Effectiveness of Peer-Administered Interventions for Perinatal Depression or Anxiety:

A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Arooba Mansoor, MSc; Jaslyn Drage, BSc; Madisyn Campbell, BSc; Kian Yousefi Kousha, MSc; Sawayra Owais, MD, PhD; Emma A. van Reekum, MD; and Ryan J. Van Lieshout, MD, PhD

Abstract

Objective: This meta-analysis assessed the effectiveness of peer-administered interventions for treating perinatal depression or anxiety and whether variations in intervention characteristics impacted their effectiveness.

Data Sources: Records were identified through MEDLINE, EMBASE, PsycINFO, CINAHL, and Web of Science until October 2024. We used terms related to the perinatal period, depression, anxiety, and peer support.

Study Selection and Data Extraction: We identified 5,700 articles, of which 19 were included and 18 were meta-analyzed. A total of 3,821 participants were included, with the majority from high-income countries. Studies involving a peer-administered intervention for perinatal depression or anxiety with a randomized controlled trial (RCT) design were eligible. Three intervention types were identified: peer-delivered psychotherapies, individual peer support, and peer discussion groups.

Results: Random-effects meta-analyses suggested that peer-administered interventions were more effective at improving depression symptoms than standard care (standardized mean difference [SMD]: −0.35; 95% CI, −0.54 to −0.17). Peer-delivered psychotherapy had the largest effect sizes (SMD: −0.51; 95% CI, −0.79 to −0.24), followed by individual support (SMD: −0.30; 95% CI, −0.63 to 0.04) and discussion groups (SMD: −0.09; 95% CI, −0.42 to 0.25). Subgroup analyses suggest that group interventions may lead to the greatest improvement. On the whole, peer-administered interventions were not effective for anxiety (SMD: −0.25; 95% CI, −0.57 to 0.08), but peer-delivered psychotherapies specifically improved anxiety symptoms (SMD: −0.63; 95% CI, −0.95 to −0.31).

Conclusions: Peer-administered interventions are effective at improving perinatal depression, with peer-delivered psychotherapies being the most effective. Large-scale RCTs are needed to explore long-term effectiveness on perinatal depression and anxiety.

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Author affiliations are listed at the end of this article.

Depression and anxiety are among the most common mental health complications of the perinatal period, including pregnancy and the first postpartum year.[1–3] Both perinatal depression and anxiety can have profound negative effects for birthing parents and families, including the fear of childbirth, an increased risk of future depressive episodes, poorer parent-infant bonding and attachment, and emotional, behavioral, and cognitive problems in offspring.[4–6] Untreated cases are also associated with high economic costs for individuals and the health care system.[7]

Anxiety-related disorders are common during the perinatal period, affecting up to 20% of birthing parents.[8] These problems can include generalized anxiety disorder, panic disorder, obsessive-compulsive disorder, and specific phobias and are common on their own but also frequently comorbid with depression. Perinatal anxiety is associated with a range of adverse outcomes including impaired maternal functioning, difficulties with infant bonding, and more complications of pregnancy and delivery.[6] Perinatal anxiety has also received less research and clinical attention, with most existing studies focusing on treating perinatal depression, with anxiety measured as a secondary outcome.[6] Despite the high prevalence of perinatal depression and anxiety,[1,9] barriers such as stigma, lack of culturally sensitive care, cost of

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Clinical Points

- Peer-administered interventions have been recommended for perinatal depression and anxiety, but it is unclear whether structured psychotherapeutic treatments or informal support interventions delivered individually or in groups are more effective.
- Structured, evidence-based psychotherapies delivered by peers lead to the greatest improvement in perinatal depression and anxiety compared to individual peer support and peer discussion groups.
- Clinicians and policymakers should consider the individual needs and preferences of perinatal individuals when recommending interventions and treatments for perinatal depression or anxiety.

health care services, and long waitlists can impede receipt of treatment.[10] Clinical practice guidelines frequently recommend structured psychotherapies such as cognitive behavioral therapy (CBT) and interpersonal psychotherapy (IPT) as first-line psychological interventions.[11,12] However, health care systems can struggle to meet treatment needs in a timely manner.[10] In cases where expert-delivered psychotherapy is available, some birthing parents feel that health care providers (HCPs) do not understand the extent of their distress and may lack the time and experience to treat them.[13–15]

Task-sharing, the redistribution of work from experts to nonspecialist providers (NSPs)[16,17] like peers, has become increasingly common in both high-income countries (HICs)[18] and low- and middle-income countries (LMICs).[19] In the health care context, *peer* is a term that refers to lay individuals who have lived experience with a health condition or who share similar sociodemographic characteristics (eg, gender, age, language) with those being supported.[20,21] Task-sharing intervention delivery with these more widely available NSPs may help leverage the existing community resources and reduce the reliance on costly health care services offered by HCPs.[16] These interventions are also associated with high levels of patient satisfaction, as individuals often report feeling understood, supported, and validated by peers who have shared experiences.[22] Peers are typically recruited to address workforce gaps and often share similar sociodemographic backgrounds with participants.[23] In HICs, peers more often have lived experience with specific mental health challenges.[24] In both HIC and LMIC contexts, given the limited number of mental health care professionals, task-sharing the treatment of perinatal depression or anxiety with peers could have significant potential to increase treatment access and reduce costs.

