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Provider Navigation of Cannabis Use Among Patients Who Seek Reproductive Healthcare

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Provider Navigation of Cannabis Use Among Patients Who Seek Reproductive Healthcare

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Abstract

Background: Research and data show increasing trends of individuals who use cannabis in Washington state and across the US, with limited information regarding specific populations such as those who are pregnant, postpartum, or breastfeeding. Many research studies highlight the historic lack of information in healthcare professionals' curriculums and competencies regarding cannabis use for treatment of health symptoms. **Measures:** This practice-based inquiry utilizes a survey method to determine how reproductive healthcare providers navigate cannabis use among pregnant, postpartum, and breastfeeding patients. **Outcomes:** 12 individuals participated in the online survey with the majority that practice in Washington state. Almost all healthcare providers in this study reported managing or caring for patients that disclose cannabis use in general, during pregnancy, postpartum, and while breastfeeding. They report feeling confident and comfortable discussing and managing the care of patients that use cannabis across all populations. However, they were not at all confident or comfortable educating, recommending/authorizing cannabis to patients in treatment of their health symptoms in any category. **Conclusion:** The findings from this study provide a glimpse into how some providers may navigate cannabis use among their patients who seek reproductive care. It is recommended that better education regarding cannabis use, and incorporation of cannabis-related evidence-based practices and guidelines can help build trusting relationships and increase shared decision-making between providers and patients while simultaneously reducing racial and gender inequities seen in medical and institutional systems and reduce harm.

Keywords: medical cannabis; healthcare professional management; reproductive healthcare; pregnancy; breastfeeding

Provider Navigation of Cannabis Use Among Patients Who Seek Reproductive Healthcare

Statement of the Problem

Increased cannabis use in the population requires increased healthcare provider knowledge about the benefits and risks of cannabis, especially when considering special populations. To generate appropriate and effective educational guidelines, it will be important to understand current healthcare provider knowledge, perspectives, and practices when it comes to navigating cannabis use among patients who seek reproductive care. These insights will address any current gaps or deficits in knowledge and counter any biases which impact the care given to patients, particularly those who are pregnant, postpartum, or breastfeeding. This information will enhance patient safety, comfort, and trust in their providers during their care.

Introduction

In 2023, 37 states enacted laws for medical cannabis use, with 21 of those states also legalizing recreational cannabis use. The National Survey on Drug Use and Health found that, in 2019, 35.4% of individuals aged 18 to 25 in the United States used cannabis in the past year, an increase from 2002, which was at 29.8% of the same population (Substance Abuse and Mental Health Service Administration (SAMHSA), 2021; Kilmer et al., 2022). Moreover, the prevalence of cannabis use among pregnant individuals is increasing, according to data trends from 2020 through 2022 (Hayes et al., 2023).

Although there are population increases to the number of individuals who use cannabis, rates of cannabis use reported to healthcare providers remain low. In states where cannabis use is legal, medical cannabis use is common, yet findings suggest that most use is not documented in the medical record (Lapham et al., 2022). This lack of reporting to healthcare providers creates a barrier in medical treatment, as this reduces informed and shared decision-making between

provider and patient. Studies have found that patients delay reporting substituting cannabis for pharmaceutical medications in treating their health conditions, which often provides better symptom relief, if they report cannabis use at all (Boehnke et al., 2021; Kruger & Kruger, 2019). It is important for all healthcare providers to understand the implications of the large and growing percentage of individuals who use cannabis whether medicinally or recreationally. This understanding can be further bolstered by incorporating more cannabis-related evidence-based practices and guidelines as part of the standard of care. This will maximize therapeutic approaches and reduce adverse outcomes in patient populations as they seek guidance when navigating their reproductive healthcare goals.

Healthcare provider perspectives, clinical practices, and healthcare policies regarding antepartum substance use impact pregnant populations as patients. Practices and policies often preclude providing harm reduction strategies as an approach to substance use. This type of patient-centered care can help to improve health outcomes. At the time of this writing, the classification of cannabis as a Schedule I limits research that can be incorporated into evidence-based practice, specifically with individuals who use these substances during pregnancy and the direct impact on the fetus (National Council of State Boards of Nursing (NCSBN), 2018; Sankaran et al., 2022). Additionally, medical cannabis advocates have criticized that historical federal research heavily prioritized the potential harms rather than the benefits of cannabis (Jaeger, 2023). Healthcare provider perspectives are greatly influenced by these factors. Integration of medical cannabis into healthcare practices can enhance tools providers use to assess the safety and efficiency of cannabis use for their patients to provide therapeutic benefits and relieving symptoms (Boehnke et al., 2021). In general, studies have found that while 78% of participants reported cannabis use, 42% reported discontinuation and 38% reported less use of

pharmaceutical medications to treat their health conditions. However, only 30% reported their cannabis use to their providers (Kruger & Kruger, 2019). While logistical and ethical dilemmas exist surrounding conflicting nonpunitive healthcare policies and practices regarding antenatal substance use, it is important to identify effective nonjudgmental techniques with patients to reduce harm for the pregnant individual and developing fetus (Ronne et al., 2021; Pham et al., 2020).

Preexisting racial and gender inequities in the structure of healthcare systems and access to quality patient-focused care are exacerbated by cannabis laws that disproportionally affect females, people of color, and vulnerable populations. Provider biases and institutional racism has resulted in Caucasian men receiving the most care and support in cannabis use, while identified female, Hispanic, and Black populations continue to struggle with increasing barriers in medical care, stigma, and prosecution for cannabis use (Martins et al., 2021; Bruce et el., 20121).

Considerations surrounding the structure and context of care provided to patients who use cannabis for medical purposes will aid in improved health outcomes for these populations, especially those who seek reproductive healthcare. Healthcare providers need evidence-based cannabis use education, practical knowledge, and guidance for treatment of health symptoms for patients through their reproductive lifespan to improve their health outcomes. Further integration of cannabis use into medical practice can help build trusting relationships and increase shared decision-making between providers and patients while simultaneously reducing racial and gender inequities seen in medical and institutional systems.

A healthcare provider's current state of knowledge and understanding of cannabis can impact the care given to patients who use cannabis. The purpose of this practice-based inquiry is to determine how reproductive healthcare providers navigate cannabis use among pregnant,

postpartum, and breastfeeding patients. This project aims to understand healthcare provider 1) knowledge of cannabis medicinal uses, safety, and contraindications; 2) perspectives of the average cannabis user; and 3) standard practices when it comes to navigating cannabis use among pregnant, postpartum, and breastfeeding patients. Another aim is to identify recommendations for education, interventions, along with local, state, and federal resources for healthcare providers that work with pregnant, postpartum, or breastfeeding individuals who may use cannabis.

This information will enhance patient safety, comfort, and trust in their providers during their care. Better education augments opportunities for patients and healthcare providers to engage in conversations about cannabis as a complementary, integrative, or alternative treatment option, and to reduce harm. This can help normalize cannabis in medical practice and build trusting relationships that promote positive health outcomes in patient populations.

Background and Significance

Cannabis Status and Impact

The Controlled Substance Act of 1970 for drug classification continues to place most forms of cannabis as a schedule I drug. This classification inhibits the scope of research and limits evidence-based medical practices and guidelines on the use of cannabis for treatment of health symptoms. Cannabis classification as a schedule I drug results in patient prosecution, gaps in care, stigma, and non-disclosure of cannabis use to providers (Ryan, McCabe & Boyd, 2021). These factors create barriers to enhanced patient care, exacerbates racial differences in healthcare systems, prevents providers from delivering confident and competent care to their patients, and results in few resources for patients who use cannabis for medical purposes (NCSBN, 2018; Ryan, McCabe & Boyd, 2021; Klein & Clark, 2022; Martins et al., 2021). Healthcare

professionals are faced with conflicting and limited clinical research, practice policies, and evidence-based guidelines for cannabis for therapeutic use. The information presented can be based on studies that elicit causality through scientific evidence in treatment for health symptoms. At the time of this writing, the U.S. Food and Drug Administration (FDA) and the U.S. Drug Enforcement Administration (DEA) continue to enforce cannabis classification as a Schedule I controlled substance, which purposely limits high-quality evidence based clinical research trials and the amount of cannabis grown and used for research purposes (NCSBN, 2018).

Additionally, various legal approaches to federal and state medical cannabis laws (MCLs) and recreational cannabis laws (RCLs), along with limiting FDA and DEA drug guidelines, contribute to the lack of evidence-based medical cannabis practice guidelines and resources, as most provider medical curriculums have a gap in their education regarding cannabis use in treatment for health symptoms. Even in Washington state, where there are enacted MCLs and RCLs along with medical cannabis programs (MCPs), nurse practitioners (NPs) and other healthcare professionals lack the confidence and competence in practical knowledge of cannabis use for medical purposes (NCSBN, 2018; Ryan, McCabe & Boyd, 2021; Klein & Clark, 2022; Martins et al., 2021; Pruyn et al., 2022). Healthcare providers must have practical knowledge of cannabis for shared clinical decision-making with patients who use cannabis for treatment of health symptoms, especially when working with patients who seek reproductive healthcare. This knowledge can be enhanced with current evidence-based medical cannabis practice and guidelines that bridge the current gaps in care for individuals who use cannabis.

Medical conditions that qualify patients for MCP are commonly classified as terminal or debilitating (e.g., amyotrophic lateral sclerosis (ALS), Alzheimer's disease, cancer, chronic pain,

Crohn's disease, epilepsy, Hepatitis C, HIV/AIDS, Parkinson's disease, multiple sclerosis, and terminal illness), where logistical considerations vary from state to state. Whether or not medical cannabis is recommended is specified and limited by current MCLs. Additionally, its management is inconsistent depending on healthcare provider license, scope of practice, experience, attitudes, beliefs, education, confidence, and competence regarding cannabis use for medical purposes. This results in large proportions of individuals receiving inadequate medical care, which causes harm and increases adverse effects, especially in populations that use cannabis to treat their health symptoms that seek reproductive healthcare (NCSBN, 2018; Klein & Clark, 2022; Pruyn et al., 2022).

Attitude and perception of benefits and risks associated with cannabis use is influenced by provider specialty and experience in discussing cannabis use for treatment of health symptoms, particularly for those who work with patients that seek reproductive healthcare. However, incorporation of inclusive and diverse cannabis use education into nursing and other healthcare professional curriculums can promote comfort in provider knowledge surrounding cannabis practice and guidance (Ryan, McCabe & Boyd, 2021; Ronne et al., 2021). Lack of self-perceived clinical and legislative knowledge around medical cannabis, including dosing, efficacy, drug-drug interactions, pharmacokinetics, pharmacology, pharmacodynamics, cultivation, distribution, and acquisition of medical cannabis are universal themes throughout studies that healthcare providers cite as the reasons for more education, guidance, and information surrounding patient cannabis use (Gardiner et al., 2019). While healthcare providers may be willing to discuss cannabis use with their patients, they may not have the full knowledge on how to educate nor advise their patients about its appropriate use, benefits, and risks. For these reasons, healthcare providers lack clinical experience in managing medical cannabis use.

As a result, this can be a barrier to their confidence, creditability, and competence (Ronne et al., 2021).

