, 2020).

Summary

Since the FDA classifies cannabis as a Schedule 1 drug, there are many limitations and restrictions to fostering robust curriculum and instruction initiatives for healthcare professionals due to the lack of credible gold-standard research outcomes. While an increasing number of patients are seeking medical advice from their physicians, few healthcare professionals are equipped with the tools, resources, and educational support to recommend cannabis to their patients.

The themes identified in this literature review support the need for this phenomenological study about the lived experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS). Furthermore, by unearthing how experts acquired their knowledge and ability to advise patients confidently, it was possible to inform the curriculum using Schwab's "Five Commonplaces" framework as a conceptual lens. By applying a universal perspective to

these experts' everyday practices, there is potential to fill the CME gaps and develop meaningful educational opportunities. A resounding pattern in the literature suggests healthcare professionals want access to cannabinoid therapy and ECS education to advise their patients better.

Chapter Three: Method

Research Questions & Rationale for Qualitative Research

This phenomenological research study aimed to investigate how healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system developed proficiency in a field that lacks formal and traditional medical training. These experts advise patients seeking cannabis advice using practical and effective approaches. Phenomenology is the most applicable qualitative approach capable of exploring the nature and essence of these experts; it is a methodology that can capture a comprehensive description and make sense of the experts' lived experiences. This inquiry seeks to understand the central phenomenon, the processes by which an established healthcare professional acquires practical medical cannabis knowledge and expertise.

In this study, the phenomenological approach was the best vehicle to systematically characterize, outline and organize the collected data so that I could best learn from the experiences of expert healthcare professionals. The conceptual framework, Joseph Schwab's "Five Commonplaces" was the lens used to make meaningful relationships with the data collected; the data fulfilled the purpose of the lived experiences, which manifested through themes and the clustering of similar statements in meaning to develop textural descriptions. The composite description addressed the research questions, all while using the conceptual framework as an avenue for interpretation and understanding of the healthcare professionals' lived experiences.

In the following sections, I rationalize why a qualitative research method approach, specifically phenomenology, and transcendental phenomenology, was the most relevant methodology for this study. Then I describe my role in the context of this study, followed by a detailed description of the data collection and analysis. I will address the rigor, validation, credibility measures, ethical considerations, and research limitations.

To support the rationale for choosing a qualitative method, it is important to recall the following research questions for this study:

- What is the lived experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS)?
- How did healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS) acquire the expert knowledge and experience to advise best those patients seeking medical cannabis advice in the United States?
- What guidance do healthcare professionals, specializing in cannabinoid therapy and the endocannabinoid system (ECS) offer regarding the professional development of healthcare professionals?
- How can the practical knowledge from expert cannabis healthcare professionals impact curriculum development, deliberation, and inquiry?

Based on the nature of the questions, a qualitative approach was an appropriate methodology for this research study. A qualitative study captured the first-person perspective elevating the insight and lived perspective as opposed to a quantitative

approach that analyzes the significance of encounters and narratives using numbers and frequencies (Adler, 1990).

Data collected from each individual promoted the visibility of variation within people and between peoples' experiences by empowering each participant's subjective voice and the sample's collective voices (Creswell, 2013). Qualitative methods present a unique medium for describing and interpreting participants' views, thoughts, and reactions (Creswell, 2013). Additionally, it captured the exceptional human experience through first-person narratives via interviews and conversations. Creswell (2013) points out, "The logic that the qualitative researcher follows is inductive, from the ground up, rather than handed down entirely from a theory or from the perspectives of the inquirer" (p. 22). This research study recorded the experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system; through inquiry, dialogue, and data collection, it was possible to use inductive and deductive analysis to ascertain emerging themes.

Meaning, interpretation, and making sense of the participant's lived experiences are imperative to this qualitative approach. First-person conversations and interviews explained how these experts acquired their proficiency; also, their accounts offered insight into future professional and curriculum development for novice healthcare professionals seeking best practices.

Phenomenology

Phenomenology was the best approach to capture the lived experience of healthcare professionals because it allowed me to interpret and attribute meaning to their narratives.

The methodology supported rich accounts and in-depth exploration of the participant's lived experience. Edmund Husserl developed the research process known as phenomenology, determined to explain a philosophical method that differed from the natural sciences, shedding light on the experiences of conscious objects (Christensen et al., 2017). Phenomenology originates from the Greek word, 'phainein,' trying to unearth the truth and capture the phenomenon in the form in which it appears as it reveals itself to the consciousness of the person who experiences it (Christensen et al., 2017).

Essentially, the phenomenological approach attempts to accentuate the meaning of the lived experience. Husserl emphasized the descriptions of real life to embrace the phenomena's raw essence or how it was experienced, pioneering the way for descriptive phenomenology as a scientific research method (Christensen et al., 2017).

Stolz (2020) states that phenomenology in educational research literature has become more popular since it relies on creating insight by analyzing the lived experiences of students and educators in academic settings through first-person interviews. Additionally, Creswell (2013) describes phenomenology as an investigation of shared lived experiences among a group of individuals. What did all the participants experiencing this phenomenon have in common? What did they experience, and how did they experience it? Moreover, it attempts to unearth the underlying shared essence and the collective expressed meaning for participants who have undergone the same phenomenon (Creswell, 2013).

Phenomenology allows for synthesizing information from multiple subjective sources and seeks to develop a consistent and well-developed conjoint description of an

experience (Creswell, 2013). Phenomenology has been applied within various fields, including social sciences, education, and the health sciences (Creswell, 2013). Creswell points out that interviewing individuals with a shared common experience is essential for developing practices and policies about the phenomenon's characteristics (Creswell, 2013). A sense of validity is attached to a lived experience; Keshtiaray et al. (2012) explain phenomenology in the educational setting:

> The aim is to recognize individual experience and attend to the teaching and learning processes from the learners' perspective to understand something by which it would be possible to increase the curricular influenceability index in learners. This, in itself is a basic step in promoting the pedagogical process. (p. 3157)

Developing curriculum is more than just analyzing data and facts; it is best collected from the real world, first-hand experiences, and individual nuances.

Transcendental Phenomenology

This research study used a transcendental phenomenological approach to procure an unbiased description of the raw data (Phillips-Pula et al., 2011). Before and during the analysis, I bracketed my personal bias, which explains why this specific method is capable of analyzing the lived experience of healthcare professionals as they appear or consciously experienced, free of theories (Phillips-Pula et al., 2011). Also, this approach is unique in supporting healthcare professionals' education so that others can learn from the experiences of experts (Phillips-Pula et al., 2011).

This research study used the transcendental phenomenology framework outlined by Clark Moustakas (1994) but grounded in Edmund Husserl's principles; Moustakas describes this as examining the lived experience carefully with fresh eyes and an open mind, obtaining new knowledge resulting from the essence of the participants'

experiences (Moustakas, 1994). By reducing the bias and judgment before the data collection process, the researcher can view information as it exists in its pureness and natural existence (Moustakas, 1994). Describing experiences as they are, unscathed by outside influences, is the absolute reality (Moustakas, 1994).

The detailed steps of this framework are outlined in the proposed data analysis section in this chapter and rely on systematic steps. According to the definition, this approach focuses less on my interpretations and more on describing the participants' lived experiences by perceiving their accounts with a fresh lens (Creswell, 2013).

Researcher in this Context

Self-identification: I have been working in education for two decades and am currently a curriculum and instruction doctoral student and researcher. I moved to Colorado with my husband in 2014 so that he could work in a cannabidiol (CBD) startup company known now as Charlotte's Web□; at the same time, the Realm of Caring (RoC), an independent 501(c)3 nonprofit originated in 2013 by two mothers, Paige Figi and Heather Jackson, whose children had intractable epilepsy. As mentioned in Chapter 1, Figi and Jackson received several inquiries from families seeking cannabinoid therapy help from around the world after Dr. Sanjay Gupta's "Weed" documentary aired on CNN in 2013. The mothers recognized the need to create a formal organization to not only collect research and data on individuals using cannabis products but also to educate and advocate about this often-misunderstood form of therapy. Ultimately, they promote education and mainstream acceptance with individuals, families, communities, and healthcare professionals.

In the Fall Quarter of 2017, I partnered with the Realm of Caring for an eight-week project in a Community-Based Research class with Dr. Nick Cutforth while at the University of Denver. I applied my curriculum and instruction skillset to the organization as a whole. I developed tangible items like a curriculum map, original content, infographics, and a draft for cannabis learning standards for continuing medical education courses. As a result, I continued to intern with the organization until I finished my coursework in the Spring of 2018 and was subsequently hired as the Education Director in June. I continued to work in this position overseeing the evidence-based content and valid research for educational materials, curriculum, conferences/presentations, certification, and credentialing programs. I now contribute to the organization as a Board Member, overseeing multiple aspects and big-picture decisions. Because of the RoC's credibility and longevity in the cannabis domain, it has access to principal healthcare professionals who are experts in cannabinoid therapy research and practice.

It is my personal commitment to advance the development of cannabinoid therapy education, and it supports my intentions to pursue this research study. Specifically, with the increase of cannabis legalization worldwide, RoC has witnessed a demand from consumers who want advice from healthcare professionals about cannabinoid therapy. The increased educational efforts of healthcare professionals would mitigate misinformation and public health crises.

Data Collection

Setting

I intended to complete the interviews with the participants in person, but due to COVID limitations, financial constraints, and the geographic sprawl of the research population, video conferencing was the most practical approach. The COVID-19 pandemic encouraged workers to stay at home and rely on video conferencing to communicate; this trend will likely continue into 2024 (Karl et al., 2021). According to Deakin & Wakefield (2014), there are potential complications with video conferencing, including technical issues or the inability to observe and record verbal and non-verbal communication; additionally, developing rapport with the participants may be more difficult when using a video recording device versus in-person. Video-conferencing fatigue is another challenge; if participants have many online meetings on the day of the interview, then their attention and energy levels could be compromised (Karl et al., 2021).

On the contrary, video conference interviews have benefits as well. They increased my ability to schedule and finalize meeting times with participants and expanded participation from expert healthcare professionals outside of Denver (Deakin & Wakefield, 2014). I ensured my office was quiet, secure, and private without distractions (Warren & Karner, 2010). Even though there are several video conferencing platforms, Zoom, a popular cloud-based video communications application, was used for face-to-face interviews with participants. The platform is compatible with Mac, Windows, Linux, iOS, and Android, meaning nearly anyone can access it. Zoom users can record their

meetings using the video conference tool; however, I used one additional audio recording device during the interview as a backup document to ensure eventual transcriptions. Once the recordings started on both devices, I announced the interview's date, location, and setting and all aspects related to the environment in which these interviews were being conducted (Warren & Karner, 2010).

Participants

The most crucial facet of a phenomenological study is interviewing participants with the same lived experience, which in this case are healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS). Communicating their journey made it possible to capture commonalities and identify themes and the all-encompassing substance of the participants' experiences (Creswell, 2013).

Various researchers suggest different sample sizes; this study attempted between 5 to 10 expert healthcare professionals. A total of six were included in this study. According to Moustakas (1994), there are no precursory criteria for choosing participants other than guaranteeing the participants have experienced the phenomenon, is curious about the phenomenon being researched, is keen to participate in at least two extensive video recorded interview and potentially a follow-up interview that will be published in a dissertation and other publications. Purposeful sampling was implemented for participant selection due to the specific nature of examining the experiences of healthcare professionals who are experts in cannabinoid therapy and the ECS. In order to stress the importance of the shared experience, criterion sampling was used because it requires the participants to meet specified criteria; this narrow emphasis enabled the phenomenon to

be analyzed in more depth (Cohen & Crabtree, 2006). Additionally, criterion sampling is practical for information-rich narratives and seeks a path to improve weak and problematic systems, like the educational gaps for healthcare professionals seeking expert knowledge in cannabinoid therapy and the ECS (Cohen & Crabtree, 2006). Even though there was some variability in terms of age, location, race, religion, ethnicity, gender, and political factors, it was recommended to include a sample that is somewhat homogeneous to extract meaningful information regarding the phenomenon in question (Moustakas, 1994).

The criteria specified in Appendix A will was used to sample potential participants, which include: state-certified or licensed healthcare professionals in the U.S. that are deemed experts in cannabinoid therapy and the ECS, facilitate continuing medical education classes/seminars that meet Accreditation Council for Continuing Medical Education (ACCME) standards in cannabinoid therapy and the ECS, author or co-author peer-reviewed journal publications on cannabinoid therapy and ECS, actively practice medicine with patients seeking cannabinoid therapy advice, are open and willing to share their personal opinions and experiences in one or more interviews, and able to understand and fluently speak English (Creswell, 2013).

These characteristics were vital to the study and pertinent to answering the research questions because the experts possess the acquired, practical knowledge learned outside of traditional medical school and CME courses. These experts spent years building a foundation for understanding cannabinoid therapy and the ECS; as a result, they have led accredited classes, published articles and books, and continue to help patients.

Additionally, it is important to identify the term expert in this context. Shanteau et al. (2022) investigates how an individual with a specific skill or knowledge in a specialized field is an expert since there is no gold standard evaluation process or an acceptable knowledge technique; in other words, how do we determine expertise without an external standard? In this study, experts possess more knowledge in cannabinoid therapy and the ECS based on their professional experiences, publications, notoriety, accolades, and peer identification (Shanteau, 2022).

The criteria specified in Appendix A guided the recruitment of potential participants. The benchmarks helped identify experts who would contribute vital insight to the study because they cultivated practical knowledge about cannabinoid therapy that was developed outside of traditional medical school and CME courses. It was important to pinpoint professionals who spent years building a foundation for understanding cannabinoid therapy and the ECS; as a result, they have led accredited classes, published articles and books, and continue to help patients. Four healthcare professionals I recruited for the study met all the criteria but declined to be interviewed due to a lack of time and bandwidth in their schedules. Table 1 identifies the participants that met the criteria for the study and includes general comments. All but one participant met the criteria but was still considered an expert, given his time in a cannabis-focused medical clinic attending solely to patients seeking cannabinoid therapy advice.

Of the participants, five were well-known from conferences, publications, and general notability in cannabinoid therapy medicine. All the participants were recommended by Realm of Caring, a nonprofit that advocates for cannabinoid therapy education and

Table 1: Participant Criteria

Criteria	Mary (female)	Jennifer (female)	Kate (female)	Gary (male)	Henry (male)	Michael (male)
State-certified, state-licensed healthcare professional in the United States	yes	yes	yes	yes	yes	yes
Considered an expert in cannabinoid therapy and the ECS	yes	yes	yes	yes	yes	yes
Facilitates continuing medical education classes/seminars in cannabinoid therapy and the ECS that are ACCME approved	yes	yes	yes	not ACCME approved	yes	yes
Author or co-author peer-reviewed journal publications on cannabinoid therapy and ECS	yes	yes	yes	Not peer-reviewed	yes	yes
Actively practicing healthcare professional with patients seeking cannabinoid therapy advice	yes	yes	yes	yes	yes	yes
All participants: understand and speak fluent English, were interested in the phenomenon being researched, were willing to participate in a video-recorded interview, were open to sharing personal opinions and experiences in one interview or more.						
The nonprofit, Realm of Caring recommended all participants, which considered these healthcare professionals to be experts in cannabinoid therapy and the ECS.						
After four recruits who met all the criteria declined to participate in the study, I included one lacking two criteria but still was highly knowledgeable based on his time in the practice that focused solely on cannabinoid therapy. During that time, he studied the topic to exhaustion and saw hundreds of patients specifically seeking cannabinoid therapy advice.						

research for healthcare practitioners, consumers/caregivers, and industry affiliates. They are healthcare professionals that have presented at multiple scientific cannabis conferences and are well-known in the field. The participants were a homogenous sample of healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS). They experienced the phenomenon and provided insight into how they acquired expert knowledge to best advise patients seeking cannabinoid therapy advice. Additionally, they contributed guidance for professional development for novice healthcare professionals as well as practical knowledge and advancements to curriculum development in cannabinoid therapy and ECS education.

Interview Protocol Refinement (IPR) Framework

Once experts agreed to participate in the research study and sign the consent form, I respected a semi-structured interview plan following the interview protocol refinement (IPR) framework, a four-layered process that thoroughly aligns this study's components with the interview questions and conversation (Castillo-Montoya, 2016).

> The interview protocol framework is comprised of four phases: Phase 1: Ensuring interview questions align with research questions, Phase 2: Constructing an inquiry-based conversation, Phase 3: Receiving feedback on interview protocols, Phase 4: Piloting the interview protocol…Combined, these four phases offer a systematic framework for developing a well-vetted interview protocol that can help a researcher obtain robust and detailed interview data necessary to address research questions. (Castillo-Montoya, 2016, p. 812)

In phase 1, the interview questions in the interview protocol (see Appendix E) aligned with the research questions to ensure the purpose of the study while adhering to a plan and objective. The questions intended to extract the experiences of these healthcare professional experts through intentional conversation. A matrix chart ensures that the

questions being asked align with specific research questions to minimize repetition and ensure that each research question is being addressed (see Appendix F).

In phase 2, the interview questions provoked curious conversation, gaining an understanding of the participant's lived experience in becoming experts in cannabinoid therapy and the ECS. The researcher used charisma and rapport to engage with the participant to give insight into the research being studied (Castillo-Montoya, 2016). Castillo-Montoya (2016) suggests using four types of questions to maintain the inquiry-based conversation rolling: introductory questions, transition questions, essential questions, and closing questions. The interview questions for this study were embedded in a script in sequential order so that the researcher transitions seamlessly and maintains focus (see Appendix F).

Phase 3 is accepting critique on the interview protocol through close reading to enrich the reliability and accuracy of the aligned research and interview questions (Castillo-Montoya, 2016). The interview protocol was vetted by one colleague from the Realm of Caring. They examined the type of questions, the number of questions, the vernacular, and their understanding of what was being asked; the outsiders provided insight into how participants would respond and grasp what they were asked (Castillo-Montoya, 2016). After this, the protocol's questions, language, and structure were slightly modified due to my colleague's feedback.

Lastly, phase 4 was to test the questions in a mock interview with a similar background to those I planned on interviewing for this study (Castillo-Montoya, 2016). I practiced the polished interview protocol with the Realm of Caring's Head of Care Team,

Steve Bond. This final phase allowed me to test the questions under real conditions, evaluate the process, and obtain objective insight from Steve.

The interview protocol refinement (IPR) framework provided a structure for a novice researcher like myself to be prepared for semi-structured interviews; however, it was necessary to remember the following advice: "The interview protocol is a research instrument, but in qualitative research, the most useful instrument is the researcher" (Castillo-Montoya, 2016, p. 828).

Procedures

This section addresses how the data was collected. Once IRB was approved on June 10, 2022, I identified healthcare professionals who are experts in cannabinoid therapy and the ECS using the criteria in Appendix A. I received recommendations from the Realm of Caring, and I reached out to individual healthcare professionals via email using the recruitment form letter (see Appendix B). The recruitment email introduced the researcher, the purpose of the study, participant criteria, voluntary participation, interview details, and compensation. Signatures were obtained and completed using a secure electronic signature. Within the recruitment email was an embedded Qualtrics link, an invitation that allowed the individual to electronically sign the consent form for the research study on a secure site. (see Appendix D). The participant received an electronic copy of the signed informed consent form for their records via email. I offered participants the opportunity to receive the interview protocols before each interview, but no one requested it (see Appendix E). When the individual replied to my email confirming they would like to participate in the study, I checked to see if they had

electronically signed the consent form in Qualtrics. I followed up with those individuals to ensure they signed it. All the participants signed the electronic consent form. I asked participants for days and times that worked for their schedules. The interviews were completed through Zoom video conferences due to financial constraints and the geographical sprawl of the research population. The video conferences increased my recruiting pool to interview experts outside of Colorado and offered the flexibility to schedule and finalize meeting times with participants. Once we agreed on a window, individuals received a calendar invite via email with a Zoom link sent through the University of Denver.

While waiting for the participants' scheduling confirmation, I followed the semi-structured interview plan following the interview protocol refinement (IPR) framework (Castillo-Montoya, 2016). I implemented phases 3 and 4 of the IPR framework, consisting of receiving feedback on interview protocols and piloting the interview protocol (Castillo-Montoya, 2016). I conferred with one colleague from the Realm of Caring about critiquing the interview protocol in Appendix E. As we discussed the questions, they understood what was being asked and re-considered some of the repetitive questions. I removed one question as it was very similar to a previous one and, therefore, redundant. My colleagues deemed that the questions were easy to understand and straightforward.

Lastly, I implemented phase 4, a mock interview with a similar background to those I plan on interviewing for this study (Castillo-Montoya, 2016). I intended to interview the Realm of Caring's Director of Research, Matthew X. Lowe, Ph.D., but worked with

another seasoned colleague in the organization, Steve Bond. Although not a licensed healthcare professional, his knowledge and experience provided honest feedback about questions under actual conditions; this allowed me to evaluate the questions themselves, the flow of the conversation, and the time allotment. I kept the questions the same since they aligned well with the research questions and procured strong responses about the lived experience as a cannabinoid therapy expert. I adjusted the order of a few questions so that the flow of the questions and conversation was more sequential when addressing the expert's professional experience.

Initially, I planned on requiring two 60-minute interview sessions with each participant. After careful deliberation during this exercise with Steve, I captured the necessary data points in one hour, ten minutes. One 60-75-minute interview would increase participation due to these individuals' busy schedules. There would also be less of an interruption to the flow of conversation if all the questions were addressed in one session instead of two. I changed the recruitment email and requested one 60-75-minute interview session as opposed to two 60-minute interview sessions. During the mock interview, there was plenty of time to address all the questions and follow up at the end with any comments and lingering questions. In hindsight, this change was respectful of the participants' time, and I still captured the necessary data points; this also might have increased participation since time was a factor in why four experts declined to participate. The duration of each of the six interviews is identified in Table 2.

