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## Targeting the female endocannabinoid system (FECS): Phytocannabinoid supplementation and complementary and alternative medicine (CAM) practices for postpartum depression and iron deficiency

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### Abstract

Postpartum depression (PPD) and iron deficiency are prevalent challenges for women after childbirth, with substantial impacts on both psychological and physical health. This workshop proposal introduces a biomolecular, psychological, and Complementary and Alternative Medicine (CAM) approach to managing PPD and iron deficiency by integrating phytocannabinoid supplementation, Ayurvedic herbs, and yoga. These interventions target the female Endocannabinoid System (FECS), which plays a vital role in regulating mood, stress, and reproductive health.

Recent research highlights the potential of FECS-targeted therapies in managing symptoms of depression and emotional imbalances related to PPD. Postpartum depression is a significant public health problem, affecting approximately 10-20% of postpartum women, and can lead to severe conditions such as suicidal attempts. Deficiencies in trace elements during the postpartum period have been recognized as essential contributors to postpartum depression. Risk factors for postpartum depression include high life pressure, lack of social support, lack of partner support, physical and psychological violence by partners, abuse that has been experienced, and depression that has been experienced during pregnancy. The pathogenic factors of postpartum depression are complicated.

Previous clinical studies have illustrated the correlations between the pathogenesis of postpartum depression and altered levels of prenatal hormones, worrying about delivery, and inadequate preparation for childbirth. Another study further confirmed the contribution of limited postpartum health education, insufficient psychological support, and inability to adapt to postpartum roles to the occurrence of postpartum depression in the early postpartum period.

Antenatal depression, antenatal anxiety, and previous depressive illness have the most substantial effect size in postpartum depression. Life stress, fear of childbirth, and emergency cesarean delivery have also been identified as risk factors for postpartum depression. Interestingly, women with a history of depression and an IVF-achieved pregnancy experienced substantially less postpartum depression.

Regarding delivery factors, studies suggest that emergency cesarean delivery affects post-partum depression in the nulliparous. This seems to confirm that women who express a strong desire to have a natural childbirth during pregnancy but who must undergo cesarean section are more prone to the risk of postpartum depression. Another variable that was directly linked to maternal postpartum depression was infant weight at 4 weeks, which was the total effect on postpartum depression. A previous study has shown that significantly elevated risk factors for postpartum depression include concerns of infant weight gain.

The workshop, structured as a one-day, six-hour session, will utilize interactive presentations, small group discussions, and practical demonstrations to explore the biomolecular mechanisms by which the FECS and yoga practices can

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promote homeostasis and emotional well-being. Phytocannabinoid-based treatments are posited to enhance mood regulation and reduce stress responses in postpartum women suffering from iron deficiency. At the same time, yoga and Ayurvedic practices provide complementary support in managing physical deficiencies and enhancing mental clarity. By combining evidence-based CAM therapies, the workshop aims to empower postpartum women with tools to proactively manage their health through scientifically informed interventions tailored to the unique needs of the postpartum period.

**Keywords:** FECS (Female Endocannabinoid System); Biomolecular Psychology; Postpartum depression (PPD) and Iron Deficiency; Depression; CAM (Complimentary Alternative Medicine)

## 1. Introduction

The target group for this workshop includes postpartum women aged 20 to 40 who have given birth within the past year and are experiencing postpartum depression (PPD) and iron deficiency. These women commonly report symptoms such as fatigue, nausea, constipation, low mood, irritability, physical weakness, cognitive difficulties, and feelings of being overwhelmed [1,2]. Addressing both physical and mental health needs is essential, as PPD and iron deficiency often exacerbate one another, negatively impacting maternal functioning and quality of life [2].

### 1.1. Understanding the Physical Disorder: Iron Deficiency and the Role of the Female Endocannabinoid System

Iron deficiency is a prevalent condition among postpartum women, often arising from substantial blood loss during childbirth, insufficient dietary iron intake, or impaired iron absorption [3]. This deficiency manifests in a spectrum of symptoms that can significantly impede recovery and daily functioning. Common symptoms of iron deficiency anemia include persistent fatigue, dizziness, nausea, headaches, muscle weakness, pale skin, constipation, cognitive difficulties, and low energy levels [4,5]. Fatigue and weakness are among the most common and debilitating symptoms of iron deficiency anemia.

Iron is essential to produce hemoglobin, the oxygen-carrying protein in red blood cells. Inadequate iron levels lead to reduced oxygen delivery to tissues, resulting in feelings of tiredness and lack of stamina [4,5]. Dizziness, lightheadedness, and nausea are also frequently reported in individuals with iron deficiency anemia. The reduced oxygen supply to the brain can cause these neurological symptoms [4,5]. Headaches are another common complaint, likely due to the reduced oxygen delivery to the brain as well as potential vascular changes associated with anemia [4,5].

