Effectiveness of Cognitive Behavioral Therapy for Post-partum Depression in Low and Middle-Income Countries: A Systematic Review

Abstract

Background: Post-partum depression (PPD) is a prevalent psychological condition affecting 10-20% of women following childbirth, with higher rates in low and middle-income countries (LMICs) due to limited resources, poor access to mental health care, and sociocultural stressors. Cognitive Behavioral Therapy (CBT) is an evidence-based intervention for treating PPD in high-income countries, but its effectiveness in LMICs remains underexplored.

Aim: This systematic review aims to synthesize evidence on CBT's effectiveness for post-partum women in LMICs, examine cultural and contextual factors, and provide recommendations for culturally-sensitive interventions.

Methods: Following PRISMA Statement 2020 guidelines, a systematic search was conducted in electronic databases such as PubMed, PsycINFO, and Web of Science to identify studies evaluating CBT's effectiveness for post-partum women in LMICs. A narrative synthesis was used to analyze and synthesize findings, considering the heterogeneity in study designs, populations, and outcome measures.

Results: The review included five studies, all of which reported a more significant decrease in Edinburgh Postnatal Depression Scale (EPDS) scores for the CBT intervention group compared to the control group. The studies varied in terms of populations, settings, and CBT delivery modes, with telephonic CBT, in-hospital CBT, and in-person CBT being utilized.

Conclusion: Preliminary evidence from this systematic review suggests that CBT may be effective in reducing depressive symptoms among post-partum women in LMICs. Further research is needed to strengthen the evidence base, refine intervention strategies, and develop more effective, accessible, and culturally-appropriate interventions for PPD in LMICs. Addressing these recommendations will contribute to better mental health outcomes for post-partum women and their families in developing countries.

Keywords: Postpartum; depression; CBT; psychiatry; LMIC; developing country

Comment [IG1]: Please revise. A systematic review should not be classified as preliminary evidence because it compiles multiple publications as its evidence base.

Introduction

Post-partum depression (PPD) is the most common psychological condition following childbirth, affecting approximately 10-20% of women during pregnancy or within the first 12

months post-partum(1). PPD is characterized by a range of emotional, behavioral, and cognitive symptoms, including persistent sadness, anxiety, irritability, and difficulty bonding with the newborn(2). If left untreated, PPD may have detrimental effects on the social and cognitive health of spouses, infants, and children, leading to long-term consequences for family well-being and child development(3).The prevalence of PPD is considerably higher in low and middle-income countries (LMICs) compared to high-income countries due to factors such as limited resources, poor access to mental health care, and various sociocultural stressors(4). As a result, there is an urgent need to identify and implement effective interventions to address PPD in these contexts, where the burden of the condition is disproportionately high.

Cognitive Behavioral Therapy (CBT) is a well-established, evidence-based psychological intervention that has demonstrated effectiveness in treating post-partum depression (PPD) in high-income countries (5).It is a structured, short-term therapeutic approach that aims to help individuals identify and modify maladaptive thought patterns and behaviors that contribute to emotional distress and psychological problems (6).By addressing these cognitive and behavioral factors, CBT can lead to significant improvements in emotional well-being and overall mental health.In the context of PPD, CBT typically involves working with the individual to recognize and challenge negative thoughts and beliefs associated with their experience of motherhood, relationships, and self-worth(7,8). Through a combination of psychoeducation, cognitive restructuring, and behavioral activation, women are encouraged to develop healthier and more balanced thought patterns and coping strategies, which can ultimately reduce depressive symptoms and enhance their ability to bond with their newborns(9).Despite the documented success of CBT in high-income countries, there is limited research exploring its effectiveness and adaptability for PPD in LMICs(10). This knowledge gap is particularly concerning given the higher prevalence of PPD in LMICs, where women often face additional challenges such as limited access to mental health care, inadequate social support, and unique sociocultural stressors.

