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Optimizing Post-partum Depression Prevention in Primary Health Care Services

Ade Nurul Ashifa*, Elvira Nafiani, Krisna Siska Septiana, Qorinah Estiningtyas Sakilah Adnani, Hadi Susiarno
Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia

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ABSTRACT

Post-partum depression (PPD) is a post-natal disorder that not only impacts the mental health of the mother but also has long-term effects on the development and well-being of the child and family. PPD is a preventable disorder, starting from interventions at primary health care facilities. As one of the developing countries with a PPD incidence of 22% per 100,000 births, PPD is considered an urgent public health issue in Indonesia. In practice, evaluation, and improvement of services at primary health care facilities are needed. This study aims to identify and adapt international intervention strategies to reduce post-partum depression prevalence in Indonesian primary health care. A scoping review analysis method was used, involving previous studies on activities from pregnancy to post-partum that can prevent and reduce post-partum depression. The reviewed articles employed Randomized Controlled Trials or Randomized Clinical Trials (RCT) methods with specific inclusion and exclusion criteria. Data were collected from relevant sources, and a synthesis was conducted on 16 articles that met the inclusion criteria. The results show that direct psychological support activities (through health professionals or groups) and indirect support using digital platforms and applications are effective in reducing depression. Strategies such as digital technology, direct support programs, physical therapy, pharmacological therapy, community involvement, and strengthening health services, particularly post-partum psychological counseling, are recommended to enhance prevention. This research supports the expansion of evidence-based strategies that can be implemented in primary healthcare facilities to address post-partum depression.

Corresponding author:

Ade Nurul Ashifa
Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia
Email: adenurulashifa@gmail.com

INTRODUCTION

Post-partum depression (PPD) is a significant mood disorder that affects new mothers, with a broad impact on the mother's mental health and the baby's well-being. In Indonesia, there has been a significant increase in post-partum depression cases, reaching 22%. The impact of post-partum depression on mothers causes them to be unable to care for their babies properly. If this issue continues, it will lead to even more adverse long-term impacts on the child's cognitive, emotional, social, and behavioral growth (Adli, 2022). Various risk factors, such as age, socio-economic status, and complications during pregnancy and childbirth, have been identified as significant contributors to the prevalence of PPD in urban and rural areas (Putri et al., 2023).

Given that PPD has long-term consequences on child development and family well-being, effective management at the primary healthcare level becomes essential. (Leis et al., 2015). Primary healthcare services have the potential to be the first line of detection and intervention, providing quick and efficient access for mothers in need. However, there is a need to assess further which interventions are effectively implemented in primary healthcare, especially in Indonesia, which has unique social and cultural characteristics (Putri et al., 2023).

This study aims to identify and analyze evidence-based interventions successfully implemented in primary healthcare services in various countries to prevent PPD. This research will compare the effectiveness of various intervention strategies tested in countries with mature healthcare systems, such as psychosocial support, perinatal counseling, and mental health

education programs. Subsequently, the study will analyze how these interventions can be adapted to meet the unique needs of Indonesia, considering the different demographic and cultural factors.

Through this scoping review, the author can systematically map the broad or emerging literature to identify knowledge gaps, assess the scope and variation in the existing literature, and inform potential future research or more systematic reviews (Mak & Thomas, 2022). This research aims to provide implementable recommendations to improve the effectiveness of PPD prevention in primary healthcare services in Indonesia, thereby reducing prevalence and improving long-term health outcomes for mothers and babies.

METHOD

The method used in this research is a scoping review using PRISMA-ScR. A scoping review is an ideal approach to determine the scope or coverage of a body of literature on a particular theme, providing researchers with a broad overview (Mak & Thomas, 2022). A scoping review aims to map the literature and gather information about research activities related to a specific topic (Peterson et al., 2017). Additionally, a scoping review can synthesize research evidence (Daudt et al., 2013). The database search used the keywords "Post Partum Depression AND Primary Health Care," separated by Boolean concepts. The selection of keywords was adjusted according to the PEO framework guidelines that the author had formulated.

The researcher's development of the review's focus and search strategy will be guided by the PEOs (Population, Exposure, Outcome, Study Design) framework to effectively manage and address the critical aspects of the review.