Cannabis Research

The endocannabinoid system contains CB-1 receptors found throughout nerves of the central and peripheral nervous systems' presynaptic membranes, and CB-2 receptors found on immune cells, particularly leukocytes. These receptors respond to exogenous cannabinoid ligands, such as tetrahydrocannabinol (THC) and cannabidiol (CBD), derived mostly from tetrahydrocannabinolic acid-A (THCA-A) and cannabidiolic acid (CBD-A). These phytocannabinoids are found on the trichomes of female cannabis plants that, when inhaled or ingested, produce therapeutic effects on body systems (Klein & Clark, 2022; MacCallum & Russo, 2018; Wan et al., 2017). Various forms of administration of cannabis products are associated with different pharmacokinetic considerations, as the therapeutic benefits of cannabis can outweigh side effects of conventional pharmaceutical therapies for health conditions (MacCallum & Russo, 2018). The use of cannabis to treat health symptoms can be targeted by route of administration of cannabis products through inhalation of smoke or vapor, oral ingestion, oral mucosal absorption, or topical absorption. Due to its high lipophilic properties the pharmacokinetics of THC absorption, distribution, and hepatic metabolism by (CYP) 2C9, 2C19, and 3A4, along with CBD hepatic metabolism by (CYP) 1A1, 1A2, 2C9, 2D6, 2C19, and 3A4, can be evaluated to maximize the therapeutic benefits for the patient and reduce adverse outcomes (Klein & Clark, 2022; MacCallum & Russo, 2018; Wan et al., 2017). Understanding the endocannabinoid system, along with the pharmacokinetics and pharmacodynamics of cannabis, may increase considerations of using cannabis for medical purposes to treat health symptoms. This is particularly crucial for healthcare professionals who work with patients that

seek reproductive healthcare to prevent adverse side effects, especially while pregnant, postpartum, or breastfeeding. As patients seek cannabis for a variety of therapeutic benefits for symptomatic relief, especially in treating multiple comorbidities, healthcare professionals need to be educated and prepared to engage in conversations surrounding cannabis use for medical purposes (Mahabir et al., 2020).

Across studies and guidelines for medical cannabis use, regardless of the method of administration, dose titrations are governed by the principle of starting at a lower initial dose then, after a monitoring period, slowly increasing the dose until therapeutic effect is achieved with minimal adverse outcomes. This approach is like some pharmaceutical medications. Efficacy is assessed during monitoring periods for symptom relief and perceived side effects that include increased heart rate; sleepiness; anxiety; paranoia; dizziness; changes to appetite; inattention; cognitive and psychomotor impairment; and exacerbation of cardiovascular symptoms associated with asthma, cardiac disease, or other drug use. Various sources suggest that the oral administration of cannabis products start at 2.5mg THC-equivalent and titrate up by 1.25 to 2.5mg THC-equivalent after continual monitoring periods of 1-2 weeks between dose titrations. Final dose is determined based on therapeutic goals, tolerance, and adverse effects. Moreover, it is important to understand that ingestion of cannabis products results in a delayed effect because of the need to digest the product via the gastrointestinal system prior to absorbing the phytocannabinoids. Inhalation of smoke or vapor can have rapid effects, as the respiratory system readily absorbs phytocannabinoids for rapid circulation into the blood stream. By comparison, administration via sublingual or oral mucosal routes have moderate absorption rates. Specific dosage guidelines for these other methods of administration may exist given the

research on treatment of specific medical conditions with cannabis (NCSBN, 2018; Klein & Clark, 2022; MacCallum & Russo, 2018; Corroon, Sexton & Bradley, 2019).

Review of Literature

In addition to a lack of self-reported confidence and competence related to medical cannabis and its therapeutic approaches, providers cite direct patient-harm regarding dosage and drug interactions and indirect societal harm regarding misuse as major concerns that influenced their clinical decision to recommend cannabis for medical purposes in the management of their patients' health symptoms (Gardiner et al., 2019). Better patient health outcomes via patient treatment adherence, honest communication, satisfaction, empowerment of self-health practices and behaviors occur in trusting relationships built with providers, which can encourage engagement in prenatal care (Boehnke et al., 2021; Pham et al., 2020: Ronne et al., 2021; Chang et al., 2008). The following review of literature investigates how reproductive healthcare providers are currently influenced in their navigation of cannabis use among pregnant, postpartum, and breastfeeding patients.

Provider Knowledge and Application of Cannabis Use

Literature reveals providers and patients acknowledge therapeutic uses for cannabis use in the management of health symptoms including, but not limited to, nausea, anxiety, depression, seizures, headaches, pain, stress, insomnia, weight changes, exhaustion, altered concentration, and menstrual cramps. These symptoms may be seen in individuals with conditions like chronic pain, mood or mental health disorder, seizure disorder, sleep disorder, neuropathy, gastrointestinal disorder, or eating disorder. Further, cannabis may be used to manage symptoms associated with cancers, PTSD, multiple sclerosis, epilepsy, glaucoma, arthritis, IBD, fibromyalgia, muscle spasms, migraines, nerve pain, panic attacks, anorexia, ADHD, acute post-

surgical pain, and AIDS (Kurtzman & Green, 2023; Klein & Bindler, 2022; Corroon, Sexton & Bradley, 2019; Mahabir et al., 2020; Wan et al., 2017). Adverse drug interactions with cannabis use are concurrent with CNS depressants; however, most pharmaceutical medications can be used with cannabis with rare proven significant drug interactions, as the safety profile of cannabis is greater than many medications (MacCallum & Russo, 2018). Provider panelists studied in Eparwa (2017) highlight there is no cannabis known organ toxicity or documented LD50 (lethal dose, 50%).

Studies report patients substitute pharmaceutical medications, including benzodiazepines, antidepressants, and opioids, for cannabis to treat their symptoms of anxiety, depression, and pain along with other therapeutic uses compared to their prescription drugs with or without communicating this to their provider (Boehnke et al., 2021; Corroon, Mischley & Sexton, 2017; Kurtzman & Green, 2023; Kruger et al., 2019). Some patients report that the use of cannabis relieved their symptoms exceptionally better when compared to their pharmaceutical medications (Kurtzman & Green, 2023; Corroon, Mischley & Sexton, 2017; Kruger et al., 2019; Boehnke et al., 2021). Studies examined evidence surrounding patient communication with their provider regarding cannabis use for medical purposes and elaborated that patients trust in their providers influences their use, disclosure, and substitution of pharmaceutical medications for cannabis in treating their health symptoms (Boehnke et al., 2021; Kruger & Kruger, 2019). Building this trust relies that the healthcare provider has a baseline understanding of cannabis for therapeutic management.

Publications highlight the importance of increasing provider confidence and competence regarding practice-based and cannabis-focused evidence knowledge, practices, pharmacodynamics, and drug-drug interactions. These maximize therapeutic benefits, reduce

adverse outcomes, and improve care for patients who use cannabis to treat their health symptoms regardless of personal practitioner feelings toward cannabis use for medical purposes. These can be achieved through continuing education, as training curriculums can increase provider willingness to talk about cannabis use with patients (NCSBN, 2018; Kilmer et al., 2022; Zolotov et al., 2021; Pruyn et al., 2022; Klein & Clark, 2022; Klein & Bindler, 2022).

Lack of Research Leading to Gaps in Care

Many studies highlight the historic lack of information in healthcare professionals' curriculums and competencies regarding cannabis use for health symptoms. Providers acknowledge a lack of understanding of cannabis in clinical and legislative fields results, thus contributing to decreased feelings of preparedness to discuss cannabis use with patients in the management of their health symptoms (Gardiner et al., 2019; Klein & Bindler, 2022; Zolotov et al., 2020). The lack of understanding of the impact of cannabis on a pregnancy and developing fetus also impact these dynamics.

The pathology of some distinct features in placental variations, such as weight, placenta-to-birthweight ratio, placenta size, accelerated villous maturation, charangoists, and hemorrhage, have been seen in studies examining cigarette, alcohol, methamphetamine, and cannabis use during pregnancy. However, the true estimated exposure of cannabis alone during gestation is difficult to quantify as substance use often co-occur and these outcomes also do not control for socioeconomic factors (Carter et al., 2016). Historical multigenerational trauma related to colonization, racism, inadequate resources on reservations, poor access to grocery stores, violence, education level, income, all continue to exacerbate barriers to healthcare and health outcomes (Soto et al., 2022; Thorsen et al., 2022; Hiratsuka et al., 2022).

Research in substance use during pregnancy and birth outcomes is often based in polysubstance use including alcohol and tobacco. This makes it difficult to isolate delivery and newborn outcomes directly to a single substance such as cannabis or methamphetamine (Jarlenski et al., 2020; Michalski et al., 2020; Board et al., 2023; Kunker et al., 2022; Carter et al., 2016). Board et al. (2023) found one in five birthing persons who reported antenatal substance use also engaged in using at least one other substance, highlighting the need for harm reduction strategies as adverse health effects may be exacerbated impacting clinical practices. Co-occurring identified substance use during pregnancy has increased more rapidly in rural U.S. counties; however, correct International Classification of Disease (ICD) coding can result in missing or inaccurate data (Jarlenski et al., 2020; Hiratsuka et al., 2022). Further, two publications using non-experimental surveys (Martins et al., 2021; Bruce et al., 2021), highlighted the racial and gender disparities in medical cannabis treatment, along with lower provider support for female and ethnic minorities in using cannabis for medical purposes. The lack of consistent and evidence-based research on antenatal and birth outcomes for specific substances used during pregnancy results in a gap of population-specific information that can help patients make better informed decisions and reduce potential harm to themselves and the developing fetus.

Across the US polysubstance use statistics show continually rapid increases in rural counties and birthing person and neonatal morbidity and mortality risk factors are highly correlated with various substance use during gestation especially when they cooccur with opioid, amphetamine, alcohol, tobacco, or cannabis (Jarlenski et al. 2020). Low birth weight, small for gestational age, preterm birth, placental abnormalities, cardiovascular anomalies, newborn withdrawal symptoms, fetal and infant mortality are associated with various substance use,

alcohol, and smoking during pregnancy (Jarlenski et al. 2020; Michalski et al., 2020; Stickrath, 2019; O'Connor et al., 2019; Carter et al., 2016). However, again, the lack of consistency across studies, which analyzes data from antenatal polysubstance use cases, makes it difficult to draw definitive conclusions on the direct impact from a single substance, like cannabis, on adverse birth outcomes along with the applicability of these outcomes to specific populations, like American Indians and Alaska Natives (Kunker et al., 2022; Kalaitzopoulos et al., 2022). Public health crisis regarding birthing person and newborn outcomes from polysubstance use in conjunction with comorbidities, congenital diseases, adverse social circumstances, mental health, violence, trauma, and involvement with legal authorities place individuals in vulnerable situations (Sankaran et al., 2022; O'Conner et al., 2022; Board et al., 2023; Martins et al., 2021; Bruce et al., 2021).

Need for More Evidence-Based Information for Healthcare Professionals

The NCSBN National Nursing Guidelines for Medical Marijuana (2018) analyzes and reviews publications, research, and quality of evidence for cannabis use for the management of health conditions grading randomized control studies (RCT) as high and observational studies as low-quality evidence, while evaluating study bias along with therapeutic and adverse effects in the application of practices regarding cannabis use for medical purposes. Further, the NCSBN Medical Marijuana guidelines offers evidence-based information for curriculum development regarding the nursing care of the patient, medical cannabis programs at various levels of nursing licensure, and certifies prescribing NPs to authorize medical cannabis. There is the repetitive acknowledgement that these guidelines are influenced by limited and potentially biased research. Additionally, medical practices vary widely on whether cannabis may be recommended, if at all, for the management of health symptoms because state and federal legislation precludes the

standardization of medical cannabis practice, guidelines, and products. Ryan, MaCabe and Boyd's (2021) policy brief addresses conflicting federal and state cannabis policies that affect healthcare systems and its impact on patients who use cannabis for medical purposes. This brief highlights the lack of training and education on cannabis use throughout the US for medical purposes. However, NCSBN's guidelines for developing curriculums around medical cannabis use can encourage knowledgeable and safe practices for individuals who elect to use cannabis as part of their care.