Table 2: Interview Times for Participants

	Mary	Jennifer	Michael	Kate	Gary	Henry

Interview Date	7/18/22	7/22/22	8/26/22	8/30/22	9/14/22	9/29/22
Interview Duration	1 hour 21 minutes	1 hour 30 minutes	1 hour 6 minutes	1 hour 8 minutes	55 minutes	1 hour 50 minutes
Average Interview Time for Participants: 1 hour 18 minutes						

The location for the six face-to-face video conferences via Zoom was in my home office on my personal laptop computer. The site was quiet, secure, and private, with no distractions. I used an additional digital voice recording device during the interview as a backup document to ensure transcriptions. Once the recordings began on both devices, I read through the script (see Appendix F) and followed the semi-structured interview plan adhering to the interview protocol refinement (IPR) framework (Castillo-Montoya, 2016). I asked one question at a time, listened, and encouraged responses with head nods and gestures. There were opportunities at the end for follow-up questions and if the participant had any questions for me. I felt like I built rapport and trust with each participant. For my benefit, I took hand-written notes after the completion of each interview and documented post-interview researcher notes that captured my thoughts, insights, feelings, reactions, and actions during and after the conversation (Creswell, 2013).

After each interview, I thanked the participants for taking the time to participate in the study. All participants received an electronic Visa gift card for $100. I did not hear

back from any of the participants about follow-up questions or additional comments, thoughts, or insights regarding the study, nor did I have any follow-up questions for the participants.

Data Analysis

The video and audio files collected from each interview were assigned a 9-digit numerical identification number to protect their anonymity. The audio files were then uploaded to an encrypted, speech-to-text transcription service, Rev.com. The transcriptions were organized in Microsoft Word documents, and each participant's interview was saved under the 9-digit numerical identification number on an external hard drive. I listened to each audio recording and corrected errors and mistakes from the transcription service. During this time, I de-identified the transcripts by using pseudonyms to protect the identity of the participants. The Word documents were then uploaded as individual files to Nvivo, a qualitative data analysis software that helps users classify data, organize information, and analyze unstructured data like interviews. Most of the coding process occurred in NVivo, while participants' timelines were handwritten and sketched on poster paper rolls for visual processing.

The transcribed interviews followed Moustakas's (1994) phenomenal analysis, a modified methodology suggested by Stevick (1971), Colaizzi (1973), and Keen (1975). Figure 4 delineates Moustakas's process for data analysis, a structured analytical approach.

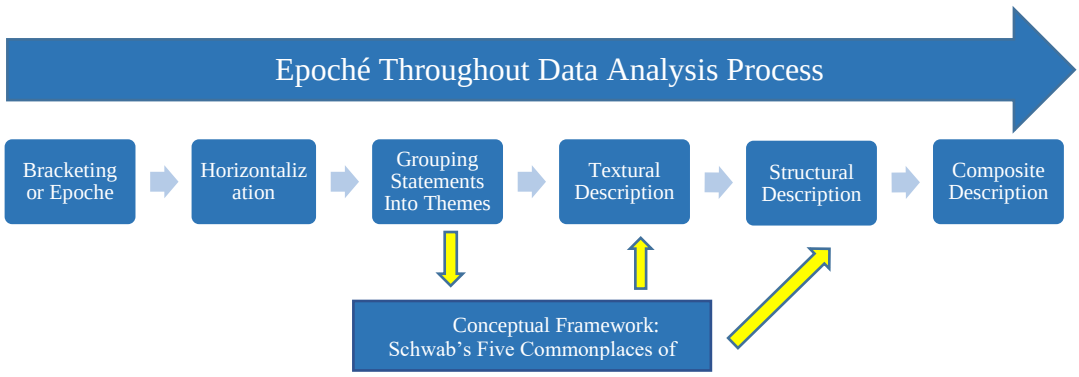

Figure 4: Phenomenological Process Implemented

Bracketing

Initially, I divulged my personal experience with the phenomenon to waive judgment and focus on the participants; this step is known as bracketing or epoché (Moustakas, 2014). Before my first interview, I started a reflexive journal to bracket preconceptions and describe my own experiences and understanding of healthcare professional experts in cannabinoid therapy and the ECS. Initial prejudices are addressed before the data analysis begins, but Tufford & Newman (2010) suggest "they also should be monitored throughout the research endeavor as both a potential source of insight as well as potential obstacles to engagement." (p. 85). The bracketing process elicited my beliefs, values, thoughts, predictions, biases, emotions, presumptions, and assumptions about the phenomenon (Tufford & Newman, 2012). Even though Moustakas discloses that a fresh perspective is seldom achieved, he emphasizes that bracketing helps the researcher surpass their subjective experience, theories, and assumptions to observe and explain the phenomena objectively in a new light (Moustakas, 2014).

I used the journal to reflect on all my unfiltered thoughts; the process was cathartic since it allowed me to purge everything on my mind before and after each interview. It captured insights as well as personal opinions. It was a place where I could surrender my subjectivity to focus on the phenomena objectively. One of my early entries before interviewing was a statement vindicating my partiality towards cannabis:

> There was some bias before this research. I am pro-cannabis and not a skeptic. I believe it works based on my interactions with RoC families and their networks. I've attended conferences and read about positive and successful outcomes in peer-reviewed journal articles. RoC has an observational research registry with John Hopkins, and those data points show statistical significance in many beneficial health categories.

The reflective journal was a critical tool throughout the entire coding process that felt like a diary to expunge all my personal beliefs, thoughts, and feelings about the data, topic, and participants.

Horizontalization

Next, horizontalization allows the researcher to assign each participant's statements an equal value and grooms the data by removing recurring statements and irrelevant points that do not pertain to the research questions (Moustakas, 1994). Moustakas advises considering two questions in this process: "1) Does it contain a moment of the experience that is a necessary and sufficient constituent for understanding it?, 2) Is it possible to abstract and label it?" (Moustakas, 1994, p.121). The horizons that meet these requirements then become known as the invariant constituents (Moustakas, 1994).

I read through the transcription for each interview while listening to the audio recording. I then returned to the transcription in NVivo to start horizontalization: assigning each participant's statements an equal value and grooming the data by removing recurring statements and irrelevant points that do not pertain to the research questions (Moustakas, 1994). I kept statements that contained moments that were necessary constituents for understanding the phenomena (Moustakas, 1994).

Additionally, some statements could be eventually labeled. Here is an example of horizontalization in NVivo, the first step of the phenomenological analysis that recognizes that every statement has equal value; each horizon of the interview adds meaning and provides an increasingly clear portrayal of the expert's lived experiences of the phenomena (Moustakas, 1994).

- "So I would say that it was day in and day out, seeing patients, reading on my own, walking into a dispensary and asking about the products."
- "And then in 2011, when I got that chance to sit in a room and create a program for doctors and just read, read, read, read, read."
- "That was exponential increase in my knowledge. And you've probably heard the statistic that when a paper is published, it takes 17 years to trickle down to a clinician."
- "And I wonder what I wouldn't know now if I didn't have that time in 2011."
- "And what struck me though, and I have to say is that pretty much every report that I read, almost across the board said, safe and well tolerated, very minimal adverse effects."

- "Even animal studies, once we stopped giving it, the animals regained all of their previous behaviors and what not."
- "And we know that from O'Shaughnessy back in the 1800's and from reports from even before that."
- "But that's what gave me the kind of confidence to know, to make sure that I was following my Hippocratic Oath, which was do no harm."

Horizontalization was completed for each of the six interviews. Each experience was then grouped into larger units or themes; therefore, themes are deduced by clustering similar statements (Moustakas, 1994). The clustered theme and meanings were used to develop the textural descriptions of the experience.

Themes, Textural and Structural Descriptions

The six verbatim transcripts were analyzed to determine the relevant significant statements that supported the living narratives or highlights of the experiences. These invariant meanings, constant and unchanging text lines, were clustered into units. Thirty-six invariant constituents emerged, and these were clustered into eight groups shown in Table 3. The units reflect a chronological flow due to the nature of the study and its focus on how these experts acquired advanced knowledge in cannabinoid therapy over time in their careers.

Table 3: Units and Invariant Constituents

Units	
I.	Medical Experience Before Cannabis Expertise A. Medical school, internship, and residency B. Professional career as an attending physician, board-certified and specializations

	C. Private practices, hospitals, clinics D. Conflict, frustration, and burnout with the medical industry
II.	First Inquiry into Cannabis A. Excitement, emotional B. "Ah-ha moment" this plant works with patient(s), improves health outcomes
III.	Transition Period: Becoming an Expert (Acquiring Expertise in Cannabinoid Therapy and ECS) A. Work experience in cannabinoid therapy B. Facing challenges and failures in the cannabis industry while learning C. Learning curve in acquiring knowledge about cannabinoid therapy and ECS D. How participant became an expert 1. Trial and error, learning from patients 2. Reading and consumption of primary research literature 3. Conferences, lectures, discussions, and collaborations with other experts
IV.	Established Expertise, New Paths, and Opportunities A. Work experience in cannabinoid therapy B. Publications and research: books, journal articles C. Public speaking opportunities: conferences, etc. D. Developing original content: hardcopy (books, textbooks, pamphlets, etc.) and digital (video presentations, websites, blogs, social media, etc.) E. Brand development F. Criticism and pushback from peers, society, politicians G. Rewarding experiences with patient outcomes
V.	Advice and Recommendations A. Curriculum planning B. HCPs wanting to learn about cannabinoid therapy & ECS C. Organizing content for educating HCPs D. Reading and consumption of research and literature E. Training, internships, shadowing for HCPs
VI.	Lingering Problems, Barriers, Challenges A. Dispensaries and budtenders: overstepping, misguiding, giving medical advice B. Misinformation about cannabis from unreliable sources C. Lack of medical education: medical schools, CME, etc. D. Pharmaceutical companies E. Lack of research F. Restrictions and fluctuations in federal and state cannabis laws
VII.	Solutions A. Potential future research studies

	B. Evolving laws around cannabis laws and legalization
	C. Widespread acceptance
VIII.	Insightful Reflections and Realizations
	A. Cannabis industry insights
	B. Pharmaceutical companies
	C. Improvements in the cannabis industry, medicine, and research since 2014
	D. Quality of life in patients
	E. Pioneer medicine

The content of the units was funneled through the conceptual framework, Joseph Schwab's "Five Commonplaces." This was a lens to answer the research questions and process the data into textural descriptions. Channeling the groups through the conceptual framework organized the textural descriptions; these are descriptions of what the participants in the study experienced with the phenomenon and consequently laid the foundation for richer narratives. The five individual commonplaces of teachers, learners, subject matter, milieus (contexts), and curriculum making were used to apply a universal perspective to the commonplaces of everyday practice in a specific subject matter like cannabinoid therapy. The descriptions render what happened during the lived experience of healthcare professionals becoming experts in cannabinoid therapy and the ECS.

The structural descriptions explain how the setting and context for each participant happened over time (Moustakas, 1994). I wrote descriptions of each participant's experience, reflecting on the setting and context in which the phenomenon was lived. Figure 5 illustrates how the conceptual lens magnified the need for practical applications and knowledge that emerged from the lived experiences of expert healthcare professionals. The collected data was combed through and organized using these

commonplaces, allowing detailed descriptions to materialize in the next descriptive phase.

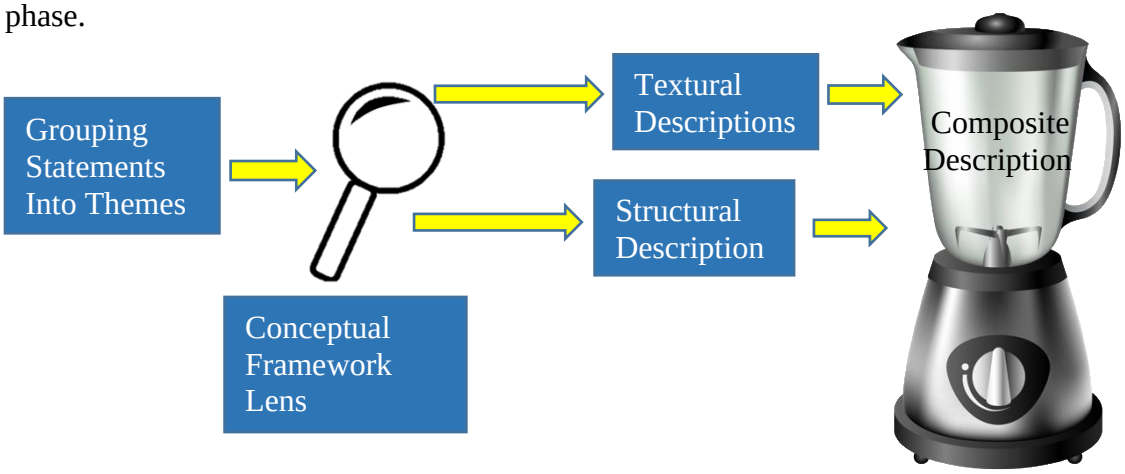

Figure 5: Illustration of Phenomenological Progress

Composite Description

The composite description incorporates both the textural, what the participants experienced, and structural descriptions, how the experiences occurred; it captures the heart of the experiences and embodies the culminating qualities of the phenomenological study (Moustakas, 1994). This longer description integrates all the previous textural and structural accounts into a universal description. It synthesizes the meanings and essences of the phenomenon using Schwab's conceptual framework as a lens (Moustakas, 1994). This synopsis aims to provide an understanding of healthcare professionals' lived experience of becoming experts in cannabinoid therapy and the ECS. The composite description for this study precedes the six textural-structural descriptions of the participants.

Rigor, Validation, Credibility

Cypress (2017) declares, "It is expected that qualitative studies be conducted with extreme rigor because of the potential of subjectivity that is inherent in this type of research." (p. 253). By definition, rigor in qualitative research is critical to ascertain trust and confidence in the research study findings (Cypress, 2017). Precision, exactness, thoroughness, and accuracy are synonymous with the term. To enact rigorous qualitative research, I planned for a sufficient amount of time, care, effort, and diligence to all the processes in this study from beginning to end. Tracy (2010) suggests asking yourself these questions when addressing the rigor of your research:

> Are there enough data to support significant claims? Did the researcher spend enough time to gather interesting and significant data? Is the context or sample appropriate given the goals of the study? Did the researcher use appropriate procedures in terms of field note style, interviewing practices, and analysis procedures? (p. 841)

There was enough data to support the significant claims; many of the statements and experiences from the participants overlapped. The 60–75-minute interview time about a specific lived experience was an ample amount of time. Given the study's goals, the homogenous sample of experts was appropriate since they addressed all the research questions. I used procedures from Moustakas's (1994) data analysis and Castillo-Montoya's (2016) interview protocol refinement framework to ensure that the data collection process was effective, and standards were followed. They did uphold significant and relevant claims (Tracy, 2010). Data collection and analysis were carefully administered and evaluated, strengthening the phenomenological study.

Ethical Considerations

In addition to contributing to a body of knowledge, it was imperative to avoid misconduct and harm, especially when collecting data from human subjects. According to Tracy (2010), ethical practice is one of the criteria for excellent qualitative research; she describes four aspects, procedural ethics (such as human subjects), situational and culturally specific ethics, relational ethics, and exiting ethics (leaving the scene and sharing the research).

Procedural ethics, or categorical, pertains to decisions followed by a larger organization, institution, or governing body like the University of Denver's Institutional Review Board (IRB) (Tracy, 2010). This ensures that researchers are honest and straightforward with all the information and details of the intended research. Harm and deceit must be prevented by the researcher at all costs. The email sent directly to participants contained the details of the study and a consent form; in totality, it addressed the study's ethos, background information, procedures for the interviews, risks, and benefits of the study, measures to ensure privacy, confidentiality, and compensation (see Appendix B, C, & D). It was made clear that this was a voluntary participatory study in which they were not obliged to partake. Participants could have withdrawn from the study at any time.

Additional permission and consent for audio and video recording of the interviews for data collection purposes was reiterated during the recruitment. In order to secure data for this study, I chose a 9-digit numerical identification number for each participant. This number was used to identify all digital data collected from an individual participant in

order to protect anonymity; the disclosed key was locked in my home office filing cabinet. I used a password-protected transcription software program for the video and audio recordings. All digital data (i.e., word documents, recordings, files, etc.) was on my personal computer with updated virus protection and computer passcodes. When this data was not being worked on, it was saved on a password-protected external hard drive. This hard drive was locked in my home office filing cabinet. In the data analysis, I addressed confidentiality concerns using pseudonyms and removed other identifying information from this research project (Tracy, 2010).

The second of the four ethical practices, situational ethics, points to subtle ethical actions that occur within a specific setting or context of the research. In the field, there are unexpected moments when the researcher uses their best judgment to reflect on the ethical considerations in the data collection (Tracy, 2010). Tracy asks the question, "In other words, are the harms of the research practices outweighed by its moral goals?" (2010, p. 847) Even though participant interviews and conversations were unpredictable, I did not encounter a situational ethical crossroads (Tracy, 2010).

The third ethical practice, relational ethics, covers a self-consciousness in which researchers are aware and respectful of their character, actions, and consequences for the individuals and the community (Tracy, 2010). Since the nature of this study was data collection from human subjects, it was important to uphold the mutual relationships, collaboration, and connectedness that emerged from the study's process and also in the published findings (Tracy, 2010). The participants' genuine care, regard, and well-being were at the forefront of the interviews; it was essential to uphold a safe and welcoming

setting that was void of bias, judgment, and anxiety (Tracy, 2010). I established a rapport with the participant before and during the interview(s), conveying a sense of assurance that I was respecting their personal experiences.

Lastly, exiting ethics are the ethical concerns once the data has been analyzed and findings are shared. Even though it is beyond the researcher's control how the reader perceives interviews, it is imperative that the data accurately portrays the individual's experiences through valid narratives that are true to the study's benevolent intentions (Tracy, 2010). I am committed to disseminating accurate information from the participants' collective experience.

Qualitative research is known for smaller sample sizes, and more interviews do not necessarily generate richer data; the number of participants and interviews is up to the researcher's discretion (Oppong, 2013). A small sample size will struggle to support claims or absolute conclusions, and large samples restrict researchers from doing a deep, inductive analysis typical of qualitative research (Oppong, 2013). Phenomenological studies vary in sample size; Creswell (2013) refers to this point, "In phenomenology, I have seen the number of participants range from 1 (Dukes, 1984) up to 325 (Polkinghorne, 1989). Dukes (1984) recommends studying 3 to 10 subjects and one phenomenology, Riemen (1986), studied 10 individuals." (p. 157) This research study's anticipated sample size is 3 to 5 participants.

It is important to address the bias of the Realm of Caring's familiarity with some of the recommended participants. These participants may not represent physicians, which

will be more evident once transcripts are analyzed. This may introduce a slant or bias to the study if all the participants fall under one gender, race, and region.

Lastly, the data analysis in phenomenological research can be viewed as complicated and burdensome. Interpretation can be subjective; therefore, it is important to consciously filter out bias throughout the research process by thinking deliberately about negative and positive connotations associated with statements and generalizations.

Summary

The phenomenological methodology captured the lived experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS). The interviews revealed how healthcare professionals specializing in this medicine acquired the expert knowledge and experience to advise best their patients seeking medical cannabis advice. The data collected addressed the "what" and "how" the participants experienced the phenomenon, ultimately leading to a description and, therefore, a deeper understanding of their common journeys.

Recording this phenomenon contributed to specific recommendations and guidance for the future educational endeavors of healthcare professionals seeking professional development in cannabinoid therapy and the ECS. The data collected from their lived experiences informed practical knowledge and will impact curriculum development, deliberation, and inquiry for novice healthcare professionals seeking expertise.

Chapter Four: Results

Overview

In this chapter, I will begin with a summary of the research project, followed by a description of the participants, data collection, and data analysis process. Section One includes six narratives and a composite description of the phenomenon. Section Two delineates essential themes that were summoned from the data analysis process.

Widespread consumption and unfettered access to cannabis across the U.S. has surpassed the scope of clinical research needed to inform and guide healthcare professionals. There is a lack of knowledge about cannabinoid therapy due to the shortage of supportive data and strong clinical trials, research, training, and educational opportunities. As a result, some public health concerns have surfaced, and misinformation about cannabis is omnipresent.

There are, however, doctors who specialize in medical cannabis and are recognized as experts in the national and international medical field. This research study identifies and captures these experts' understandings, knowledge, and practical applications of medical cannabis. This valuable insight will inform curriculum development and future educational opportunities so that all healthcare professionals have the necessary tools to advise their patients on safe and effective medical cannabis consumption. The conceptual framework, Joseph Schwab's "Five Commonplaces," is a lens for practical curriculum applications for healthcare professionals interested in learning more about cannabinoid

therapy and the ECS. In turn, patients and cannabis consumers would have access to more knowledgeable healthcare professionals and potentially mitigate harm and injury.

This phenomenological study aims to investigate how healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system developed proficiency in a field that lacks formal and traditional medical training. Phenomenology covers a comprehensive description of the experts' lived experiences. This inquiry seeks to understand the central phenomenon, which is the process by which an established healthcare professional acquires practical medical cannabis knowledge and expertise.

The interview questions in Appendix F aligned with the following research questions: What is the lived experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS)?

- How did healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS) acquire the expert knowledge and experience to best advise patients seeking medical cannabis advice in the United States?
- What guidance do healthcare professionals, specializing in cannabinoid therapy and the endocannabinoid system (ECS) offer regarding the professional development of healthcare professionals?
- How can the practical knowledge from expert cannabis healthcare professionals impact curriculum development, deliberation, and inquiry?
- These research questions informed the interview questions, which elicited unique responses from the participants' lived experiences.

Section One

Composite Description of the Experts

The six participants' textural and structural descriptions were used to construct a composite description of the meanings and essences of the experience: the lived experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS). This universal description of their experience represents the group as a whole.

Being an expert in anything takes time, experience, knowledge, achievement, and skill. Experts are made, not born, and their work toward reaching that pinnacle of authoritarian knowledge is deliberate. A pathway of experiences, encounters, and influences carved out a path for these healthcare professionals to learn about something that traditional academic institutions could not teach them. Overall, there is a general frustration and disappointment with the current medical system; its profit-driven mission overlooks the patients' needs and causes overall dismay in the medical professionals treating them. Traditional approaches to medicine and pharmaceuticals dominate the patient narrative. Background knowledge in plant-based medicine and unconventional medicinal methods persuaded the participants to dig deeper into cannabis and the endocannabinoid system. The experts were prompted to investigate cannabis further when approached by patients who wanted to alleviate their condition/symptoms through cannabis consumption. Typically, their clinical work in medicine and daily consulting with patients was the catalyst for their initial inquiry into cannabinoid therapy. For most participants, Dr. Sanjay Gupta's CNN documentary about cannabinoid therapy and

seizure reduction was a turning point for their practice. More families connected with these experts to seek advice and legal access to cannabis products. Their patient's high success rate, quality of life, and general symptom relief with minimal side effects encouraged these clinicians to learn more. The epiphany that cannabis can mitigate disparaging symptoms filled them with initial excitement and intrigue. Correct dosing and access to quality cannabis products with no budtender intervention improved patient health outcomes.