Table 1. PEOs framework

P (Population)	E (Exposure)	O (Outcome)	S (Study Design)
Pregnant women and post-partum mothers	Primary Healthcare Program	Post-partum Depression Incidence	All articles with Randomized Controlled Trial (RCT) and Randomized Clinical Trial (RCT) research designs

Source: Author's discussion, 2024

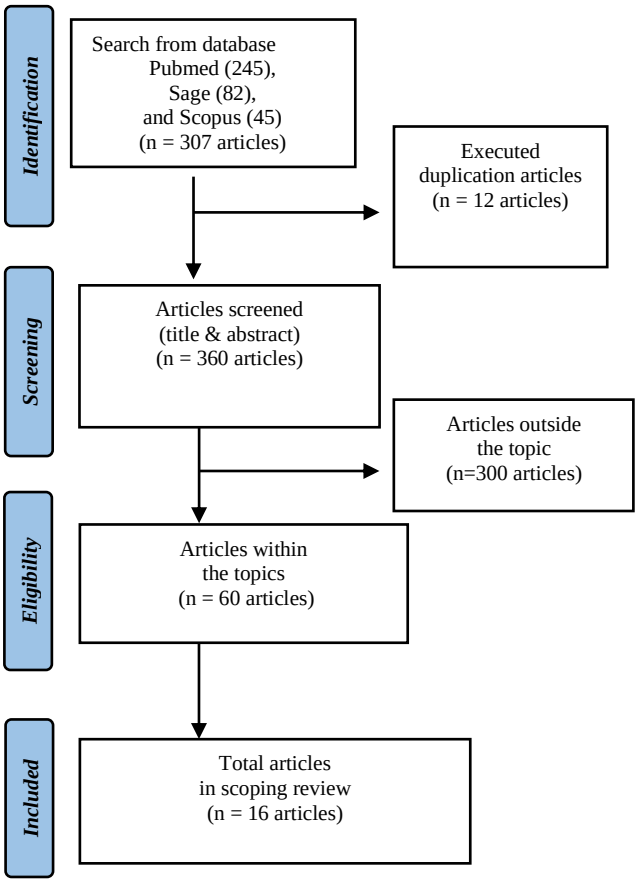
Based on the framework, the research question obtained is: What successful post-partum depression prevention interventions implemented in primary healthcare services in other countries can be applied in Indonesia?

The researcher identifies relevant articles using databases, with the article search in the study utilizing three databases: PubMed, Scopus, and Sage Journal. The selection of literature databases is adjusted to the topic of discussion (Tricco et al., 2017). Next, the identification of relevant articles is based on the following inclusion and exclusion criteria:

Table 2. Inclusion and exclusion

Inclusion criteria	Exclusion criteria
1. Articles published within five years (2019-2024) 2. Articles written in English 3. Original research articles 4. Open access to full-text articles 5. Quantitative articles with Randomized Controlled Trials and Randomized Clinical Trial research designs	1. Articles published more than five years ago 2. Books, theses, letters, review articles 3. Articles not fully accessible

Source: Author's discussion, 2024



Picture 1. PRISMA Flowchart

Recommendations guidelines from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) are employed for the next stage, documenting the literature search. A tool known as the PRISMA flow diagram is used to monitor the sequence of information during the systematic review process. This diagram is divided into four main stages: identification, screening, eligibility, and inclusion (Rethlefsen & Page, 2022). In the "identification" stage, the number of data found through database searches and external sources and the number of data after the deduplication process are recorded. The "screening" stage marks that the literature sources have been verified according to the research question, inclusion and exclusion criteria, and relevant keywords. "Eligibility" is the phase where articles are evaluated based on specific criteria such as journal number, volume, and ISSN. The "inclusion" stage encompasses all literature that has passed the initial screening and is ready for further analysis (Widiasih et al., 2020).

The author screened the literature from various article search engines using predefined keywords. The total number of articles obtained was 372, with details from each search engine being 245 articles from PubMed, 45 from Scopus, and 82 from Sage Journal.

