

Perinatal interventions to reduce the severity of postpartum depression: A narrative review

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ARTICLE INFO

Article history

Received, 17 May 2023

Revised, 22 November 2023

Accepted, 22 November 2023

Keywords

Postpartum;

Depression;

Intervention;

Narrative Review;

ABSTRACT

Postpartum depression (PPD) is a mental disorder that can affect mothers and their families, with symptoms of fatigue, mood swings, frequent anger for no reason, and excessive worry for the baby. Several studies regarding interventions that can be given to postpartum women with PPD have been carried out. The purpose of this review is to assess evidence on the effectiveness of a broad range of perinatal interventions to reduce the severity of PPD.

The review of the literature has been done through PubMed, for papers with Randomized Control Trial (RCT) design published in 2012-2021. The approach was to explore quantitative parameters which is the EPDS score. More than 300 papers were identified, but only 6 studies met the inclusion criteria. A narrative review was conducted due to the studies' significant heterogeneity.

Six studies reported a decrease in EPDS score. Six interventions have been identified to reduce the severity of PPD, they are exercise, psychological intervention, telephone-based Cognitive Behavioral Therapy (CBT), iBA (internet Behavioral Activation), application-based Cognitive Behavioral Therapy (CBT) and psychoeducation.

This review suggests that multiple intervention program may lead to better outcomes in terms of client's satisfaction. There is also some indication that psychoeducation support Maternal Parental Self-efficacy (MPSE) and social support besides EPDS.

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1. Introduction

Postpartum Depression (PPD) is a significant mental health problem that affects women worldwide and can have a devastating impact on them and their families (O'Hara & Mc Cabe, 2013).

The Edinburgh Postnatal Depression Scale (EPDS) is a self-reporting instrument that contains 10 symptoms of depression felt in the last 7 days. Each question is scored on a scale of 0-3, and the total score can range from 0-30. The cutoff for postpartum mothers is 9/10 for possible mild depressive disorder, and 12/13 for possible Major Depressive Disorder (MDD) (Moraes et al., 2017b).

Symptoms of PPD include mood disorders, anxiety, irritability, feeling tired all the time, and excessive worry about the baby's health (Stewart & Vigod, 2019). The global incidence of postpartum depression among mothers is 17%, Europe has the lowest prevalence of 8%, while the Middle East has the highest prevalence of 26%, and all of Asia has a prevalence of 16% (Shorey et al., 2018).

Some of the adverse effects of PPD are bonding and child development disorders, household disputes, suicide, and infanticide (Wilkinson et al., 2016). According to a meta-analysis conducted by O'Hara, it was found that several risk factors for postpartum depression were a history of depression and anxiety during pregnancy, poor personality, low self-esteem, postpartum blues, stressful events (including stress related to parenting), disharmonious marital relations, and poor social support, low socioeconomic status (SES), unwanted pregnancies, and bad baby conditions (O'Hara & Mc Cabe, 2013).

Postpartum depression (PPD) brings impacts not only for mothers but also child outcomes. Because of this reasons, reducing maternal depression will also enhance the mother-infant bond and the behavior of the kid. Therefore, we need to identify the interventions that have been done to reduce the severity of postpartum depression.

2. Methods

The aim of this review is to synthesize evidence gathered from empirical literature on intervention among postnatal mothers with depression. This research uses the Narrative Review method by using research questions based on the research objectives to be carried out. By using the PICO framework (Patient, Problem or Population, Intervention, Comparison, Outcomes).

Table 1. PICO

P	I	C	O
<ul style="list-style-type: none"> • Postnatal Depression • Depression, Postnatal • Post-Partum Depression • Depression, Post-Partum • Post Partum Depression • Postpartum Depression • Post-Natal Depression • Depression, Post-Natal • Post Natal Depression 	<ul style="list-style-type: none"> • Intervention • Treatment • Management 		All study related to PPD intervention

The research questions are as follows: What is the intervention for postpartum women with postpartum depression? This research question aims to find out how intervention (treatment) can be carried out in postpartum women with postpartum depression. Because post-partum depression if it is not treated/treated, it will have a negative impact on the health of the mother and family (Elden et al., 2016; Moraes et al., 2017a).