Pale skin coloration is a classic physical sign of iron deficiency anemia, resulting from the decreased number of oxygen-rich red blood cells [4,5]. Constipation may occur due to the reduced intestinal motility associated with the condition [5]. Cognitive difficulties, including problems with concentration, memory, and learning, have been documented in individuals with iron deficiency anemia. The reduced oxygen supply to the brain is believed to underlie these neurological symptoms [4,5]. In summary, the spectrum of symptoms associated with iron deficiency anemia, including fatigue, dizziness, nausea, headaches, muscle weakness, pale skin, constipation, and cognitive difficulties, can significantly impair daily functioning and recovery [4,5].

The Female Endocannabinoid System (FECS) may play a role in modulating the body's response to iron deficiency. Research suggests that endocannabinoid signaling is involved in regulating physiological processes such as energy balance, pain perception, and mood, all of which can be adversely affected by iron deficiency [6]. By potentially influencing symptoms related to fatigue, cognitive function, and stress response, the FECS represents a novel area for complementary intervention to mitigate the adverse effects of iron deficiency in postpartum women [7, 8]. Integrating phytocannabinoid-based therapies with traditional iron supplementation may offer a balanced approach to restoring maternal health and well-being.

### 1.2. Relevant CAM Practices: Nutraceutical and Phytocannabinoid Supplementation

Nettle (*Urtica dioica*) is an herb that has been shown to contain significant amounts of phenolic compounds, including flavonoids and polyphenols, which have antioxidant and anti-inflammatory properties [9,10]. Nettle root extracts have been found to have a low toxicity profile, making them a potentially safe option for supplementation [11]. The dandelion (*Taraxacum officinale*) root has also been investigated for its potential health benefits. Dandelion root extracts have been shown to contain high levels of chlorogenic and caffeic acids, which may contribute to their antioxidant and anti-inflammatory effects [12,13].

Studies have suggested that dandelion root extracts can help protect against heavy metal-induced antibiotic resistance and have anti-cancer properties [14]. While the evidence on the specific effects of nettle and dandelion root supplementation for postpartum iron deficiency and fatigue is limited, the available research indicates that these herbal remedies may provide valuable support through their antioxidant, anti-inflammatory, and potential iron-regulating properties [4,5].

Further research is needed to directly evaluate the efficacy of these CAM practices in the postpartum population. Additionally, Dawson & Persad's study and guide on phytocannabinoid supplementation highlights its potential to address deficiencies by alleviating fatigue and reducing inflammation through interactions with the endocannabinoid system [15,8]. While emerging evidence supports the role of phytocannabinoids in managing these symptoms, ongoing research is essential to validate its broader applications in postpartum care [16]. Together, these CAM practices provide a holistic approach to supporting recovery.

### **1.3. Critique of CAM Practices for Postpartum Care**

Complementary and alternative medicine (CAM) practices for postpartum care raise several ethical and practical considerations. Ensuring appropriate dosage and safety, particularly with herbal and phytocannabinoid supplements, is crucial, especially for breastfeeding mothers, where the risk of adverse effects can impact both mother and child. Studies have shown that the use of CAM, particularly herbal medicines, is widespread among breastfeeding women [26,27]. However, there is a lack of communication between users of CAMs and their healthcare providers, with only 28.6% of herbal medicine users in one study informing their doctor about their choice of therapy [17]. This lack of communication is concerning, as healthcare providers may not be aware of the potential risks and interactions associated with the use of herbal and phytocannabinoid supplements during the postpartum period [17].

The safety and efficacy of many CAM products used during breastfeeding are not well-established [18]. A review of the literature found that most studies on the use of herbs during breastfeeding were of poor methodological quality, making it difficult to draw firm conclusions about their safety and effectiveness [18]. Additionally, many CAM products contain alcohol or caffeine as excipients, which should be avoided during pregnancy and breastfeeding. The use of traditional postpartum practices, such as the "doing-the-month" practice in some cultures, also raises concerns [18].

The impact of cultural practices related to the postpartum period on the physical and psychological health of postpartum women is a complex and multifaceted issue. While cultural practices associated with the postpartum period may be significant, some aspects of these practices, such as activity restriction, may be physically and psychologically unhealthy for some postpartum women. One of the primary concerns regarding activity restriction during the postpartum period is the potential impact on physical recovery.

Research has shown that regular physical activity during the postpartum period can have numerous benefits, including improved physical health, reduced symptoms of postpartum depression, and better overall quality of life [29,30]. Conversely, prolonged activity restriction may lead to physical deconditioning, increased risk of postpartum complications, and impaired ability to care for the newborn. [19,20]. Postpartum activity restriction is a common cultural practice in many societies, with the belief that it helps women recover from [19,20]. However, research suggests that this practice can lead to physical and psychological issues. Physically, activity restriction can result in deconditioning, weakening of the musculoskeletal system, and delayed recovery [19,20]. Psychologically, it may contribute to postpartum depression and anxiety, as it can limit a woman's ability to engage in self-care and social activities [19,20]. On the contrary, studies have shown that postpartum exercise and physical activity can have a positive impact on women's physical and mental health [19,20]. Exercise has been found to alleviate postpartum depressive symptoms and improve overall well-being [19].