RESULTS

Table 3. Data result

No	Author/ Year	Country	Research Purpose	Design & Sample Research	Result
1	(Khodadad et al., 2021)	Iran	To investigate the effects of vitamin B6 on the prevention of post-partum depression among mothers at risk of PPD	Design: Randomized Controlled Trial Research Sample: Pregnant woman	Vitamin B6 has positive effects in reducing post-partum depression scores among mothers at risk of post-partum depression. This study concludes that the dosage of vitamin B6 used in the study was 80 mg daily, given in the form of two 40 mg pills from the 28th week of pregnancy until the end. The dosage was reduced to one 40 mg pill daily for one month after delivery, which can be clinically helpful in preventing post-partum depression in high-risk women, with a significant reduction in depression scores post-intervention compared to the control group receiving a placebo.
2	(Vigod et al., 2021)	Canada	Assess the feasibility of a randomized clinical trial protocol to evaluate the Mother Matters intervention and provide guidelines for planning future definitive trials. The second objective is to generate an initial efficacy estimate related to post-partum depression symptoms.	Design: Randomized Controlled Trial Research Sample: Pregnant women and post-partum mothers	This research found that most participants in the intervention group used the Mother Matters platform and rated the topics discussed as highly relevant. The results showed a reduction in post-partum depression symptoms in the intervention group (The EPDS mean score decreased significantly in the intervention group from 10.1 (SD 1.4) before the intervention to 4.2 (SD 2.7) after the intervention) compared to the control

No	Author/ Year	Country	Research Purpose	Design & Sample Research	Result
					group (The EPDS mean score remained relatively unchanged, going from 9.3 (SD 4.2) to 10.4 (SD 3.4)). This study demonstrates that using therapist-facilitated online discussion forums can help reduce post-partum depression symptoms and supports the need for further evaluation regarding the effectiveness and cost-efficiency of this program.
3	(Felder et al., 2022)	United States	Assess the effects of digital cognitive behavioral therapy for insomnia (dCBT-I) delivered during pregnancy on subjective sleep outcomes, depression symptoms, and anxiety symptoms up to 6 months post-partum.	Design: Randomized Controlled Trial Research Sample: Post-partum mothers	Participants who received dCBT-I did not experience significant improvements in the severity of insomnia symptoms compared to standard care participants, experienced higher remission rates of insomnia, and had fewer insomnia cases at six months post-partum. dCBT-I participants also showed more significant improvements in depression symptom severity from baseline to both post-partum follow-up points and in anxiety symptom severity from baseline to 3 months post-partum. The proportion of participants with likely severe depression at three months post-partum was higher in the standard care group compared to the dCBT-I group. These findings provide initial solid evidence that dCBT-I delivered during pregnancy can prevent post-partum depression and anxiety.
4	(Sun et al., 2021)	China	Assess the impact of smartphone-based mindfulness training interventions during pregnancy on perinatal depression and other mental health issues using a randomized controlled design.	Design: Randomized Controlled Trial Research Sample: Pregnant women	Participants who received mindfulness training (Through a smartphone app based on MBCT principles include various techniques such as body scanning, mindful breathing, and meditation, designed to help participants stay present, manage negative emotions, and cope with the physical and emotional changes during pregnancy) reported significant improvements in depression, anxiety, and positive affect compared to