Meanwhile, for the search design and strategy in order to obtain a comprehensive narrative review, it is important to use all terms relevant to the research objectives included in the search. In addition, the authors also need to include relevant synonyms and relevant terms for interventions in postpartum depression. The search uses two keyword categories (Bohari et al., 2020; Field et al., 2013). The first category includes the following terms as synonyms for postpartum depression: "Postnatal Depression, Depression, Postnatal, Post-Partum Depression, Depression, Post-Partum, Post Partum Depression, Postpartum Depression, Post-Natal Depression, Depression, Post-Natal, Post Natal Depressions". The second category focuses on Intervention and includes the terms: "intervention, therapy, and, treatment". Keywords and synonyms are connected to logical OR and AND connectors.

To search for the author's articles using the PubMed database, while for collecting and managing article search results using Mendeley. Article selection is done by reading the title, abstract, and full text of the article. The inclusion criteria for the selected articles were: 1) The research subjects were mothers with postpartum depression who were diagnosed using EPDS; 2) research using Randomized Control Trial (RCT) design; 3) Publications for the period 2012-2021 and presented in English; 4) The article is original research. To systematize the study inclusion process, the authors chose Preferred Reporting Items For Systematic Reviews And Meta-Analysis (PRISMA).

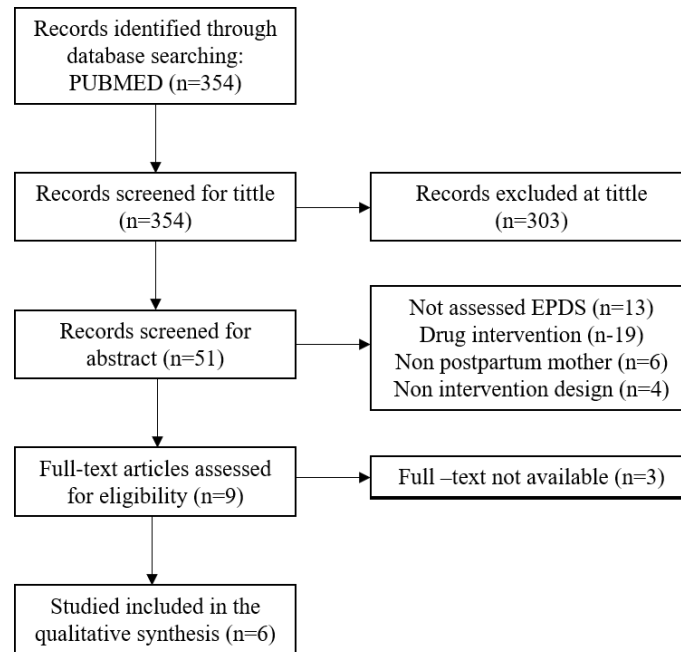


Fig. 1. PRISMA flow diagram

3. Findings

Studies included were published between 2012 and 2021. Samples were derived from 6 countries (Turkey, Iran, Singapore, Hongkong, China, and UK). Six were finally included in the present critical analysis and are summarized here, highlighting aspects of study design and results. Each study using EPDS as an instrument to determine whether postpartum women experience PPD or not, with a score of 9/10 for the possibility of mild depressive disorder, and 12/13 for the possibility of Major Depressive Disorder (MDD) (Moraes et al., 2017a). All studies reported a decrease in EPDS score. Six interventions have been identified to reduce the severity of PPD, they are exercise, psychological intervention, telephone-based Cognitive Behavioral Therapy (CBT), iBA (internet Behavioral Activation), application-based Cognitive Behavioral Therapy (CBT) and psychoeducation.