Given the significant impact of PPD on maternal and child health, particularly in LMICs, the primary aim of this systematic review is to synthesize the existing evidence on the effectiveness of CBT for post-partum women in developing countries. The specific objectives of this review are to identify and analyze studies evaluating the effectiveness of CBT for PPD in

LMICs, to examine the cultural and contextual factors that may influence the effectiveness of CBT in LMICs, and to provide recommendations for the development of culturally-sensitive and contextually-appropriate CBT interventions for PPD in LMICs.By addressing these objectives, this systematic review will contribute to a better understanding of the potential benefits and challenges of implementing CBT for PPD in LMICs, ultimately informing the development of more effective and accessible mental health care interventions for this vulnerable population.

Methods

Adhering to PRISMA Statement 2020 guidelines(11), a systematic search was conducted to identify studies evaluating the effectiveness of CBT for post-partum women in LMICs. The search strategy included a combination of relevant keywords and MeSH terms such as cognitive-behavioral therapy,post-partum women,developing countries, and low and middle-income countries. Electronic databases, including PubMed, PsycINFO, and Web of Science, were searched from inception to April 13, 2023. Reference lists of eligible articles and relevant reviews were also screened to identify any additional studies.

Comment [IG2]: Please revise. Add search string used for one of database (such as Pubmed)

Two independent reviewers screened the titles and abstracts of identified articles for eligibility. The full texts of potentially eligible articles were then assessed to determine their inclusion in the review. Any discrepancies were resolved through discussion and consensus between the reviewers. The following information was extracted from each included study using a standardized data extraction form: author, year, country, study type, the primary mode of CBT delivery, sample size (interventional group and standard group), age (interventional group and standard group) as mean (SD), and Edinburgh Postnatal Depression Scale (EPDS) scores at follow-up compared to baseline (intervention group and control group).

Due to the heterogeneity in study designs, populations, and outcome measures, a narrative synthesis approach was employed to analyze and synthesize the findings. This method allowed for a more comprehensive understanding of the effectiveness of CBT in LMICs for post-partum women while taking into account the diverse contexts and characteristics of the included studies. The narrative synthesis was structured around the following themes: characteristics of the included studies, the primary mode of CBT delivery, and effects of CBT on EPDS scores at follow-up compared to baseline.

Results

The study selection process for this systematic review followed the PRISMA guidelines, intending to identify relevant literature on the effectiveness of CBT for post-partum women inLMICs. A total of 96 records were initially identified through database searches, with 37 from PubMed, 21 from PsycINFO, and 33 from Web of Science. Additionally, fivestudies were identified through other sources, such as reference lists of eligible articles and relevant reviews. After removing duplicates, 71 records remained for screening.

During the screening phase, titles and abstracts of the 71 records were carefully examined, leading to the exclusion of 51 records that did not meet the inclusion criteria. Consequently, 20 full-text articles were assessed for eligibility. After a thorough evaluation, 15 of these articles were excluded for reasons such as not being specific to LMICs, not evaluating CBT, or not targeting post-partum women. Ultimately, a total of 5 studies were deemed eligible and were included in this systematic review, providing valuable insights into the effectiveness of CBT for post-partum women in developing countries (**Figure 1**).