No	Author/ Year	Country	Research Purpose	Design & Sample Research	Result
					the control group. Moderate effect sizes were found for depression and positive affect post-intervention, as well as anxiety at the end of pregnancy. Smartphone-based mindfulness training improved maternal and perinatal mental health and showed that first-time mothers benefited more from the training.
5	(Van Lieshout et al., 2021)	Canada	Determine whether a one-day online workshop based on cognitive behavioral therapy (CBT) combined with standard care is more effective in reducing post-partum depression, anxiety, social support, mother-child relationship quality, and infant temperament compared to standard care alone.	Design: Randomized Clinical Trial Research Sample: Post-partum mothers	A one-day online CBT-based workshop resulted in a significant reduction in post-partum depression and anxiety symptoms, with the Edinburgh Post-natal Depression Scale (EPDS) scores decreasing from 16.47 (SD 4.41) before the intervention to 11.65 (SD 4.83) after the intervention, . The workshop also improved mother-child bonding, reduced infant-focused anxiety, and increased positive affectivity/surgency in infants. These findings suggest that a one-day online CBT-based workshop can be an effective and efficient option for addressing post-partum depression in mothers.
6	(Gureje et al., 2022)	Nigeria	Evaluate the effectiveness of psychosocial interventions specifically designed for adolescents with perinatal depression, provided by frontline maternal care providers, in improving health outcomes and parenting skills.	Design: Randomized Controlled Trial Research Sample: Pregnant women	Adolescents who received the intervention (giving behavioral activation and problem-solving treatment (PST), parenting skills training, and social and parenting skills support provided by a self-identified adult “neighborhood mother”) showed lower depression symptoms and better parenting skills compared to the control group at six months post-partum. The intervention group had lower EPDS scores and higher HOME-IT scores, indicating significant differences in depression symptoms and parenting skills. These results suggest that age-appropriate psychosocial interventions can be effective in addressing

No	Author/ Year	Country	Research Purpose	Design & Sample Research	Result
					perinatal depression in adolescents, especially in resource-limited settings.
7	(Navas et al., 2021)	Spain	Evaluate the efficacy and safety of a moderate-intensity aquatic aerobic exercise program during pregnancy on post-partum depression, sleep problems, and quality of life in women one month after delivery.	Design: Randomized Controlled Trial Research Sample: Pregnant women and post-partum mothers	Women in the intervention group carried out by midwives (in 45 minutes of water aerobics classes three times weekly in an indoor pool (28–30 C) for five months. Exercise intensity was designed so that each woman maintained an estimated heart rate of 55–65% of the maximum 140 bpm) and reported lower levels of anxiety or depression and lower average EPDS scores compared to the control group. There were no significant differences in other outcomes, adverse events in mothers, or newborn status indicators. These results indicate that moderate-intensity aquatic aerobic exercise during pregnancy reduces anxiety and post-partum depression symptoms without adverse effects on mothers and newborns.
8	(Arakawa et al., 2023)	Japan	Assess the effectiveness of mHealth consultation services in preventing post-partum depression symptoms in real-world settings.	Design: Randomized Controlled Trial Research Sample: Pregnant women and post-partum mothers	Women in the mHealth group had a lower risk of post-partum depression symptoms compared to the control group. They also showed increased self-efficacy, reduced loneliness, and decreased perceived barriers to accessing healthcare services. The two groups had no significant differences in the frequency of clinic visits or ambulance usage. mHealth consultation services effectively addressed physical and psychosocial barriers to healthcare access and could improve perinatal mental health at the local government policy level.
9	(Surkan et al., 2020)	Pakistan	Assess the effectiveness of cognitive behavioral therapy (CBT) interventions (intervention described in the	Design: Randomized Controlled Trial	Women who received the CBT intervention showed a significant reduction in anxiety symptoms and

No	Author/ Year	Country	Research Purpose	Design & Sample Research	Result
			study involves a structured program designed to alleviate symptoms of anxiety during pregnancy, such as psychoeducation, stress management, thought challenging, and behavior activation) delivered by non-specialist providers in addressing anxiety symptoms during pregnancy, as well as their impact on birth outcomes and post-partum mental health.	Research Sample: Pregnant women	common mental disorders (CMD) post-partum compared to the control group. This intervention also had a positive impact on birth outcomes, such as low birth weight (LBW), preterm birth (PTB), and small for gestational age (SGA). These findings provide initial evidence that non-specialist CBT interventions can reduce the prevalence of CMD post-partum and improve infant health outcomes. They could also be applied in other low- and middle-income countries.
10	(Hulsbosch et al., 2020)	Netherland	Assess the effectiveness of online mindfulness (The program follows an 8-week structure based on established protocols from Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT). It includes weekly one-hour sessions where participants engage in mindfulness practices such as mindful breathing, body scanning, and mindful movement, along with psychoeducation on stress, coping, and relaxation-based interventions for pregnant women experiencing pregnancy distress. They also explore potential mechanisms of action.	Design: Randomized Controlled Trial Research Sample: Pregnant women	The research findings are expected to show that the online MBI intervention will significantly reduce pregnancy distress compared to the control group. Additionally, this intervention is also expected to improve mindfulness skills and self-compassion. Data analysis will be conducted using a multilevel regression model to evaluate changes in primary and secondary outcomes over time. The results of this study are expected to increase knowledge about the effectiveness of online MBI during pregnancy in women with pregnancy distress and to evaluate potential mechanisms of action.
11	(Schytt et al., 2022)	Swedish	Assess the effectiveness of bilingual community-based doula (CBD) support in improving the intrapartum care experience and emotional well-being of migrant women giving birth in Sweden.	Design: Randomized Controlled Trial Research Sample: Pregnant women	Women in the CBD support group did not show significant improvements in their ratings of intrapartum care experience or emotional well-being two months post-partum compared to the control group. Although there were no significant differences in the primary outcomes, CBD support showed potential for improving communication between women in labor and staff. This study concluded that CBD support did not enhance overall care ratings or post-partum emotional