Exercise

Postpartum exercise can be an alternative way to prevent more severe symptoms of postpartum depression. This is in line with a study conducted in Turkey on 65 mothers with postpartum depression (EPDS value > 13). This study used the Randomized Control Trial (RCT) method with 34 mothers in the experimental group and 31 mothers in the control group. In the control group, standard care practices for postpartum mothers were given in health facilities. In the experimental group, on the first day of the intervention, the mother was given a manual book and did the exercises together at the health facility as a preparation for doing the following exercises at home. Exercise is divided into 3 stages, light, moderate and heavy training.

The intervention was carried out for 4 weeks, the first 2 weeks were light and moderate, while the second 2 weeks were moderate and heavy exercise. In one week, do at least 5 days of exercise with a duration of 30 minutes a day. Each mother was asked to fill out a form for the exercise activities carried out at home, including the time, duration, and exercise stages each day. Once a week, mothers come to the health facility to monitor exercises that are implemented at home.

The results showed that the average EPDS value before the intervention was 16.41 ± 1.61 (14-20) in the experimental group and 15.74 ± 2.35 (13-22) in the control group. Based on statistical tests, there was no significant difference between the average EPDS values of the experimental group and the control group (P -value > 0.05). After the intervention, the average EPDS value in the experimental group was 7.29 ± 1.67 (5-10) and the control group was 12.54 ± 2.65 (8-18). This shows a significant decrease in the EPDS value. Based on statistical tests, a significant difference was found between the

average EPDS values of the experimental group and the control group (P-value <0 .001) (Özkan et al., 2020).

This article does not explain in detail the steps of postpartum exercise/movement given to postpartum mothers.

Psychological Intervention

A RCT study in China assessed psychological intervention to reduce depressive symptoms in postpartum mothers. This study involved 771 4-6-weeks-postpartum-mothers who experienced postpartum depression and were diagnosed using the EPDS with a positive result (EPDS score of 10). The participants were divided into 2 groups, namely the intervention group and the control group with a ratio of 1:2 (257 intervention groups and 514 control groups). In the intervention group, several steps were given, namely health education, face-to-face counseling, telephone psychological counseling for individual risk factors, and referrals.

Specific psychological interventions were conducted: (1) Health education: sending letters to the families of the intervention group regarding how to prevent and treat postpartum depression manually and given a CD containing pathogenesis, risk factors and knowledge of postpartum depression prevention prepared according to domestic research data and foreign exchange in the form of a question and answer (Q&A) that focuses on aspects of solutions for social support, marital relations, child-rearing responsibilities for mothers and families; (2) Outpatient counseling: scheduling intervention group mothers so that they can come to the Shenzhen Maternal and Child Health Hospital once a week for face-to-face counseling lasting 40 minutes each visit. In this outpatient counseling, researchers apply psychological counseling specifically to gradually improve maternal postpartum depression in cognitive problems, help build mothers' self-confidence and self-esteem, and provide recommendations for reasonable problem solving for problems in society and families; (3) Telephone counseling: Setting up an investigation hotline and appointing a special person in charge of maintaining telephone counseling on psychological interventions for postpartum women who have risk factors, and taking the initiative once a week to call those who are in the intervention group but are not willing to come to the hospital ; (4) Referral: postpartum women with low economic status who still experience clinical symptoms of severe postpartum depression after health education, counseling, psychological counseling and other interventions are transferred to a special psychiatric hospital for further treatment. Whereas the control group was treated with conventional methods, namely by way of health workers telling them to come to a health facility for further consultation and medical treatment.

After being given the intervention, the EPDS scores of both groups were assessed again at 6 months postpartum. The EPDS score in the intervention group decreased significantly, from the early stage (12.84±3.02) to the late stage (3.05±2.93), while the EPDS score in the control group decreased from 12.44±2.78 to 6.94±4.02. There was a significant difference in the EPDS scores at the late stage between the two groups (T=13.059, P<0.001) (Jiang et al., 2014).

In this study, it was not explained in detail that each intervention session lasted for how long the intervention was carried out.