Klein and Clark (2022) offers NPs information for therapeutic medical cannabis use for patients including the endocannabinoid system, cannabis pharmacology, pharmacokinetics, pharmacodynamics, dosing, benefits, risks, and drug-drug interactions along with indications and evidence that NPs need to engage in discussions surrounding cannabis use for medical purposes that can be integrated into continuing education programs. Klein and Bindler (2022) found that, after completion of a national medical cannabis-focused targeted educational intervention program, NPs were more likely to inquire, discuss, counsel, educate, and provide information regarding cannabis use for medical purposes. Additionally, they were more likely to identify barriers in implementing cannabis use in their clinical practice as they were more knowledgeable regarding laws, drug pharmacodynamics, safety, and guidelines, while acknowledging patient preferences, needs and values regardless of personal provider feelings towards cannabis use. This quality improvement project provided 839 healthcare practitioners with a 2-hour continuing education module addressing cannabis use practices for medical purposes, laws, and research with pre- and post-test to evaluate this intervention's effectiveness. Evaluation of this project identified increased provider knowledge in all targeted content areas, willingness to discuss cannabis use for medical purposes, and evidence for cannabis use in treatment of specific health

symptoms. Increasing provider knowledge on cannabis use for treatment of health symptoms, along with harm-reduction strategies addressing therapeutic benefits and risks along with endocannabinoid system education, in clinical practice can improve shared-decision making relationships with patients and providers regarding appropriate cannabis use to treat health symptoms (Boehnke et al., 2021).

In conclusion, while studies lack research and consistency surrounding all strains of cannabis and their effects adversely or beneficially, healthcare providers must be knowledgeable in practical evidence-based medical cannabis use guidelines and practice regarding products that contain cannabis as increasing populations are using cannabis recreationally and for treatment of their health symptoms (NCSBN, 2018). This study provides invaluable insights into where current provider knowledge, perspectives, and practices stand when it comes to navigating cannabis use among patients who seek reproductive healthcare. Understanding this will enable the formation of appropriate educational interventions to address any current gaps or deficits, which impacts the care given to patients, particularly those who are pregnant, postpartum, or breastfeeding. This information will enhance patient safety, comfort, and trust in their providers during their care.

Conceptual Framework

Application of the Donabedian Theory of Quality Improvement (DTQI) framework will address the healthcare structure, process, and medical outcomes to improve the quality of care provided by healthcare professionals to patients (McCullough et. al., 2023). This practice-based inquiry focuses on healthcare provider knowledge of cannabis medicinal uses, safety, and contraindications; perspectives of the average cannabis user; and standard practices when it comes to navigating cannabis use among pregnant, postpartum, and breastfeeding patients.

Further recommendations for education, interventions, along with local, state, and federal resources for healthcare providers can be derived from this project. Obstetricians, Doctor of Osteopathic Medicine, Family Practice Doctors, Certified-Nurse Midwives, Certified-Professional Midwifes, traditional midwives, physician assistants, nurses, and clinical staff need relevant information about cannabis and its use as it pertains to their patients who seek reproductive healthcare. Integration of this information can help build trusting relationships and increase shared decision making between health care providers and patients simultaneously reducing racial and gender inequities seen in medical and institutional systems.

Methods

Design

This is a practice-based inquiry that utilizes a survey method to determine how reproductive healthcare providers navigate cannabis use among pregnant, postpartum, and breastfeeding patients. This study was reviewed by Seattle University Institutional Review Board and was found to meet exemption criteria.

Setting and Participants

An online survey was developed using Qualtrics XM software. This platform allowed opportunity for the survey to reach multiple healthcare providers in different states and facilities. An email communication (Appendix A) which included a link to the online survey was disseminated via email to various reproductive care, women's health, or OB/GYN clinics in the Providence Everette Medical Group, WA; Tuba City Regional Health Care Corporation, AZ; Seattle University, WA; and Northeast Montana Health Services, MT. Additionally, the communication requested clinic and providers to forward the survey to those they think may want to participate. The online survey included an electronic informed consent (Appendix B).

The survey took no more than 20 minutes to complete (Appendix C) and not all answers needed to be completed for the survey to be electronically submitted.

Inclusion criteria for participants are providers who work with pregnant, postpartum, or breastfeeding individuals who have current pharmaceutical prescriptive authority. They are primarily birth workers that include Medical Doctors (MDs), Obstetricians (OBs), Doctor of Osteopathic Medicine (DOs), Certified-Nurse Midwives (CNMs), Certified-Professional Midwifes (CPMs), and traditional midwives. Participants have self-selected for involvement in this study. Exclusion criteria are any providers, including specialty, who do not currently work with pregnant, postpartum, breastfeeding individuals.

Data Collection Procedures

Data was collected and stored via SU Qualtrics XM software. Direct identifiers were not collected for this research project. There are indirect identifiers collected, such as job title, years of experience, state, and facility location of the participant practices. Providers included their job title, specialty, prescriptive authority, years in practice, the state in which they practice, population demographic the provider cares for, requirements for patient drug screening, mandating reporting for cannabis use, disclosure of cannabis use in patient populations, confidence and comfort surrounding care of patients who use cannabis, perceived health risks of cannabis use, along with research knowledge surrounding cannabis use in treatment of health symptoms. The survey was open from March 2024 to June 2024.

Measurement Instruments and Data Analysis

Survey data was analyzed to provide descriptive statistics. Measures of central tendency including mean, median, mode, and range were examined. Descriptive statistics and frequencies were used to describe the sample characteristics.

Results

Demographics

A total of 12 individuals participated in the online survey; however, most survey prompts received responses from 10 participants. All participants are clinical practitioners (n=12, 100%) with a range of experience from 0-25+ years (average 10-15 years) of working with patients that seek reproductive healthcare. Most of the study participants (75%, n=9) practiced in Washington state. Further, most of the participants (66.33%, n=8) care for native populations, where 12.5% (n=1) provide care at a facility located on a native reservation. Figure 1, Figure 2, Figure 3, and Figure 4 summarize participant professional title, state location of practice, years of experience, and care for native populations.

Figure 1

Professional Titles

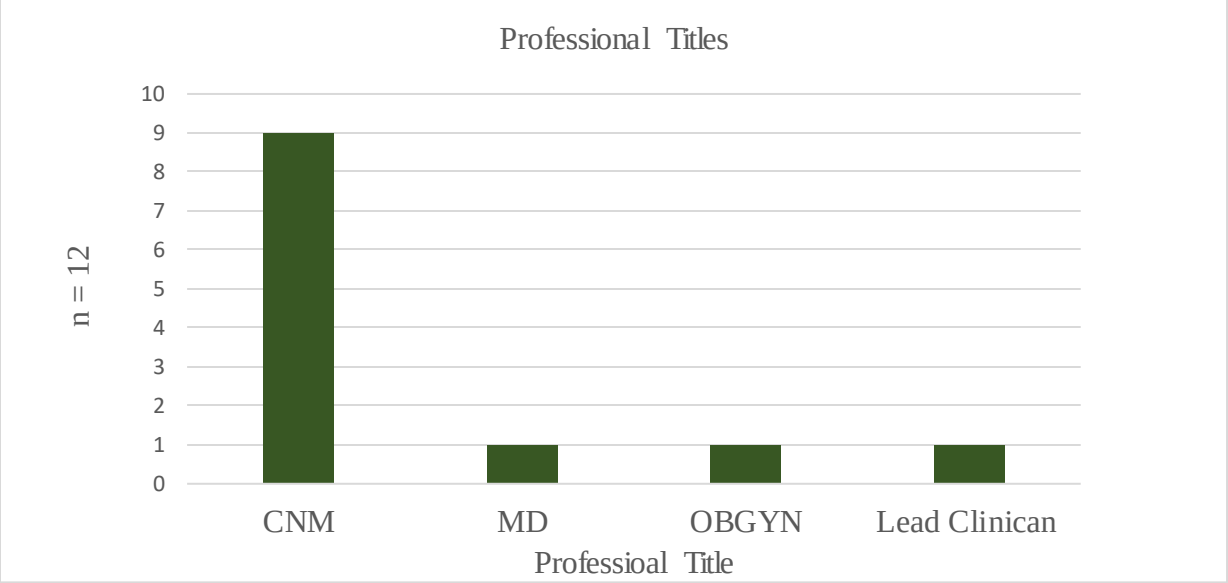


Figure 2

Years of Clinical Practice

Figure 3

State Location of Practice

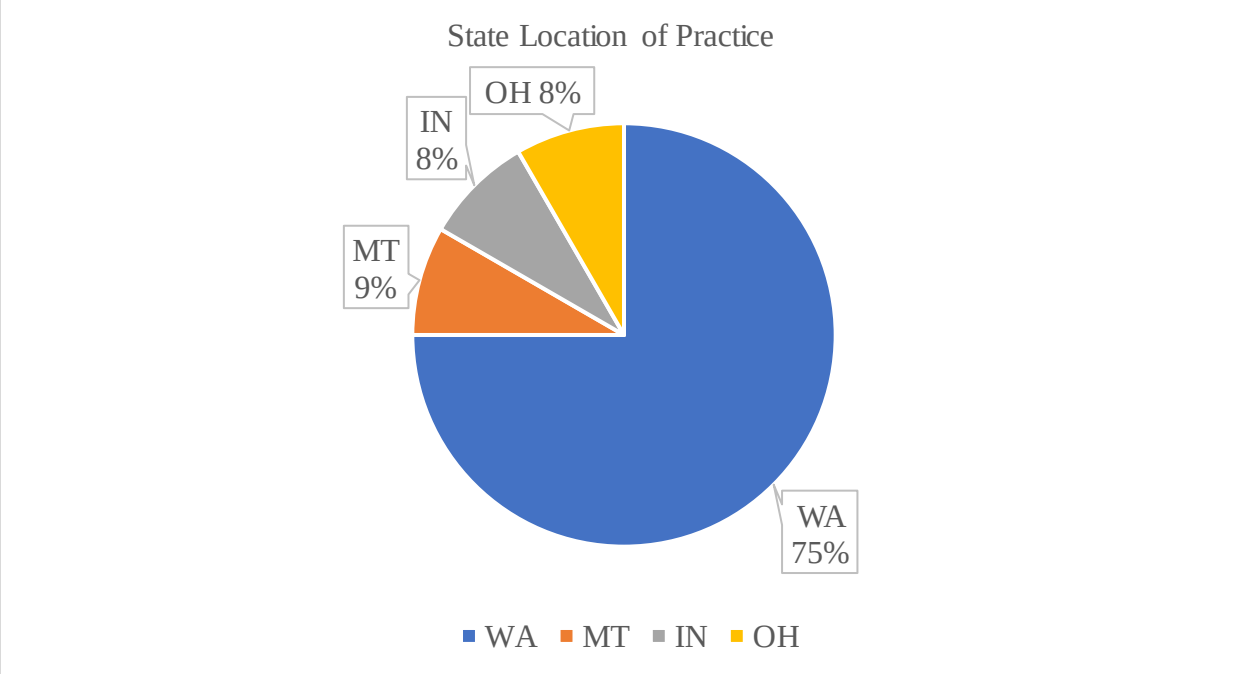
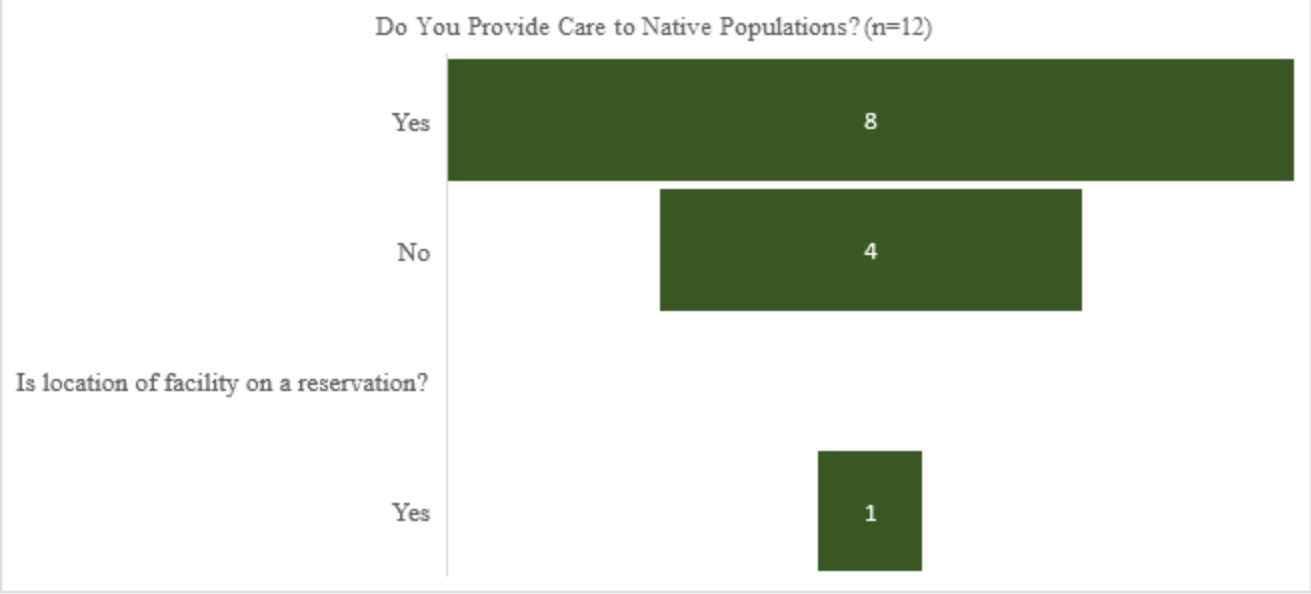