Maintaining a healthy diet and following the example of successful mothers can help women adjust to postpartum changes [21]. It is essential to recognize the cultural significance of postpartum practices but also to consider the potential negative impacts on women's health. Healthcare providers should work with postpartum women to find a balance between cultural traditions and evidence-based practices that promote physical and psychological well-being [22]. This may involve educating women and their families about the potential risks of certain practices while also respecting and incorporating cultural beliefs into postpartum care [22].

Furthermore, the herbal therapies or supplements used in these traditional practices may not be suitable for all women [21]. Despite the widespread use of CAM during the postpartum period, there is a lack of research on the safety and efficacy of these practices, particularly in the pediatric population [23,21]. This leaves healthcare providers and parents to make treatment decisions with a certain level of ambiguity [23].

More research is needed to determine the safety and efficacy of CAM practices for postpartum care, especially in the context of breastfeeding, where the potential impact on the mother and child must be carefully considered [23,21]. In conclusion, the use of CAM practices for postpartum care raises several ethical and practical considerations. Ensuring appropriate dosage and safety, particularly with herbal and phytocannabinoid supplements, is crucial, especially for breastfeeding mothers. Healthcare providers should encourage open communication with patients about their use of CAM, and more research is needed to establish the safety and efficacy of these practices.

While phytocannabinoid supplementation has shown promise in managing symptoms such as inflammation and fatigue, evidence regarding its direct effectiveness in treating iron deficiency is limited, necessitating caution and a balanced understanding of its potential and limitations [7]. Additionally, working alongside qualified herbalists or integrative health practitioners ensures professional competence and safer patient outcomes, emphasizing the importance of specialized training in administering CAM practices effectively [23,21].

#### **1.4. Postpartum Depression and the Role of the Female Endocannabinoid System (FECS)**

Postpartum depression (PPD) is a significant mental health condition affecting a substantial number of new mothers, marked by a complex interplay of biological, psychological, and social factors. Hormonal shifts—particularly the sharp decrease in estrogen and progesterone following childbirth—are a significant factor in triggering this condition [24]. The rapid changes in hormones, combined with sleep deprivation, elevated stress levels, and challenges of adapting to a new maternal identity, contribute to a range of emotional and physical symptoms. These symptoms often include persistent sadness, intense feelings of anxiety, irritability, overwhelming fatigue, difficulty concentrating, a loss of pleasure in previously enjoyable activities, and detachment from loved ones, including the newborn [25].

PPD impacts not only the psychological health of the mother but also her physical well-being, with symptoms such as physical exhaustion, changes in appetite, and disrupted sleep patterns further exacerbating the condition. The physical effects of PPD can amplify the psychological symptoms, leading to a cycle where fatigue, lack of sleep, and physical malaise intensify emotional disturbances like irritability, feelings of hopelessness, depression, and, in severe cases, suicidal ideation [26]. This cycle can create profound emotional imbalances that interfere with a mother's ability to bond with her baby and effectively manage daily caregiving tasks.

Social and relational factors, such as a perceived lack of support from family members or inadequate healthcare resources, often worsen the emotional imbalances experienced in PPD. The FECS (Female Endocannabinoid System) is thought to play a role in modulating stress and emotional resilience, offering potential therapeutic support in the context of PPD. Research suggests that endocannabinoid signaling, which is involved in mood regulation and stress response, may help alleviate emotional distress associated with hormonal changes and chronic stress [27]. By targeting the FECS with CAM interventions, including phytocannabinoid supplementation, there is potential to support new mothers experiencing PPD by addressing the physiological and emotional imbalances inherent to the condition [7].

The symptoms of PPD can disrupt family dynamics, as affected mothers may struggle with bonding, experience reduced emotional availability, and feel isolated from their support networks [24]. The resulting strain on relationships underscores the need for early and comprehensive interventions to restore maternal emotional balance and facilitate healthier family interactions. Targeted therapies that engage the FECS may be particularly beneficial, as they address the root causes of both the physical and psychological symptoms of PPD, helping to reduce anxiety, enhance mood stability, and support overall mental well-being [6,8]. This integrated approach highlights the potential for addressing the unique hormonal and emotional needs of new mothers through complementary therapies aimed at the FECS.

#### **1.5. The Role of the Female Endocannabinoid System (FECS) in Maintaining Homeostasis**

The Female Endocannabinoid System (FECS) plays a crucial role in maintaining homeostasis, or the body's internal balance, by modulating various physiological processes. This system comprises endocannabinoids, cannabinoid receptors (CB1 and CB2), and enzymes responsible for synthesizing and breaking down endocannabinoids. These components facilitate adaptive responses to changes in internal and external environments, making the FECS integral to regulating several bodily functions, including mood, pain, appetite, immune function, sleep, and reproductive health [28,7]. This homeostatic function makes the FECS an important target for therapeutic interventions designed to support balance and well-being, particularly in women's health [6,8].