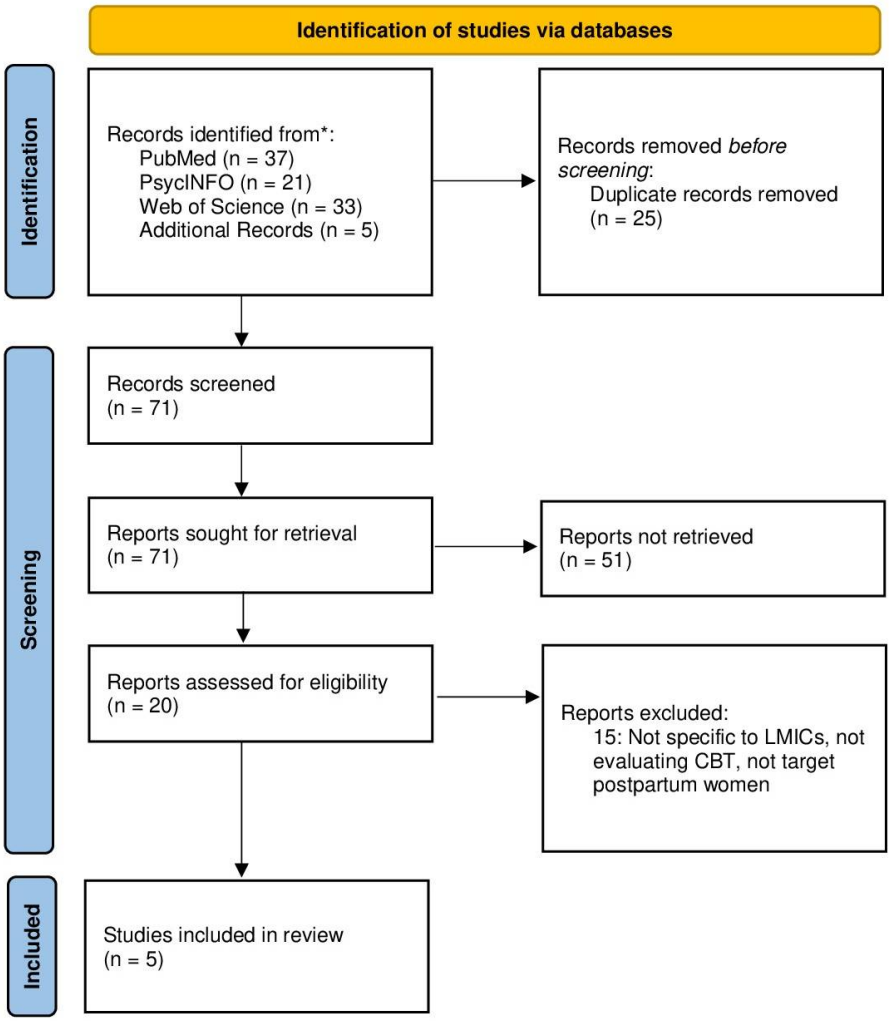

Figure 1. PRISMA flowchart depicting the study selection process.

Table 1 summarizes the findings from five distinct trials that examined the effects of Cognitive Behavioral Therapy (CBT) in various countries and through different modes of delivery. In a randomized controlled trial conducted by Chungu et al. (2017) in Zambia, telephonic CBT was administered to 32 participants, and the results showed a decrease of 6.69

points (SD=3.44) in EPDS scores compared to the control group's decrease of 3.97 points (SD=3.53). Similarly, Hou et al. (2014) conducted a controlled trial in China, where in-hospital CBT was provided, resulting in a decrease of 3.4 points (SD=1.9) in EPDS scores for the intervention group, compared to the control group's decrease of 1.5 points (SD=1.6).

Fathi-Ashtiani et al. (2015) performed a randomized controlled trial with in-hospital CBT in Iran. They observed a decrease of 4.28 points (SD=6.87) in EPDS scores for the intervention group as opposed to the control group's drop of 1.04 points (SD=5.81). Ngai et al. (2015) conducted another randomized controlled trial in China, where telephonic CBT led to a decrease of 4.14 points (SD=2) in EPDS scores for the intervention group and an increase of 0.96 points (SD=2.1) for the control group. Lastly, Hussain et al. (2017) implemented a randomized controlled trial in Pakistan with in-person CBT, resulting in a decrease of 5.6 points (SD=2.7) in EPDS scores for the intervention group and a reduction of 1.99 points (SD=3.08) for the control group.

All of the studies reported a more significant decrease in EPDS scores for the intervention group compared to the control group, highlighting the potential effectiveness of CBT in the respective populations.

Author	Year	Country	Study type	Primary mode of CBT delivery	N (interventional group)	N (standard group)	Age (interventional group) as mean (SD)	Age (standard group) as mean (SD)	EPDS scores at follow-up compared to baseline (intervention group)	EPDS scores at follow-up compared to baseline (control group)
Chungu et al.(12)	2017	Zambia	Randomized Controlled Trial	Telephonic	32	32	15-35		-6.69 (3.44)	-3.97 (3.53)
Hou et al.(13)	2014	China	Controlled trial	In-hospital	104	109	28(3)	28 (4)	-3.4 (1.9)	-1.5 (1.6)
Fathi-Ashtiani et al.(14)	2015	Iran	Randomized Controlled Trial	In-hospital	64	71	25(3.58)	26 (3.82)	-4.28 (6.87)	-1.04 (5.81)
Ngai et al.(15)	2015	China	Randomized Controlled Trial	Telephonic	197	200	31.1(3.8)	30.4 (4.4)	-4.14 (2)	0.96 (2.1)
Hussain et al.(16)	2017	Pakistan	Randomized Controlled Trial	In-person	123	124	28.20 (5.47)	27.26 (5.5)	-5.6 (2.7)	-1.99 (3.08)

Table 1. Characteristics of the included studies.