CBT (Cognitive Behavioral Therapy) Telephone Based

Telephone-based Cognitive Behavioral Therapy is an effective intervention for postpartum depression, in line with research conducted in Hong Kong on 397 mothers with an Edinburgh Postnatal Depression Scale (EPDS) score ≥ 10 . Participants were randomized into two groups, namely telephone-based CBT (n = 197) or standard care (n = 200). Furthermore, EPDS measurements were carried out at 6 weeks and 6 months postpartum. In the telephone CBT intervention group, it was carried out for 5 weeks which was given every week from 1 to 5 weeks postpartum.

Interventions were carried out by experienced midwives who had attended 20 hours of CBT training. The session content focuses on teaching mothers how to identify and modify depressogenic thoughts that may affect their emotions in the postpartum period, increase the amount of pleasurable activities in their daily life, enhance effective problem-solving strategies and decision-making skills to deal with practical problems, problems child care, common neonatal problems, and managing interpersonal difficulties through improving communication and negotiation skills.

Session 1 focused on education about the signs and symptoms of postpartum depression and coping skills related to parenting. Session 2 discussed the role of thought in emotion and behavior and also helped women to identify functional and dysfunctional thoughts related to young mothers. Session 3 focuses on skills training and cognitive restructuring techniques aimed at modifying irrational thoughts that can affect emotions in the postpartum period (Marsay et al., 2017). Participants were instructed to focus on their strengths and reminded to value themselves when they have overcome negative thoughts. Session 4 focuses on teaching problem-solving strategies and decision-making skills to address problems in child care and common neonatal problems, as well as discussing problem-solving principles, including problem definition, goal setting, alternative solutions, decision making, and evaluation. And emphasizes setting concrete and realistic goals to achieve, especially for the role of mother. In the last session, session 5, it discussed the role of interpersonal conflict on emotions and managing interpersonal conflict using self-disclosure, problem solving and negotiation skills (López-Morales et al., 2020).

In the control group, standard postpartum care was given including hospitalization in Hong Kong Hospital for 48 hours for women who gave birth normally and 72 hours for women who gave birth by Sectio Caesarea. Notified to make a visit for 6 weeks postpartum at a Hong Kong Hospital or visit a maternal and child health service facility (Ayaz et al., 2020; Forder et al., 2020; Wu et al., 2020).

Results showed that in the subgroup of women with mild depression, the between-group contrast analysis showed that depressive symptom scores were significantly lower in the intervention group than in the control group at 6 weeks postpartum (mean difference in EPDS score = 1.90, 95% CI: 0.72). -3.08; $p = 0.002$, $d = 0.36$) and at 6 months (mean difference in EPDS score = 1.20, 95% CI: 0.09–2.32; $p = 0.034$, $d = 0.25$).

In the subgroup of women with major depression, depressive symptom scores were significantly lower in the intervention than in the control group at 6 weeks postpartum (difference in mean EPDS score = 5.00, 95% CI: 3.12–6.88; $p < 0.001$, $d = 0.95$), but the difference was not significant at 6 months (mean difference in EPDS score = 1.69, 95% CI: 0.10–3.47; $p = 0.064$). The proportion of women meeting the definition of postnatal depression was significantly lower in the intervention group at 6 weeks (difference = 23.3%, 95% CI: 13.7–33.0%; $p < 0.001$) and 6 months postpartum (difference = 11.4%, 95% CI: 1.9–2.0%; $p = 0.019$) (Ngai et al., 2015a).

iBA (internet Behavioral Activation)

The incidence of depression is relatively high, but there are still a few mothers who suffer from postpartum depression who seek help from health workers. As time goes on, the internet can become a forum for increasing timely access to treatment. A study conducted in England among 343 postpartum mothers who were recruited through advertisements on the "Netmums Prenting Website" (<http://www.netmums.com>) website, with an EPDS score more than 12.