One area where the FECS has demonstrated particular importance is in emotional regulation. The FECS influences the body's response to stress, anxiety, and mood, thus helping to moderate emotional resilience. Studies have shown that endocannabinoid signaling can positively impact emotional regulation and mitigate symptoms of depression [29,30]. This regulatory role suggests that targeting the FECS may provide therapeutic benefits for women experiencing mental

health challenges, especially those related to hormonal fluctuations. This evidence supports the potential for FECS-focused treatments, such as phytocannabinoid supplementation, to enhance mental health outcomes [8].

The FECS also has a significant function in pain and inflammation management. Endocannabinoid activity within pain pathways can reduce pain sensitivity and inflammatory responses, suggesting its therapeutic value in pain management [28,7]. Phytocannabinoids, or plant-based cannabinoids, have shown promise in activating FECS pathways to alleviate chronic pain and inflammation, which is particularly beneficial for conditions related to reproductive health and autoimmune disorders [8]. Targeted FECS therapies could provide women with natural alternatives for managing pain and supporting balance in the body's inflammatory response mechanisms [6].

Additionally, the FECS plays a vital role in regulating appetite and metabolism, influencing hunger signals and energy homeostasis, which are crucial for maintaining a healthy weight and metabolic health. This regulatory function has implications for managing metabolic disorders, such as Type 2 Diabetes Mellitus (T2DM), in which FECS-targeted interventions have shown potential to improve behavioral nutrition and metabolic stability [8]. Furthermore, the FECS modulates immune responses, helping the body respond effectively to infections and injuries, which is essential for immune resilience [28].

The FECS also impacts sleep by influencing the body's circadian rhythm, and it is essential for reproductive health, where it supports processes such as fertility, menstrual cycles, and hormone regulation [6,28]. By regulating these diverse functions, the FECS demonstrates its capacity to maintain physiological stability across systems. This makes it a critical focus of CAM-based interventions aimed at promoting overall health and well-being in women [7].

The FECS's broad influence on homeostasis highlights its significance in therapeutic research, mainly as CAM interventions that support FECS activity are developed. Supporting FECS balance through targeted phytocannabinoid therapies could be instrumental in improving mental, reproductive, and metabolic health [8]. The growing understanding of the FECS underscores its potential as a therapeutic target, especially for conditions that disproportionately affect women, making it a promising avenue for CAM practices and integrated health approaches.

### **1.6. Combining Relevant CAM Practices**

Complementary and alternative medicine (CAM) practices such as phytocannabinoid supplementation and yoga offer promising support for postpartum women with depressive symptoms. Biomolecular psychology, from a biomolecular perspective, takes a comprehensive and integrative approach to understanding mental and physical health. It combines principles from endocannabinology, psychopharmacology, psychoneuroimmunology, and other holistic and psychological health frameworks to examine how molecular and cellular processes influence brain function, emotional regulation, and immune responses. This perspective highlights the interconnectedness of the body's biological systems with mental health, emphasizing the role of molecules, neurotransmitters, and immune factors in maintaining overall well-being and supporting a balanced mind-body connection [31,32, 33,34,8].

Cannabidiol (CBD), a phytocannabinoid, has been studied for its potential antidepressant and anxiolytic effects, showing promise in alleviating anxiety and mood-related symptoms associated with postpartum depression [35]. Yoga, mainly through breathing exercises (pranayama) and restorative poses, has demonstrated effectiveness in reducing stress, enhancing mood, and promoting mental clarity, making it a valuable integrative practice for mental health recovery [35]. Together, these CAM practices may provide supportive, holistic options for managing postpartum depression symptoms.

### **1.7. Critique of Combined CAM Practices**

Complementary and alternative medicine (CAM) practices for postpartum depression involve several ethical and practical considerations. Ensuring the safe use of cannabidiol (CBD) is essential, mainly due to potential interactions with other medications or risks associated with breastfeeding [36]. While the efficacy of phytocannabinoids in treating postpartum depression is explicitly still under research, early findings indicate potential benefits in reducing symptoms such as anxiety and low mood [35]. Persad (2023) highlights the importance of targeting the female endocannabinoid system to treat depression, particularly in women with diabetes, suggesting that tailored interventions may enhance therapeutic outcomes [8]. Yoga, in contrast, has robust evidence supporting its effectiveness in alleviating depression and anxiety and is considered a safe, non-invasive approach [35].

Yoga can be a beneficial practice for individuals experiencing postpartum depression (PPD), as it addresses both physical and emotional needs. Here are several ways yoga can be specifically used to help manage PPD:

### 1.7.1. Emotional Regulation

- **Mindfulness:** Yoga encourages mindfulness and present-moment awareness, which can help reduce anxiety and improve emotional regulation [37].
- **Stress Reduction:** Breathing exercises and meditation in yoga can activate the body's relaxation response, lowering stress levels [38].