Figure 4

Provider Care for Native Populations



Management of Cannabis Use in Clinical Practice

The majority, if not all, participants (%, n=10) reported that their practice does not require drug screening in general (100%), during pregnancy (80%), postpartum (100%), and while breastfeeding (100%). Further, most participants reported that in the state where they practice, they are not mandated to report cannabis use to the authorities (e.g., Department of Children and Families, Child Protective Services) in general (90%), during pregnancy (90%), postpartum (90%), and while breastfeeding (100%). Healthcare providers in this study sometimes provided information regarding cannabis to patients as an alternative treatment of their health symptoms in general (50%), postpartum (70%), while breastfeeding (70%), with the majority (80%) providing no information regarding cannabis to patients as an alternative treatment of their health symptoms during pregnancy. Almost all providers reported managing or caring for patients that disclose cannabis use in general (100%), during pregnancy (100%),

postpartum (90%), and while breastfeeding (90%). Table 1 summarizes participant management of cannabis use in clinical practice.

Table 1

Management of Cannabis Use in Clinical Practice

Does your practice require drug screening?	**Yes n (% n=10)**	**No n (% n=10)**	**Unsure n (% n=10)**
In General	0 (0%)	10 (100%)	0 (0%)
During Pregnancy	2 (20%)	8 (80%)	0 (0%)
Postpartum	0 (0%)	10 (100%)	0 (0%)
While Breastfeeding	0 (0%)	10 (100%)	0 (0%)
In the state where you practice, are you mandated to report cannabis use to authorities (e.g., Department of Children & Families (DCF), Child Protective Services (CPS))?	**Yes n (% n=10)**	**No n (% n=10)**	**Unsure n (% n=10)**
In General	0 (0%)	9 (90%)	1 (10%)
During Pregnancy	1 (10%)	9 (90%)	0 (0%)
Postpartum	1 (10%)	9 (90%)	0 (0%)
While Breastfeeding	0 (0%)	10 (100%)	0 (0%)
Do you provide information regarding cannabis use to your patients as an alternate treatment of their health symptoms in the following situations?	**Yes n (% n=10)**	**No n (% n=10)**	**Sometimes n (% n=10)**
In General	1 (10%)	4 (40%)	5 (50%)
During Pregnancy	1 (10%)	8 (80%)	1 (10%)
Postpartum	0 (0%)	3 (30%)	7 (70%)
While Breastfeeding	0 (0%)	3 (30%)	7 (70%)
Have you managed or cared for patients that disclose cannabis use?	**Yes n (% n=10)**	**No n (% n=10)**	**Unsure n (% n=10)**
In General	10 (100%)	0 (0%)	0 (0%)
During Pregnancy	10 (100%)	0 (0%)	0 (0%)
Postpartum	9 (90%)	1 (10%)	0 (0%)
While Breastfeeding	9 (90%)	1 (10%)	0 (0%)

Confidence and Comfort Around Cannabis Information and Education

Percentage rates of confidence and comfortability are delineated respectively. The survey showed most providers (%, n=10) were not at all confident or comfortable educating patients to use cannabis as an alternative therapy in general (50%, 50%), during pregnancy (50%, 60%), postpartum (50%, 60%), and while breastfeeding (50%, 60%). Further, healthcare providers that participated in this study were not at all confident or comfortable recommending/authorizing

cannabis to patients in treatment of their health symptoms in general (50%, 50%), during pregnancy (60%, 50%), postpartum (50%, 50%), and while breastfeeding (60%, 50%). Despite this, most participants reported being somewhat to very confident and comfortable (80%, 100%) discussing cannabis use (recreational or medicinal) with patients in general, during pregnancy, postpartum and while breastfeeding. Healthcare providers also reported being somewhat to very confident and comfortable (100%, 90%) managing the care of patients that use cannabis in general, during pregnancy, postpartum, and while breastfeeding. Table 2 summarizes participant confidence and comfort around cannabis information and education.

Table 2

Confidence and Comfort Around Cannabis Information and Education

How confident do you feel discussing cannabis use (recreational or medicinal) with your patients?	**Not at all n (% n=10)**	**Slightly n (% n=10)**	**Somewhat n (% n=10)**	**Moderately n (% n=10)**	**Very n (% n=10)**
In General	0 (0%)	1 (10%)	4 (40%)	3 (30%)	2 (20%)
During Pregnancy	0 (0%)	0 (0%)	3 (30%)	3 (30%)	4 (40%)
Postpartum	0 (0%)	0 (0%)	3 (30%)	3 (30%)	4 (40%)
While Breastfeeding	0 (0%)	1 (10%)	2 (20%)	3 (30%)	4 (40%)
How confident do you feel managing the care of patients what use cannabis?	**Not at all n (% n=10)**	**Slightly n (% n=10)**	**Somewhat n (% n=10)**	**Moderately n (% n=10)**	**Very n (% n=10)**
In General	0 (0%)	0 (0%)	2 (20%)	5 (50%)	3 (30%)
During Pregnancy	0 (0%)	0 (0%)	2 (20%)	3 (30%)	5 (50%)
Postpartum	0 (0%)	0 (0%)	1 (10%)	4 (40%)	5 (50%)
While Breastfeeding	0 (0%)	0 (0%)	1 (10%)	5 (50%)	4 (40%)
How confident do you feel educating patients to use cannabis as an alternate therapy for their health symptoms?	**Not at all n (% n=10)**	**Slightly n (% n=10)**	**Somewhat n (% n=10)**	**Moderately n (% n=10)**	**Very n (% n=10)**
In General	5 (50%)	1 (10%)	0 (00%)	3 (30%)	1 (10%)
During Pregnancy	6 (60%)	1 (10%)	1 (10%)	1 (10%)	1 (10%)
Postpartum	6 (60%)	1 (10%)	0 (0%)	2 (20%)	1 (10%)
While Breastfeeding	6 (60%)	1 (10%)	0 (0%)	2 (20%)	1 (10%)

How confident do you feel recommending/authorizing cannabis to patients in the treatment of their health symptoms?	**Not at all n (% n=10)**	**Slightly n (% n=10)**	**Somewhat n (% n=10)**	**Moderately n (% n=10)**	**Very n (% n=10)**
In General	5 (50%)	0 (0%)	1 (10%)	3 (30%)	1 (10%)
During Pregnancy	6 (60%)	2 (20%)	1 (10%)	1 (10%)	0 (0%)
Postpartum	5 (50%)	2 (20%)	2 (20%)	1 (10%)	0 (0%)
While Breastfeeding	6 (60%)	1 (10%)	2 (20%)	1 (10%)	0 (0%)
How comfortable do you feel discussing cannabis use (recreational or medicinal) with your patients?	**Not at all n (% n=10)**	**Slightly n (% n=10)**	**Somewhat n (% n=10)**	**Moderately n (% n=10)**	**Very n (% n=10)**
In General	1 (10%)	1 (10%)	0 (0%)	4 (40%)	4 (40%)
During Pregnancy	1 (10%)	1 (10%)	1 (10%)	3 (30%)	4 (40%)
Postpartum	1 (10%)	1 (10%)	1 (10%)	3 (30%)	4 (40%)
While Breastfeeding	1 (10%)	1 (10%)	1 (10%)	3 (30%)	4 (40%)
How comfortable do you feel managing the care of patients what use cannabis?	**Not at all n (% n=10)**	**Slightly n (% n=10)**	**Somewhat n (% n=10)**	**Moderately n (% n=10)**	**Very n (% n=10)**
In General	1 (10%)	1 (10%)	0 (0%)	3 (30%)	5 (50%)
During Pregnancy	0 (0%)	1 (10%)	0 (0%)	4 (40%)	5 (50%)
Postpartum	0 (0%)	1 (10%)	0 (0%)	4 (40%)	5 (50%)
While Breastfeeding	0 (0%)	1 (10%)	0 (0%)	4 (40%)	5 (50%)
How comfortable do you feel educating patients to use cannabis as an alternate therapy for their health symptoms?	**Not at all n (% n=10)**	**Slightly n (% n=10)**	**Somewhat n (% n=10)**	**Moderately n (% n=10)**	**Very n (% n=10)**
In General	5 (50%)	0 (0%)	0 (0%)	3 (30%)	2 (20%)
During Pregnancy	5 (50%)	2 (20%)	0 (0%)	2 (20%)	1 (10%)
Postpartum	5 (50%)	1 (10%)	0 (0%)	2 (20%)	1 (10%)
While Breastfeeding	5 (50%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)
How comfortable do you feel recommending/authorizing cannabis to patients in the treatment of their health symptoms?	**Not at all n (% n=10)**	**Slightly n (% n=10)**	**Somewhat n (% n=10)**	**Moderately n (% n=10)**	**Very n (% n=10)**
In General	5 (50%)	0 (0%)	0 (0%)	3 (30%)	2 (20%)
During Pregnancy	5 (50%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)
Postpartum	5 (50%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)
While Breastfeeding	5 (50%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)

Cannabis Health Benefits and Risks

The survey identified medical conditions where research shows cannabis has medical or therapeutical benefit. Participants rated cannabis medical or therapeutical benefits lowest for health conditions for the postpartum (0-50%) and breastfeeding (0-33.3%) populations. However, cannabis was rated highly appropriate for medicinal or therapeutic benefits for all identified health conditions in the general population (75-100%). Participants had the greatest range (0-66.7%) in their thoughts regarding cannabis as an appropriate medicinal use or therapeutic benefit for health conditions during pregnancy. Overall, the lowest perceived health risk associated with cannabis use was by topical application across all populations (80-100%). Most participants perceived lowest to some health risk associated by ingestion (e.g., edibles or tinctures) across all populations (20-60%). Participants perceived some risk or highest risk associated with cannabis use by inhalation (e.g., smoking or vaping) (30-70%). Table 3 summarizes cannabis health benefits and risks by providers.