No	Author/ Year	Country	Research Purpose	Design & Sample Research	Result
					well-being of migrant women but has the potential to improve communication aspects during labor and birth.
12	(Suharwardy et al., 2023)	United States	Assess the feasibility and initial effectiveness of a mental health chatbot for mood management in the general post-partum population.	Design: Randomized Controlled Trial Research Sample: Post-partum mothers	The results showed that women in the chatbot group experienced a more significant reduction in depression scores compared to the control group at six weeks post-partum. However, there were no significant differences in anxiety scores. Most chatbot users were satisfied with the application and reported its convenience for mood management. This study indicates that using a chatbot for mood management in the early post-partum period is acceptable and shows a reduction in depression symptoms in this population. Further research is needed to understand the utility and effectiveness of this chatbot in higher-risk post-partum populations and over a more extended period.
13	(Rodríguez-Gallego et al., 2024)	Spain	Assess the effectiveness of a breastfeeding support group intervention led by midwives in maintaining breastfeeding, preventing post-partum depression, and improving general self-efficacy.	Design: Randomized Clinical Trial Research Sample: Pregnant women	The research findings showed significant differences in exclusive breastfeeding rates at four months post-partum between the control and intervention groups. The intervention group had higher exclusive breastfeeding rates, lower average scores on the Edinburgh Post-natal Depression Scale (EPDS), and higher general self-efficacy scores at 2 and 4 months post-partum compared to the control group. These findings suggest that midwife-led breastfeeding support groups can increase self-efficacy, extend breastfeeding duration, and reduce post-partum depression.
14	(Sun et al., 2024)	Pakistan	Investigate the relationship between positive and negative stressors during pregnancy and post-partum mental	Design: Randomized Controlled Trial	The research findings indicated that the frequency of issues measured in the third trimester was positively

No	Author/ Year	Country	Research Purpose	Design & Sample Research	Result
			health outcomes among low-income pregnant women in Pakistan, and evaluate whether cognitive behavioral therapy (CBT)-based interventions have a moderating effect.	Research Sample: Pregnant women	correlated with depression and anxiety. In contrast, the intensity of gains was negatively correlated with depression and anxiety symptoms. The CBT intervention enhanced the positive effects of gains and mitigated the adverse effects of issues. Stressors during the third trimester, but not earlier in pregnancy, were linked to post-partum anxiety and depression symptoms. The CBT intervention modified the relationship between pregnancy stressors and post-partum mental health outcomes. Programs that foster positive experiences and minimize negative experiences, particularly in late pregnancy, can reduce post-partum mental health consequences.
15	(Chaput et al., 2023)	Canada	Trial the effectiveness of a behavioral activation intervention and remote peer support, provided by trained peer counselors, to increase gestational age at delivery in individuals with antenatal depression. The secondary objective is to evaluate the effectiveness of the intervention in reducing antenatal depression symptoms before delivery, with sustainability into the post-partum period, improving anxiety symptoms, and increasing self-efficacy in parenting compared to the control group.	Desain: Randomized Controlled Trial Research Sample: Pregnant women and post-partum mothers	The behavioral activation intervention and remote peer support have the potential to successfully reduce antenatal depression symptoms, which in turn can decrease the risk of preterm birth and associated long-term health impacts. This research relies on a patient-oriented approach to address priorities in patient care and provide effective, affordable, and evidence-based treatment for pregnant individuals with antenatal depression. The results are expected to show increased gestational age at delivery, a sustained reduction in antenatal depression symptoms up to 12 months post-partum, as well as improved anxiety symptoms and increased self-efficacy in parenting in the intervention group compared to the control group.
16	(Broberg et al., 2021)	Denmark	Assess the effects of supervised group exercise on psychological well-being and depression symptoms among pregnant women with or at high risk of experiencing	Design: Randomized Controlled Trial Research Sample: Pregnant women	Intention-to-treat analysis showed no significant effect on psychological well-being in the primary outcome. However, per-protocol analysis of women who