In the absence of accredited courses, common knowledge, and strong data and research on the benefits of cannabinoid therapy, they had to read peer-reviewed journal articles and rely on their own data collection with their patients. Instead of focusing on profit and quick patient turnover, becoming an expert meant listening to patients and documenting their dosages, symptoms, and outcomes over time. The participants are, by definition, healthcare pioneers; this term describes an early developer or adopter of a medical treatment. They are resourceful risk-takers and collaborators, driven to improve patient health and blaze a trail for other healthcare professionals. The experts had to fend off stigma and criticism from society, politicians, and the medical community. The abuse of recreational cannabis has brought a dark cloud over their legitimate approach to treating patients with cannabinoid therapy. The rewarding experience of positive patient outcomes has trumped the negativity surrounding the treatment.

Fortunately, scientific conferences and networking have supported the foundational understanding of practical cannabinoid therapy for the participants. Due to the educational void in this topic, healthcare professionals felt compelled to share their

expertise through writing, publications, public speaking engagements, courses, videoconferences, social media, and original content creation. These opportunities to educate have led to consulting and entrepreneurial ventures. Strong science-based evidence and research on the human level are at the forefront of their mission to eliminate the social and medical stigma that plagues this plant-based medicine. The lack of research has generated widespread misinformation, which brings a greater need to educate consumers, healthcare professionals, and the community about the treatment. In order to move the research needle, the experts are eager to consult with companies and government agencies to research cannabinoid therapy.

Their insight for curriculum planning and organizing content for education follows a logical learning trajectory. Information begins simply starting with the plant and gradually becomes more complex, like targeting practical physiological applications. Their presentations are tailored to the audience and rely on evidence-based information. Since there is a lack of cannabis courses in medical schools and continuing medical education, many experts have contributed to these courses and educational opportunities. Some internship and training prospects for novice healthcare professionals interested in cannabinoid therapy have developed, but they are not prevalent.

Lingering problems in cannabinoid therapy continue to challenge the experts. Typically, when doctors write a prescription, the pharmacist fulfills the order, and no questions are asked; however, in cannabis dispensaries, budtenders will oversell products and overstep their boundaries, giving unwarranted medical advice. Patients often leave dispensaries with products they don’t need and are generally confused. Ensuring

dispensaries are following cannabis clinicians' recommendations is an essential factor in determining patient health outcomes. The evolving federal and state laws on cannabis can complicate their work and impact how patients access and travel with their medicine. It's also important that public health initiatives are at the forefront of safety and risk aversion. There is a positive outlook from the participants that quality of life in patients will prevail, which will yield further social acceptability and normalcy of cannabinoid therapy as medicine. There is also future insight that alternative therapies like ketamine and certain psychedelics under close medical supervision can improve patient conditions/symptoms, similar to cannabinoid therapy.

Following this composite description are six narratives explaining an overall account of the individual lived experience of healthcare professionals who are experts in cannabinoid therapy and the ECS. These narratives were derived from each interview's textural and structural descriptions and highlighted their journeys.

Narrative 1: Mary

Mary completed her undergraduate and medical degrees at the same institution and pursued a career in pediatrics. She was a pediatric emergency medicine physician for 14 years in a few hospitals until she completely and utterly burned out from her job in 2006, taking a leave of absence from medicine. She started teaching afterschool science to children until the 2008 global financial crisis encouraged her to return to work. At the same time, Mary's close friend was fighting cancer and asked Mary about using medical cannabis. While researching the plant, she learned about the endocannabinoid system and was genuinely intrigued by the science. Even though it had never been on Mary's radar,

she read some initial research and suggested her friend try it. Instead of returning to an intense emergency room hospital setting, Mary looked for a job in the medical cannabis field and found a part-time position in a medical cannabis private practice. Even though Mary had read a lot of research, she knew very little about the clinical applications; however, 90% of her patients had already been using cannabis to alleviate their symptoms but wanted to be a part of a safe, legal program and have access to quality products. In those first few months, she learned a lot from those patients based on feedback, observations, and follow-ups. After nine months in that clinic, Mary became the medical director for another cannabis-based medical practice, which she now owns. In 2011, she had a unique opportunity to read cannabis research for nine months and create an educational cannabis program for physicians. From 2008 to mid-2013, most of her patients were adults until Sanjay Gupta's CNN documentary aired in August 2013. Because of Mary's pediatric background and her cannabinoid therapy expertise, she was the perfect specialist for pediatric patients seeking cannabinoid therapy advice. Her practice exploded. Mary's history, experience, data collection, and proficiency in this specialized medicine inspired her to present at hundreds of scientific and medical conferences. She published a renowned book, co-authored journal articles with other expert practitioners, and has written many articles for various online and print publications. She continues to move the needle daily in cannabinoid therapy research and education. Mary is an active speaker and contributor to scientific conferences and is creating factual, original online video content. Her contributions are significant, and she manages to treat her patients, young and old.

Narrative 2: Jennifer

Jennifer has been working in medicine for 38 years and graduated with a medical degree and a Ph.D. in biophysical chemistry. She specialized in clinical pathology, researching molecular genetics, microbiology, and gene splicing. She studied how particular bacteria caused disease, also known as bacterial pathogenesis. Eventually, Jennifer became a director of microbiology at a pharmaceutical company, developing antimicrobial pharmaceuticals. She continued to consult for other pharmaceutical companies for another few years after that. During this time, she knew pharmaceutical companies were driven by revenue, not necessarily by the drugs most needed. Coincidentally, at the same time, Jennifer was made aware of non-pharmaceutical medical treatments through a group of friends. They were less toxic approaches, like nutritional support, vibrational medicine, hormone balancing, and herbal medicines; these practices have been around but aren't necessarily accepted or recommended by conventional medical doctors. From 2003 to 2004, she transitioned from consulting for the pharmaceutical industry. She opened her first clinical practice, focusing on her patients to find out “how’s it going?” and manage their symptoms through feedback and follow-up. She was amazed by the treatment’s outcomes.

Jennifer moved to Colorado in 2009, continuing her alternative medicine pathway in hormone balancing. She started learning about cannabis as medicine, and it was around this time she recalled her first medical marijuana patient certification; initially, she worked in dispensaries until the law changed in 2010. After that, she secured locations around Colorado for a traveling clinic to see patients and approve certifications. While

documenting the patient's information, she was amazed by how effective cannabinoid therapy was for some symptom relief. There was historical information about cannabis, but limited literature and medical studies showing its effectiveness, and excessive research focused on abuse and adverse effects. She started her own scientific investigation, collecting as much patient data as possible. Even though patients didn't have a pulse on how many milligrams they were consuming, she started to collect data for her records on how people consumed cannabis (i.e., smoking, edibles, etc.) and how much they were taking. By listening, tracking data, and following up with her patients, Jennifer learned practical knowledge that helped her become an expert without traditional medical education.

By 2011, Jennifer had settled into one city and one medical marijuana clinic, where she would work until 2022. Other clinics she had worked at up to this point desired a quick turnover of patients to increase revenue. Still, this one was interested in serving patients by spending quality time talking with each one individually. In February 2012, Jennifer saw her first patient with seizures. The patient's seizures stopped, and word of mouth traveled fast to a few patients with similar seizure conditions. Her career exploded when Sanjay Gupta's CNN documentary aired in August 2013, spotlighting Jennifer's patients and their seizure reduction resulting from cannabinoid therapy. As a result of the show, families from all over the United States and the world flocked to Jennifer's clinic to try cannabinoid therapy for their seizure reduction. At the time, not many doctors were willing to treat children with cannabinoid therapy and sign for their medical cards; she saw an opportunity to track their dosing and health outcomes to dial in the treatments for

all her patients. Since there were no prescription guidelines for dosing cannabis, she was dedicated to figuring out the calculations to optimize their results. As a result, Jennifer published her work, presented at conferences, and taught continuing medical education classes for healthcare professionals. Even though the clinic closed in 2022, Jennifer is still working directly with existing medical cannabis patients and still accepting new ones at her own practice. She also serves as an expert witness in cannabinoid therapy for court cases.

Narrative 3: Michael

Michael has been in osteopathic medicine for 14 years; he studied nutrition science and biology in his undergraduate degree and then took a two-year gap between college and medical school to study the healing arts. He completed a hypnotherapy program and then continued to earn a doctorate in osteopathy. During his residency program, he had the rare opportunity to observe medical cannabis evaluations and certifications since one of the faculty members had experience in this realm since 1999.

As a licensed general practitioner, Michael started his own practice in 2009, focusing on integrative medicine and the healing arts. Coincidentally that same year, his state expanded its medical cannabis program to include more indications, and thousands of eligible patients needed a doctor's signature to consume cannabis legally. He had the cannabis evaluation experience from his residency and felt comfortable treating patients seeking advice. Michael’s osteopathic practice was dominated by patients seeking doctor approval for legal cannabis consumption after seeing a handful of medical cannabis patients. His practice grew, and he was mindful of taking one hour with each patient to

provide quality care and integrative medicine. In 2013 after the CNN cannabis special with Sanjay Gupta, Michael's practice seemingly switched overnight from mostly adults to mostly children with rare neurological conditions. He has two locations that treat over 8,000 patients with medical cannabis. His clinical practice focuses on treating refractory conditions in adults and children with an individualized, health-centered approach. Due to the lack of lab testing for cannabis products, Michael started a lab in his office, informing both the patients and Michael about the products' contents, like how many milligrams of each cannabinoid was in a bottle of oil. This testing helped him dial in the dosage and types of cannabinoids for various symptoms and conditions. He noticed the inconsistent contents of cannabinoids from batch to batch and the lack of overall purity and quality; as a result, he launched his own cannabinoid products in his state.

Michael has published several peer-reviewed journal articles about epilepsy, opioid reduction, and chronic pain and launched a comprehensive website for medical cannabis education. He continues to see patients, write original content, present online monthly webinars, teach continuing medical education courses, present at conferences, and consult with anyone in the industry. Michael thrives on the therapeutic connection and revels in improved patient health outcomes. He acquired his expertise by listening to patients, asking questions, reading primary literature, attending conferences, and networking with peers. He recently published a book intended for clinicians and offers in-person training for healthcare professionals interested in cannabinoid therapy and the ECS. Since conventional and FDA-approved treatments do not work for everyone, he

believes experimental therapies for refractory patients require a different style of practicing medicine: a healing approach.

Narrative 4: Kate

When Kate was growing up, she was surrounded by pharmacists who were entrepreneurs, owning their businesses, balancing work and personal life, and dabbling in medical writing. She was interested in preventative and integrative health. When she enrolled in a doctor of pharmacy program, she wanted to learn more about evidence-based herbal therapy and herbal medicine; for example, what herbs could someone take before taking an Advil? Kate became a pharmacist focusing on integrative medicine and patient-centered shared decision-making. While pursuing her degree, her cohort concentrated on clinical work in disease state management and chronic disease states. One of the first integrative health pharmacists in the country became Kate's mentor while she was in school. Kate eventually moved closer to training with her; as a result, she began the only post-doctoral training program for pharmacists interested in pursuing integrative health and an unconventional role in herbal medicine. It entailed a one-year residency program in an independent natural pharmacy that functioned like a clinic. It was multidisciplinary and offered everything from homeopathy to clinical nutrition. The other part of the training was at an HIV clinic, overseen by an herbalist and an acupuncturist.

As a pharmacist, Kate could analyze the patients' medications, ensuring that supplements wouldn't interact, weighing the benefits and risks of each ingredient. Kate was the only pharmacist on staff that could meet with patients and engage in one-on-one

consultations; this was the beginning of her cannabinoid therapy exposure. She learned by delving into how herbs work in the body from a physiological standpoint and how that manifests in behavior. At this early point in her career, she learned about cannabis and the endocannabinoid system. Once she started learning more about cannabis, she realized there was an educational void and a disconnect between anecdotal stories and what was being researched. She wanted to build off the anecdotes with evidence-based education, especially after observing the quality of life of many of her HIV patients were experiencing. She became a cannabinoid therapy expert through first-hand clinical experience with her patients. She dove into the existing literature and research. She read books written by expert cannabinoid therapy clinicians. Kate reached out directly to experts via LinkedIn and asked how information was applied to their practice; she gained insight and was eager to learn and understand the science that supported cannabis.

Through her networking initiatives, she met a business partner with whom she co-founded a broad-spectrum beauty and wellness cannabis company. Her brand is sold in the United States and exported abroad to Thailand and several European countries. She currently works on product innovation and education for the conscious consumer. Kate creates original content, engages in online webinars, and participates in podcasts. She is working on creating an online course for consumers interested in learning about the endocannabinoid system and how cannabis can be used as medicine by examining all the research, organizing it into modules, and making it digestible for the average consumer. Kate is an adjunct faculty member and has guest lectured at colleges, universities, and conference stages worldwide. She wrote the first-ever online course for pharmacists

interested in medical cannabis and the ECS. She's been educating for five years now and does not partake in as many consultations as she used to. She dreams that cannabinoid therapy and ECS are integrated into all healthcare professional curricula. She has published peer-reviewed journal articles on cannabinoid therapy and continues collaborating in research. She contributes to textbook content and guidebooks for pharmacology students and healthcare professionals. Kate is often invited to speak at cannabis conferences, trying to think of exciting and innovative ways to bring education and the science behind cannabis to the masses. As an integrative health pharmacist, Kate says the most dangerous supplement is one your healthcare professional doesn't know about. She's dedicated to educating all healthcare professionals to learn about cannabinoid therapy and becomes knowledgeable in their own right. As she was voted one of the most influential leaders in pharmacy in 2023, Kate will continue to move the needle in cannabinoid therapy and ECS education for all.

Narrative 5: Gary

Gary has been in the medical field since 1972. After 44 years as a general practitioner in various practices, hospitals, and academic medical settings, Gary served as a director in a hospice facility in 2006. He "fell into" the cannabinoid therapy field in 2017 after he was contacted by a headhunter who lured him with a promising job at a medical marijuana clinic that was looking for doctors; he would never have to be "on-call" and would have weekends free. Cannabis has been legal in Colorado for medical purposes since 2000, while recreational use was legalized in 2012. He had always been interested in cannabis, especially how it could alleviate symptoms for his geriatric patients. He says

he knows a little bit more about it than the average physician and gained some knowledge about the medicinal aspects by reading a lot of peer-reviewed journal articles. He had never learned about cannabinoid therapy or the ECS in a traditional academic setting.

In 2017 he joined a medical marijuana clinic in Colorado Springs and began a career as a medical marijuana doctor providing evaluations and Colorado state certifications for medical cannabis cards. The clinic was urging him to see six to eight patients an hour; Gary pleaded that he needed more time with each patient to educate them about cannabis consumption, not just to approve certificates for medical cards. He said it felt like a factory just wanting to churn out patients to make money. Most patients he saw were returning to the clinic confused and misinformed about cannabis use because budtenders working in dispensaries sold clients different products than Gary had suggested. None of his patients had ever been instructed on properly using the correct product and dosing amount for their specific condition.

After four months, he found another medical marijuana clinic encouraging 30-minute consultations. He was motivated to learn more about plant-based medicine to become an expert and educate his patients on all aspects of it. He says within nine months of embarking on this new medical field in cannabinoid therapy, he became an expert due to seeing a large volume of patients with various conditions/symptoms. He attended every medical cannabis conference he could. He read books, published research articles, and watched lectures from other experts in the field. This culmination of practical knowledge allowed him to speak more confidently with his patients and provide educational seminars to novice healthcare professionals in the U.S. and Latin America.

Narrative 6: Henry

Henry came from a family of passionate doctors, and the plan for him to attend medical school had been pumping through his veins since he was a toddler. After medical school, Henry and his wife did their internal medicine residency at the same hospital. He was a reluctant physician, and in the middle of his residency, he started focusing on his other passion, music production. For the next 30 years, he split his time between his musical career and working in an emergency room. For 15 years, he worked for the Veterans Affairs (VA) Hospital, and that experience led him into the cannabis space. Many veterans were addicted to substances like opioids and benzodiazepines, but more often than not, it was alcohol. The veteran's substance abuse treatment at the VA was short-lived, and patients were back at the liquor store before long. In 2011, Henry's state started discussing a ballot initiative for medical cannabis. He'd seen so many veterans harmed by alcohol and other substances but never saw anybody come to the hospital sick from cannabis. Henry thought about cannabis in terms of acute toxicity or addictive behaviors; most other substances would land them in the ER, and he just wasn't seeing that with cannabis. He considered that there must be some potential benefit to using cannabis and felt compelled to learn about it. Henry said in 2011, when he searched "cannabis" in PubMed, he found only 25,000 studies, which meant there was some data to start analyzing. He thought, how do I go through this data in a fashion that allows me to synthesize some sort of a reasonable conclusion? He didn't read 25,000 studies, but he did read a lot, which took him a few years of persistent dedication to studying cannabis. After a lot of reading, he believed if cannabis was treated like medicine with care and

thought, he could seek the minimum effective dose to help specific patients and their symptoms/conditions. On the other hand, if taken haphazardly, it can create all kinds of trouble, which is true with every medicine.

Since the VA wouldn't let Henry treat patients with cannabinoid therapy, Henry wanted to open a practice. Even though it was not his life goal and no one in his family had ever worked in a private practice setting. VA physicians were prohibited from discussing cannabinoid therapy as an option due to the federal legal implications of losing funding. In 2014, Henry started a private practice focusing on cannabinoid therapy, and his goal was to return to larger institutions and teach medical school students, residents, and colleagues. This mission was the foundation of his private practice and cannabinoid therapy career. Over six years, Henry had a few different medical offices, and then the global pandemic influenced him to utilize the telemedicine approach. Even though every patient is different, he honed in on accurate dosing since there is a research void in that area. He focuses on educating healthcare professionals and patients with evidence-based information, which encouraged him to launch the Association of Cannabis Specialists, a group dedicated to the highest standards in clinical practice of cannabinoid therapy, providing evidence and experience-based education for patients, lawmakers, and cannabis clinicians. He's presented hundreds of times and prefers to speak at conferences emphasizing scientific knowledge while avoiding those promoting "stoner lore." He consults with companies interested in conducting cannabis research, especially double-blind, randomized controlled trials done with humans. He emphasizes that randomized controlled trials are, in fact, the only type of study that

clinicians can rely on in order to eliminate the placebo effect. He created educational materials that are scientific and applicable to human treatment instead of animal models. Even though there is a lack of quality in the studies like observational research, there is still a suggestion that clinicians should be studying this topic further and more rigorously.

He's published several peer-reviewed journal articles on cannabinoid therapy and is currently working on developing an online cannabis CME course for primary care physicians for a medical school. He actively writes a lot for his blog, which can then get percolated through various social media networks. He's started a fellowship for healthcare professionals interested in learning about the clinical application of cannabinoid therapy. Henry has an idea of primary care physicians referring their patients to a cannabis specialist; patients with complex cardiac problems are referred to a cardiologist. Similarly, a patient whose back pain isn't improving with routine, conventional therapy could be referred to a cannabis specialist instead of opioids and other addictive medicines.

One way to reach people who need medical cannabis is to educate healthcare professionals with actual data about cannabinoid therapy options and referrals. Henry still emphasizes that it's a medicine, and even though the industry wants it to be harmless, there are side effects and risks. He continues to see patients and help them reach the quality of life given their condition/symptoms. Henry pleads for more quality studies and research. His expertise was derived from reading the primary literature and treating many patients; he spent one hour with each one listening to them while tracking their dosages and health outcomes. His state requires each healthcare professional to take a four-hour

educational course to receive a certification and recommend cannabis to their patients; Henry believes it should be at least 20 hours. This encouraged him to write a clinical handbook for healthcare professionals about cannabinoid therapy that describes simple and practical approaches to treating patients with cannabis. His website also has a clinical reference library. Instead of combing through thousands of studies, they have sections on specific disease states and medicine areas with relevant cannabinoid therapy research studies. This makes cannabis research more digestible and organized. His website features a course that focuses on how to integrate cannabis into your clinical practice in a 20-hour course, focusing on the plant, endocannabinoid system, how it affects various disease states, as well as risks and contraindications. Additionally, there is a PDF with Recommendations for Federal Medical Legalization, which is something he supports. He's interested in honoring the prescription from the doctor that specifies the product and dosing. He believes many conditions/symptoms can be treated with a low dose of cannabis and wonders why the medical community isn't discussing it more loudly. He continues to see patients, educate, and work with companies interested in producing rigorous studies amenable to real science.

Section Two: The Essential Themes

This inductive thematic analysis highlights the lived experience of healthcare professionals in cannabinoid therapy and the ECS. I searched for patterns across the interviews and used codes to organize the statements. The four research questions and the conceptual framework of Joseph Schwab's "Five Commonplaces" were used as a lens to condense and analyze the codes into themes. The objective of the thematic analysis is to

create meaning from the patterns in the participant's data and strive to understand the implications embedded in their experiences (Sundler, Lindberg, Nilsson, & Palmér, 2019). Direct participant quotes were included for each theme to provide clarity and transparency.