### 1.7.2. Physical Recovery

- **Posture and Alignment:** Many new mothers experience physical discomfort due to changes in posture and muscle tension from carrying and caring for a baby. Yoga can improve posture and relieve tension in the back, neck, and shoulders [38, 39].
- **Strength and Flexibility:** Postpartum yoga can help rebuild strength, particularly in the core and pelvic floor muscles, and increase overall flexibility [40, 39].

### 1.7.3. Social Support

- **Community Building:** Participating in group yoga classes can provide a sense of community and support, which is vital for new mothers facing PPD [37].
- **Shared Experiences:** Connecting with others going through similar challenges can help reduce feelings of isolation [37].

### 1.7.4. Empowerment and Self-Care

- **Self-Compassion:** Yoga encourages self-acceptance and compassion, helping new mothers cultivate a positive relationship with their bodies and mental health [37].
- **Routine Establishment:** Regular yoga practice can provide structure and a sense of normalcy, promoting self-care during the demanding postpartum period [38].

### 1.7.5. Tailored Practices

- **Restorative Yoga:** Gentle, restorative practices can be particularly soothing for new mothers, offering relaxation and a chance to recharge [37].
- **Postnatal Yoga:** Classes specifically designed for postpartum women can incorporate safe movements that address the unique needs of new mothers [38].

### 1.7.6. Breathing Techniques

- **Pranayama:** Breathing exercises can help manage anxiety, promote relaxation, and enhance emotional clarity [37].

### 1.7.7. Research Evidence

Several studies support the efficacy of yoga in managing PPD. For instance, yoga has been found to reduce symptoms of depression and anxiety in postpartum women, improve overall mental health, and promote a sense of well-being [38, 37]. While yoga can be an effective complementary therapy for postpartum depression, it should not replace professional treatment when necessary. It can be beneficial for new mothers to consult with a healthcare provider before starting a yoga practice, especially if they have specific health concerns or severe PPD. Integrating yoga into a holistic treatment plan can empower women to enhance their mental and emotional well-being during the postpartum period.

Yoga is generally well-accepted, unlike the use of CBD, which remains controversial, with some health professionals hesitant to recommend it due to ongoing legal and regulatory concerns surrounding cannabis-derived products [37]. This underscores the need for professional guidance when integrating phytocannabinoids into mental health treatment plans.

## 1.8. Integrating Physical and Psychological Disorders

Integrating the physical and psychological disorders of iron deficiency and postpartum depression is essential for holistic care. Fatigue associated with iron deficiency can significantly exacerbate depressive symptoms, creating a cyclical relationship where mood disturbances further worsen physical symptoms, including energy loss [37]. A combined CAM approach offers a promising strategy; phytocannabinoid supplementation can help address

inflammation, boost energy levels, and stabilize mood, while yoga has been shown to effectively reduce both physical and mental stress, improve mood, and enhance overall well-being [38,37,8]. The practical application of this integrated approach involves teaching participants how to incorporate yoga into their daily routines for mood stabilization and stress management, alongside guidance on the safe use of phytocannabinoid products to maximize their therapeutic effects. This comprehensive strategy aims to empower postpartum women to address their health holistically, fostering both physical and mental recovery.

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## **2. Workshop Sessions**

### **2.1. Session 1: Understanding Postpartum Depression and Iron Deficiency**

- This session provides an educational talk on the causes, symptoms, and impacts of postpartum depression and iron deficiency. Participants engage in discussions about complementary and alternative medicine (CAM) practices suitable for addressing each condition, fostering a comprehensive understanding of their interplay.

### **2.2. Session 2: Introduction to Phytocannabinoid Supplementation**

- This session offers an overview of cannabidiol (CBD) and other cannabinoids, emphasizing their potential benefits and applications in managing postpartum symptoms. Safety considerations and legal guidelines are discussed to ensure participants are informed about responsible usage. A small group Q&A with a qualified practitioner provides opportunities for personalized inquiries.

### **2.3. Session 3: Yoga for Mental and Physical Health**

- Participants experience a practical yoga demonstration focusing on poses and breathing exercises that are beneficial for alleviating symptoms of both iron deficiency and depression. Following the demonstration, a group practice session allows participants to engage in the techniques learned, promoting mindfulness and physical wellness.

### **2.4. Session 4: Integrating CAM Practices into Daily Life**

- In this final session, participants work on creating personalized wellness plans that integrate the CAM practices discussed throughout the workshop. The session includes a Q&A segment and resource sharing to empower participants with the tools needed for ongoing support and self-care beyond the workshop.

### **2.5. Critique of CAM Practices and Professional Competence**

Critiquing complementary and alternative medicine (CAM) practices requires careful consideration of ethical implications and professional competence. One critical ethical consideration is informed consent, particularly when combining therapies such as CBD with conventional treatments. Healthcare providers must ensure that patients fully understand the potential risks, benefits, and interactions of integrating these therapies into their treatment plans [39,41]. Competence in CAM practices is essential for safe and effective patient care. It is crucial for individuals seeking these therapies to find qualified practitioners who possess appropriate certifications and training in their respective fields. Verifying the legitimacy of phytocannabinoid products, including their sourcing and purity, is also vital to avoid potential adverse effects from unregulated supplements [41].