No	Author/ Year	Country	Research Purpose	Design & Sample Research	Result
			depression.		attended ≥75% of exercise sessions showed significantly higher WHO-5 scores compared to the control group at 29-34 weeks of pregnancy. Eight weeks post-partum, the intervention group reported higher psychological well-being than the control group. There were no significant differences in obstetric or economic outcomes, except for lower labor induction in the intervention group. These findings suggest that supervised group exercise can be a safe adjunct treatment in existing antenatal care, particularly in improving post-partum psychological well-being.

The search results and keyword match with the research yielded 16 articles. The article reviews included findings from developed and developing countries. These countries are the United States, the Netherlands, China, Denmark, Iran, Japan, Canada, Nigeria, Pakistan, Spain, and Sweden. The following are the countries mentioned in the articles.

Table 4. Distribution of countries in articles

Country	Frequency
United States	2
Netherland	1
China	1
Denmark	1
Iran	1
Japan	1
Kanada	3
Nigeria	1
Pakistan	2
Spanyol	2
Swedish	1

Post-partum Depression (PPD) is a global issue that requires collaboration from various sectors. Prevention and reduction strategies for PPD start with primary healthcare facilities, which are crucial for post-partum mothers in the field. The lack of prevention programs for PPD prolongs the problem and can lead to long-term consequences for both mothers and babies.

Table 5. Synthesis results of articles

Theme	Sub-theme
Post-partum mother support activities	Birth companion [11] Breastfeeding group [13] [16] CBT support [14] Peer-counselor [15] [6]
Use of modern media platforms	Online platform [2] [5] [6] [15] Digital application platform [3] [12] [9] [5] [15] Online training [3] [10] Online consultation [8] [12]
Physical and pharmacological therapy	Vitamin B6 [1] [13] Exercise and sports [16] [7]

DISCUSSION

Post-partum mother support activities

Support from a birth companion during labor provides emotional comfort, helps reduce anxiety, and improves communication between the mother and medical staff. This support is also associated with a more positive birth experience, contributing to a reduced risk of post-partum depression. (McLeish & Redshaw, 2018). The language context in labor services is crucial, as mother tongue care improves maternal health outcomes. This contributes to a reduced risk of post-partum depression by providing better emotional support. Language mismatch can lead to misinformation, feelings of isolation, and dissatisfaction with the care experience. This can

worsen the emotional condition of post-partum mothers (Truong et al., 2023).

Another form of support is in the form of breastfeeding support groups led by midwives, which can prevent post-partum depression (PPD). This intervention increases general self-efficacy and provides social support, all contributing to the effective prevention of PPD in new mothers. Prenatal depression symptoms are related to breastfeeding, and the mother-child relationship is influenced by the style of nutrition provided. It is crucial to support breastfeeding mothers, especially those experiencing difficulties, to prevent post-partum depression and improve mother-child bonding (Carvalho Hilje et al., 2024). With the participation of mothers in group classes or outdoor activities, social interaction can be encouraged to address feelings of isolation that some mothers may experience during the post-partum period. This can foster a sense of empowerment, self-confidence, and emotional resilience (Modak et al., 2023).