Table 3

Cannabis Health Benefits and Risks

Select when you think cannabis may have an appropriate medicinal use or therapeutic benefit for the following health conditions	**In General n (% n=x)**	**During Pregnancy n (% n=x)**	**Postpartum n (% n=x)**	**While Breastfeeding n (% n=x)**
Anxiety (n=8)	8 (100%)	4 (50%)	3 (37.5%)	1 (12.5%)
Concentration (n=1)	1 (100%)	0 (0%)	0 (0%)	0 (0%)
Decreased Appetite (n=8)	6 (75%)	4 (50%)	2 (25%)	1 (12.5%)
Depression (n=3)	3 (100%)	2 (66.7%)	1 (33.3%)	1 (33.3%)
Exhaustion (n=1)	1 (100%)	0 (0%)	0 (0%)	0 (0%)
Headache (n=2)	2 (100%)	1 (50%)	0 (0%)	0 (0%)
Insomnia (n=5)	5 (100%)	1 (20%)	1 (20%)	0 (0%)
Muscle Spasms (n=2)	2 (100%)	0 (0%)	0 (0%)	0 (0%)
Nausea/Vomiting (n=10)	9 (90%)	5 (50%)	2 (20%)	1 (10%)
Seizures (n=2)	2 (100%)	1 (50%)	1 (50%)	0 (0%)
Uterine Cramping (n=6)	5 (83.3%)	1 (16.7%)	0 (0%)	0 (0%)
Weight Changes (n=2)	2 (100%)	1 (50%)	0 (0%)	0 (0%)

What is your perceived health risk associated with cannabis use by inhalation (e.g, smoking or vaping)?	**Lowest risk n (% n=10)**	**Some risk n (% n=10)**	**Highest risk n (% n=10)**
In General	2 (20%)	5 (50%)	3 (30%)
During Pregnancy	1 (10%)	5 (50%)	4 (40%)
Postpartum	1 (10%)	6 (60%)	3 (30%)
While Breastfeeding	0 (0%)	7 (70%)	3 (30%)
What is your perceived health risk associated with cannabis use by ingestion (e.g, edibles or tinctures)?	**Lowest risk n (% n=10)**	**Some risk n (% n=10)**	**Highest risk n (% n=10)**
In General	6 (60%)	4 (40%)	0 (0%)
During Pregnancy	3 (30%)	6 (60%)	1 (10%)
Postpartum	3 (30%)	6 (60%)	1 (10%)
While Breastfeeding	2 (20%)	6 (60%)	2 (20%)
What is your perceived health risk associated with cannabis use by topical application?	**Lowest risk n (% n=10)**	**Some risk n (% n=10)**	**Highest risk n (% n=10)**
In General	10 (100%)	0 (0%)	0 (0%)
During Pregnancy	80 (80%)	1 (10%)	1 (10%)
Postpartum	80 (80%)	1 (10%)	1 (10%)
While Breastfeeding	80 (80%)	1 (10%)	1 (10%)

Note: X = number of participants that responded to each question

Cannabis Scheduling and Research

Tables 4A and 4B summarize participant thoughts around cannabis scheduling and research.

Federal Restrictions

This study found 90% of providers (%, n=10) agree federal restrictions on cannabis as a Schedule I substance reduces the extent that cannabis can be researched, that cannabis should be revaluated and reclassified by its medical or therapeutic value by the DEA (80%); and that there should be age restrictions on cannabis use (90%). Further, 70% of providers in this study disagree that cannabis should continue to be a Schedule I substance. Participants do not think is there is sufficient research evidence on the effects of cannabis use in the general population (100%), with pregnant and fetus outcomes, postpartum and newborn outcomes (both at 90%), or with breastfeeding and infant outcomes (80%).

Stigma and Associations

Participants reported negative stigma associated with cannabis use in general (90%), during pregnancy (80%), postpartum (70%), and while breastfeeding (50%). Further, 50% of participants think that it is somewhat likely that a cannabis user also uses alcohol, tobacco, or has other mental health issues. This study found 50-70% of providers thought it was neither likely nor unlikely that a cannabis user is associated with being dishonest with providers; using other drugs (e.g., methamphetamine, amphetamines, opioids, etc.); substance use disorder; being informed about their healthcare; low economic status; low education; poor coping skills; the tendency to neglect others (e.g., child, family members); and the tendency to abuse others or self.

Cannabis Research

Research on cannabis use for medical purposes to treat health symptoms and by mode of administration are delineated respectively. Participants reported limited research in these categories in general (100%, 100%), during pregnancy (90%, 80%), postpartum (90%, 80%), and while breastfeeding (80%, 80%). Throughout all populations, 66.7% - 100% of providers reported much of cannabis research and recommendations is based in polysubstance use. The following outcomes were rated to be somewhat negative by 20%-80% of participants: cannabis impact on placenta or blood vessel formation; fetal/newborn distress; neurological effects or respiratory effects on the fetus/newborn; and cognitive, physical, language, social-emotional development in childhood. Providers in this study agree cannabis should not be used in patients in the following conditions: during pregnancy (55.6%), hallucinations (66.6%), impaired cognition (77.8%), impaired memory (77.8%), schizophrenia (77.8%), and suicidal ideation (66.6%).

Table 4A

Cannabis Scheduling and Research

Select to what extent do you agree or disagree with these statements	**Agree n (% n=10)**	**Somewhat agree n (% n=10)**	**Neutral n (% n=10)**	**Somewhat disagree n (% n=10)**	**Disagree n (% n=10)**
Federal restrictions on cannabis as a Schedule I substance reduces the extent that cannabis use can be researched.	9 (90%)	0 (0%)	0 (0%)	0 (0%)	1 (10%)
Cannabis should continue to be a Schedule I substance.	0 (0%)	1 (10%)	1 (10%)	1 (10%)	7 (70%)
Cannabis should be revaluated and reclassified by its medical or therapeutic value by the DEA.	8 (80%)	1 (10%)	1 (10%)	0 (0%)	0 (0%)
There should be age restrictions on cannabis use.	9 (90%)	0 (0%)	1 (10%)	0 (0%)	0 (0%)
With the following conditions, to what extent do you think cannabis should not be used?	**Agree n (% n=?)**	**Somewhat agree n (% n=?)**	**Neutral n (% n=?)**	**Somewhat disagree n (% n=?)**	**Disagree n (% n=?)**
In General (n=9)	0 (0%)	0 (0%)	5 (55.6%)	1 (11.1%)	3 (33.3%)
During Pregnancy (n=9)	5 (55.6%)	3 (33.3%)	0 (0%)	1 (11.1%)	1 (11.1%)
Postpartum (n=10)	3 (30%)	3 (30%)	1 (10%)	1 (10%)	2 (20%)
While Breastfeeding (n=10)	4 (40%)	5 (50%)	0 (0%)	1 (10%)	0 (0%)
Anxiety (n=10)	0 (0%)	0 (0%)	3 (30%)	3 (30%)	4 (40%)
Depression (n=10)	0 (0%)	3 (30%)	1 (10%)	4 (40%)	2 (20%)
Dysphoria (n=9)	1 (11.1%)	1 (11.1%)	2 (22.2%)	1 (11.1%)	4 (44.4%)
Hallucinations (n=9)	6 (66.6%)	2 (22.2%)	0 (0%)	1 (11.1%)	0 (0%)
Impaired Cognition (n=9)	7 (77.8%)	1 (11.1%)	0 (0%)	1 (11.1%)	0 (0%)
Impaired Memory (n=9)	7 (77.8%)	1 (11.1%)	0 (0%)	1 (11.1%)	0 (0%)
Nausea/Vomiting (n=10)	0 (0%)	0 (0%)	2 (20%)	2 (20%)	6 (60%)
Schizophrenia (n=9)	7 (77.8%)	0 (0%)	0 (0%)	2 (22.2%)	0 (0%)
Suicidal ideation(n=9)	6 (66.6%)	0 (0%)	2 (22.2%)	1 (11.1%)	0 (0%)

To what extent do you think cannabis has impacts or effects to the following outcomes?	**Extremely negative**	**Somewhat negative**	**Neither negative or positive**	**Somewhat positive**	**Extremely positive**
Placenta or blood vessel formation (n=10)	1 (10%)	6 (60%)	4 (40%)	0 (0%)	0 (0%)
Fetal/newborn distress (n=10)	0 (0%)	4 (40%)	6 (60%)	0 (0%)	0 (0%)
Neurological effects on the fetus/newborn (n=9)	2 (22.2%)	7 (77.8%)	0 (0%)	0 (0%)	0 (0%)
Respiratory effects on the fetus/newborn (n=10)	0 (0%)	4 (40%)	6 (60%)	0 (0%)	0 (0%)
Cognitive development in childhood (n=10)	2 (20%)	8 (80%)	0 (0%)	0 (0%)	0 (0%)
Physical development in childhood (n=10)	0 (0%)	2 (20%)	6 (60%)	2 (20%)	0 (0%)
Language development in childhood (n=10)	0 (0%)	3 (30%)	6 (60%)	1 (10%)	0 (0%)
Social-emotional development in childhood (n=10)	1 (10%)	7 (70%)	2 (20%)	0 (0%)	0 (0%)
What is the likelihood that a cannabis user is associated with the following trait	**Likely**	**Somewhat likely**	**Neither likely or unlikely**	**Somewhat unlikely**	**Unlikely**
Also uses alcohol (n=10)	1 (10%)	5 (50%)	3 (30%)	0 (0%)	1 (10%)
Also uses other drugs (e.g., methamphetamine, amphetamines, opioids, etc.) (n=10)	0 (0%)	1 (10%)	6 (60%)	2 (20%)	1 (10%)
Also uses tobacco (n=10)	0 (0%)	5 (50%)	3 (30%)	2 (20%)	
Dishonest with providers (n=10)	0 (0%)	1 (10%)	6 (60%)	1 (10%)	2 (20%)
Has other mental health issues (n=10)	0 (0%)	5 (50%)	3 (30%)	2 (20%)	
Has substance use disorder (n=10)	0 (0%)	2 (20%)	5 (50%)	2 (20%)	1 (10%)
Informed about healthcare choices (n=10)	0 (0%)	4 (40%)	6 (60%)	0 (0%)	0 (0%)
Low economic status (n=10)	0 (0%)	2 (20%)	7 (70%)	0 (0%)	1 (10%)
Low education (n=10)	0 (0%)	2 (20%)	7 (70%)	0 (0%)	1 (10%)
Poor coping skills (n=10)	0 (0%)	3 (30%)	5 (50%)	2 (20%)	0 (0%)
Tends to abuse others	0 (0%)	0 (0%)	6 (60%)	1 (10%)	3 (30%)
Tends to neglect others (e.g., child, family members) (n=10)	0 (0%)	0 (0%)	5 (50%)	2 (20%)	3 (30%)
Tends to neglect self (n=10)	0 (0%)	0 (0%)	6 (60%)	1 (10%)	3 (30%)
Uses cannabis for medical/therapeutic purposes (n=10)	2 (20%)	7 (70%)	1 (10%)	0 (0%)	0 (0%)
Uses cannabis for recreational purposes (n=10)	2 (20%)	7 (70%)	1 (10%)	0 (0%)	0 (0%)