Essential Theme 1: Innovative Pioneers

This theme resonates throughout the experts' narratives because they were diving into a medical treatment that was not widely accepted, well-researched, or traditionally taught in medical school. The lived experience explicitly addressed in the first research question captures the essence of being an early adopter of a medicine or treatment, blazing a trail for others to follow. These practitioners left their hospitals, clinics, and practices to pursue a career in cannabinoid therapy. They took a risk in treating patients with an alternative medicine. There were no known dosages then, so they had to track amounts and individual patient results. Consequently, they used this data from treating patients and evidence from peer-reviewed journal articles to innovate courses and presentations. They provided new educational opportunities for healthcare practitioners and patients who wanted to learn more about the science behind this therapy. Their original content, insight, and knowledge spread through conferences, webinars, books, journal articles, and news outlets. Henry explained the risky decision of leaving the hospital he was working at and opened a private practice focusing on cannabinoid therapy. He also explains why and how doctors are not able to discuss cannabis with their patients:

> By 2013, I was really thinking that I was going to open a practice. And I think that one of the things that is noteworthy is that I didn't want to open a practice. It was not

on my life goal list to a private practice. Nobody in my family had ever been in private practice. But looking at this, at the time, the VA wasn't going to let me practice this kind of medicine. In fact, at the time, they were so concerned about this that it went up through the hospital council all the way to the chief council in Washington D.C. You have to remember, at that time, there was in fact a gag order in place so that VA physicians could not talk about cannabis to their patients at all. And so the VA wasn't going to let me practice this kind of medicine. I looked briefly at the hospital where I was still technically faculty, and realized that one of the things that most people in the cannabis world don't realize is that there is a law that says that if you break a federal law related to the reimbursement in one area, they can stop reimbursing you across all areas. So essentially the hospital is sort of a multi-billion-dollar business. And frankly, overnight they could be a no dollar business because almost all of their money comes through the federal government, whether it's support for research or support for residents or payments through Medicare or subsidies of Medicaid. Almost every healthcare dollar goes through the federal government. So it was very clear that the hospital just couldn't afford to be brave about this. And I think that that's part of what we've seen nationally is that why are the academic institutions not leading on this? Well, obviously there's a fair amount of stigma that we've kind of talked about, but on top of that, there's the fact that, you know, just can't fight city hall even if you are a big institution, because every sense you get as that institution is coming through that federal government. So that's how I ended up starting a private practice, because I figured I could be controlled less in that scenario, but really my

goal was always to go back to those larger institutions and teach, whether it was to students or to the residents or to my colleagues through lectures. And that's been really sort the foundation of my practice and my career.

Other participants had similar experiences about leaving larger institutions to pursue a private practice that allowed them to discuss cannabis openly with their patients. Mary told this story about the first time she presented and how she realized how important her clinical experience was for other novice clinicians:

> So the very first time I spoke was at a cannabis clinician's meeting in either 2014 or 2015. And I was presenting data on epilepsy and my clinical experience as well as what the research had shown up to that point. And I have to tell you, so I was in a room stuffed with people, a little room, and everybody was hanging on every word. And I thought, this is all new to them, I'm the only one doing this. Right? Oh my goodness, this is very important work. And then I realized, okay, I have to start speaking about this. In 2015 I got invited to speak in Florida, and I was a bit of a wreck because I don't really like public speaking, but I've become a pro now. But when I got up to speak, I just realized everybody was really interested, and that was an icebreaker.

These participants had information they needed to share, and it was important for them to move the needle one patient at a time. Michael recalled his early interactions with his cannabis patients and how his support validated their consumption:

> Early on I was mostly learning from my patients, just listening to them, validating them. And I realized that probably the thing I was providing, most valuable, besides

> legal protection was relief from guilt. Because they were very conflicted. They knew cannabis was helping them, but everyone in society said this was a bad thing. They hadn't told their other doctors about it. They felt guilty about it somehow. And to have a medical person endorse that this is helping them, and that I want them to continue doing it, that was huge.

Patients could be seen by their doctor for the first time and discuss cannabis openly. These clinicians provided a legal opportunity for many first-time patients to seek medical advice and recommendations. Another point the experts touched on was their disappointment in the medical system, especially with pharmaceutical companies and conventional medicine. Jennifer discusses this experience in detail:

> In 2003 there was a big shift for me. And it was kind of a culmination of the different things I'd learned. I just started to realize that just from within the pharmaceutical companies, that drugs aren't chosen to develop necessarily because they're the thing that will help the most people. Or that there's the greatest need for, it's clearly done to make money, to create revenue. They're only going to decide to develop the drugs that will make the money. And not because that's the most valuable or the most needed. And in some ways, it's obvious, but in other ways you kind of forget how the decisions are made. I saw how the decisions were made and then at the same time I came to become aware of non-pharmaceutical medical treatments that have been around but aren't necessarily accepted or recommended by conventional medical doctors either because they don't know about them or they're considered not valuable. But that could really help people and that weren't pharmaceuticals. They often didn't

have the toxicity. And at that time, I didn't know about marijuana as medicine, so I wasn't even thinking of cannabis. But it was other things like nutritional support, hormone balancing herbal medicines, things again that aren't necessarily looked at by conventional medicine, but that could be very helpful to people and that were often less toxic and more harmonious. I made a big shift, I actually left the pharmaceutical industry consulting and I opened my very first little clinical practice. So, I went from being a laboratory pathologist, drugs and genes to actually starting to work with people who needed that support. I started focusing in a different way. So, I kind of learned through that experience to think things through and made myself do the research and then work with patients and ask patients how is it going? Not just say, 'Well this book or this article says this, does this, so I gave you this drug and then if it didn't work, not my fault.' I wanted to integrate that patient experience of saying, 'Okay, let's try this. Okay, what happened? Did this work for you? What are the other things?' And really putting together a supportive program for the patient closely connecting with my feedback.

Being an innovative pioneer in cannabis meant leaving the established institutions and conventional medical approaches to try a new treatment that showed positive health outcomes. This new treatment required trial and error, data collection, in-depth consultation, and continuous patient feedback for all the experts. Jennifer tells about how she dialed in the dosing for her patients:

There weren't very many doctors willing to see the kids. So we were seeing all the kids basically, which was cool. And so I was learning when I was tracking my charts.

And then at the same time, as we were getting these new people, I knew that I needed to follow up with them to know what happened. I didn't want to just sign their card. And then they get their oil and they go off and I have no idea what they're doing because people are asking me, so what are your percentages? What's your result rate, doctor? I'm like, I have no idea if they don't tell me. And I'm always explaining it's not in a conventionally prescribed medication where the doctor knows how the prescription was filled and the amount they were given for dosing. But this, you don't know anything unless the patient tells you what they're taking and you get that information. So, I dedicated myself to making it my business to find out what they're using to do the science, to do the calculations. You have to go that extra step as a physician or you're not going to know what they're using and what's giving them the results. If somebody might say, I'm using CBD oil, it turns out they're getting five milligrams a day, somebody else is taking 500. It's very, very important. I started tracking the data basically from the patients. So, what I actually did was offer free follow up, free unlimited follow up for a year to the patient. Because I knew I couldn't say, well, I want to follow up with you and you have to pay me $40 a pop or whatever. I wasn't going to charge them. So, I offered it for free. So, my schedule was so full. But I would get up and do a phone call at 8:00 AM before starting clinic at 10. I wanted to talk to that patient. I was doing phone calls at nine at night after finishing Wednesday clinic. So, I was doing 20 phone calls a week with parents of their kids. And that's how I collected my data. And then after a year, I learned from the patients. Again, that first patient, I started paying attention and documenting. I

> learned by documenting it and tracking it. And then learning from that, using what I learned from one patient to suggest a treatment to the next patient. This worked for the other one. What if you try this? Then when I talk to them the next time, whether it's a month or a year for the adults, they'd come back a year later and they'd say, yeah, it worked. And then I'd record that. So longitudinal tracking, having ongoing care was very important and having those charts so that you knew what that patients did. After a year, I said, you know what? I think I've learned, I did my residency. This was my internship in cannabis for children.

Jennifer's narrative about dosing and collecting data was true for all the participants. They had to invent the dosing protocols based on the patient's data. The data collection helped them improve dosing for future patients based on the cannabis product, weight, and condition/symptom.

All the experts discussed the educational void, the lack of evidence-based research, and the D.E.A. schedule I substance classification restricted traditional medical school curriculum. As a result, they had to create presentations and courses that did not exist. Depending on the audience, the participants were organizing information about cannabinoid therapy and the E.C.S. by a learning progression of basic understandings to complex applications. Kate explained how she eventually focused on these educational initiatives, thinking outside the traditional conference setting:

> One of the things that I manage is the education or what we call conscious education. And so we find people who are in the natural medicine space. I do a weekly Instagram live, monthly zoom webinars, podcasts, evidence-based blog content,

> social media content, press releases, promoting education just in a bit more of an unconventional way. I'm trying to do a lot of different things and be innovative in bringing education to the masses rather than doing it one on one. When organizing the content, I've really been focusing on the basics, nitty gritty, what's the history of it? Of course, stigma is still so much associated with herbal medicine on the whole, so trying to destigmatize through showing history. Starting with the basics about the endocannabinoid system. I started lecturing in university classes, and then through that connection I was able to write the first ever online course specifically for pharmacists interested in the endocannabinoid system.

This essential theme of being an innovative pioneer resonates through all six participants at a time when society frowned upon cannabis. They followed the less traveled path and collected data to inform research and educate other healthcare professionals and patients about cannabinoid therapy. They sometimes took financial and legal risks, rejecting large institutions and profitable companies. Their work as experts forges a path toward acceptance and approval that this therapeutic drug can increase the quality of life for many.

Essential Theme 2: Diligent

Across the data, participants showed a zealous commitment to their medical practice and cannabinoid therapy. Their lived experience as an expert indicated that it took hard work, dedication, and persistence to become well-informed in this therapy. After showing their willingness to pioneer in this niche field, they had to go above and beyond to become more knowledgeable. Collecting patient data, reading copious amounts of peer-

reviewed journal articles, and conferring with fellow cannabis clinicians are just some examples. Gary talks about the lack of due diligence at his first medical cannabis clinic and how he left to work for another that was more patient-centered:

> I stayed with a cannabis clinic for about four months and when they kept trying to have me see six to eight patients an hour, I said, I need to cut back because I need to educate these people. Most of my talks were to returning patients. And then I'd ask them about how they were using it. None of them had ever been instructed on how to properly use it for their conditions. I was naive at the time because the clinic told me that my job was to see whether or not they met the criteria. They get a card and then I should refer them to the budtenders behind the counter to get information. And it took me three months. So naive me said, Oh, okay, well I can do that and the budtenders know what they're doing, et cetera. After about three months, I found out that first of all, the budtenders didn't know squat. Second, they were prohibited by law to give any medical advice. And that's when I went back to the clinic and said, look, I can't see six people an hour and educate them about how to use it, et cetera. And they wouldn't back off because it was, as far as I was concerned, it was all about the money. And that's when I switched to another clinic because they gave me either 20- or 30-minute appointments depending on whether they were a new or a renewal.

The experts recalled patient stories that were memorable. They showed care and consciousness towards their patient's health. Henry touched on the careful consideration and thoroughness in his practice:

> I come from a primary care background. And one of the things that we realized that is truly, truly broken about American medicine is that you got 15 minutes, if you're lucky with a patient, it could be 10. And in that 10 to 15 minutes, you want to talk to them, you have to examine them, but you have all these things you need to talk about, whether it's blood pressure, or weight loss, or seatbelts, wearing your seatbelt in the car, or if it's a kid wearing his helmet, and breast exams, and birth control and all that gets smooshed into this minuscule little period of time. No wonder the doctors are miserable and the patients are miserable. Right now, in my practice, I spend an hour with that patient talking about just what's wrong with them and how we can address that with cannabis. So how am I supposed to teach people to shoehorn that into they're already oversubscribed 10 minutes?

All the participants mentioned how the system is broken and driven by profit, which was even more incentive to work in private practices in alternative-based therapy. When starting in unchartered territory like cannabinoid therapy, collaboration with other cannabis clinicians was essential; Mary captures this sentiment:

> How can I possibly take care of every patient? How can I possibly know everything? I don't. I learn lots of things from other doctors doing this. And we all share because again, it's a small group and we want to support each other in this because it's not easy, it's not easy work, but it's very rewarding. And we all know that we are following our oath of do no harm. And that's really what it comes down to. So, this is a pretty benign medicine. But there's this true altruistic nature to this. There's a way to do it with kindness and compassion and care also for your fellow doctors. How do we

> all move it forward? I mean, it's one of the reasons that I got over my public speaking fear was because I have something that needs to be shared. My experience with pediatrics, I didn't set out to be a leader or a pioneer. Because the information I'm imparting is much more important than who I am and what I feel about it. It's the information. And the only way to get other people to help these children, these suffering children, is to share the information and try to nudge it along at this very glacial pace that we're kind of stuck in.

The experts demonstrate diligence in their practice through listening and careful consideration. The amount of time they spend with each patient has contributed to their knowledge and, in turn, benefits the next patient as they build up their expertise. Another way they honed their craft was by taking the time to immerse themselves in reading relevant literature and research. Mary talks about taking the time to read to acquire expert knowledge and experience:

> So, I would say that it was day in and day out, seeing patients, reading on my own, walking into a dispensary and asking about the products. And then in 2011, I got a chance to sit in a room and create a program for doctors and just read, read, read, read, read. That was exponential increase in my knowledge. And I wonder what I wouldn't know now if I didn't have that time in 2011. And what struck me though, and I have to say is that pretty much every report that I read, almost across the board said, cannabis was safe and well tolerated, very minimal adverse effects. Even animal studies, once we stopped giving it, the animals regained all of their previous

behaviors and whatnot. That's what gave me the kind of confidence to know, to make sure that I was following my Hippocratic Oath, which was do no harm.

The broad range definition of diligence speaks to the second research question regarding how these healthcare professionals acquired the expert knowledge to advise their patients best. It exemplifies their willingness to go the extra mile with their patients, tracking data and reading enough literature to gain insight and understanding. Their steady commitment to becoming experts in cannabinoid therapy is enduring.

Essential Theme 3: Pragmatic

The six participants all mentioned the words “practical” and “clinical” when responding to the last two research questions about what guidance they recommend for professional development and how their knowledge can impact curriculum development, deliberation, and inquiry. Clinicians have direct contact with their patients instead of theoretical laboratory work. A pragmatic approach to curriculum and professional development for “beginners” in cannabinoid therapy is the most helpful approach; it directly and efficiently helps healthcare professionals treat their patients. When I asked Jennifer about how she organizes her presentations for clinicians, she said this:

So definitely more practical, a practical application for the audience. Well it was addressed at position so that they (clinicians) could use this information in seeing patients. And when it was for a major conference or CME conference, two of these were CME conferences, so the attendees could apply and get the credits. For that, sure. It was more formal. And I mean, the learning goals were for people to become familiar with the basics of what we knew. I think I presented a little bit of background

> science, but just to orient people. But it was things like drug interactions, and can you add it on to other treatments? What's the time course of treatment? What is the percent that had a positive response versus didn't? It was mostly presenting the data that I had collected. I went through my charts and put it together in a practical application.

For other healthcare professionals to implement cannabinoid therapy in their practice, they need to understand basic information and how to apply it to patients. Functional approaches support learners with accessible tools in their toolbox, resources, and knowledge that can expedite the learning trajectory of cannabinoid therapy. Henry talks about the instructional design and how he organizes his presentations:

> I don't know squat about instructional design! But when you're sitting down planning, I think, what am I going to say to these people? I use slides and I have a bunch of slide decks that I reuse and modify as needed. And they tend to be topic specific. So cannabis use for behavioral health issues, cannabis use for the treatment of chronic pain. And then I have one that I give the most, which is the sort of general overview, I call it cannabis medicine practical aspects. But what I didn't do…I didn't sit down and say, Oh, here are my three learning objectives. It was more like, this is the logical flow from the start of the discussion through what people need to know and out to the other end. And then there's a summary slide, and then there's how you reach me slide if you have questions. One of the things that I have found over the years, which is interesting to me, is that I don't take for granted that it took me a lot of time and effort to learn what I know, but a lot of it now feels like it's sort of not rocket science. And

> so I get up and I'm telling people things that I think are obvious, sometimes obvious in the sense of we need to take care of our patients, which means we're not just writing them a card and sending them off to talk to some teenager in the pot shop. So some of that structure that you're wanting to address is stuff that's kind of just embedded, maybe less consciously for me. The other thing is the process of giving a talk has come to be a fairly natural and conversational process. So when I put together a slide, I don't write on the slide what I'm going to say and then stand there and read it. Because if that's the case, why bother? Right. So I put on the slide essentially a couple of bullet points, and then usually some sort of a visual so that they have something to look at in amusement as they're hearing me speak. So a lot of this stuff is just kind of ingrained for me. So I can just use the slide to say, Oh yes, now I need to talk about this. Okay, now I'm going to talk about that. And the details of it just are in here.

This was a common approach to teaching; the experts knew the information so well that the presentations felt like a conversation. They also had multiple versions depending on the audience and context of the presentation; most of the time, they tailored the discussion to specialists, like neurologists or primary care physicians.

Aside from organizing pragmatic presentations, most experts have written books that educate a range of learners. Kate had experience “writing for textbooks and guidebooks for pharmacy students and healthcare professionals.” However, she’s “transitioned from the clinical research sphere to more guidebooks, from synthesizing the research and

putting it into guidebooks for other pharmacists." A detailed discussion about how Mary's book transpired is here:

> The first book was self-published December, 2016. And then in 2019 I was approached by a big publisher and said they wanted to acquire my book. And I said, it needs a big-time update because this is so fast. Everything has changed. So it was published September 29th, 2020. I'd say 75% of the book was a rewritten. But what was cool about it was I had testimonials in the first book and I was able to do a follow up on them. People who read the first book could have a follow up of the patient. And one thing I didn't share is that why did I write a book? Well, I had this patient who was on dialysis, he was waiting for a kidney transplant and cannabis helped him with everything. He was a researcher. He was a guy who would go on the internet. And so he said to me, "every time I come here, I learn so much. You spend so much time with me asking, answering my questions, where can I go to get all this information?" And I was like, Hmm, I should write a book. A book! Because now I have all this clinical expertise and there isn't anybody else kind of doing what I'm doing. Especially with kids. So maybe I should just put it all out there. Then I finally gave myself a deadline of December, 2016.

Mary said she had a clear plan for organizing her book. She said it was similar to how she taught. She started with the endocannabinoid system and then the plant. She then discussed the condition/symptom and how the plant may interact with the endocannabinoid system and other receptors. The other experts had similar organizational

patterns: plant, endocannabinoid system, and how it reacts in the body given specific conditions/symptoms.

This pragmatic theme and the expert's educational approach to Joseph Schwab's article, *The Practical*, a program for curriculum revision based on commonplaces of educational thinking for the learners, teachers, subject matters, and sociocultural context (Schwab, 2013). For example, in an analysis of "What do scientists do?" He criticized that education, in general, and specifically curriculum, outlined their topics theoretically; instead, curriculum specialists should be basing their plans on objective, factual, concrete cases (Schwab, 2013). The data collected suggests that the experts' educational initiatives are meant to prepare healthcare professionals with information that would help them make practical applications when treating their patients; for example, case studies, dosing information, and safety precautions are all essential topics covered in their dissemination. As Schwab proposed, this knowledge equips healthcare professionals with realistic tools that can be applied almost immediately instead of theoretical and abstract ideas.

Essential Theme 4: Insightful

The experts were drawn into cannabinoid therapy for various reasons, but they all had the insight and intuition to follow this controversial alternative. Not only do they exhibit a strong knowledge of cannabis, but they also possess a clear understanding of what novice healthcare professionals need to learn to apply this therapy to their patients. They are aware of their audience base and tailor presentations accordingly. Michael touches on his presentations and how they are organized:

> It’s usually taking what I've learned from the peer review literature and making it accessible to whoever my audience is. That's probably the thing I'm doing the most. And then giving some clinical examples to illustrate. Some practical stuff too.

He provides some further insight about cannabinoid therapy and how it differs from traditional medicine:

> Learning and understanding cannabis, it teaches a lot about just individualized medicine in general. There's always this option to individualize treatment for patients, but cannabis kind of requires it. It doesn't make it optional anymore. Because it's not just one medicine, there's so many different types and delivery methods and individual variability in the response that it requires this kind of follow up and feedback. And it requires quite a bit of patient empowerment. This is not just a top down, take one pill three times a day. It's very much a partnership. And I see that as the future of medicine.

The participants had a lot of interesting discernments about cannabinoid therapy and the future of medicine, especially in other alternative medicine like psychedelics, ketamine, herbs, and general homeopathy. Gary shared some insights about pharmaceutical companies and potentially their desire to have a stake in the industry:

> So, I'm kind of actually waiting for the pharmaceutical companies to get on the bandwagon and start making different concoctions and stuff that they can then go ahead and patent and sell it three or four times the price, and then insurance would cover it.

Many participants mentioned that a common prediction was that pharmaceutical companies have a more significant presence in the industry. As much as they respect the artisanal approach to cannabis manufacturing, there is often concern about consistent quality and cannabinoid content. In the absence of widespread product testing and reliability, Michael describes why he started testing his patients' products in 2014:

> So back then, so we provide a certificate that we actually create at the office. And then they take that certificate and go to either to a dispensary or a caregiver, which is a smaller scale artisanal producer, and do their best to find products that are compatible with our recommendations. Or back then parents and patients make their own. When we started with the pediatric patients, there was no lab testing in the state. Products weren't labeled. I mean, it was really a challenge, which led to me starting a testing lab in the office That really informed a lot of what we're still doing today. I'll give you an example. A mom of a patient said, "This CBD oil is helping my daughter seizures." I said, "This is amazing. We just set up our lab. Let's find out how many milligrams are in it." I had no frame of reference at all to know what would help with seizures. And we tested it and there was no CBD in it at all. There was even no THC in it. It was a really weak THCA. And the dispensary was selling it as CBD because it didn't get anybody high. And I thought, this can't be right. This is mistake. We tested it again, we got the same thing. And then the next week another patient came in and said, the same CBD product is helping with the seizures. And I was like, Okay, fine. Maybe THCA does something for seizures. And to this day we still use THCA to treat seizures. If it hadn't happened, I would not have known about it. Another one

was, everyone was raving about this one THC tincture for pain. So, I got my hands on it and it was half THC, half THCA. So it got my attention on the acidic cannabinoids and just a frame of reference for dosage ranges for various patients and conditions.