Other activities that show a reduction in post-partum depression scores highlight the importance of cognitive interventions such as CBT. Cognitive Behavioral Therapy plays a crucial role in maintaining the mental well-being of post-partum mothers and reducing the risk of post-partum depression (Murwati & Suroso, 2017). CBT activities can be an effective approach to preventing post-partum depression and should be considered in post-partum care at various primary healthcare facilities. These support activities can be conducted as workshops that can reduce anxiety threefold and clinically improve the participants' condition (Van Lieshout et al., 2023).

Primary healthcare facilities can play a significant role in preventing post-partum depression by integrating various forms of support, such as birth companions, breastfeeding groups, and cognitive interventions like CBT. Effective language and communication support during labor and social interaction through group activities provides mothers with a safe and empathetic environment. These programs help address anxiety, increase self-efficacy, and provide the necessary emotional and social support to prevent post-partum depression. Thus, primary healthcare facilities can offer holistic care focused on mothers' mental and emotional well-being, thereby improving the quality of life for both mothers and children.

Use of modern media platforms

Utilizing digital applications to prevent post-partum depression has shown that these applications are effective in providing timely access to information and the social support needed by post-partum mothers. The use of digital applications can reduce depression symptoms, improve communication, and enhance the mood of mothers, making them an essential tool in healthcare services for post-partum depression prevention (Sukmawati et al., 2021). The positive impact of modern media is very significant in reducing post-partum depression rates. Digital applications allow mothers to access information related to post-partum care and emotional support promptly, helping them feel more informed and supported, as well as reducing anxiety and stress that can trigger post-partum depression (Emalia & Nilasari, 2021). Additionally, modern media facilitates communication between mothers and healthcare providers and with other mothers, reducing feelings of isolation and improving mental well-being.

Digital platforms also enable interventions such as Cognitive Behavioral Therapy (CBT), which has been proven effective in reducing depression symptoms by helping mothers overcome negative thoughts and build better coping strategies. Another advantage of modern media is its efficiency and accessibility, especially for mothers who have difficulty attending face-to-face therapy sessions (Maryatun et al., 2023). Mobile applications that can be used anytime and anywhere provide the flexibility that post-partum mothers greatly need. The utilization of modern media, such as digital applications and digital training platforms, can be an alternative to supporting the mental health of post-partum mothers in primary healthcare facilities.

Physical and pharmacological therapy

Research shows that vitamin B6 supplementation and physical exercise have significant effects in reducing the risk and symptoms of post-partum depression (PPD). In studies evaluating the effects of vitamin B6, it was found that this supplementation can significantly reduce depression scores in mothers at risk of experiencing PPD. (Khodadad et al., 2021). Vitamin B6 acts as a cofactor in metabolic pathways that produce serotonin, an important neurotransmitter that regulates mood, thus helping to reduce depression symptoms.

Additionally, other research shows that physical exercises such as yoga, aerobics, and strength training can increase endorphin production, which acts as a natural analgesic and improves mood (Wang et al., 2024). Physical exercise also improves sleep quality, reduces anxiety, and enhances body image, all of which contribute to the reduction of depression symptoms. Policy support and education, particularly inappropriate primary healthcare facilities, regarding the benefits of these two approaches are essential to ensure effective and optimal implementation.

Physical exercise helps reduce cortisol levels (the stress hormone), increase endorphins (the happiness hormone), and improve sleep quality, all of which contribute to reducing post-partum depression symptoms (Marconcin et al., 2021). Integrating a physical exercise program and vitamin B6 supplementation into post-partum care at primary healthcare facilities can provide comprehensive support for mothers' mental health.

CONCLUSION

Research on the Optimization of Post-partum Depression Prevention in Primary Healthcare Services provides a comprehensive overview of efforts to improve early prevention practices at the primary level. From the findings of this research, it can be concluded that strategies to reduce post-partum depression include direct psychological support activities (with healthcare providers and group activities such as physical therapy, pharmacological therapy, community involvement, and post-partum psychological counseling) and indirect support using digital platforms and applications to facilitate services and remote monitoring. These strategies can prevent and reduce the prevalence of post-partum depression. This helps primary healthcare facilities plan post-partum care, especially for the psychological well-being of post-partum mothers, to prevent long-term issues for both mothers and babies.

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