Note: X = number of participants that responded to each question

Table 4B

Cannabis Scheduling and Research Continued

Select if you think these statements apply to specific populations in cannabis research	In general n (% n=10)	During pregnancy n (% n=10)	Postpartum n (% n=10)	While breastfeeding n (% n=10)
There is a negative stigma around cannabis use.	9 (90%)	8 (80%)	7 (70%)	5 (50%)
Cannabis has medical/therapeutic purposes.	10 (100%)	4 (40%)	3 (30%)	2 (20%)
There is limited research on cannabis use for medical purposes in treatment of health symptoms.	10 (100%)	9 (90%)	9 (90%)	8 (80%)
There is limited research on cannabis use for medicinal purposes in treatment of health symptoms efficacity my mode of administration.	10 (100%)	8 (80%)	8 (80%)	8 (80%)
Much of cannabis research and recommendations is based in polysubstance use. (n=6)	6 (100%)	4 (66.7%)	4 (66.7%)	4 (66.7%)

With the following populations, is there sufficient research evidence on the effects of cannabis use?	Yes n (% n=10)	No n (% n=10)	Unsure n (% n=10)
General population	4 (40%)	6 (60%)	0 (0%)
Pregnancy and fetus outcomes	0 (0%)	10 (100%)	0 (0%)
Postpartum and newborn outcomes	1 (10%)	9 (90%)	0 (0%)
Breastfeeding and infant outcomes	1 (10%)	9 (90%)	0 (0%)

Note: X = number of participants that responded to each question

Discussion

Summary

Almost all healthcare providers in this study reported managing or caring for patients that disclose cannabis use in general, during pregnancy, postpartum, and while breastfeeding. They report feeling confident and comfortable discussing and managing the care of patients that use cannabis across all populations. However, they were not at all confident or comfortable educating, recommending/authorizing cannabis to patients in treatment of their health symptoms in any category. Cannabis was rated highly appropriate for medicinal or therapeutic benefits in

the general population for all identified health conditions, including anxiety, concentration, decreased appetite, depression, exhaustion, headache, insomnia, muscle spasms, nausea/vomiting, seizures, uterine cramping, and weight changes. In contrast, healthcare provider thoughts on the appropriate use of cannabis for medicinal or therapeutic benefit for these same health conditions decreased for populations who are pregnant, postpartum, or breastfeeding were significantly less, with the highest range of responses in the negative. The lowest agreement where cannabis use is appropriate for medicinal or therapeutic benefit conditions is in the postpartum and breastfeeding populations. In terms of mode of administration, participants in this study reported lowest perceived health risk associated with cannabis use by topical application in all categories; lowest to some risk associated with health risk associated by ingestion (e.g., edibles or tinctures); and highest risks associated with health risk associated with cannabis use by inhalation (e.g., smoking or vaping).

Clinical Implications

The findings from this study provide a glimpse into how some providers may navigate cannabis use among their patients who seek reproductive care. As the sample size for this study is not large enough, it is difficult to assume that what is summarized here is representational of what is influencing most clinical practices. Almost all healthcare providers in this study disagree with the continued classification of cannabis as a schedule I substance and agree that federal restrictions on cannabis as a schedule I substance reduces the extent that cannabis can be researched; that cannabis should be revaluated and reclassified by its medical or therapeutic value by the DEA; and that there needs to be age restrictions on cannabis use. Healthcare providers in this study report there is not sufficient research evidence on the effects of cannabis use in the general population; with pregnant and fetus outcomes; postpartum and newborn

outcomes; or with breastfeeding and infant outcomes. Participants reported limited research on cannabis use for medical purposes in the treatment of health symptoms and further by mode of administration in all categories. Additionally, much of the research studies that focused on birth outcomes from antenatal cannabis use are based on polysubstance use cases.

Though it is difficult to draw definitive conclusions on the direct impacts from cannabis alone, cannabis recommendations do not necessarily delineate this nuance. Moreover, providers are not in agreement on the impact of cannabis use on placenta or blood vessel formation; fetal/newborn distress; neurological effects or respiratory effects on the fetus/newborn; cognitive, physical, language, social-emotional development in childhood. Lastly, participants agree cannabis should not be used by patients during pregnancy, with hallucinations, impaired cognition, impaired memory, schizophrenia, or suicidal ideation. To enhance patient safety, comfort, and trust healthcare providers should increase their knowledge about the benefits and risks of cannabis use especially when working with pregnant, postpartum or breastfeeding individuals as it impacts these populations. It is recommended that better education regarding cannabis use augments opportunities for patients and healthcare providers to engage in conversations about cannabis as a complementary, integrative, or alternative treatment option, and to reduce harm.

Most healthcare providers in this study reported negative stigma associated with cannabis use in general, during pregnancy, postpartum, and while breastfeeding. Over 50% of participants also reported bias in their feelings towards patients that use cannabis are somewhat likely to use alcohol, tobacco, or have other mental health issues. With a range of provider ambivalence surrounding bias in relation to patients that use cannabis are neither likely or unlikely that a cannabis user is associated with being dishonest with providers; uses other drugs (e.g.,

methamphetamine, amphetamines, opioids, etc.); has substance use disorder; informed about their healthcare; low economic status; low education; poor coping skills; tends to neglect others (e.g., child, family members); tends to abuse others or self. This means that healthcare providers have inconsistent knowledge and clinical practices which can lead to bias of care given to patients especially those that work with people who use cannabis and seek reproductive healthcare or are pregnant, postpartum, and breastfeeding. It is recommended that incorporation of cannabis-related evidence-based practices and guidelines can help build trusting relationships and increase shared decision-making between providers and patients while simultaneously reducing racial and gender inequities seen in medical and institutional systems

Limitations

A limitation to this study is the initial sample size of 12 participants. Additionally, not all survey questions had a 100% response rate, which influences non-response bias. Most perspectives represented in this study were Certified-Nurse Midwives from Washington State. The findings from this study recognizes that not all experts that work with patients who use cannabis that seek reproductive healthcare are represented.

The researcher faced challenges around time constraints associated with the timeline of implementation and evaluation of this project. The survey was originally disseminated to seven individuals in five states across the US and was accessible for one month. The distribution of surveys was limited to identified healthcare providers and their facility location, with the possibility of reaching other experts to be represented via e-mail. The researcher was unable to obtain adequate representation of birth workers including MDs, OBs, DOs, CNMs, CPMs, and traditional midwives in various geographic locations across the Unites States. More opportunities

for outreach and increased participation in this study would have been possible if the survey was open longer for additional responses.

Future Considerations and Recommendations

This study found that 70% of healthcare providers report it is somewhat likely that patients use cannabis for medicinal/therapeutic or recreational purposes. Increasing provider knowledge and information regarding cannabis use guidelines and practices for its therapeutic benefits along with potential risks can increase provider willingness to discuss cannabis use with their patients. These patient-provider discussions reduce harm and increase positive health outcomes, as patients who trust their providers are more likely to be satisfied and engaged in their health promotion (Kurtzman & Green, 2023; Klein & Bindler, 2022). The clinical significance of this project is to provide invaluable insights into where current provider knowledge, perspectives, and practices stand when it comes to navigating cannabis use among patients who seek reproductive healthcare. Integration of evidence-based medical cannabis guidance into healthcare provider education can help meet patients where they are, reduce stigma, and increase disclosure of cannabis use, as providers engage in shared decision-making with patients by providing accurate information regarding the benefits and risks of medical cannabis use (Kaplan et al., 2020; Klein & Clark, 2022; Klein & Bindler, 2022). Policy changes, including the reclassification to a lower drug schedule, would allow for research and curriculum development surrounding the benefits and risks of cannabis use along with promoting knowledgeable and safe care of patients who use cannabis for health conditions in conjunction with the 2018 NCSBN guidelines (Ryan, McCabe & Boyd, 2021). This can enable the formation of appropriate educational interventions to address any current gaps or deficits, which impacts

the care given to patients, particularly those who are pregnant, postpartum, or breastfeeding, which will enhance patient safety, comfort, and trust in their providers during their care.

The many issues surrounding healthcare providers, practices, and policies regarding antepartum substance use impacts pregnant populations, as patients are not offered patient-centered care through harm reduction strategies that can help to improve their health outcomes. Classification of cannabis as a schedule I limits research that can be incorporated into evidence-based practice, specifically with individuals who use these substances during pregnancy and the direct impact on the fetus (NCSBN, 2018; Sankaran et al., 2022). Integration of medical cannabis into healthcare practices can enhance tools providers use to assess the safety and efficiency of cannabis use for their patients to provide therapeutic benefits and relieving symptoms (Boehnke et al., 2021). While logistical and ethical dilemmas exist surrounding conflicting nonpunitive healthcare policies and practices regarding antenatal substance use, it is important to identify effective nonjudgmental techniques with patients to reduce harm for the pregnant individual and developing fetus (Ronne et al., 2021; Pham et al., 2020). Considerations surrounding the structure and context of care provided to patients who use cannabis for medical purposes will aid in improved health outcomes for these populations, especially for those who seek reproductive healthcare.

Conclusion

Healthcare providers are vital to improving health outcomes for patient populations that use cannabis for medical purposes. Historical multigenerational trauma related to colonization, racism, inadequate resources on reservations, poor access to grocery stores, violence, education level, income, all continue to exacerbate barriers to healthcare (Soto et al., 2022; Thorsen et al.,

2022; Hiratsuka et al., 2022). Normalization of cannabis in medical practice and build trusting relationships that promote positive health outcomes in patient populations.

Research and data show increasing trends of individuals who use cannabis in Washington state and across the US, with limited information regarding specific populations such as those pregnant, postpartum, or breastfeeding. It is imperative that there is healthcare provider education on cannabis as a treatment for health symptoms. Topics covered should include the following: endocannabinoid system, cannabis pharmacodynamics, dosage guidelines, drug-drug interactions, and formulation differences. It is important for healthcare professionals to understand current cannabis laws and receive evidence-based medical cannabis practice, guidelines, and harm-reduction strategies across all populations and especially in those that seek reproductive healthcare. Improved medical cannabis education contributes to increased confidence and competence in promoting best health outcomes for individuals who use cannabis for treatment of health symptoms and medical diseases.