In order to understand the contents of the products, he had the insight to start testing them. As a result, he learned a lot about acidic cannabinoids and dosing. His intuition to acquire more product data showed a willingness to go above and beyond. In addition to testing products, experts also have experience in either creating their own line of cannabis products or consulting with companies to make quality products. Upon interviewing Kate, she discussed the inconsistent product contents and how that affects patients:

> Some companies say, yeah, we're a CBD isolate and the lab results come back with 4% THC. And that's the issue that so many people are now weary of trying CBD, they say, "Oh, I tried a CBD product once and it made me feel high." And I'm like, that's not supposed to happen! So, it's just a lot of issues still in the space that need to be figured out, which is why I think if there was a place where a healthcare professional can help, the products have been vetted well, and the COA's (Certificate of Analysis) are from trusted third-party testers and all of that. If all of that is the case, then I think that there's a lot of area for improvement in the industry in that way. So, one of my biggest criticisms or concerns really, is people dismiss it in the sense, "I tried it, it doesn't work." And it's obviously that they weren't using any kind of guidance from a healthcare professional. We have to change it from the beginning. We have to start teaching it in healthcare professional curriculum, and we have to

> teach it. Maybe you need to start talking about it earlier that just graduate level. It's very important right now that healthcare professionals get more involved.

Patients are more likely to dismiss this therapy when products are unreliably labeled and packaged; additionally, they give it up in the absence of clinical advice. This patient-driven movement captures the "cart before the horse" occurrence. On the contrary to traditional medical treatments, consumers are using cannabis without professional advice. The experts are trying to stay one step ahead of the patients, and that comes from reading recently published journal articles and attending conferences. Jennifer talks about the fast-paced research and its practical application:

> I think just that it is important to keep up with what is changing. So again, when I started, there really wasn't all that much in the literature, but now it's just amazing. So, recognizing that things are changing and find the resources to keep you up to date. Because you could be the greatest cannabis physician yesterday, but if you didn't read the literature and know the new information that you can offer your patients, then you're behind. Yeah, you're not the greatest anymore. It is where you can actually read a paper and you see how that can apply to your patient. Listen to the patients, get their results, be able to analyze the products, help them get their products. If it's as simple as writing a prescription, it's all done, but it's not. So you have to have those steps. And then yes, keep up with the literature because that could just be a conference every year or something. Keep up with the latest research because more and more is coming out and we want to be able to counsel people.

The data captures the expert's astute ability to stay abreast of the literature to advise their patients better. Schwab (2013) supports the idea of implementing decisions derived from subject matter from concrete models; he specifically states,

> Yet curriculum is brought to bear, not on ideal or abstract representations, but on the real thing, on the concrete case, in all its completeness and with all its differences from all other concrete cases on a large body of fact concerning which the theoretic abstraction is silent. (p. 611)

Applying the newest, practical research on patients is common for all experts. The participants are perceptive in improving their practice and expanding their knowledge base, especially in a fast-paced therapy like cannabis. Being at the forefront of research and education distinguishes their approach and reputation. The data suggests that everyone is staying current with published research, attending conferences, and listening to patient trends; their insight encourages them to act and solve current patient problems in real-time.

Essential Theme 5: Persistent

Despite all the obstacles the experts faced in their careers, they have forged a path forward. Facing adversity did not hinder their progress with patients. Persistence is a theme that is woven throughout each expert's narrative; for example, Mary describes resistance and pushback from fellow clinicians in her field:

> In the beginning when seeing pediatric patients, I got kind of, I don't know, I want to say blacklisted, but yeah, people hear your name and I'm sure they rolled their eyes. I don't know that. But I had a doctor, a very renowned pediatric neurologist, call me and ask, "What are you doing?" She continued her crusade against cannabis to the point where she reported people to Child Protective Services. She said to me, "I don't

want you seeing my patients." So when we asked anybody who called in for a new patient appointment, "who is your neurologist?" If it was her or her group, we could not take care of them. And a lot of patients switched because the parents were at the end of the line. 15 different drugs for your child and they moved on. And even when GW Pharmaceuticals was doing their research showing benefits, she was still against it.

In the face of opposition from the medical world, these experts continued to treat patients with cannabinoid therapy because they saw the failed outcomes of conventional medicine. Many experts discussed colleagues challenging their research, data, and patient outcomes. Jennifer recounted an early instance when a physician was arrested for treating patients with cannabis:

> It was just bad enough for physicians for getting raided, or a case when a FBI agent went in with a wire and did a medical marijuana appointment and then they arrested the doctor, and this was very early on. All his charges were dismissed. They said he did everything right, but the FBI just said, "Oh, well you're helping people get marijuana." But it was just the stuff that doctors had to go through in terms of stigma. There's less stigma now.

Aside from feeling the political wrath, experts also shared how they disagreed with cannabis activists and companies. When Henry presents, he addresses specificity and risk when consuming cannabis; he says:

> I pissed off a lot of people, I mean, there are people in this industry who don't talk to me because of that. And there is an advocacy group that was not interested in what I

> thought was important. They have a newsletter that was edited by a guy who was not a scientist. He was a retired reporter. And he would go on these endless written tirades about how we don't need randomized controlled trials and that we just need to be using what he called trials of one, which is basically a fancy word for an anecdote. And it just became clear to me that we were not on the same page.

It was clear to Henry there are challenges in all corners, he pointed out more criticism from activists and companies alike:

> When I started out, the primary opponent, if you will, were the prohibitionist. The people say no to data, this is bull crap. And there were a few people in the pain management arena who oddly enough were so enamored with their opioids or their injections, but they weren't willing to listen to data either. And those people still exist…Then there's this other group that's sort of the industry and the pot heads and whatever who are out there saying, "Oh, cannabis is wonderful. It's got no side effects, it's harmless. Everybody should take it, it's like a vitamin. It should be in the water!" And I think that this is the next big challenge, right? Because the advocates don't want to hear that cannabis has risks or should have any restrictions on it. And of course, the industry's goal is to sell as much product as possible. So, they don't want any restrictions or concerns or fears. And we've gotten to this place that I kind of think of as magical thinking. We want it to be a medicine, but we want it to be harmless.

All the experts continue to educate various stakeholders about the risks and benefits of cannabinoid therapy. Every group has its viewpoint and opinion, but these practitioners

use evidence-based research to illustrate their points. Another challenge they have faced is finding explanations about “non-responder” patients, meaning there is no response or reaction due to the treatment. Mary addresses this frustrating occurrence:

> There are some people who are just non-responders and I don't know if it's a metabolism issue, an absorption issue, an endocannabinoid system issue, maybe there's some genetic. I'd love to be able to study these people genetically to see if there's some reason why they don't respond to cannabis medicine. It's frustrating for me when I have a parent who brings me a child with autism, who just does not respond to medicine. Nothing. No change, no difference. It's frustrating. And is it the condition? Is it their genetics? Is it their metabolism? Remember, who knows. Right. And I have theories, but not proven of course. But I would say that's probably been one of the failures.

There is a deficit in this area of research for the experts. Like Mary, many have theories but nothing to prove with evidence. When patients do not respond to cannabis, the therapy is often dismissed and discredited. Another issue with cannabinoid therapy is the dosing of different products. There are suggestions based on observational research, but it’s not like a pharmaceutical drug with dosing for specific conditions/symptoms that have undergone randomized controlled trials. Instances like these only drive the experts to push for more research.

In order to overcome all these challenges, these experts are persistent about their educational initiatives. Evidence-based presentations and courses bring validity and strength to their mission. Sharing information with any audience chips away at the

stigma. The experts have tirelessly chipped away barriers by disseminating research-based knowledge and practical applications, challenging the status quo to think differently about this alternative therapy.

Summary

The data collected from the six healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS) addressed "what" and "how" the participants experienced the phenomenon, leading to a deeper composite description of their lived experience. The interviews revealed how healthcare professionals specializing in this medicine acquired the expert knowledge and experience to best advise their patients seeking medical cannabis advice. They provided insightful suggestions for educational initiatives in the absence of resounding research and traditional medical education. The practical knowledge derived from their experience has significant implications for curriculum development in cannabinoid therapy and the ECS that will be highlighted in the next chapter. The data contributes to specific recommendations and guidance for the future educational endeavors of healthcare professionals seeking professional development in this realm. The data was filtered through Joseph Schwab's "Five Commonplaces" framework, relying on practical approaches for developing a curriculum derived from the lived experiences of experts. This captures the essential understanding that healthcare professionals need to succeed in their everyday practice. Currently, the general population is already consuming cannabis without medical oversight, and this raises some public health concerns; Schwab's framework highlights the actual pragmatic application of healthcare professional education as opposed to a

theoretical approach. This realistic and viable perspective bridges the existing educational gap. Interviewing these six expert healthcare professionals provided insight into a curriculum pathway that can potentially guide novice healthcare professionals in future professional development endeavors.

Chapter Five: Discussion

Introduction

Cannabis consumption has increased dramatically due to increased recreational and medical cannabis legalization across the U.S. Subsequently, various public health issues have surfaced as a result of the educational void for healthcare professionals in cannabinoid therapy and the endocannabinoid system (ECS). Legal restrictions, D.E.A. drug scheduling, stigma, misinformation, and the lack of research and practical applications continue to provoke the educational shortcomings for clinicians. These variables affect the educational initiatives and willingness for healthcare professionals to discuss cannabinoid therapy options with their patients.

The purpose of this phenomenological study was to determine how expert healthcare professionals, specializing in cannabinoid therapy and the ECS acquired the knowledge and experience to best advise patients seeking medical cannabis advice in the United States. Phenomenology was the qualitative methodology used to investigate the shared lived experience of these experts, revealing what the participants experienced and how they experienced it. Six healthcare professional specializing in cannabinoid therapy and ECS participated in the study. These interviews captured data essential for developing practices and/or policies about the characteristics of the phenomenon.

The following research questions unearthed the lived experience of the participants, revealing how they became experts without traditional training and how that subsequently informed curriculum, instruction, and professional development initiatives.

- What is the lived experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS)?
- How did healthcare professionals, specializing in cannabinoid therapy and the endocannabinoid system (ECS), acquire the expert knowledge and experience to best advise patients seeking medical cannabis advice in the United States?
- What guidance do healthcare professionals, specializing in cannabinoid therapy and the endocannabinoid system (ECS), offer regarding the professional development of healthcare professionals?
- How can the practical knowledge from expert cannabis healthcare professionals impact curriculum development, deliberation, and inquiry?

The data collected from the interviews were then funneled through Joseph Schwab's conceptual framework, a practical application for five individual commonplaces: teachers, teachers, learners, subject matter, milieus (contexts), and curriculum making (Schwab, 2013). This lens was used to apply universal perspective and practical applications to the commonplaces of everyday practice in cannabinoid therapy and ECS for healthcare professionals. Schwab's "Five Commonplaces" was used to construct the textural, structural, and composite description(s), highlighting the relationship between the data and its implications for curriculum development.

This research is significant for educational implications for the widespread medical community and their patients. Related policies, services, and confirmation of cannabis use during routine and specialized care are not current with patient consumption. The study provided insight into practical applications for healthcare professionals interested in learning more about cannabinoid therapy and the ECS to propel clinicians to assist with current patient use. This directly supports patients interested in talking to a knowledgeable healthcare professional about cannabis consumption. More opportunities for effective and practical actions will mitigate public health risks regarding cannabis consumption.

In this chapter, I will summarize the findings, connect the data to the literature, identify implications for practice, describe the recommendations, state the research limitations, emphasize future directions, and reflect personally on the research process.

Summary of Findings

This summary of findings aims to highlight the main points from chapter 4, emphasizing the research problem and questions, as well as Joseph Schwab's conceptual framework about the commonplaces of curriculum. The findings address the issue of whether they improve or change the field's understanding of the phenomenon under investigation in theory, research, and practice.

Finding 1: Healthcare Pioneers in Cannabinoid Therapy and the ECS

In response to the first research question, which addresses the lived experiences of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS), there was a similar connection across the six participants, suggesting all

embody a healthcare pioneer spirit. Most participants started in traditional medical settings prescribing FDA-approved medicines. After a myriad of reasons and opportunities, these practitioners entered a realm of alternative plant-based medicine that had all kinds of challenges associated with it. All the participants were drawn into cannabinoid therapy through their patient's inquiries. Instead of ignoring their request to know more about the therapy, these individuals engaged in research, conferences, collaborations, and data collection to become experts. Their patients empowered them to seek cannabinoid therapy insights and knowledge not widely known, published, or researched. They adopted a medical treatment and documented rewarding experiences and positive patient outcomes. Instead of taking one pill thrice daily, these patients sought individualized medicine for symptoms/conditions that pharmaceuticals could not. Through data collection, trial and error, testing, and time, these practitioners focused on cannabinoid therapy. Eventually, Dr. Sanjay Gupta's CNN cannabis special revealed the medicinal benefits for many patients searching for a better quality of life. Following this, access to cannabis in individual states increased, and these expert practitioners led with their knowledge and experience.

The experts lived experiences did not come without their own set of challenges and risks. There has been stigma and pushback from society and the medical community. Cannabis is still federally illegal in the U.S. It is a Schedule I controlled substance under the federal Controlled Substances Act with no current accepted medical use with high potential for abuse, thus making it challenging to research. Randomized double-blind placebo control studies with humans are difficult and expensive to conduct. Nearly every

published peer-reviewed cannabis study suggests that more research is needed in specific areas or there is a lack of research to support any assertion. This lack of research has left an educational void filled with falsehoods and misinformation from untrusted and unaccredited sources. Since the medical community has not widely accepted it, healthcare practitioners might be reluctant to engage in continuing education courses or dismiss its potential based on the lack of research. This is supported by published research about clinicians and the lack of knowledge of cannabinoid therapy and their hesitancy to discuss cannabis with their patients.

These experts navigated unique paths to acquire the practical knowledge to treat patients and achieve positive health outcomes. This finding suggests that patients drove the experts' inquiry into cannabinoid therapy, and the published gold standards studies are dragging behind what is happening in real-time. This has implications for healthcare professionals who want to learn about cannabinoid therapy, which is addressed in this chapter's Implications for Practice section.

Finding 2: Acquired Practical Knowledge

This finding addresses the second research question regarding how healthcare professionals specializing in cannabinoid therapy and the endocannabinoid system (ECS) acquired the expert knowledge and experience to best advise patients seeking medical cannabis advice in the United States. Since the theoretical and practical knowledge is not taught in traditional academic medical schools and institutions, this was an important discovery. Patients were approaching these healthcare professionals about cannabis consumption; therefore, all the experts did their due diligence to learn about this therapy.

All six participants attribute reading countless peer-reviewed research articles about cannabinoid therapy and the ECS. They could search specifically about symptoms, conditions and read the most recent published information. Additionally, they collected and tracked data from their own patients. As one expert said, “I read a lot of science and took care of a lot of patients.” Every time they encountered a patient, they documented symptoms, product type, dosages, other medications, and other relevant details. It was important to take the time to actually listen and engage deeply with each patient because their conditions and responses to cannabis were so unique. Many made connections in real-time while reading articles and applying that information to their patients.

One expert explained this process in detail:

> It's a synthetic process in the sense, when you read the data that tells you something about how it works in the lab, but it doesn't really tell you that much about how to apply it. It gives you the underpinnings and then you need to listen to your patients. But you listening to your patients is dangerous too, because of course they can have their own biases and their own experiences, which may or may not accurately reflect what actually happened because of the medicine. And so you can't go on anecdotes either. And so you've got to marry a number of them, not just one anecdote, but thousands or tens of thousands of them. This is the clinical experience part with that foundation of the science.

It was imperative to keep up with the literature and publications on a daily basis because discoveries are happening quickly in this medical field. Over time, they figured out how to best advise their patients given a specific condition/symptom with specific

dosages from well-known quality products. They also attended scientific conferences, attending lectures, and discussions; these events also gave them a chance to confer and collaborate with other experts. One expert commented on this, “The conferences have been great. And not just for the content of the speakers, but also just the connections and networking with other clinicians and validating my observations and learning what they're doing too.”

These healthcare pioneers were self-starters and took the initiative to advance their own education. Unconventionally acquiring this knowledge motivated them to share and teach others at conferences, online courses, mentorships, and publications so that novice professionals can best advise their patients in this specialized therapy. Lastly, this finding provides insight into the implications for practice and how novice healthcare professionals acquire expert knowledge to best advise their patients in cannabinoid therapy and the ECS. Joseph Schwab’s conceptual framework jives with how the participants acquired their practical knowledge; they learned through real-life subject matter and relevant literature, identifying the most important content and how that could be applied to their patients. As opposed to theoretical pursuits, Schwab believed curriculum considers all five commonplaces' real needs and abilities. This finding addresses how we can use Schwab’s Commonplaces to discuss and guide our inquiry into our teaching practice in cannabinoid therapy and the ECS.

Finding 3: Filling an Educational Void

This finding answers the last two research questions about what guidance the experts offer regarding the professional development of healthcare professionals and how their

practical knowledge can impact curriculum development, deliberation, and inquiry. Their advice directly responds to what they experienced as a self-starting clinician in this alternative medical approach. Fortunately, as a result of these healthcare pioneers being at the forefront of cannabinoid therapy and ECS knowledge, they are filling an educational void through various learning deliveries. The experts have led in-person training, online learning, book and article publications, lectures, and panel discussions. In the absence of traditional courses at medical schools, these experts have developed original content from evidence-based resources to teach beginners a practical application of cannabinoid therapy. Their approach to education is based on their lived experience, relying on the practical knowledge they acquired through years of reading, treating patients, and engaging in collaborative opportunities with other experts. When misinformation and false claims hijack the narrative, these experts were actively and professionally speaking the truth about cannabinoid therapy, relying on evidence-based research. They tailor their content and instruction to meet the specific audience's clinical needs. Typically, their teaching depends on a learning trajectory, starting with basic information about the plant and the endocannabinoid system and progressing in difficulty to practical physiological applications. These presentations intend to show how this therapy can be incorporated into your clinical practice, another tool in your toolbox. The most prominent learning opportunity these experts have engaged in has been mentorships; interested healthcare professionals have shadowed and studied alongside the experts in their private practice. This experiential approach is not common but exists if interested learners seek the opportunity.

In this finding, Joseph Schwab would ask, “What are the five bodies of experience which must be represented in the group which undertakes the task of curriculum development?” (Schwab, 1973, p. 502). There should be a subject matter expert, someone familiar with the learners and the learning environment (i.e., online, in-person training, etc.). Schwab points out that another required experience is knowledge of the teachers, which should include insight into what these teachers know and how flexible they are in learning new materials and ways of teaching (Schwab, 1973). Lastly, the fifth is someone knowledgeable about the curriculum-making process. Schwab’s conceptual framework for including these five commonplaces in the development of curriculum and instruction for a subject matter that has not been traditionally taught would enhance the learning approach for novice healthcare professionals interested in learning about cannabinoid therapy and the ECS.

As Schwab intended, educators frequently use the commonplaces as "voices" in curriculum discussions, what should be taught, and how it should be taught (Zeldin, 2011). Zeldin (2011) lists the following questions that can be applied to the curriculum development process for cannabinoid therapy and the ECS:

> How can the curriculum draw on the teacher’s background and capacities? How can a program of study and the ways it is presented address the needs of learners and be tailored to fit their developmental characteristics and their learning strengths? What would subject matter experts identify as the most important content to be taught and how would they explain its significance? How does the social milieu affect decisions about what is to be taught and how it is to be taught to this group of learners at this time and in this place? What qualities do instructors contribute to teaching and learning? Who are the teachers? Who are the students, what standout traits do they possess, and how do those traits influence what they learn? What environment does education take place in, and how does that environment affect teaching and learning? (p. 1)

Schwab's approach has a strong implication for practice and could benefit experts who teach and plan education in this niche field of medicine.

Finding 4: Troubleshooting Challenges

Becoming an expert in cannabinoid therapy and the ECS has come with its own set of challenges; some of them were apparent, but they shed light on others that could lead to future research studies and investigations. Throughout their career in cannabis, they have had to stave off stigma and criticism from society, politicians, and their own medical community. This was, at times, frustrating, taxing and stressful. It distracts from their mission and focus as professionals serving their patients. Even though cannabinoid therapy has grown in acceptance over time since they started on this journey, they still face scrutiny and pushback. One of the reasons why this exists is due to the misinformation and mistrust circulated about cannabis from unreliable sources or capricious anecdotes. The lack of randomized, double-blind placebo control studies with humans has created an opportunity for so-called "experts" to speak about cannabis from limited experience and deficient of evidence-based information. As more research is published around this therapy, the less stigma and criticism it will receive from the medical community and society. More healthcare professionals will be eager to pursue empirical-based education in this area as it becomes readily researched. Additionally, as more laws change around legalization, hopefully, this plant will be removed from the federal level as a Schedule I drug of the Controlled Substances Act, acknowledging it has acceptable medical use. Not only would this change how cannabis is used in research and

the stipulations around how it is researched, but all results will support decisions patients want to make when treating specific symptoms/conditions.

Another challenge that affected the participants was the type of cannabis products available to their patients and the quality of those products. Fortunately, Certificates of Analysis (COAs) by a third-party testing agency show the list of cannabinoids and their quantity in specific batches of cannabis products. Early on, these COAs were not common, and it was often a guessing game. Cannabis products are still federally unregulated by the FDA, unlike controlled pharmaceuticals purchased at a pharmacy. Some larger companies adhere to specific dietary supplement protocols, like a Good Manufacturing Practice (GMP) registration. The FDA requires no standards for lab testing and product safety, and therefore quality is likely to vary within and across dispensaries from state to state. A national uniform approach to testing standards will only come with federal legalization. These inconsistencies can affect dosing recommendations suggested by healthcare professionals, so there must be some regulation standard that the cannabis market can adhere to best serve their patients' needs.

Another challenge that affects the participants is the dispensary business model. They want to make a profit, and therefore their employees, also known as budtenders, are upselling products that consumers don’t necessarily need. This is the case even when patients enter dispensaries with a written doctor's recommendation. If they intervene, their intervention is harmful, disrespectful, and unwarranted. It also emerges as a public health risk that can severely affect potential drug abuse and misuse. Budtender

intervention is an area that could be researched further in order to improve policy and hold these stakeholders responsible for their actions.

Despite the challenges, experts have prevailed in their practice and continue to use research published in real-time to their advantage. Limited as it may be at times, it at least indicates practical applications for the patients and, in most cases, supports what they already have been doing. Acceptance of a drug that has been historically tainted is going to take time, money, and further research.