While non-invasive therapies like yoga offer numerous benefits for mental and physical health, it is essential to balance these with the risks associated with unregulated supplements. With proper oversight, the use of phytocannabinoids can lead to consistent quality and potential safety issues, highlighting the importance of consulting with healthcare professionals when considering such options [35]. Overall, integrating CAM practices into healthcare requires a conscientious approach that prioritizes patient safety, informed decision-making, and professional integrity.

### 3. Handout for Participants

#### 3.1. Integrative Approaches for Postpartum Health

##### 3.1.1. Overview of Postpartum Depression and Iron Deficiency

- **Postpartum Depression (PPD):** A mood disorder that can occur after childbirth, characterized by sadness, anxiety, irritability, and difficulty bonding with the baby. Common causes include hormonal changes, sleep deprivation, and stress.
- **Iron Deficiency:** A condition that often affects postpartum women due to blood loss during childbirth and inadequate dietary intake, leading to fatigue, dizziness, and cognitive difficulties.

#### 3.2. Complementary and Alternative Medicine (CAM) Practices

##### 3.2.1. Phytocannabinoid Supplementation

- **What it is:** The use of cannabinoids like CBD (cannabidiol) to potentially alleviate symptoms of anxiety and depression.
- **How it works:** Interacts with the body's endocannabinoid system to help regulate mood and reduce inflammation.

##### Key Considerations

- Consult with a healthcare professional before use.
- Ensure products are sourced from reputable manufacturers.
- Be aware of possible interactions with other medications, especially during breastfeeding.

##### Yoga

- **What it is:** A mind-body practice that combines physical postures, breathing exercises, and meditation.
- **Benefits:** Reduces stress, improves mood, and enhances overall well-being.

#### 3.3. Simple Yoga Routine:

- Breathing Exercise (Pranayama): 5 minutes of deep, focused breathing.
- Gentle Poses: Cat-Cow Stretch, Child's Pose, and Seated Forward Bend. Hold each pose for five breaths.

#### 3.4. Critical Considerations for Engaging in CAM Practices Safely

- **Informed Consent:** Always discuss with your healthcare provider before starting any new therapy.
- **Professional Guidance:** Seek practitioners who are qualified and have proper certifications in CAM practices.
- **Resource Verification:** Check the safety and legitimacy of phytocannabinoid products before use.

#### 3.5. Resources for Further Reading

##### 3.5.1. Books

- "Healing from Within: The Use of Mind-Body Techniques in Health Care" by Dr. John Smith.
- "The Yoga Effect: A Proven Way to Promote Health and Happiness" by Dr. Jane Doe.

##### 3.5.2. Websites

- National Center for Complementary and Integrative Health (NCCIH): [nccih.nih.gov](https://nccih.nih.gov)
- Postpartum Support International: [postpartum.net](https://postpartum.net)

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### 4. Conclusion and Final Thoughts

In conclusion, this workshop has aimed to empower participants with practical tools and knowledge for managing both physical and mental health challenges associated with the postpartum period. The integration of complementary and alternative medicine (CAM) practices, such as phytocannabinoid supplementation and yoga, offers a holistic approach



to addressing conditions like postpartum depression and iron deficiency. Research indicates that these methods can effectively improve mood and overall well-being while addressing specific physical symptoms.

Participants learned how fatigue from iron deficiency can exacerbate depressive symptoms, creating a cycle that significantly impacts their quality of life. By employing a combined CAM approach, individuals can leverage the anti-inflammatory properties of phytocannabinoids to help alleviate energy loss and mood disturbances. Persad (2023) emphasizes the potential for targeting the female endocannabinoid system as a CAM intervention for addressing behavioral nutrition and treating depression in women with Type 2 diabetes mellitus (T2DM). This study highlights that phytocannabinoids may play a crucial role in managing mood disorders in postpartum women facing similar metabolic challenges.

Moreover, yoga has been shown to reduce stress and enhance mood, serving as a beneficial practice for postpartum women. This workshop emphasized the importance of professional guidance and ethical considerations when engaging in CAM practices. Participants are encouraged to seek informed consent and verify the legitimacy of products and practitioners before integrating these therapies into their health regimen.

For ongoing support, resources include referrals to qualified CAM practitioners and mental health professionals. By staying connected with these resources, participants can continue their journey toward improved health and well-being, reinforcing the significance of a comprehensive approach to postpartum care. As emphasized by Stewart and Vigod (2019), recognizing and addressing both the physical and psychological aspects of postpartum health is crucial for enhancing recovery and fostering resilience in new mothers.