References

Boehnke, K.F., Litinas, E., Worthing, B., Conine, L., & Kruger, D.J. (2021). Communication between healthcare providers and medical cannabis patients regarding referral and medication substitution. *Journal of Cannabis Research, 3*(1), 2. https://doi.orh/10.1186/s42238-021-00058-0

Board, A., D'Angelo, D. V., Salvesen von Essen, B., Denny, C. H., Miele, K., Dunkley, J., Baillieu, R., & Kim, S. Y. (2023). Polysubstance use during pregnancy: The importance of screening, patient education, and integrating a harm reduction perspective. *Drug and Alcohol Dependence*, *247*, 109872. https://doi.org/10.1016/j.drugalcdep.2023.109872

Bruce, D., Grove, T. J., Foster, E., & Shattell, M. (2021). Gender differences in medical cannabis use: Symptoms treated, physician support for use, and prescription medication discontinuation. *Journal of Women's Health*, *30*(6), 857–863. https://doi.org/10.1089/jwh.2020.8437

Carter, R., Wainwright, H., Molteno, C., Georgieff, M., Dodge, N., Warton, F., Meintjes, E., Jacobson, J., & Jacobson, S. (2016). Alcohol, methamphetamine, and marijuana exposure have distinct effects on the human placenta. *Alcoholism: Clinical Experimental Research, 40*, 753-764. doi:10.1111/acer.13022

Chang, J. C., Dado, D., Frankel, R. M., Rodriguez, K. L., Zickmund, S., Ling, B. S., & Arnold, R. M. (2008). When pregnant patients disclose substance use: Missed opportunities for behavioral change counseling. *Patient Education and Counseling, 72*(3), 394–401.

Corroon, J., Sexton, M., & Bradley, R. (2019). Indications and administration practices amongst medical cannabis healthcare providers: A cross-sectional survey. *BMC Family Practice*, *20*(1), 174. https://doi.org/10.1186/s12875-019-1059-8

Eparwa, T. R. (2017). *Guidelines for the treatment of muscle spasticity with medical cannabis: A Delphi study*. (Unpublished doctoral dissertation). Seattle University

Gardiner, K.M., Singleton, J.A., Sheridan, J., Kyle, G.J., & Nissen, L.M. (2019). Health professional beliefs, knowledge, and concerns surrounding medicinal cannabis - a systematic review. *Public Library of Science, 14*(5). https://doi.org/10.1371/journal.pone.0216556

Hayes, S., Delker, E. & Bandoli, G. (2023). The prevalence of cannabis use reported among pregnant individuals in the United States is increasing, 2002–2020. *Journal Perinatol 43*, 387–389. https://doi.org/10.1038/s41372-022-01550-y

Hiratsuka, V. Y., Reid, M., Chang, J., Jiang, L., Brega, A. G., Fyfe-Johnson, A. L., Huyser, K. R., Johnson-Jennings, M., Conway, C., Steiner, J. F., Rockell, J., Dillard, D. A., Moore, K., Manson, S. M., & O'Connell, J. (2022). Associations between rurality, pre-pregnancy health status, and macrosomia in American Indian/Alaska Native populations. *Maternal and Child Health Journal*, *26*(12), 2454–2465. https://doi.org/10.1007/s10995-022-03536-w

Jarlenski, M. P., Paul, N. C., & Krans, E. E. (2020). Polysubstance use among pregnant women with opioid use disorder in the United States, 2007-2016. *Obstetrics and Gynecology*, *136*(3), 556–564. https://doi.org/10.1097/AOG.0000000000003907

Jaeger, K. (2023). *Scientists published more than 32,000 marijuana studies over the past 10 years. Including thousands in 2023, NORML analysis shows.* Marijuana Moment. https://www.marijuanamoment.net/scientists-published-more-than-32000-marijuana-studies-over-the-past-10-years-including-thousands-in-2023-norml-analysis-shows/

Kalaitzopoulos, D. R., Chatzistergiou, K., Amylidi, A. L., Kokkinidis, D. G., & Goulis, D. G. (2018). Effect of methamphetamine hydrochloride on pregnancy outcome: A systematic review and meta-analysis. *Journal of Addiction Medicine, 12*(3), 220–226. https://doi.org/10.1097/ADM.0000000000000391

Kaplan, L., Klein, T., Wilson, M., & Graves, J. (2020). Knowledge, practices, and attitudes of Washington State health care professionals regarding medical cannabis. *Cannabis and Cannabinoid Research, 5*(2),172-182. https://doi.org/10.1089/can.2019.0051

Kaur, P., Stoltzfus, J., & Yellapu, V. (2018). Descriptive Statistics. *International Journal of Academic Medicine, 4*(1):p 60-63. DOI: 10.4103/Ijam.Ijam_7_18

Kilmer, J.R., Rhew, I.C., Guttmannova, K., Fleming, C.B., Hultgren, B.A., Gilson, M.S., Cooper, R.L., Dilley, J., & Larimer, M.E. (2022). Cannabis use among young adults in Washington State after legalization of nonmedical cannabis. *American Journal of Public Health, 112*(4), 638-645. https://doi: 10.2105/AJPH.2021.306641

Klein, T.A., & Bindler, R. (2022). Ask your provider about cannabis: Increasing nurse practitioner knowledge and confidence. *Cannabis and Cannabinoid Research, 7*(5):700-705. https://doi.org/10.1089/can.2021.0061.

Klein, T. A., & Clark, C.S. (2022). Therapeutic use of cannabis in the US. *The Nurse Practitioner, 47*(12), 16-25. https://doi.org/10.1097/01.NPR.0000884880.81603.c5

Kruger, D.J., & Kruger, J.S. (2019). Medical cannabis users' comparisons between medical cannabis and mainstream medicine. *Journal of Psychoactive Drugs, 51*(1),31-36. https://doi.org/10.1080/02791072.2018.1563314

Kunkler, C., Lewis, A. J., & Almeida, R. (2022). Methamphetamine exposure during pregnancy: A meta-analysis of child developmental outcomes. *Neuroscience and Biobehavioral Reviews, 138,* 104714. https://doi.org/10.1016/j.neubiorev.2022.104714

Kurtzman, E. T., & Greene, J. (2023). How are patients who legally use medical marijuana treated when hospitalized? *Policy, Politics and Nursing Practice*, *24*(4), 225–230. https://doi.org/10.1177/15271544231168607

Lapham, G. T., Matson, T. E., Carrell, D. S., Bobb, J. F., Luce, C., Oliver, M. M., Ghitza, U. E., Hsu, C., Browne, K. C., Binswanger, I. A., Campbell, C. I., Saxon, A. J., Vandrey, R., Schauer, G. L., Pacula, R. L., Horberg, M. A., Bailey, S. R., McClure, E. A., & Bradley, K. A. (2022). Comparison of medical cannabis use reported on a confidential survey vs documented in the electronic health record among primary care patients. *JAMA network open*, *5*(5), e2211677. https://doi.org/10.1001/jamanetworkopen.2022.11677

MacCallum, C.A., & Russo, E.B. (2018). Practical considerations in medical cannabis administration and dosing. *European Journal of Internal Medicine, 49*, 12-19.

Mahabir, V. K., Merchant, J. J., Smith, C., & Garibaldi, A. (2020). Medical cannabis use in the United States: A retrospective database study. *Journal of Cannabis Research*, *2*(1), 32. https://doi.org/10.1186/s42238-020-00038-w

Martins, S.S., Segura, L.E., Levy, N.S., Mauro, P.M., Mauro, C.M., Philbin, M.M., & Hasin, D.S. (2021). Racial and ethnic differences in cannabis use following legalization in US states with medical cannabis laws. *JAMA Network Open, 4*(9). https://doi.org/10.1001/jamanetworkopen.2021.27002

McCullough, K., Andrew, L., Genoni, A., Dunham, M., Whitehead, L., & Porock, D. (2023). An

examination of primary health care nursing service evaluation using the Donabedian model: A systematic review. *Research in Nursing and Health, 46*(1), 159–176. https://doi.org/10.1002/nur.22291

Michalski, C. A., Hung, R. J., Seeto, R. A., Dennis, C. L., Brooks, J. D., Henderson, J., Levitan, R., Lye, S. J., Matthews, S. G., & Knight, J. A. (2020). Association between maternal cannabis use and birth outcomes: An observational study. *BMC Pregnancy and Childbirth*, *20*(1), 771. https://doi.org/10.1186/s12884-020-03371-3

National Council of State Boards of Nursing (NCSBN). (2018). National nursing guidelines for medical marijuana. *Journal of Nursing Regulation, 9*(2),1-58.

O'Connor, A., Harris., E., Hamilton, D., Fisher, C., & Schmann, M. (2019). Methamphetamine use in pregnancy: Maternal and neonatal outcomes from a specialist drug and alcohol service (Western Australia). *EC Gynaecology, 8.9,* 763-773

Pham, T., Tinajero, Y., Mo, L., Schulkin, J., Schmidt, L., Wakeman, B., & Kremer, M. (2020). Obstetrical and perinatal outcomes of patients with methamphetamine-positive drug screen on labor and delivery. *American Journal of Obstetrics and Gynecology MFM, 2*(4), 100195. https://doi.org/10.1016/j.ajogmf.2020.100195

Pruyn, S.A., Wang, Q., Wu, C.G., & Taylor, C.L. (2022). Quality standards in state programs permitting cannabis for medical uses. *Cannabis and Cannabinoid Research, 6,* 728-735. https://doi.org/10.1089/can.2021.0164

Ronne, S.T., Rosenbaek, F., Pedersen, L.B., Waldorf, F.B., Nielsen, J.B., Riisgaard, H., & Sondergaard, J. (2021). Physicians' experiences, attitudes, and beliefs towards medical cannabis: A systematic literature review. *BMC Family Practice, 22*, 212. https://doi.org/10.1186/s12875-021-01559-w

Ryan, J.E., McCabe, S.E., & Boyd, C.J. (2021). Medicinal cannabis: Policy, patients, and providers. *Policy, Politics and Nursing Practice, 22*(2), 126-133. https://doi.org/10.1177/1527154421989609

Sankaran, D., Lakshminrusimha, S., & Manja, V. (2022). Methamphetamine: Burden, mechanism and impact on pregnancy, the fetus, and newborn. *Journal of Perinatology: Official Journal of the California Perinatal Association, 42*(3), 293–299. https://doi.org/10.1038/s41372-021-01271-8

Stickrath, E. (2019). Marijuana use in pregnancy: An updated look at marijuana use and its impact on pregnancy. *Clinical Obstetrics and Gynecology, 62*, 185-190. DOI: 10.1097/GRF.0000000000000415

Soto, C., West, A. E., Ramos, G. G., & Unger, J. B. (2022). Substance and behavioral addictions among American Indian and Alaska Native populations. *International Journal of Environmental Research and Public Health*, *19*(5), 2974. https://doi.org/10.3390/ijerph19052974

Substance Use and Mental Health Services Administration (SAMHSA). (2019). *2018-2019 National survey on drug use and health national maps of prevalence estimates, by state.* Center for Behavioral Health Statistics and Quality.

Substance Use and Mental Health Services Administration (SAMHSA). (2021). *National survey on drug use and health, 2021*. Center for Behavioral Health Statistics and Quality.

Thorsen, M. L., Harris, S., Palacios, J. F., McGarvey, R. G., & Thorsen, A. (2023). American Indians travel great distances for obstetrical care: Examining rural and racial disparities. *Social Science and Medicine (1982), 325*, 115897. https://doi.org/10.1016/j.socscimed.2023.115897

Wan, B. A., Diaz, P., Blake, A., Chan, S., Wolt, A., Zaki, P., Zhang, L., Slacen, M., Shaw, E., DeAngelis, C., Lam, H., Ganesh, V., Malek, L., Chow, E., & O'Hearn, S. (2017). Efficacy of different varieties of medical cannabis in relieving symptoms. *Journal of Pain Management, 10*(4), 375-383.

Zolotov, Y., Metri, S., Calabria, E., & Kogan, M. (2021). Medical cannabis education among healthcare trainees: A scoping review. *Complementary Therapies in Medicine*, *58*, 102675. https://doi.org/10.1016/j.ctim.2021.102675

Appendix A: DNP Project Email

Email Title:
DNP project that examines how providers navigate cannabis use among patients who seek reproductive healthcare

Body of Email:
Dear Healthcare Professional,

My name is Hemavattie Ramtahal. I am a Doctor of Nursing Practice – Certified Nurse-Midwife (DNP-CNM) student at Seattle University.