Finding 5: Future of Plant-Based Medicine

This finding about the future of plant-based medicine was a recognized sentiment felt by all the participants who saw their patients benefit from cannabis over time. These clinicians saw first-hand how pharmaceuticals can cause side effects or are treatment-resistant when a condition doesn't respond to a prescription medication as expected. With the exception of two participants who delved into alternative medicine from the beginning of their careers, the rest were burnt out from the current system of how patients are medically treated and how pharmaceutical companies incentivize clinicians who prescribe their drugs. Due to the lack of research and information to teach evidence-based courses about cannabinoid therapy and the ECS, few clinicians will speak to their patients about cannabis. Having an FDA-approved drug to treat specific conditions/symptoms is safer, for the benefits outweigh its risks. Patients are cautious of the unregulated plant-based medical markets and are hesitant to dip their toes in the water. Also, misinformation and rogue anecdotes are difficult to ignore, and it takes either a unique patient to seek plant-based therapy or someone searching for a last-ditch medical

approach because pharmaceuticals no longer work. The patients and clinicians who have witnessed the potential for plant-based medicine believe in the growth of this industry.

The future suggests that unknown and poorly researched treatments like psychedelics (i.e., psilocybin, ketamine, MDMA, LSD, and peyote) will be more widely accepted. Some experts from the study are already treating patients with this therapy, and similarly to cannabis, it carries stigma, reluctance, and skepticism. The participants in this study felt there was a strong future in cannabis and other plant-based therapies, which prompts all kinds of research questions and studies. Instead of plant-based medicine as a drug of last resort or a heroic dose, when all other pharmaceuticals have been exhausted, they hope one day it will be a patient's first choice. Hopefully, the research catches up to what is happening in real-time for patients and supports their choices and quest for quality of life.

Connection to the Literature

This phenomenological study of healthcare professionals who are experts in cannabinoid therapy mostly agrees with the existing literature. It attempts to extend and solve current challenges in cannabinoid therapy and ECS education.

Lack of Research

In accordance with the findings of this study, participants stated that there is a lack of clinical data and evidence to indicate that cannabinoid therapy is an effective treatment for specific conditions/symptoms. The literature supports the participants' sentiments. There is a comprehensive article crafted by an international group of cannabis experts that prioritizes research categories that are needed in the medicinal cannabis research

field; collectively, they address current research gaps and offer suggestions for future studies (Bonn-Miller et al., 2019). They wrote, “For clinicians to have confidence in recommending medicinal cannabis, anecdotal reports, however extensive and remarkable, are not sufficient. Evidence-based research is required” (Bonn-Miller et al., 2019, p. 1). All of the recommended research areas they prioritized were data points mentioned collectively throughout the six interviews; they are routes of administration, cannabinoid concentrations, dosing of cannabis and cannabinoids, study design, long-term effects, effects of drug/drug interactions, individual variability in cannabinoid effects, comparative efficacy, and need for clinical data (Bonn-Miller et al., 2019).

Cooper et al. (2021) discuss the various barriers to research and how that delays the dissemination of information, which trickles down to the patients. Hindrances like cost, access to quality products for research, and legal approval from government agencies affect cannabis research initiatives. The National Academies of Sciences, Engineering, and Medicine (2017) further indicates that the FDA Schedule 1 drug classification hinders cannabis research and study initiatives and limits the number of gold-standard clinical trials needed for widespread evidence about its therapeutic effects (NASEM, 2017). Without validated research, healthcare professionals are less likely to have information to advise patients on dosing, drug interactions, cannabinoids, and administration; they, in turn, self-treat and turn to unreliable sources like websites and budtenders (Mercurio et al., 2019). The overall lack of research is a problem and is well-known throughout the medical community. Nearly all cannabinoid therapy research concludes with statements like, “further clinical trials should be conducted,” or “further

prospective clinical trials are necessary to adequately evaluate the impact of cannabinoids on…" The medical community will continue to drag behind patients until research catches up with reality.

Lack of Cannabinoid Therapy and ECS Education & Training

There are studies to support the lack of education and training for healthcare professionals in this plant-based medicine. Evidence-based clinical guidelines to help patients are non-existent. In a recent study (2023), physicians in a university-affiliated health system participated in online anonymous surveys that assessed their cannabis-related education experiences, perceptions of their knowledge of any competence regarding medical cannabis, and the content of cannabis-related discussions with patients (Kruger et al.). Overall there was a poor understanding of medical cannabis, with only 10% of the physicians having ever signed a medical cannabis authorization form (Kruger et al., 2023). Sixty-three percent focused on risks rather than the 6% who discussed benefits and dosing (Kruger et al., 2023). Generally, physicians have unfavorable attitudes towards medical cannabis dispensary staff like budtenders (Kruger et al., 2023). The authors suggested cannabinoid therapy knowledge is needed for all healthcare professionals in both medical and clinical education to reduce harm and advise patients safely (Kruger et al., 2023). Lastly, they call for developing treatment guidelines and standardized medical education for cannabinoid therapy use.

A related study supports that there is still a void in cannabinoid therapy knowledge among healthcare professionals. Canadian physicians reported that the most significant gaps are around: the development of treatment plans, comparisons between cannabis and

existing prescription cannabinoids, dosing, and overall risks and benefits (Ziemianski et al., 2015). The data collected from the six participants support these survey's outcomes. Practical clinical applications that are evidence-based will support patient care in cannabinoid therapy.

A robust recommendation from the National Academies of Sciences, Engineering, and Medicine (2017) calls for an increase in accredited, quality continuing medical education for healthcare professionals in the United States. The author's summary agrees with the findings from this study that more evidence-based research is needed to deepen the knowledge of cannabinoid therapy. Rubin's article addresses how physicians lack preparation to treat patients with cannabis after an eight-hour online course. One participant from this study concurred with this data point stating, "What they [healthcare professionals] need is more education, and a four-hour course doesn't cut it. I spend a hundred hours a year reading this stuff, and I still feel like I don't know enough." He further recommended that learners apply continuous effort toward studying the topic, "you have to keep practicing, you have to keep listening, you have to keep reading, you have to keep trying to put it all together so that as new data comes along, you can bring that into the practice."

A comprehensive systematic review investigating healthcare professionals' knowledge of cannabinoid therapy reported their strong yearning for more formal education, especially in professional development curricula (Gardiner et al., 2019). Physicians felt more confident treating patients if formal, traditional cannabinoid therapy education was available (Gardiner et al., 2019). Self-reported cannabis knowledge was

admittingly poor, and healthcare professionals wanted more educational opportunities and accessible, reliable information (Gardiner et al., 2019). Findings from this study support the notion that there needs to be more formal educational opportunities which explains why so many participants from this study created their own courses.

A recent self-administered online questionnaire that assessed the knowledge, attitude, and perception of medical cannabis was issued to medical school students, and 87% believed they could identify how cannabis could benefit and harm patients, but only 14% thought they were ready to actually answer patient's concerns and questions about cannabis use (Jankie et al., 2023). Medical students reported lacking proficient training and education from the medical school curriculum and relied on the Internet for information (Jankie et al., 2023). This study is in accordance with the six participants' findings; they, too, lacked direct medical cannabis education from medical school and, as a result, were not necessarily prepared to advise patients. Pursuing this knowledge and practical information took a lot of initiation on their own merit. They also called for more medical education and training from all academic institutions.

Aside from the prevalent articles about the lack of education and training for healthcare professionals, there is also a research article that addresses the importance of documenting cannabis use with electronic health records to close the gap patient-clinician gap (Sajdeya et al., 2021). The author's multiple-step approach to mitigate the knowledge gap includes: (1) developing clinician and patient education on the significance of cannabis use assessment and documentation, (2) executing a standardized approach for comprehensive cannabis use assessment within and across healthcare systems, (3)

improving documentation of cannabis use and its correlates in medical records and electronic health records by building in prompts, (4) developing and validating reliable computable phenotypes of cannabis use, (5) conducting research utilizing electronic health data to study a wide array of related health outcomes, (6) and establishing evidence-based guidelines to inform clinical practices and policies (Sajdeya et al, 2021). The findings from this research study support the authors' recommendations, for it calls for further assessment, standardization, organization, and reliable data collection to advance research initiatives. Electronic health records will provide stronger data for clinicians, mitigate patient risk and improve health outcomes.

Ware and Ziemianski (2015) state, "Clinicians are being asked to work with a drug that has come to them backwards: first, we have the drug, then we figure how to use it" (p. 548). Since one of the challenges is relying on evidence-based data to contribute factual information, they ask, "How can we educate HCPs when there is so little content on which to base such education?" (Ware & Ziemianski, 2015, p. 548). They suggest a curriculum based on traditional pharmacological concepts, collected data that is known, and what remains to be researched about cannabis (Ware & Ziemianski, 2015). Even though technological advancements in online learning can be impactful, Ware and Ziemianski (2015) recommend cannabis conversations are best learned through shared interactive sessions where outlooks and understandings can be shared in an open-minded and facilitated environment. These are all appealing considerations for future curriculum planning.

Four other studies discussed in the literature review address the lack of cannabinoid therapy knowledge that medical students and practicing healthcare professionals need to advise their patients best. There is a greater call for standardized education, more evidence-based research around clinical practice, and a practical approach to guide patients with current products. Unfortunately, the six healthcare professionals in this study had no access to cannabinoid therapy education. They relied heavily on their own data collection, married with journal articles, conferences, and collaboration all contributed to their expertise. This concerted effort on their behalf contributed to their success, benefitting thousands of patients with plant-based medicinal approaches.

Acquiring Practical Knowledge through Clinical Practice

Most of the literature reviewed in this research study addresses the lack of cannabinoid therapy knowledge and education among healthcare professionals. Even though consumers continue to self-medicate cannabis, the medical and post-graduate curriculum is, for the most part, nonexistent. Graduating medical students and current practitioners are unqualified and unlearned to advise patients in cannabis use. There is a lack of standardized cannabis education for healthcare professionals. This literature points to a deficit and identifies gaps in cannabinoid therapy education. No literature addresses how healthcare professionals who are already experts in cannabinoid therapy and the ECS acquired the practical knowledge and skills to advise hundreds and thousands of patients in cannabinoid therapy use. This research study identifies how cannabis experts developed their expertise outside of traditional medical school and academic courses. Intending to publish this study in a peer-reviewed journal article, I

plan to share these insights with the medical and cannabis community. This data has implications for practice, and Schwab's framework is a lens, providing a comprehensive curriculum planning approach for developing a robust program.

Cannabinoid Therapy Specialists

Another finding from this study that one participant acknowledged was the idea around a cannabinoid therapy specialist; for example, when the primary care physician refers their patient to a cardiologist or a gastroenterologist, a trained medical practitioner who specializes in a specific area and can advise on complex medical issues. What about referring patients interested in cannabinoid therapy to a qualified expert? Patients are self-treating their symptoms/conditions with little knowledge about dosing, administration methods, ratios, cannabinoids, drug interactions, side effects, risks, contraindications, and indications. A general practitioner could defer these patient inquiries to specialists and collaborate with the primary care physician on all medical treatments. Arboleda & Prosk (2021) address this idea in a unique medical cannabis clinic model, a referral model for institutional and community-based physicians and nurse practitioners that connects cannabis care and education to patients who are interested or already using medical cannabis. Patients are referred to the clinic by external healthcare professionals in hospitals or primary care physicians who are not necessarily well-versed in medical cannabis (Arboleda & Prosk, 2021). The model also describes a thorough, patient-centered experience using clinical evidence focusing on quality of life. This differs from the narrative of Gary, a study participant who described his experience at a clinic he previously worked at. He said he was only allocated 15 minutes to quickly

assess if patients met the qualifications to receive a medical cannabis card. The clinic he worked at lacked care, education, proper medical evaluation, and advice. A specialist or dedicated medical cannabis clinic that is incorporated into the broader healthcare community that serves as an adjunctive treatment to traditional medicine that cooperates with an individual's medical team is an inclusive model (Arboleda & Prosk, 2021). Additionally, the specialists and care clinic model could help researchers interested in conducting randomized controlled trials; it is an opportunity for real-world data collection that addresses what patients are currently consuming and how their treatment plan indicates symptom/condition relief for future treatment (Arboleda & Prosk, 2021). This model could mitigate risk and abuse if the referring specialists and clinic are knowledgeable, supportive, thorough, and methodical. With widespread cannabis use and increasing access to products, primary care physicians can safely and confidently refer their patients to a cannabinoid therapy expert.

Dispensaries and Budtender Intervention

Additional findings about the dispensary model and budtender intervention were common throughout the interviews. When a doctor writes a script for a patient's medication, the pharmacy fulfills the exact request from the expert healthcare professional. This model does not exist when doctors write medical cannabis recommendations for their patients; often, the dispensary upsells the product and disregards the doctor's suggestions to make greater profits. They are not medically trained nor use evidence-based data when advising clients. They have been reported to mislead and push more products to medical patients who arrive with specific written

recommendations from expert doctors. Despite this trend, Johnston & Vanderdah (2020) reported that budtenders are becoming the preferred advisors to consumers. Some concerns surface as a result of this increasing trend. Roberts (2019) states that legal cannabis products go through intermediary budtenders that may lack training, therefore affecting the potential therapeutic benefit; these non-medically trained dispensary workers giving medical advice is a harmful threat to patients. A statewide cross-sectional study in which anonymous callers who were eight weeks pregnant suffering from nausea, contacted dispensaries about what cannabis products to use (Dickson et al., 2016). Most of the dispensaries, 69%, suggested cannabis products alleviate morning sickness symptoms, and 36% declared cannabis use is safe to use while pregnant (Dickson et al., 2016). The profit-driven dispensary model is a public health risk. Dispensary staff needs more training around staying within their boundaries and not overstepping medical expert recommendations. Dickson et al. (2016) suggest, "Public health initiatives should consider collaborating with dispensary owners and other valuable stakeholders in conversations about standards for advice…" (p. 8).

Future of Plant-Based Medicine and Pharmaceutical Model

The interviews also revealed the growing popularity of plant-based medicine, especially when other pharmaceutical drugs fail to treat specific symptoms and conditions. Bachtel & Israni-Winger (2020) point out how plant-based therapies are growing in popularity; there are fewer side effects, and they contain adaptogenic properties, natural substances that help the body adjust to stress and to exert a normalizing effect on body processes. Even though more evidence and rigorous studies

are needed to support the plants' effects, it is a growing trend. Another report indicated that nearly one in every ten recently FDA-approved drugs does not work (Johnston et al., 2023). Between 2018 and 2021, 21 of the 210 new medications approved were based on trials whose findings did not demonstrate that the drugs worked in one or more ways (Johnston et al., 2023). There is literature supporting this research study's findings about the future growth of plant-based medicine. Participants in this study are already seeing an uptick in psychedelic use in patients who are avoiding selective serotonin reuptake inhibitors (SSRIs) that can have adverse side effects. Three randomized controlled trials published in 2021 recently found that ketamine, psilocybin-assisted therapy, and MDMA-assisted therapy are highly efficacious in patients with severe depression and PTSD. These studies are promising and show a future therapeutic use for plant-based therapy in general.

Healthcare Pioneer Spirit

One participant mentioned this healthcare pioneer spirit terminology, and the only literature that supports this explanation is an online blog by Colin Hung (2018), the co-founder and editor of HCLDR, an online community of people who strive to improve healthcare through processes, technology, and education. The blog initially defines a pioneer as someone who is the first to do something or the earliest to inquire or advance an initiative, but essentially describes a trailblazer that opens doors to new developments (Hung, 2018). He then proceeds to define a healthcare pioneer as the following:

> (a) a person who is first, or among the earliest to develop or adopt a new healthcare model, medical process, treatment protocol or technology, (b) a group of individuals that puts healthcare infrastructure in place to enable new forms or types of care, so that those that follow will have an easier time, (c) a person or group that successfully

> establishes themselves in a new area of healthcare that was previously unknown, unoccupied or inaccessible, thus extending the healthcare ecosystem into this new area. (para. 3)

Historical healthcare pioneers that fit Hung's definition include, Florence Nightingale, Clara Barton and Hippocrates, to name a few (2018). The experts interviewed for this study embody the characteristics and mentality of Hung's description. They forged a difficult path that carries a lot of stigma and denial from society and the medical community. They had to think outside the box and pave a new medical path. When little evidence-based research informed their practice, they collected real-time patient data, read as much literature as possible, and conferred with other clinicians to best help their patients. They were driven to help patients find symptom/condition relief and a better quality of life with cannabinoid therapy.

Implications for Practice

After analyzing all the data through Moustakas' phenomenological process, there were many ideas of sudden inspiration, insight and recognition. I wrote down those ideas in a separate memo file in Nvivo, saving them later to illustrate how the results of this study add to the existing body of knowledge. This section combines the perspectives of myself and the participants, outlining how this study can implicate practical approaches to curriculum and instruction around cannabinoid therapy and the ECS. I will specify how these findings impact the general field and the broad implications of that.

Schwab's Five Commonplaces for Curriculum Development

One of the most significant implications for practice is what the research findings suggest for cannabinoid therapy and ECS curriculum. Given this study's conceptual

framework, Joseph Schwab's Five Commonplaces for curriculum development, this study gravitates to a practical application. This summary of *The Practical* describes the commonplaces:

> *The Practical* requires that five bodies of disciplines and experience be represented in a collaborative group that undertakes the task of curriculum revision. Schwab called four of these the "commonplaces" of educational thinking, which require representatives of the affected learners, teachers, subject matters, and (sociocultural) milieu. The fifth is that of the curriculum specialist, who must work with the other representatives to ensure that the commonplaces are properly coordinated, because changes in any one will have consequences for the others. Schwab designed a set of eclectic arts to join theories across disciplines so that scholarly and research materials could be shaped into teachable curricula. (Joseph Schwab (1909–1988) Education and Career, Scholarly Work, The Practical, Legacy, para. 6)

Schwab explains all of this in six articles published from 1969 to 1986. He describes the abilities needed for successful curriculum deliberation: practical processes for the problem perceiving, problem-posing, and problem-solving activities (Cohen et al., 2005). This implies that a collaborative group of stakeholders (i.e., expert clinicians, curriculum specialists, etc.) debate, discuss and analyze cannabinoid therapy and ECS curriculum using the five commonplaces. This could be a model for how multiple practitioners can engage in group deliberations on their curriculum; their collaborative efforts can be practical and meet the needs of the courses' stakeholders. This process also relies on implementing practical knowledge into the curriculum instead of theoretical frameworks. Schwab's conceptual framework is a right fit for multiple collaborators on curriculum development in this medical field.

Acquiring practical knowledge in cannabinoid therapy and the ECS meant an unconventional approach to expertise. Can the experiences that these clinicians had be boxed into a curriculum and educational seminar? What does this look like for medical

colleges and universities? One implication could be creating an elective course or building it into an existing course. This could cover fundamental information about the plant and the ECS, touching upon health benefits and risks. Nearly every expert suggests students learn about this alternative medical therapy at school, making sure there is early exposure to the approach.

Already existing online courses either through Continuing Medical Education LMS platforms, could benefit from the following practical suggestions; reading recently published peer-reviewed articles, setting up alerts in Google Scholar or PubMed to access daily articles on cannabis, training in person with an expert/mentor in the field, and access to learn how to apply practical physiological ideas to patients.

All experts rely on a learning trajectory within courses and teaching material, with students following a natural developmental progression in learning (Clements & Sarama, 2004). Built into their teaching is a succession of concepts that build on one another. The ultimate goal is for learners to be able to take all the information they have acquired from the course and apply it to their clinical practice with patients. When referring to Bloom's Taxonomy framework, learning starts simple and grows in complexity; they take in the information for knowledge and understanding but then use higher-order thinking skills to apply, analyze, and evaluate that information in their clinical practice (Krathwohl, 2022). Therefore, another implication for practice would be to use Bloom's Taxonomy framework to create a learning progression for learners to ultimately use higher-order thinking skills, evaluate the patients, and create an evidence-based cannabinoid therapy plan for them moving forward. Knowledge and understanding of the information is

important, but there needs to be activities and opportunities that allow learners to exercise those higher-order thinking skills. That is why a mentorship or short residency in cannabinoid therapy would be crucial, so clinicians can apply what they learned in their coursework in real-life, unexpected scenarios with support from an expert on hand. Including a mentorship opportunity for cannabinoid therapy specialists would be crucial to individual learning since it prepares the student.

Establish Learning Standards

Presently, there are no overarching, national gold standards for cannabis education, a core body of knowledge containing statements that identify learning outcomes, objectives, specific content, and a learning progression (Browder et al., 2006). Certification programs vary from one organization to another; therefore, learning outcomes differ, and knowledge learned is irregular. Historically, standards are intended to progress the effectiveness of what is to be learned, the quality and consistency of teaching, and student outcomes (Rose, 2009). There is a need to create broader learning standards and guidelines for healthcare professionals seeking dependable cannabinoid therapy and ECS knowledge. Establishing cannabis learning standards attempts to mend a fragmented academic arena, all while potentially improving the expertise of the expanding medical cannabis community (Rubin, 2017). The learning standards aim to forge coherence, accountability, equity, shared expectations, a common language, a prioritization of content, and a scope and sequence across all courses. Establishing these standards provides a foundation for future institutions to follow an evidence-based formulation of learning standards trusted by medical cannabis experts. The importance of

this initiative resolves a problem that medical institutions and programs face: how can all current accredited online continuing medical cannabis education courses provide clear and common guidelines for learners to achieve proficiency in a specific cannabis topic/area of understanding? Since this overarching body of knowledge does not exist, medical practitioners continue to receive varying information and, therefore, lack the expertise to advise their patients best, potentially posing a public health risk nationwide. The significance of establishing cannabis learning standards is to bridge gaps in knowledge and content and set an expectation for physicians to provide the best possible health care.