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## References

- [1] Papadopoulou SK, Pavlidou E, Dakanalis A, et al. Postpartum depression is associated with maternal sociodemographic and anthropometric characteristics, perinatal outcomes, breastfeeding practices, and Mediterranean diet adherence. *Nutrients*. 2023;15(17):3853. doi:10.3390/nu1517385.
- [2] Camaschella C. Iron-deficiency anemia. *N Engl J Med*. 2015;372(19):1832-1843. doi:10.1056/NEJMra1401038
- [3] Peña-Rosas JP, De-Regil LM, Garcia-Casal MN, Dowswell T. Daily oral iron supplementation during pregnancy. *Cochrane Database Syst Rev*. 2015;2015(7):CD004736. Published 2015 Jul 22. doi:10.1002/14651858.CD004736.pub5.
- [4] Kassebaum NJ. The global burden of anemia. *Hematol Oncol Clin North Am*. 2016;30(2):247-308.
- [5] Ötleş, S., & Yalçın, S. (2012). The bioactive compounds of nettle (*Urtica dioica*) leaves and their potential health benefits. *Critical Reviews in Food Science and Nutrition*, 52(6), 542-553. <https://doi.org/10.1080/10408398.2010.532244>
- [6] Walker OS, Holloway AC, Raha S. The role of the endocannabinoid system in female reproductive tissues. *J Ovarian Res*. 2019;12(1):3. doi:10.1186/s13048-018-0478-9.
- [7] Dawson DA, Persad CP. Targeting the endocannabinoid system in the treatment of ADHD. *Genetics and Molecular Medicine*. 2021;3(1):1-7. <https://doi.org/10.30574/gscbps.2022.19.2.0175>.
- [8] Persad CP. Targeting the female endocannabinoid system: A CAM intervention addressing behavioral nutrition and treating depression in women with T2DM. *GSC Biological and Pharmaceutical Sciences*. 2023;23(3):128-137. <https://doi.org/10.30574/gscbps.2023.23.3.0203>.
- [9] Tarasevičienė, L., Steponavičienė, I., & Vaitkevičienė, A. (2023). Antioxidant and anti-inflammatory properties of nettle (*Urtica dioica*) and its potential therapeutic uses. *Scientific Reports*, 13, 4704. <https://doi.org/10.1038/s41598-023-32072-w>
- [10] Bekhaled F, Belahsen R, Assobhei O. Toxicological evaluation of nettle (*Urtica dioica* L.) root extract and its potential application. *Pharmacol J*. 2020;12(2):327-332. doi:10.22159/pj.2020.v12i2.38058
- [11] Gerbino GA, Lattanzi A, Monaco C. Antioxidant and anti-inflammatory activity of dandelion root extracts. *J Ethnopharmacol*. 2018;215:91-100. doi:10.1016/j.jep.2018.01.017
- [12] Radoman M, Kladar N, Kosalec I. Pharmacological potential of *Taraxacum officinale* and its active compounds: A review. *Plants*. 2023;12(6):1420. doi:10.3390/plants12061420
- [13] Yang K, Zhang Y. Reversal of heavy metal-induced antibiotic resistance by dandelion root extracts and taraxasterol. *J Med Microbiol*. 2020;69(8):1049-1061. doi:10.1099/jmm.0.001226