Comment [IG3]: Please revise. Table legend should be presented before table. Add one additional column for each study's conclusion.

Discussion

The findings of the five included studies in this systematic review suggest that Cognitive Behavioral Therapy (CBT) may be an effective intervention for reducing depressive symptoms among post-partum women in low and middle-income countries (LMICs). However, it is essential to discuss the studies' characteristics and outcomes in more detail to better understand the factors contributing to the intervention's effectiveness.

In the study by Chungu et al. (2017) in Zambia, telephonic CBT was used, and the intervention group showed a more substantial decrease in EPDS scores compared to the control group(12). This mode of delivery might be particularly beneficial in LMICs, where access to mental health care services can be limited. Telephonic CBT can overcome geographical barriers and reduce travel-related expenses for participants, potentially increasing the intervention's accessibility and affordability.

Hou et al. (2014) and Fathi-Ashtiani et al. (2015) both used in-hospital CBT in China and Iran, respectively(13,14). These studies also reported significant reductions in EPDS scores for the intervention group compared to the control group. Delivering CBT in a hospital setting might enhance the integration of mental health care into existing maternal health services, facilitating early identification and intervention for women at risk of post-partum depression.

The study by Ngai et al. (2015), conducted in China, employed telephonic CBT and demonstrated a decrease in EPDS scores for the intervention group(15). However, the control group's scores slightly increased, which might indicate that the standard care provided in the study setting was insufficient in addressing post-partum depression symptoms. This highlights the importance of evaluating and improving the quality of mental health care services available to post-partum women in LMICs.

Hussain et al. (2017) implemented a randomized controlled trial in Pakistan with in-person CBT, which significantly reduced EPDS scores for the intervention group compared to the control group(16). In-person CBT allows for more personalized and tailored interventions, taking into account each individual's unique needs and circumstances.

It is important to acknowledge the limitations of this review. The small number of included studies limits the generalizability of the findings. The heterogeneity in study designs, populations, and outcome measures precluded the use of meta-analysis, necessitating a narrative synthesis approach. The small sample sizes in some of the included studies might limit the power to detect significant differences between intervention and control groups. Furthermore, the studies included in this review varied in terms of intervention duration, therapist qualifications, and follow-up periods, making it challenging to compare the findings directly.

Based on the findings and limitations of this review, the following recommendations are proposed for future research and practice:

- Conduct more rigorous and well-powered studies to further establish the efficacy of CBT for post-partum depression in LMICs(17).
- Assess the long-term effects of CBT on post-partum depression, as well as potential impacts on maternal functioning, infant development, and family relationships(18).

- Investigate the cost-effectiveness of different modes of CBT delivery, such as telephonic, in-person, or group-based interventions, to inform resource allocation decisions in LMICs(19).
- Explore the cultural adaptation of CBT to ensure its acceptability, relevance, and effectiveness in various cultural and socio-economic contexts(20).
- Examine the potential role of non-specialist or community health workers in delivering CBT interventions, as a strategy to improve access to mental health care in resource-limited settings(21).

Conclusion

This systematic review provides preliminary evidence for the effectiveness of CBT in reducing depressive symptoms among post-partum women in LMICs. Despite the limitations, the findings have important implications for policymakers, clinicians, and researchers working to improve maternal mental health in developing countries. Further research is required to strengthen the evidence base, refine intervention strategies, and ultimately improve the mental health outcomes for post-partum women and their families in LMICs. By addressing the recommendations outlined above, the global health community can work towards developing and implementing more effective, accessible, and culturally-appropriate interventions for post-partum depression in LMICs.

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