Cannabinoid Therapy and ECS Specialist Medical Referrals

Another implication for practice based on the findings is creating a system of medical referrals to cannabinoid therapy specialists. As one participant pointed out, when a primary care doctor is collecting data on a patient with an underactive thyroid, they might refer them to an endocrinologist. Henry explained the model in this detailed scenario:

> One of the significant impediments at this point is that many doctors aren't aware of medical cannabis, but they don't know much about it and they don't need to know what I know. They need to know essentially who would be a good candidate, who would be a bad candidate and where to refer them to. And the model here, in my mind is very conventional. I mean, most primary care doctors can treat blood pressure, but if you get into sophisticated cardiac problems, then you refer to a cardiologist and they become part of that patient's care team. Similarly, if somebody has a little underactive thyroid, they might take care of it, but if the patient is more

> complicated or they have brittle diabetes or something, then you would refer them to an endocrinologist. And that becomes part of the person, becomes part of the team. So I think that the model really has to be when the primary care doctor primary sees Mrs. Jones for back pain and the back pain isn't getting better with routine, rest, and heat and maybe a little non-steroidal, and physical therapy, well now the choices really are opioids, which we don't like so much, or we're kind of stuck. So the issue in my mind is this is where cannabis comes in and they [primary doctor] don't need to know all the details about cannabis. They need to know that there was a failed conventional initial therapy and Mrs. Jones would be a reasonable candidate for cannabis as the next step right. Before we incorporate opioids. Instead they say, 'I know Mrs. Jones, you've never used cannabis and I'm sure you've never really thought about this, but it turns out that there's real data here. Why don't you go see my colleague, Dr. Henry?'

Essentially, that specialist is part of the care team, and that model is something to consider when a patient could be treated with cannabinoid therapy. Instead of training every healthcare professional on the complexities of cannabinoid therapy, there could be specialists that primary care physicians refer their patients to. This could potentially reduce the number of pharmaceuticals, especially opioids, and be an effective treatment for patients with specific symptoms/conditions. Additionally, this medical referral of a cannabinoid therapy specialist model could mitigate public health risks; instead of patients self-treating with cannabis and consuming potent amounts, which could lead to dependency and abuse, they would be under an expert's supervision and care.

The healthcare professional training model developed by Santé Cannabis in Canada goes beyond theoretical and pharmacological education (Arboleda & Prosk, 2021). There is a practical component for novice healthcare professionals to witness real-time evaluations, critical to acquiring the expert knowledge needed to become a prepared and confident physician in medical cannabis (Arboleda & Prosk, 2021). These mentorship opportunities are necessary for cannabinoid therapy advancement and support patients interested in achieving optimum health and quality of life.

Further Dispensary and Budtender Education

The participants discussed the unique process of ensuring their patients access quality products with specific cannabinoid concentrations, a milligrams per millimeters ratio, in medical and recreational dispensaries. Nearly all of them pointed out the problem with the dispensary model and their emphasis on upselling products. Budtenders occasionally intervene and disregard the doctor's script, recommending the patient buy more products and often with a higher concentration of cannabinoids. As a result, patients are confused after leaving dispensaries with the wrong products; sadly, there's a risk of overconsuming products and potentially causing harm, abuse, addiction, and overdose. More budtender education and training about respecting doctor's recommendations and the risks associated with upselling products to consumers could mitigate unwanted intervention. I would also be curious how often budtenders intercede and in what capacity; this would warrant potential future research around budtender behavior and frequency of following the doctor's suggestions. This also could implicate the need for more public health initiatives to mitigate harm and ensure patients are safe from profit-hungry businesses.

Research Limitations

Research design or methodology can limit or impact the research study. This study's limitations are addressed to acknowledge proposals for further research. Even though this is a subjective process, it is important to critically evaluate the overall interpretation and generalizability of the outcomes (Price & Murnan, 2004).

Even though I acquired rich narratives of the experiences and unique insights of six experts in cannabinoid therapy and the ECS, this phenomenological methodology has limitations worth mentioning. Sheree Dukes points out that it's not a transparent recipe for conducting perfect research but an evaluation of what constitutes knowledge (1984). Anthea Wilson (2015) states, "In reporting, although you cannot create generalizable theory out of phenomenology, it is nevertheless possible to identify the implications for practice" (pp. 42-43). While there is no definitive theory nor infallible resolution, the knowledge and practical implications derived from the study provide valuable educational recommendations.

Interpretation can be subjective; therefore, it was important to consciously filter out bias throughout the research process by thinking deliberately about negative and positive connotations associated with statements and generalizations. I was adamant about bracketing my subjectivity throughout the data collection process, purging my bias and partiality. However, I still had an inherent connection and relationship with the subject matter due to my involvement with Realm of Caring. I identified the problem as the former Education Director at the non-profit, initiating the need to study these experts to gain valuable knowledge. Having insight into the research problems and subject was an

advantage in developing rapport with the participants. I remained objective when analyzing their experiences and recommendations for professional development and curriculum planning, interpreting the transcripts at face value. In general, interviews are taken at face value in qualitative research and are seldom independently verified; therefore, the researcher trusts the accuracy of the participant's lived experience (Huberman & Miles, 1994). Limitations from self-reported experiences can be problematic in four ways: 1) selective memory, 2) recalling events in chronological order or telescoping, 3) attributing positive experiences to their own benefit and negative outcomes to external forces, and 4) exaggeration (Huberman & Miles, 1994). I acknowledge these potential inconsistencies in the data analysis findings but attribute their whole-hearted engagement in the study and perceived trust as indicators of truth.

Replicating the results from these interviews is another potential limitation of this research study; reenacting the rapport and dynamic between the six participants and myself is probably unlikely. I met some of them at conferences and was associated with a non-profit that supports education and research in cannabinoid therapy and the ECS. Even though this research proposal lacks varied types of data, I combined multiple participants' views and experiences to develop collective and overarching themes and a detailed composite description. Rossman and Rollis (2010) warn researchers to be cautious when formulating conclusions and findings from interpretative approaches. I was aware of the transferability of the findings from the study, and I have been methodical and speculative with the assertions drawn from the data collection and analysis process. It was challenging to reference similar research since prior studies

relevant to this subject are limited. This limitation served as an important opportunity to identify literature gaps and present the need for further development in this study area.

Qualitative research is known for smaller sample sizes, and more interviews do not necessarily generate richer data; the number of participants and interviews is up to the researcher's discretion (Oppong, 2013). A small sample size will struggle to support claims or absolute conclusions, and large samples restrict researchers from doing a deep, inductive analysis typical of qualitative research (Oppong, 2013). Phenomenological studies vary in sample size; Creswell (2013) states, "In phenomenology, I have seen the number of participants range from 1 (Dukes, 1984) up to 325 (Polkinghorne, 1989). Dukes (1984) recommends studying 3 to 10 subjects, and in one phenomenology, Riemen (1986), studied 10 individuals." (p. 157) This research study's anticipated sample size was between five and ten participants. Six experts enthusiastically participated in the study; the insightful data was indicative of these participants resounding willingness to be interviewed. Some of the experts I recruited declined to participate due to their busy schedules, but trust and reluctance could have been limiting factors. Although each participant's lived experience was unique, very similar data points overlapped and repeated. Wilson (2015) states, "It is important to know when to stop, and key to this is remaining receptive to a potential point when you are no longer learning anything new" (p. 42). In hindsight, was having six participants a limitation of the study? Perhaps more participants would have led to different perspectives and unique findings, but this notion has no assertion. Ideally, in future studies, it would be favorable to include more participants to gain a further understanding of the lived experience of these experts.

Purposeful and criterion sampling intentionally recruited a homogenous group of experts who experienced the phenomenon; therefore, these participants do not necessarily represent healthcare professionals as a whole. All the participants were recommended by Realm of Caring, which is an important bias to address, but it contributed to the likelihood that they met the outlined criteria in Appendix A. Nonetheless, the data from this purposeful sampling addressed each of the four research questions for this study.

Recommendations for Future Research

The recommendations are for further study, change in the industry, and pondering around different perspectives on cannabis consumption. This is based on direct suggestions from the experts interviewed for this study and general inferences and insights based on my findings. All of them are practical and related to what is happening now in this niche medical market.

More Research Needed

In almost every peer-reviewed journal article relating to cannabinoid therapy, future research suggests the need for randomized, double-blind placebo control (RDBPC) studies, the gold standard for some research studies. That being said, there needs to be more RDBPC studies on cannabinoid therapy and how it affects specific symptoms and conditions with a large sample size. Aside from the specific condition/symptom, future studies must address different cannabinoids, products, and administrative methods. This is a common suggestion that healthcare professionals propose because stronger evidence supports the potential effectiveness of this medical approach.

Cannabinoid therapy is a newly accepted medicine that consumers have been using without medical oversight for some time now. The research and data are trailing behind the rapid consumption. Cannabidiol, CBD, is sold over the counter in grocery stores, pharmacies, and various health and wellness retailers; consumers do not need prescriptions and therefore have very little knowledge about dosing. The lack of information about individualized dosing for different products remains problematic; consumers are using general suggestions from various unreliable sources with very little evidence to back them. Determining an effective starting dose per individual's condition/symptom in a specific product is an ideal recommendation for future research. These evidence-based results would help consumers dial in effective doses and potentially trigger more positive health outcomes.

This qualitative study's approach can be applied to other medical approaches that are just starting to be researched, like psychedelics (i.e., psilocybin, ketamine, MDMA, LSD, and peyote). A next step could be applying the same phenomenological approach to the lived experience of healthcare professionals who are experts in psychedelics instead of cannabinoid therapy. The cart before the horse model applies to psychedelic consumption; people use it without medical oversight. A similar study in psychedelics could also address how novice healthcare professionals can learn practical applications in an alternative treatment that is not taught in medical schools.

More Mentorship Opportunities

Nearly all the participants mentioned a fellowship program that allowed healthcare professionals to shadow experts in cannabinoid therapy. It would be interesting to

measure the effectiveness of an in-person cannabis fellowship program compared to other educational approaches like continuing medical education (CME) courses. A program evaluation would collect, analyze, and use data to identify the effectiveness and recognize areas for improvement.

Dispensary Intervention

Another research recommendation is based on the participant's pain points around dispensaries and budtenders. In a typical prescription fulfillment at a pharmacy, the doctor writes a patient a script, and the pharmacy fulfills the order without intervention. In a cannabis dispensary, patients walk in with a doctor's script, and budtenders interfere with the suggestions by upselling products to make more money. Investigating how often budtenders intervene from a doctor's written recommendation would be interesting. One expert questioned, "How many people out there bought a product at a dispensary recommended by a dispensary worker and had a terrible experience?" There is a conflict of interest when patients purchase medicinal products, and dispensaries try to make money from them instead of putting their health first. Research around budtender suggestions and interference is a desired topic to investigate.

All clinicians identified a problem in the interviews: budtender intervention and the upselling of cannabis products. Another future research study could exist around patients' experiences with budtenders and how often they intervene and veer away from those who enter the dispensary with doctor recommendations and scripts. I would be curious to see what the patient experience is like in dispensaries and whether or not they adhere to recommendations made by expert clinicians.

Measuring Health Outcomes from Cannabinoid Therapy Use

Some preliminary research exists around insurance companies, including Medicare, covering cannabinoid therapy and how that affects health outcomes. Are there fewer trips to the emergency room and doctor visits due to cannabinoid therapy use? Does cannabinoid therapy reduce opioid prescriptions and abuse? If insurance companies were to cover cannabinoid therapy, more people would be able to afford this, and doctors would be more inclined to learn about it.

Integrate Cannabinoid Therapy into Medical Schools

Related to this study, I would recommend researching how to get medical schools to integrate cannabinoid therapy and endocannabinoid system curriculum into their existing programs. Surveys and interviews could provide insight into what is required for this information to be implemented in medical programs and give medical students exposure to this plant-based therapy and the existing biological system.

Measure the Effectiveness of an Expert Cannabis Clinician

After the interviews, I thought it would be interesting to measure how effective it is for a patient to work with a doctor who is an expert in cannabinoid therapy instead of self-diagnosing without medical advice. Two groups of cannabis consumers could reveal the costs and benefits of working with a cannabis specialist.

Patient-Centered Research Study on Cannabis Use

This research study took a deep dive into the healthcare professionals who are experts in cannabinoid therapy and the ECS. Another perspective to take into consideration is the patient. It would be important to address their needs in a similar qualitative study

approach in order to dig into the lived experience of these patients. In other words, what do patients need from their healthcare professionals to succeed in feeling supported when trying cannabinoid therapy? Since this is a patient-driven treatment that transpired out of consumers using it before the medical community could keep up with it, there are valuable insights into how the patient's needs will be met. What can be done to maximize patient treatment and therapy? What would be helpful from their perspective? They are the ones who pioneered this movement, so how can their needs best be met and served? Qualitative studies would capture patient insight and indicate how healthcare professionals can best advise their patients.

Most Effective Instructional Delivery Methods

I would like to track the outcomes and effectiveness of different instructional delivery methods for healthcare professionals. Are in-person learning, online learning, and mentorship effective in acquiring expertise in this plant-based medicine? Identifying measurable outcomes from a learning experience makes it possible to determine the best instructional methodology and provide those evidence-based results for promoting an academic program at an institution.

Measure the Effectiveness of a Cannabis Specialist

If there were a cannabinoid specialist that primary care physicians could refer their patients to, it would be interesting to measure their overall effectiveness. Currently, the U.S. laws around cannabis prevent insurance companies from covering any costs. If such a referral program were to exist in the U.S., examining its impact on the patient's overall health outcome would be central to the research. Also, does having a specialist support

referring physicians and alleviate their obligation to become an expert in yet another medical therapy? As mentioned in the literature section of this chapter, doctors, medical institutions, and hospitals refer to patient-centered cannabis clinics in a few Canadian cities (Arboleda & Prosk, 2021). An in-depth study of this model could reveal the rewards and limitations of referring a cannabinoid therapy specialist; when laws around cannabinoid therapy in the U.S. change, there could be supporting research around this specialist referral approach.

Measure Expertise of Cannabinoid Therapy and ECS Students

Another recommended study exists around quantifying how much knowledge and practical application contribute to a healthcare professional's expertise in cannabinoid therapy. There are many online and in-person courses and exams that lead to certifications. Is it possible to measure the exact knowledge needed to become an expert? Developing a definitive list of requirements and exams to address their expertise could determine if a learner is ready to practice cannabinoid therapy.

Summary

These recommendations for future research build upon findings from this research study either directly from the participant's interviews or from my findings. They all relate to cannabinoid therapy and address unknown and unanswered aspects of the treatment. These future studies can contribute stronger evidence-based knowledge to the cannabinoid therapy field, helping healthcare professionals and patients attain improved health outcomes.

Future Directions

This section discusses the future directions of cannabinoid therapy and ECS due to the phenomenological research study. These directions either came directly from the participants or were inferred as a result of the data collected. It is not necessarily future research or implications for practice but ideas and insights in the cannabinoid therapy industry as a result of interviewing six participants about their lived experience as experts in cannabinoid therapy and the ECS.

After interviewing all these experts, I wonder, what is the future of cannabinoid therapy and ECS education? Ten years from now, will this content be integrated into medical school curriculum for healthcare professionals? Could this medical approach serve as an elective or simply be added to existing curriculum? Once cannabis is federally descheduled and removed from the list of controlled substances, the medicine will garner more research, and pharmaceutical companies will potentially have a stake in the plant; therefore, medical institutions will be more likely to cover this specific therapy in their pharmacopeia of clinical applications. It will be easier to access accredited courses so that various national healthcare professional groups offer continuing medical education courses on cannabinoid therapy and the ECS.

Another future direction is the evolution of cannabis and all the cannabinoids that are being researched or have yet to be researched. Cannabis contains more than 100 compounds, but THC and CBD are the most well-known; there are obscure compounds with preliminary research suggesting they can address various symptoms/conditions, but most of these studies are animal models or observational studies. There is a lack of strong

data to imply that these cannabinoids have definite medical health benefits, but hopefully, over time, that changes. These experts are already influencing market research through their clinical practice. One participant mentioned a potential study focusing on the health benefits of myrcene (β-myrcene), an abundant monoterpene found in many plant species like hops and cannabis. When he researched the oil in peer-reviewed journal articles, there was very little data to inform its purpose or health benefits. There's speculation that terpene oils like myrcene contribute to positive health outcomes, but no data supports these claims. As all the cannabis components become more widely researched, companies will be more likely to produce quality products that yield potential health benefits.

There is hope amongst the participants that cannabinoid therapy will be used as the first choice before a pharmaceutical approach. Additionally, cannabis could be a more prevalent and widely accepted nutraceutical, like other daily vitamins and supplements commonly consumed to boost the physiological state. Already, some patients use medical cannabis in place of other prescription medications, especially as an alternative to opioids, but often, the participants see patients who want to try cannabis as a last-ditch effort to fight a losing battle against a life-threatening illness like cancer. Many patients are disappointed by FDA-approved medicines and their unfavorable side effects. Refractory cases exist when a patient's disease and condition do not respond to the prescribed treatment. Experimental therapies for refractory patients require a different approach than a singular prescription. Although not a panacea, they hope one day, this is

a widely accepted medical alternative to the pharmaceutical model that can provide patients with a solution to many health challenges.

In addition to cannabinoid therapy as an alternative to traditional medicine, there is a growing body of research around psychedelics (i.e., LSD, psilocybin, ecstasy, ketamine, etc.) use with close medical supervision. New evidence-based findings suggest there are a range of benefits for cognitive functions. These substances follow a similar path to cannabis; people use it independently without medical guidance, and it is another cart before the horse approach to medicine. Like cannabis, psychedelics are classified as Schedule 1 drugs and are considered to have no medical use and a high potential for abuse. The research has not caught up to extensive human consumption that is occurring in real-time. Many people are experimenting with "microdoses," a low dose or fraction of a recreational dose being defined as taking five to ten percent of a full psychedelic dose. Instead of a daily selective serotonin reuptake inhibitor (SSRI) like Prozac, people are self-diagnosing with psychedelics to alleviate depression, anxiety, eating disorders, and post-traumatic stress disorder (PTSD). Medically unsupervised psychedelic use can potentially create a public health crisis. Oregon and Colorado are the only states where some psychedelics in very small doses are legal for medical use. Nonetheless, it is important that healthcare professionals in these states can support patients who want to try this therapy or at least connect them with a trained specialist who can help patients use them in a beneficial, safe way. As more states legalize psychedelic use and research grows in favor of this alternative medical approach, evidence-based content will be needed to support quality curriculum and instruction, similar to cannabinoid therapy.

Lastly, Joseph Schwab's five commonplaces in curriculum deliberations is a future direction for a practical approach to cannabinoid therapy. When crafting curriculum, it is important to include the five commonplaces, learners, teachers, subject matters, milieu, and the curriculum specialist. These stakeholders are a part of the decision-making process and yield a strong instructional design. This approach acknowledges all the voices and embraces the multitude of viewpoints and contributors.

Personal Reflections about the Research Process

This dissertation experience has been a challenging yet rewarding process. Enrolling in courses and completing assignments with a definitive 10-week timeline was a much different experience than the dissertation process. This was an independent journey that required discipline and self-control day in and day out for an extended period of time. Sometimes the solitary progression can be slow, but achieving small milestones within each chapter was encouraging. Most importantly, the topic and data from the interviews hooked my interest and provided valuable insights.

Research Process

My strengths and skillset were a strong match to the qualitative research approach. Once my proposal was approved, obtaining IRB approval was straightforward and expected. I took pleasure in the bracketing routine throughout the data collection process. It felt like an intentional diary and a safe space to gush all my preconceived notions, judgments, feelings, and biases. Recruiting the first five participants was initially easy, but enlisting upwards of ten became challenging. I was fortunate to accrue six at least, as more potential experts declined to be interviewed. The highlight was interviewing these

renowned experts and asking how they became knowledgeable in alternative medical therapy. I enjoyed building rapport with each participant and digging into their unique lived experience. The personal and interpersonal experience of completing the interviews was exciting and engaging, even though interviews as a primary data source were time-consuming and intermittent at times. Once the written transcripts accurately reflected the audio recordings, I started with the phenomenological analysis using Nvivo software. While simultaneously listening to the audio recordings and reading the transcripts, I started coding the relevant statements. I found it helpful to create a horizontal timeline of each participant's lived experience on a poster paper scroll. Reviewing and organizing the information into larger themes based on the codes compelled me to think about the collective experience of the participants. I enjoyed writing the textural, structural, and composite descriptions; it was an opportunity to summarize each participant's lived experience and describe the overall phenomenon. After coding all the transcripts initially in Nvivo, it was relatively easy to source and capture relevant quotes while crafting Chapter 4. Overall, I found the interviews and review of the transcripts emotionally uplifting, motivating, enriching, and inspirational. I reflected on how lucky I was to be researching this topic, hoping to contribute to the curriculum and instruction initiatives in cannabinoid therapy education. A lot of time was invested in balancing the importance of individual differences while upholding the traditional phenomenological tradition of capturing the shared experience.

The hardest part of this research process has been motivating myself to think critically and write daily. It's easy to put the process aside and say, I will do that

tomorrow. It's easy to procrastinate, especially with my three-year-old son in the house. Vacations, family visits, weddings, and birthdays are all distractions that interfere with motivation and focus but nonetheless bring joy to my psyche. There was always light at the end of the tunnel, and each small step was in the right direction.

Reflections

Qualitative methods, specifically phenomenology, allowed participants to express themselves and their experiential encounters. The experts faced tremendous opposition, challenges, and hurdles along the way. Their patient outcomes fueled their willingness to defy all the odds and overcome political and social obstacles. This resilient group reflected determination, achievement, leadership, and an aptitude for seeking out practical, applicable knowledge.

After reflecting on this research study, there are a few considerations that I would have wanted to have done differently. I was afraid of diving into Nvivo and starting the coding process. Looking back, I would have tried to code after every interview, which would have broken up the heavy lift I experienced after all the interviews were completed. There was a lot of wasted time between interviews, and I wish I had capitalized on that more efficiently. I would have preferred to have more variation in participant characteristics, but only so many qualified candidates met my proposed criteria. Additionally, I wish I had been more intentional about collecting demographic information from the participants at the onset. Another consideration is what the data summaries and conclusions would have looked like if a co-researcher was involved in the process. Would working with another colleague affect the results? Bring more bias? Add

more depth to the analysis? Having space for dialogue with another researcher about the data would be something I would deliberate about if I were to conduct future qualitative research.

When reviewing the totality of this project, the results attempted to encapsulate the shared experiences of expert healthcare professionals in cannabinoid therapy. The quotes and themes represented first-hand reports of these individuals' experiences. I hope that this study can be a foundational piece of scholarly work that can further the discussion and awareness of the specific needs of this important medicinal approach. The process of creating and enacting the study has left an indelible mark on me personally and professionally.