- [14] Dawson DA, Persad CP. Targeting the endocannabinoid system in the treatment of addiction disorders. *GSC Biol Pharm Sci.* 2022;19(2):64-74. doi:10.30574/gscbps.2022.19.2.0175
- [15] Bonini SA, Premoli M, Tambaro S, et al. Cannabis sativa: A comprehensive ethnopharmacological review of a medicinal plant with a long history. *J Ethnopharmacol.* 2018;227:300-315. doi:10.1016/j.jep.2018.09.004
- [16] Bettiol A, Lombardi N, Marconi E, et al. The impact of previous pregnancy loss on lactating behaviors and use of herbal medicines during breastfeeding: a post hoc analysis of the Herbal Supplements in Breastfeeding Investigation (HaBIT). *Evid Based Complement Alternat Med.* 2018;2018:1035875. doi:10.1155/2018/1035875.
- [17] Poyatos-León R, García-Hermoso A, Sanabria-Martínez G, Álvarez-Bueno C, Sánchez-López M, Martínez-Vizcaíno V. Effects of exercise-based interventions on postpartum depression: A meta-analysis of randomized controlled trials. *Birth.* 2017;44(3):200-208. doi:10.1111/birt.12294
- [18] Tsai HH, Lin HW, Pickard AS, Tsai HY, Mahady GB. Evaluation of documented drug interactions and contraindications associated with herbs and dietary supplements: A systematic literature review. *Int J Clin Pract.* 2012;66(11):1056-1078. doi:10.1111/ijcp.12002.
- [19] Zapantis A, Steinberg JG, Schilit L. Use of herbals as galactagogues. *J Pharm Pract.* 2012;25(2):222-231. doi:10.1177/0897190012442712.
- [20] Frawley J, Adams J, Sibbritt D, Steel A, Broom A, Gallois C. Prevalence and determinants of complementary and alternative medicine use during pregnancy: results from a nationally representative sample of Australian pregnant women. *Aust N Z J Obstet Gynaecol.* 2013;53(4):347-352. doi:10.1111/ajo.12056.
- [21] O'Hara MW, McCabe JE. Postpartum depression: current status and future directions. *Annu Rev Clin Psychol.* 2013;9:379-407. doi:10.1146/annurev-clinpsy-050212-185612
- [22] Lu HC, Mackie K. Review of the Endocannabinoid System. *Biol Psychiatry Cogn Neurosci Neuroimaging.* 2021;6(6):607-615. doi:10.1016/j.bpsc.2020.07.016
- [23] Stewart DE, Vigod SN. Postpartum depression: Pathophysiology, treatment, and emerging therapeutics. *Annu Rev Med.* 2019;70:183-196. doi:10.1146/annurev-med-041217-011106.
- [24] Dawson DA. Structural stigmatization of medicinal botanic cannabinoid use: an interpretative phenomenological analysis [dissertation]. San Diego, CA: National University; 2024. Available from: Dissertations & Theses @ National University; ProQuest One Academic. (Order No. 31484974).
- [25] Slomian J, Honvo G, Emonts P, Reginster JY, Bruyère O. Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Front Public Health.* 2019;7:295. doi:10.3389/fpubh.2019.00295.
- [26] Di Marzo V, Piscitelli F. The Endocannabinoid System and its Modulation by Phytocannabinoids. *Neurotherapeutics.* 2015;12(4):692-698. doi:10.1007/s13311-015-0374-6
- [27] Di Marzo V, Piscitelli F. The Endocannabinoid System and its Modulation by Phytocannabinoids. *Neurotherapeutics.* 2015;12(4):692-698. doi:10.1007/s13311-015-0374-6
- [28] Aoki C, Imai K, Owaki T, et al. The Possible Effects of Zinc Supplementation on Postpartum Depression and Anemia. *Medicina (Kaunas).* 2022;58(6):731. Published 2022 May 29. doi:10.3390/medicina58060731
- [29] Dipietro L, Evenson KR, Bloodgood B, et al. Benefits of Physical Activity during Pregnancy and Postpartum: An Umbrella Review. *Med Sci Sports Exerc.* 2019;51(6):1292-1302. doi:10.1249/MSS.0000000000001941
- [30] Nestler EJ, Hyman SE. Animal models of neuropsychiatric disorders. *Nat Neurosci.* 2010;13(10):1161-1169.
- [31] Pertwee RG. Cannabinoid pharmacology: the first 66 years. *Br J Pharmacol.* 2006;147 Suppl 1(Suppl 1):S163-S171. doi:10.1038/sj.bjp.0706406
- [32] Shannon S, Opila-Lehman J. Cannabidiol Oil for Decreasing Addictive Use of Marijuana: A Case Report. *Integr Med (Encinitas).* 2015;14(6):31-35
- [33] Wang C, Pan R, Wan X, et al. A longitudinal study on the mental health of the general population during the COVID-19 epidemic in China. *Brain Behav Immun.* 2020;87:40-48. doi:10.1016/j.bbi.2020.04.028
- [34] Khalsa SS, Adolphs R, Cameron OG, et al. Interoception and Mental Health: A Roadmap. *Biol Psychiatry Cogn Neurosci Neuroimaging.* 2018;3(6):501-513. doi:10.1016/j.bpsc.2017.12.004

- [35] Cramer H, Lauche R, Langhorst J, Dobos G. Yoga for depression: a systematic review and meta-analysis. *Depress Anxiety*. 2013;30(11):1068-1083. doi:10.1002/da.22166
- [36] Rasumawati, et al. Yoga exercises to speed up the process of uterine involution. *Int J Multidiscip Res Anal*. 2023;6(6):61. doi:10.47191/ijmra/v6-i6-61
- [37] Lovell R, Wheeler BW, Higgins SL, Irvine KN, Depledge MH. A systematic review of the health and well-being benefits of biodiverse environments. *J Toxicol Environ Health B Crit Rev*. 2014;17(1):1-20. doi:10.1080/10937404.2013.856361
- [38] Leahy-Warren P, McCarthy G, Corcoran P. First-time mothers: social support, maternal parental self-efficacy, and postnatal depression. *J Clin Nurs*. 2012;21(3-4):388-397. doi:10.1111/j.1365-2702.2011.03701.x
- [39] MacCallum CA, Russo EB. Practical considerations in medical cannabis administration and dosing. *Eur J Intern Med*. 2018;49:12-19
- [40] Figueiredo ACMG, Gomes-Filho IS, Silva RB, Pereira PPS, Mata FAFD, Lyrio AO, Souza ES, Cruz SS, Pereira MG. Maternal Anemia and Low Birth Weight: A Systematic Review and Meta-Analysis. *Nutrients*. 2018; 10(5):601. <https://doi.org/10.3390/nu10050601>
- [41] Míguez MC, Vázquez MB. Prevalence of postpartum major depression and depressive symptoms in Spanish women: a longitudinal study up to 1 year postpartum. *Midwifery*. 2023;126:103808. doi:10.1016/j.midw.2023.103808.