Participants were randomized into 2 groups, namely 181 in the intervention group (iBA) and 162 in the Treatment-As-Usual (TAU) control group. This research lasted for 15 weeks with 11 sessions and each session can be completed within 40 minutes (Bauer et al., 2016; Hamazaki et al., 2018a). Each session is available in multimedia and presentations, participants are sent weekly reminder emails that include links to online materials and "homework". The contents of the session are provided in the table as follows: (1) Introduction, (2) Understanding the relationship between activity and feelings, (3) "How do I get here?" Identification of pitfalls, (4) "Help! I want to be better!" Footprint: get out of depression, (5) Take action: get changes in your life, (6) When faced with difficulties, what to do, (7) Get equal rights. Being a mother and a human being, (8) Do not leave alone: get the support you need, (9) Mother's friend: build a lifeline, (10) Clinging thoughts: what to do with the mind, (11) The best strategy for a good life.

Participants can open sessions more than once, also have access to a special chat room moderated by parent supporters and supervised by specialist health visitors. Participants can also choose to access "weekly online real-time clinics. participants participating in these clinics received online "real-time" responses to questions about treatment materials and advice on how to complete homework assignments (eg, clarifying therapeutic concepts) from either specialist health visitors or clinical psychologists. The online clinic's responses to women's questions are idiographic and not manual. Women's posts and responses are stored electronically. The use of chat rooms and online clinics is used as a training tool to measure treatment ability (Fanti et al., 2022; Goodman et al., 2014).

The results showed that there was a significant difference between the groups that counted as non-depressed (EPDS<12) at 15 weeks in the Postnatal-iBA group (n=115/181; 63%) compared to TAU (n=71/162; 43.8%, p<.001) with an OR of 2.16 (95% CI 1.38, 3.37). when nonresponders at 15 weeks follow-up were counted as depressed, more in iBA (n=115/462) were not depressed (EPDS≤12) than in TAU (n=71/448; 2 4.9% vs 15.9%, p=. 001) with OR 1.78 (95% CI 1.28, 2.49) (O'Mahen et al., 2013).

CBT (Cognitive Behavioral Therapy) App-Based

Application-based Cognitive Behavioral Therapy (CBT) is known to be an effective strategy in reducing postpartum depression. In line with a study conducted in Iran, 75 postpartum women who experienced postpartum depression (EPDS score 13) were divided into 2 groups, namely 38 in the intervention group (using the happy mom application) and 37 in the control group (no access to mobile applications).

The procedure for this research is to use a mobile application, this application has 8 lessons that must be done for 8 weeks. These lessons read like a story book, and participants follow the stories of women who are in a similar situation and suffer from PPD, through their stories, participants learn how they can manage their symptoms, and these principles can then be applied to participants' lives itself. To study and complete each lesson, it takes 40-60 minutes. At the end of each lesson session the participants are given assignments related to the lesson they have learned. After following 8 lessons, the EPDS score will be reassessed.

The content of each lesson session is as follows: session 1): contains an introduction to the program and setting goals: in this session, the mothers get an explanation about PPD and get to know what the program contains. Session 2): start activating: during this session mothers can set goals that they will work on during the treatment program. Session 3): emotional recognition: during this session, mothers can see the relationship between their thoughts and feelings and how they feel and behave. Session 4): Paying attention to thoughts: in this session, mothers see how their thinking can become distorted when they are depressed (Hamazaki et al., 2018b; Marsay et al., 2017). Session 5): challenging thoughts: during this session, mothers learn how to challenge and change any unhelpful thoughts they may have. Session 6): Troubleshooting; In these sessions, mothers, learn about new techniques for solving and dealing with their problems and changing unhelpful beliefs to feel better. Session 7): Improving social skills: Mothers receive social skills training during this part of the training program, including interpersonal engagement, building and maintaining friendships (Milgrom et al., 2015). Session 8): Relapse prevention: mothers can set goals for their future life and make personal action plans.