Conclusion

Medicine is designed to improve the health and well-being of humans. As research and humans evolve with technology, medicine should progress to cover their needs. When traditional medical routes have been exhausted, alternative therapies, like cannabinoid therapy, should garner support from the medical community to be a viable option for all. Laws must ultimately change so that research and education can reflect patients' current cannabis consumption. It is a travesty that not every patient can discuss cannabis with their doctors across the U.S.; as a result, individuals self-diagnose and self-treat without evidence-based recommendations about dosing, cannabinoids, drug interactions, and other risks and rewards. Their lived experience is best described as pioneers, early adopters inquiring about an uncommon and highly stigmatized medical approach with many social, legal, and research barriers. As expected, the experts

interviewed in this study learned about medical cannabis in the most unconventional way. They married literature and evidence-based data with their clinical practice, all while collecting data in real-time from their patients to best learn about cannabinoid therapy and its effects on specific symptoms/conditions. Their collaboration led to shared discoveries, advancing knowledge, and practical applications.

As more and more research is conducted and published about cannabinoid therapy and the ECS, robust education and curriculum are sure to follow. The findings from this study provide practical implications for professional development, curriculum development, deliberation, and inquiry. A handful of courses and programs are now offered in select medical schools, but it is rare and uncommon. In the absence of academic institution offerings in medical cannabis, there are many comprehensive online courses, some developed by the participants in this study. Reading literature from peer-reviewed journal articles and evidence-based books from acclaimed authors are also great starting points. Attending venerated conferences, lectures, and discussions is highly recommended. The essential learning of this specialized therapy comes from practical experience, which typically requires a mentorship opportunity with an expert. Since medical cannabis comprises a small realm of doctors and medical professionals, it is advisable to reach out directly to these experts to seek learning opportunities and advice.

Joseph Schwab's conceptual framework provided a lens for practical curriculum development that relies on collective input from five commonplaces: teacher, learner, subject matter, milieu, and curriculum specialist (Schwab, 1973). They all contribute to the deliberation about what should be taught and how it should be taught; in Schwab's

view, to do this proficiently is to be unavoidably eclectic (Schwab, 1973). Incorporating a broad and diverse range of sources yields a thoughtful and inclusive program that considers all aspects. By engaging all the stakeholders, this curriculum diversification can potentially strengthen learning outcomes. Using this approach to inform cannabinoid therapy curriculum and instruction would support learning initiatives and contribute to a growing field of knowledge.

Based on this research, some pioneers have spearheaded this path for many other practitioners. The scientific evidence to support medical cannabis consumption is promising for many symptoms and conditions; it will continue growing as more research documents vital information necessary to support medical advice. One day, all patients will have access to quality data-driven medical advice about cannabinoid therapy. They will have access to quality products featuring a range of cannabinoids. To quote the father of cannabis research, Dr. Raphael Mechoulam, “I believe cannabinoids represent a medical treasure waiting to be discovered.” It is just a matter of time before we fully unpack all the scope of benefits cannabinoid therapy can offer us. This plant-based medical trend will spread to other treatments (i.e., psychedelics) that we are only just beginning to research.

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Appendix A

Criterion Sampling: Checklist for Participant Recruitment

Criteria	Yes	No	Notes
State certified, state-licensed healthcare professional in the United States			
Considered an expert in cannabinoid therapy and the ECS			
Facilitates continuing medical education classes/seminars in cannabinoid therapy and the ECS that are ACCME approved			
Author or co-author peer-reviewed journal publications on cannabinoid therapy and ECS			
Actively practicing healthcare professional with patients seeking cannabinoid therapy advice			
Open and willing to share personal opinions and experiences in one interview or more			
Understands and speaks fluent English			
Interested in the phenomenon being researched?			
Willing to participate in a video-recorded interview?			
Recommended by who? (i.e. RoC scientific advisory board, another expert participant, etc.)			
Notes on: age, location, race, religion, ethnicity, gender, political affiliation			

Overall Notes About the Participant:

Appendix B

Recruitment Email Direct to Participants

SUBJECT: Invitation to Participate in a Research Study: The Lived Experience of Healthcare Professionals who are Experts in Cannabinoid Therapy and the Endocannabinoid System (ECS)

Date [Insert Here]
Dear [Insert Name],

My name is Courtney Collins and I am currently a Ph.D. student at the University of Denver in the curriculum and instruction program. I would like to invite you to participate in my dissertation research study about the lived experiences of healthcare professionals who are experts in cannabinoid therapy and the ECS. I feel humbled to be asking for your support and strive to offer a welcoming environment for you to share your experience and knowledge. This study will focus on:

- Your experience and journey in becoming a cannabinoid therapy/ECS expert.
- How you acquired this specialized knowledge.
- What guidance and advice do you recommend for professional development or continuing medical education for novice healthcare professionals.

Your participation will help fellow healthcare professionals in the field of education and curriculum and instruction.

Your participation in the study will include one face-to-face, video recorded and audio recorded interviews via Zoom. The interviews will last for approximately 60-75 minutes and will focus on your personal experiences and expert knowledge. The information from the conversation we have will be utilized to help inform my findings for the dissertation research.

Your participation is entirely voluntary and you can terminate your participation at any time without any risk or consequence. Based on your willingness to support this research and the time needed to complete the interviews, you will be given a $100 VISA gift card following the conclusion of the interview.

If you would like to participate in this study or have any questions, please email me at courtneyvcollins@gmail.com or text/call my cell phone number (720) 645-0717.

Thank you very much for your time and consideration.
Courtney Collins, M.A.
Doctoral Candidate
Curriculum & Instruction, University of Denver

Appendix C

Email to Participants Agreeing to the Interview: Informed Consent Email

Dear [Insert Name],

Thank you for your interest in my dissertation research on the lived experiences of healthcare professionals who are experts in cannabinoid therapy and the ECS. I am excited to interview you and discuss your unique journey in this specialized field. This email is to inform you about the informed consent regarding your participation with this research project. You will be participating in a qualitative study. The primary aim of the study is to offer descriptive information and personal meaning related to your experiences as a healthcare professional expert in cannabinoid therapy and the ECS. My main research question is: What is the lived experience of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS)? Through your participation with other healthcare professional experts, my goal is to find the underlying essence of your experience. I will be asking about how you became an expert in cannabis and what you recommend for other healthcare professional who are wanting to learn more about cannabinoid therapy and the ECS.

I am looking forward to our conversation and excited to hear about your journey in this specialized medicine. Your narrative is incredibly important and your voice truly matters. I will ask you about your feedback following the transcriptions of the interviews to ensure the information we spoke about is accurate and reflective of you. Moreover, I look forward to speaking with you further throughout this process and learning from your personal experiences.

I truly appreciate your willingness to spend time speaking with me about your experiences in becoming a cannabinoid therapy and ECS expert. Please let me know if you have any additional questions about this email or the consent form that is attached. Moreover, please indicate if you would like me to include the interview questions prior to our first meeting.

Sincerely,
Courtney Collins

Appendix D

Consent Form

University of Denver
Department of Curriculum & Instruction

Principal Investigator: Dr. Paul Michalec, Ph.D.
Student Investigator: Courtney Collins
Title of Study: The Phenomenological Exploration of Healthcare Professionals Who Are Experts in Cannabinoid Therapy and the Endocannabinoid System

You are invited to participate in this dissertation research study completed by Courtney Collins in partial fulfillment of the requirements for the doctoral degree in curriculum and instruction at the University of Denver. This study is being conducted under the supervision of Dr. Paul Michalec at the University of Denver. This consent form provides information about your participation and additional details about the research study. Please read and review the information closely and please ask clarifying questions regarding any information in the document.

Background Information:
The purpose of the phenomenological study will be to describe the lived experiences and practice of being an expert healthcare professional in cannabinoid therapy and the ECS.

Procedures:
I will ask you to do the following if you agree to participate in this study:
Complete one audio and video recorded one-on-one interview (60-75 minutes) either in person or via Zoom. The interview will consist of questions and prompts that explore your experiences in becoming an expert in cannabinoid therapy and the ECS. Moreover, I will ask you to review the transcripts of the interviews for accuracy and correctness following the conclusion of the interview.

Risks & Benefits of Being in the Study:
Overall, your participation in this research study has minimal risks. One potential risk will be disclosing information that may be recognizable by other people. In order to protect your confidentiality throughout this process, I will replace your identity and all the files/documents with a 9-digit numerical identification number. I will use pseudonyms for your name and remove other identifying information from our conversations. All of the audio recordings and other collected information will be locked in file cabinets or password protected on my computer.

By participating in this study, other healthcare professionals interested in learning about cannabinoid therapy and the ECS will gain perspective on how you acquired your expertise and knowledge over time. Your insight will contribute to practical applications

of this specialized medicine, future professional development, and curriculum development. Additionally, answering the interview questions and offering your experiences may feel empowering or offer a cathartic release. Also, following the conclusion of the interviews and the completion of the research, the findings may offer important information about the cannabinoid therapy expert experience.

Confidentiality:
In order to secure data for this study, I will choose a 9-digit numerical identification number for each of the participants. This number will be used to identify all digital data collected from an individual participant in order to protect anonymity; the disclosed key will be locked in my home office filing cabinet. The video and audio interview files will be transcribed full and complete verbatim using a password protected and encrypted transcription software program. The transcriptions will be organized in Word Documents and each participant's interview will be saved under the 9-digit numerical identification number. All digital data (i.e. Word Documents, recordings, files etc.) will only be used on my personal computer with updated virus protection and computer passcodes. When this data is not being worked on, it will be saved on a password protected external hard drive. This hard drive will also be locked in my home office filing cabinet. In the actual data analysis, I will address confidentiality concerns by using pseudonyms and removing other identifying information from this research project (Tracy, 2010).

Aside from the 9-digit numerical identification number and pseudonyms that will protect your identity, all data (i.e. audio and video files, Word Documents, etc.) will be saved on a password protected laptop. Moreover, these files will be backed up on an external hard drive that will also be password protected. Only my dissertation chair, Dr. Paul Michalec and I will have access to this information. Any additional sensitive or confidential information will not be disseminated outside of the dissertation committee.

Compensation:
For your participation and completion of your interview, you will receive compensation in the form of a $100 VISA gift card from this research project.

Voluntary Nature of the Study:
Your participation in this study is completely voluntary. If you decide to participate, you can freely withdraw at any time without a penalty. If you decide to withdraw, all of the data from your participation will be destroyed.

Contacts and Questions:
If you have any questions about your participation in this study, please feel free to contact courtneyvcollins@gmail.com or Dr. Paul Michalec at paul.michalec@du.edu at any time.

If you have any questions or concerns about your research participation or rights as a participant, you may contact the DU Human Research Protections Program by emailing

IRBAdmin@du.edu or calling (303) 871-2121 to speak to someone other than the researchers.

Statement of Consent:
I have read the above information. My questions have been answered to my satisfaction. I consent to participate in the study. By signing, I also give permission for audio and video taping during the interview.

Please take all the time you need to read through this document and decide whether you would like to participate in this research study. If you agree to participate in this research study, please sign below. You will be given a copy of this form for your records.

_____	_____
Signature of Study Participant	Signature of Researcher
_____	_____
Date	Date

Appendix E

Interview Protocol (After Signing the Consent Form)

My name is Courtney Collins, I am a Ph.D. student in curriculum and instruction at the University of Denver and board member for the Realm of Caring. Thank you again for agreeing to meet with me to share your experiences and stories as an expert in cannabinoid therapy and the endocannabinoid system (ECS).

How are you doing today? (Invite them to grab some water or tea or coffee depending on the setting of the interview) I'd like to thank you once again for being willing to participate in this interview for my research study. As I have mentioned to you before, I am interested in your lived experience as a healthcare professional and an expert in cannabinoid therapy and the endocannabinoid system (ECS). The study also seeks to understand how you acquired the expert knowledge and experience to best advise your patients seeking medical cannabis advice in the United States. The aim of this research is to document the possible process of guidance to other healthcare professionals seeking professional development in cannabinoid therapy and the endocannabinoid system (ECS).

Our interview today will last approximately one hour during which I will be asking you about your experience in becoming an expert in cannabinoid therapy and the ECS.

You completed a consent form indicating that I have your permission to audio and video record our conversation, are you still ok with me recording our conversation today?
___Yes ___No

If yes: Thank you! Please let me know if at any point you want me to turn off the recorder or keep something you said off the record. If no: Thank you for letting me know. I will only take notes of our conversation.

Before we begin the interview, do you have any questions?

If any questions (or other questions) arise at any point in this study, you can feel free to ask them at any time. I would be more than happy to answer your questions.

Please let me know if I'm not being clear with my prompts or follow ups. There may be times during the interview that I will attempt to seek further information or clarify the answer you have given. It is your full right to choose not to answer a question or a comment that I raise when we are speaking. All of our responses will be reviewed and typed out carefully. Following this interview, you will have an opportunity to review our conversation and add any comments or edits to the transcript.

Thank you so much for offering to take valuable time to speak with me about your experience as a cannabinoid therapy and ECS expert. I am humbled to share this time with you. Please let me know when you are ready to begin and I will start recording.

1) Tell me a little bit about the beginning of your medical career… where did you go to school and what did you study?

2) What medicine did you practice initially and where?

3) Can you recall, when was the first time in your professional career that you started inquiring about cannabinoid therapy? How did this interest arise?

4) Was there one patient interaction or memory that informed you the most about how to approach patient care using medical cannabis? Any specific stories or memories?

5) Then how did this progress in your career? In other words, how did you continue to talking to patients and engaging in this specialized medicine?

6) When did you start facilitating medical education classes and seminars, lectures in cannabinoid therapy? What did those opportunities look like? How many have you done? How many do you organize your presentations and what are your learning goals?

7) When did you start writing, publishing on cannabinoid therapy? How did those opportunities arise? How many have you authored/co-authored? What topics specifically?

8) When would you say you self-identified as an expert in cannabinoid therapy and ECS? How did you know?

9) What does your day to day work look like now with cannabinoid therapy and ECS? What do you do, and what are you working on?

10) What have been the challenges or failures of your professional work/career?

11) What have been the rewards/benefits of your professional work/career?

12) Is there anything you would have done differently in your career (in context of cannabinoid therapy and ECS)?

13) Looking back, how would you say you acquired the expert knowledge and experience to advice your patients?

14) What advice or recommendations would you give other healthcare professionals who want to learn about cannabinoid therapy and ECS?

15) What do you think needs to be done for healthcare professionals to learn about cannabinoid therapy so that they can have honest and accurate conversations with their patients? How can HCP's best help their patients if they want to discuss cannabinoid therapy?

16) What advice would you give to someone planning curriculum and professional development around cannabinoid therapy and ECS education?

17) How did you organize your content when you were teaching and presenting? How did you learn how to organize this information? Was it feedback from the audience, trial and error?

18) If there is a novice doctor, starting out, what can they do to help their patient population with cannabinoid therapy advice and recommendations?

19) Is there anything else we didn't talk about, that you would like to discuss about your lived experience as a cannabinoid therapy expert?

Thank you for your time. I will follow up with a transcript of our interview today in an email. If you have any comments or questions regarding this research study, do not hesitate to call or email me. Thanks again. Bye.

Appendix F

Interview Protocol Matrix: Interview Questions Align with Specific Research Questions

This matrix chart assures that the questions being asked align with specific research questions in order to minimize repetition and ensure that each research question is being addressed (Castillo-Montoya, 2016).

	Back-ground	**Research Question 1** What is the **lived experience** of healthcare professionals who are experts in cannabinoid therapy and the endocannabinoid system (ECS)?	**Research Question 2** How did healthcare professionals, specializing in cannabinoid therapy and the endocannabinoid system (ECS), **acquire the expert knowledge** and experience to best advise patients seeking medical cannabis advice in the United States?	**Research Question 3** What **guidance** do healthcare professionals, specializing in cannabinoid therapy and the endocannabinoid system (ECS), offer regarding the **professional development** of healthcare professionals?	**Research Question 4** How can the **practical knowledge** from expert cannabis healthcare professionals' impact **curriculum development, deliberation and inquiry**?
Tell me a little bit about the beginning of your medical career… where did you go to school and what did you study?	X				
What medicine did you practice initially and where?	X				
Can you recall, when was the first time in your professional career that you started inquiring about cannabinoid therapy? How did this interest arise?		X			
Was there one patient interaction or memory that informed you the most about how to approach patient care using medical cannabis? Any		X	X		

specific stories or memories?					
Then how did this progress in your career? In other words, how did you continue to talking to patients and engaging in this specialized medicine?		X	X		
When did you start facilitating medical education classes and seminars, lectures in cannabinoid therapy? What did those opportunities look like? How many have you done?		X	X		
When did you start writing, publishing on cannabinoid therapy? How did those opportunities arise? How many have you authored/co-authored? What topics specifically?		X	X		
When would you say you self-identified as an expert in cannabinoid therapy and ECS? How did you know?		X	X		
What does your day to day work look like now with cannabinoid therapy and ECS? What do you do, and what are you working on?		X	X		
What have been the challenges or failures of your professional work/career?		X	X		
What have been the rewards/benefits of your professional work/career?		X	X		

Is there anything you would have done differently in your career (in context of cannabinoid therapy and ECS)?		X	X		
Looking back, how would you say you acquired the expert knowledge and experience to advice your patients?		X	X		
What advice or recommendations would you give other healthcare professionals who want to learn about cannabinoid therapy and ECS?				X	
What advice would you give to someone planning curriculum and professional development around cannabinoid therapy and ECS education?				X	X
What do you think needs to be done for healthcare professionals to learn about cannabinoid therapy so that they can have honest and accurate conversations with their patients?				X	X
How can HCP's best help their patients if they want to discuss cannabinoid therapy?				X	X
How did you organize your content when you were teaching and presenting? How did you learn how to organize this information? Was it feedback from the audience, trial and error?				X	X
If there is a novice doctor, starting out,					

what can they do to help their patient population with cannabinoid therapy advice and recommendations?				X	X
Is there anything else we didn't talk about, that you would like to discuss about your lived experience as a cannabinoid therapy expert?		X			

Appendix G

IRB Exemption Letter from the University of Denver

UNIVERSITY of DENVER
OFFICE OF RESEARCH & SPONSORED PROGRAMS
Research Integrity & Education

DATE:	June 10, 2022
TO:	Courtney Collins Paul Michalec, PhD
FROM:	University of Denver (DU) IRB
PROJECT TITLE:	[1912735-1] The Lived Experience of Healthcare Professionals who are Experts in Cannabinoid Therapy and the Endocannabinoid System (ECS)
SUBMISSION TYPE:	New Project
ACTION:	**EXEMPTION GRANTED**
DECISION DATE:	June 10, 2022
NEXT REPORT DUE:	*June 10, 2023*
RISK LEVEL:	Minimal Risk
REVIEW CATEGORY:	Exemption category # 2

Exemption 2: Educational Tests, Surveys, Interviews, or Observations
Research in this category is allowed as long as one of the three criteria is met:

1. Information obtained is not identifiable
2. Disclosure outside of the research would not put subjects at risk of harm
3. Information obtained can be identifiable and a limited IRB review has been conducted which relates to there being adequate provisions for protecting privacy and maintaining confidentiality.

Thank you for your submission of Exemption Request materials for this project. The University of Denver IRB has determined this project is **EXEMPT FROM IRB REVIEW** according to federal regulations. This exemption was granted based on appropriate criteria for granting an exemption and a study design wherein the risks have been minimized.

Please note that maintaining exempt status requires that (a) risks of the study remain minimal; (b) that anonymity or confidentiality of participants, or protection of participants against any increased risk due to the internal knowledge or disclosure of identity by the researcher, is maintained as described in the application; (c) that no deception is introduced, such as reducing the accuracy or specificity of information about the research protocol that is given to prospective participants; (d) the research purpose, sponsor, and recruited study population remain as described; and (e) the principal investigator (PI) continues and is not replaced.

If changes occur in any of the features of the study as described, this may affect one or more of the conditions of exemption and may warrant a reclassification of the research protocol from exempt and require additional IRB review. For the duration of your research study, any changes in the proposed study must be reviewed by the University of Denver IRB before implementation of those changes.

Informed Consent Process

Informed consent is an important process when conducting human subject research beginning with providing potential subjects with a description of the project and assurance of a participants understanding. If requested, each participant is entitled to receive a copy of the Consent document.

Unanticipated Problems Involving Risks to Subjects or Others (UPIRTSOs)

Any incident, experience or outcome which has been associated with an unexpected event(s), related or possibly related to participation in the research, and suggests that the research places subjects or others at a greater risk of harm than was previously known or suspected must be reported to the IRB. The investigator is responsible for reporting UPIRTSOs to the IRB within 5 working days after becoming aware of the unexpected event. Use the Reportable New Information (RNI) form within the IRBNet system to report any UPIRTSOs. All NON-COMPLIANCE issues or COMPLAINTS regarding this project must also be reported.

Continuation Review Requirements

This exempt project does not require continuing review. However, as a student investigator, this project has been assigned a one-year review period. At the end of the one-year review period, you must request a one-year extension by sending a message through the Project Mail feature in IRBNet or submit a Final Report for the project. This one year review period is to be posted in the Next Report Due section on the Submission Detail page in IRBNet.

Study Completion and Final Report

A Final Report must be submitted to the IRB, via the IRBNet system, when this study has been completed. Your Faculty Sponsor is not responsible for closing your study. The DU HRPP/IRB will retain a copy of the project documents within our records for three years after the closure of the study. The Principal Investigator is also responsible for retaining all study documents associated with this study for at least three years after the project is completed.

PLEASE NOTE: To prevent the IRB from terminating this project at the end of the one-year period, the IRB must receive a request from the Principal Investigator to extend the Next Report Due Date for this project or submit a Final Report. This project will be permanently closed unless a request is received prior to the Next Report Due Date.

A Final Report must be submitted via the IRBNet system to formally close the study if the study is completed before the one year time period, or if you are no longer affiliated with the University of Denver. If you are no longer affiliated with DU and wish to transfer your project to another institution, please contact the DU IRB for assistance.

Any IRB exempt research project that is not formally closed by a student investigator prior to leaving DU or prior to graduation, the IRB will contact and require the student's Faculty Sponsor to submit a Final Report.

If you have any questions, please contact the DU Institutional Review Board (IRB) at (303) 871-2121 or at IRBAdmin@du.edu. Please include your project title and IRBNet number in all correspondence with the IRB.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Denver (DU) IRB's records.