I am conducting a DNP project that examines how providers navigate cannabis use among patients who seek reproductive healthcare. I am interested in the perspectives of Certified Nurse-Midwives (CNMs), Certified Professional-Midwives (CPMs), Traditional Midwives, Doctors of Osteopathic Medicine (DOs), and Doctors of Medicine (MDs), including Obstetricians and Gynecologists (OB/GYN) who work with pregnant, postpartum, or breastfeeding individuals.

Your participation in this study would provide invaluable insights into where current provider knowledge, perspectives, and practices stand when it comes to navigating cannabis use among patients who seek reproductive healthcare. Understanding this will enable the formation of appropriate educational interventions to address any current gaps or deficits, which impacts the care given to patients, particularly those who are pregnant, postpartum, or breastfeeding. This information will enhance patient safety, comfort, and trust in their providers during their care.

This practice-based inquiry also aims to understand: 1) provider knowledge of cannabis medicinal uses, safety, and contraindications; 2) provider perspectives of the average cannabis user; and 3) standard healthcare practices when it comes to navigating cannabis use among pregnant, postpartum, and breastfeeding patients.

Procedure:
If you choose to participate, please click the anonymous link below to complete a 20-minute survey. This survey will first ask you questions about yourself and practice demographics. It will then ask about your perceptions of cannabis health risks, your thoughts of cannabis as a therapeutic alternative, and your comfort and confidence in caring for patients that may disclose cannabis use.

Compensation:
There is no compensation for your participation. Participation in this survey is completely voluntary; you may stop at any time without any consequences.

https://seattleux.qualtrics.com/jfe/form/SV_2npXJyYxsm3Y1ds

I understand it is a busy time of year, but please participate if you get the chance! Please pass this message along to other healthcare professionals whom you think may be willing to participate.

Thank you in advance for your help!

Sincerely,

Hemavattie Ramtahal
DNP-CNM student
Hramtahal@seattleu.edu
Seattle University

Appendix B: Consent Form

Seattle University
Consent to Participate in Research

We are inviting you to participate in a research study on Provider Navigation of Cannabis Use Among Patients Who Seek Reproductive Healthcare that is a practice-based inquiry to determine how reproductive healthcare providers navigate cannabis use among pregnant, postpartum, and breastfeeding patients. This project aims to understand: 1) provider knowledge of cannabis medicinal uses, safety, and contraindications; 2) provider perspectives of the average cannabis user; and 3) standard healthcare practices when it comes to navigating cannabis use among pregnant, postpartum, and breastfeeding patients.

This 20-minute survey will ask you about the state where you practice, the legal status of cannabis in the state where you practice, the population you work with, your perceived health risk of cannabis use by administration mode, your thoughts surrounding the efficacy of cannabis in treatment of health symptoms, along with your comfort and confidence when caring for patients that may disclose cannabis use. Participation in this survey is completely voluntary, and you may stop at any time without any consequences.

Seattle University's Institutional Review Board (IRB) determined this study to be exempt from IRB review in accordance with federal regulation criteria. We will not collect any direct identifiers for this study. This information is necessary to determine the current state of healthcare provider knowledge and practices regarding patients who may use cannabis during pregnancy, postpartum, or while breastfeeding.

RISKS:
Whenever you provide information online, your data could be intercepted. We are using Qualtrics XM software, which is a secure system to collect this data, but we cannot completely eliminate this risk. You may find some questions are personal or upsetting. You can skip any questions you do not want to answer or stop the survey entirely. You may also go back to revisit questions if desired.

Data is anonymous. If you would like results from this study, there will be a link at the end of the survey to enter an email address. This will not require your name or other forms of identification. The email address will be stored in a separate Qualtrics XM data base from survey data collected. However, to participate in the survey with minimal problems, it is recommended that you have access to a computer with uninterrupted Internet connection, utilizing one of the following web browsers: Internet Explorer, Safari, Firefox, Microsoft Edge, or Chrome.

BENEFITS:
There are no direct individual benefits. This project provides a larger societal benefit by establishing current provider knowledge, perspectives, and practices when it comes to navigating cannabis use among patients who seek reproductive healthcare. Understanding this will enable the formation of appropriate educational interventions to address any current gaps or deficits, which impacts the care given to patients, particularly those who are pregnant, postpartum, or

breastfeeding. This information will enhance patient safety, comfort, and trust in their providers during their care. Better education augments opportunities for patients and healthcare providers to engage in conversations about cannabis as a complementary, integrative, or alternative treatment option, and to reduce harm.

If you have any questions about this research, contact Hemavattie Ramtahal, 518-847-4890, hramtahal@seattleu.edu. If you have any questions about your rights as a research participant, contact the SU Institutional Review Board at 206-296-2585 / irb@seattleu.edu

If you meet the eligibility criteria below and would like to participate in this study, click the button to begin the survey. Remember, your participation is completely voluntary, and you are free to withdraw at any time.

- I am at least 18 years old.
- I am a provider (including CNMs, CPMs, traditional midwives, MDs, and DOs) that works with pregnant, postpartum, or breastfeeding individuals.

Appendix C: DNP Project Survey

Demographics

What is your job title? _____

What is your specialty? _____

Do you have prescriptive authority?

How long have you been in practice?

- ☐ 0 – 5 Years
- ☐ 5 – 10 years
- ☐ 15 – 20 Years
- ☐ 20-25 Years
- ☐ 20 + years

In what state do you practice? _____

Do you care for native populations? _____

In caring for native populations, is the practice on a reservation?

- ☐ Yes
- ☐ No

In caring for native populations on a reservation, what is the status for cannabis use?

- ☐ Medicinal
- ☐ Recreational
- ☐ Illegal
- ☐ N/A

Management of Cannabis Use in Clinical Practice

Does your practice require drug screening?	Yes	No	Unsure
In General			
During Pregnancy			
Postpartum			
While Breastfeeding			

In the state where you practice, are you mandated to report cannabis use to authorities (e.g, Department of Children & Families (DCF), Child Protective Services (CPS))?	Yes	No	Unsure
In General			
During Pregnancy			
Postpartum			
While Breastfeeding			

Do you provide information regarding cannabis use to your patients as an alternate treatment of their health symptoms in the following situations?	Yes	No	Unsure
In General			
During Pregnancy			
Postpartum			
While Breastfeeding			

Have you managed or cared for patients that disclose cannabis use?	Yes	No	Unsure
In General			
During Pregnancy			
Postpartum			
While Breastfeeding			

Confidence and Comfort Around Cannabis Information and Education

How confident do you feel discussing cannabis use (recreational or medicinal) with your patients?	Not at all	Slightly	Somewhat	Moderately	Very
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					

How confident do you feel managing the care of patients what use cannabis?	Not at all	Slightly	Somewhat	Moderately	Very
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					

How confident do you feel educating patients to use cannabis as an alternate therapy for their health symptoms?	Not at all	Slightly	Somewhat	Moderately	Very
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					

How confident do you feel recommending/authorizing cannabis to patients in the treatment of their health symptoms?	Not at all	Slightly	Somewhat	Moderately	Very
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					

How comfortable do you feel discussing cannabis use (recreational or medicinal) with your patients?	Not at all	Slightly	Somewhat	Moderately	Very
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					

How comfortable do you feel managing the care of patients what use cannabis?	Not at all	Slightly	Somewhat	Moderately	Very
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					

How comfortable do you feel educating patients to use cannabis as an alternate therapy for their health symptoms?	Not at all	Slightly	Somewhat	Moderately	Very
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					

How comfortable do you feel recommending/authorizing cannabis to patients in the treatment of their health symptoms?	Not at all	Slightly	Somewhat	Moderately	Very
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					

Cannabis Health Benefits and Risks

Select when you think cannabis may have an appropriate medicinal use or therapeutic benefit for the following health conditions	In General	During Pregnancy	Postpartum	While Breastfeeding
Anxiety				
Concentration				
Decreased Appetite				
Depression				
Exhaustion				
Headache				
Insomnia				
Muscle Spasms				
Nausea/Vomiting				
Seizures				
Uterine Cramping				
Weight Changes				

What is your perceived health risk associated with cannabis use by inhalation (e.g, smoking or vaping)?	Lowest risk	Some risk	Highest risk
In General			
During Pregnancy			
Postpartum			
While Breastfeeding			

What is your perceived health risk associated with cannabis use by ingestion (e.g, edibles or tinctures)?	Lowest risk	Some risk	Highest risk
In General			
During Pregnancy			
Postpartum			
While Breastfeeding			

What is your perceived health risk associated with cannabis use by topical application?	Lowest risk	Some risk	Highest risk
In General			
During Pregnancy			
Postpartum			
While Breastfeeding			

Cannabis Scheduling and Research

Select to what extent do you agree or disagree with these statements	Agree	Somewhat agree	Neutral	Somewhat disagree	Disagree
Federal restrictions on cannabis as a Schedule I substance reduces the extent that cannabis use can be researched.					
Cannabis should continue to be a Schedule I substance.					
Cannabis should be revaluated and reclassified by its medical or therapeutic value by the DEA.					
There should be age restrictions on cannabis use.					

Select if you think these statements apply to specific populations in cannabis research	In general	During pregnancy	Postpartum	While breastfeeding
There is a negative stigma around cannabis use.				
Cannabis has medical/therapeutic purposes.				
There is limited research on cannabis use for medical purposes in treatment of health symptoms.				
There is limited research on cannabis use for medicinal purposes in treatment of health symptoms efficacity my mode of administration.				
Much of cannabis research and recommendations is based in polysubstance use.				

With the following populations, is there sufficient research evidence on the effects of cannabis use?	Yes	No	Unsure
General population			
Pregnancy and fetus outcomes			
Postpartum and newborn outcomes			
Breastfeeding and infant outcomes			

With the following conditions, to what extent do you think cannabis should not be used?	Agree	Somewhat agree	Neutral	Somewhat disagree	Disagree
In General					
During Pregnancy					
Postpartum					
While Breastfeeding					
Anxiety					
Depression					
Dysphoria					
Hallucinations					
Impaired Cognition					
Impaired Memory					
Nausea/Vomiting					
Schizophrenia					
Suicidal ideation					

To what extent do you think cannabis has impacts or effects to the following outcomes?	Extremely negative	Somewhat negative	Neither negative or positive	Somewhat positive	Extremely positive
Placenta or blood vessel formation					
Fetal/newborn distress					
Neurological effects on the fetus/newborn					
Respiratory effects on the fetus/newborn					
Cognitive development in childhood					
Physical development in childhood (n=10)					
Language development in childhood (n=10)					
Social-emotional development in childhood (n=10)					

What is the likelihood that a cannabis user is associated with the following trait	Likely	Somewhat likely	Neither likely or unlikely	Somewhat unlikely	Unlikely
Also uses alcohol (n=10)					
Also uses other drugs (e.g., methamphetamine, amphetamines, opoids, etc.) (n=10)					
Also uses tobacco (n=10)					
Dishonest with providers (n=10)					
Has other mental health issues (n=10)					
Has substance use disorder (n=10)					
Informed about healthcare choices (n=10)					
Low economic status (n=10)					
Low education (n=10)					
Poor coping skills (n=10)					
Tends to abuse others					
Uses cannabis medicinal/therapeutic purposes					
Uses cannabis for recreational purposes (n=10)					