The results showed that before the intervention, the mean EPDS scores of mothers in the intervention and control groups were 17.42 ± 2.8 (range: 13-23) and 17.39 ± 2.2 (range: 9-21), and their depression was considered moderate. After 2 months, in the control group, the EPDS scores of 27 mothers decreased, while the EPDS scores of 4 mothers increased and the EPDS scores of 6 mothers did not change. However, the EPDS scores of all mothers in the intervention group decreased. Thus, the mean EPDS scores of the intervention and control groups were 8.18 ± 1.5 (range: 6-11) and 15.05 ± 2.9 (range: 9-21) which were statistically significant (p-value ; 0.001) (Jannati et al., 2020b).

Psikoedukasi

Psychoeducation has been proven to reduce EPDS scores in mothers 1-3 days postpartum in Singapore. The Randomized Controlled Trial (RCT) conducted by Shorey et al (2015), involved 122 mothers who were divided into 2 groups, namely 61 mothers in the intervention group and 61 mothers in the control group. There are several indicators that were measured in this study, namely Maternal Parental Self-efficacy (MPSE), social support, and Post Natal Depression (PND) or EPDS. These indicators were measured at the beginning of the study as baseline values, then evaluated at the 6th and 12th week after delivery.

The control group was given routine care as usual by nurses and midwives at the hospital, and repeat visits with doctors in weeks 1-6 after giving birth. The services provided include basic information on baby care while in the hospital, examination of postnatal wounds, and education on breastfeeding during return visits. Home visits were not conducted in this group.

In the intervention group, postnatal psychoeducation programs and routine care were given. The psychoeducation program includes 3 main activities, namely face-to-face meetings for 90 minutes

during home visits, handing out pocket books as a mother's guide and three telephone contacts as follow-ups. Face-to-face activities are carried out by midwives on days 5-14 postpartum with home visits for 90 minutes (Jannati et al., 2020a; Ngai et al., 2015b). The midwife explained several topics including the physical and psychological changes of the mother after giving birth, the importance of family dynamics, increasing self-efficacy, and behavior seeking help. Family and loved ones are encouraged to participate in this education session, so they will also understand the needs of mothers. After the education session with home visits, mothers were given manuals to reinforce what was taught during the face-to-face sessions. The guidebook contains a summary of the material presented face-to-face. Follow-up interventions were then carried out by telephone three times until the 6th week postpartum, with a duration of 30 minutes for each call. During each telephone session, explore any doubts, questions, and needs of the mother. Mothers are encouraged to continue reading the manual.

In the 6th and 12th weeks, an evaluation of the three indicators, including the EPDS, was carried out. The average EPDS score of mothers in the intervention group decreased significantly, 8.7 at the time before the intervention, 6.8 at week 6 and fell again to 3.7 at week 12. In the control group, the average EPDS value of mothers increased from 7.7 at initial value, to 10.6 at week 6, and decreased to 8.9 at week 12 (Shorey, Chan, Chong, et al., 2015).

At other times qualitative research has been conducted to examine primiparous perceptions of the content, delivery and personal impact of postnatal psychoeducation programmes. The results showed that the participants faced many challenges such as negative emotions and difficulties in breastfeeding and support problems in the early postpartum period, especially after leaving the hospital. However, all participants in the intervention group found the postnatal psychoeducation program helpful in increasing their confidence in newborn care, encouraging help-seeking behavior, enhancing emotional well-being and increasing their knowledge about newborn and self-care and breastfeeding. Overall, there is high satisfaction and acceptance with the program (Shorey, Chan, Chi, et al., 2015).

4. Conclusion

Based on the results of the literature review, it was found that 6 interventions that match the inclusion criteria are known to be used as an effort to reduce depressive symptoms in postpartum women, namely Exercise (exercise), Psychological Intervention, Telephone-based Cognitive Behavioral Therapy (CBT), iBA (Internet Behavioral Activation), Application-based Cognitive Behavioral Therapy (CBT), and psychoeducation for postpartum mothers. In this study, samples were taken by looking at EPDS scores ranging from 10-13 according to the inclusion criteria applied by each researcher. From the several articles used as a literature review, it was found that several articles did not include interventions that were given in more detail including the time and steps of the intervention. Some of the interventions found in the literature review are expected to be a reference in efforts to treat postpartum depression in postpartum women.

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