Peer-administered interventions involve peers as NSPs and may be an effective alternative to HCP-delivered interventions while potentially addressing individuals' wishes to receive treatment from those with lived experience.[13,25] When asked about the most valued characteristics of NSPs, birthing parents mentioned that empathy, having lived experience, and strong communication skills were the most important.[26] Considering these factors, peers may be a particularly trustworthy, nonjudgmental, and empathic source of support. By sharing experiential knowledge, peers may also combat stigma, role-model recovery, and normalize symptoms, further increasing their motivation to seek treatment.[27–29]

In general population samples of adults, peer-administered interventions have proven effective at reducing depressive symptoms,[25,30,31] and trained paraprofessionals (eg, peers) may be as effective as professionals at treating depression in these groups.[25] However, peer-administered interventions based on evidence-based treatments (eg, CBT) have shown higher rates of improvement.[25,30]

A recent review on the effectiveness of peer-administered interventions for general population samples (ie, adults with depressive symptoms) identified 3 main types of interventions: (1) peer-delivered psychotherapies, (2) individual peer support, and (3) peer discussion groups.[30] Peer-delivered psychotherapies include structured interventions in which peers receive training to deliver psychotherapy (eg, CBT). Individual peer support refers to interventions where peers receive training to deliver one-on-one support to participants, with or without a manual. Peer discussion groups refer to unstructured support groups in which the content of the group discussion is flexible and determined by participants. Of these 3 types, interventions in which trained peers delivered psychotherapy were found to be more effective than support provided individually or through support groups.[30] However, the review has some limitations, as they only examined depression as an outcome of interest, and not anxiety. Although they included a few studies from the maternal population, the searches were conducted up to February 2021, and they did not include 6 perinatal studies conducted prior to 2021 in their review.

In the perinatal context, 2 recent reviews suggest that peer support interventions may be effective for perinatal depression,[32,33] but they have some limitations. First, the reviews only contain work located by searches up to July 2021. Second, they did not universally explore the sources of high heterogeneity in their results. Despite finding differences in the effectiveness of peer-delivered psychotherapies and peer discussion groups in general population samples, both reviews combined analyses for all types of peer-administered interventions in their meta-analyses, combining evidence-based psychotherapies (eg, CBT, IPT) and unstructured interventions. Meta-analyzing these disparate treatments together may have obscured differences in

their effectiveness, making it difficult for those with perinatal depression or anxiety, their HCPs, and policymakers to identify and prioritize the most effective treatments. Finally, although perinatal anxiety is common and debilitating, to our knowledge, no existing systematic review has examined the effects of peer-administered interventions on this outcome.

The primary aim of this review is to examine the effectiveness of peer-administered interventions on perinatal depression or anxiety symptoms, and a secondary aim is to compare the effectiveness of different types of peer-administered interventions.

METHODS

This systematic review and meta-analysis followed the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) 2020 Guidelines.[34] The study protocol was registered to PROSPERO (CRD42023481244).

Search Strategy

A systematic search of 5 electronic databases (MEDLINE, EMBASE, PsycINFO, CINAHL, and Web of Science) was conducted from their inceptions up to October 2024. Search strategies for all databases were developed in collaboration with a health sciences librarian. The search strategy combined 5 key concepts: pregnancy or the postpartum period, depression or anxiety, peer or peer support, group or individual, and interventions. Medical Subject Heading terms were used when applicable. Reference lists of relevant articles and systematic reviews were hand-searched using the ancestry approach for potentially eligible randomized controlled trials (RCTs) and cluster RCTs (cRCTs).

Inclusion Criteria

Studies were eligible if they were available or translated in English and used a RCT or cRCT design. Studies conducted in all countries were included. Participants were pregnant persons and postpartum parents who had given birth (defined as ≤12 months after childbirth) and were experiencing depression or anxiety. Peer-administered interventions aimed at improving symptoms of perinatal depression or anxiety and primarily delivered by peers with minimal support or no assistance from health care professionals were included. *Peers* referred to individuals with lived experience of depression or anxiety or individuals who shared similar sociodemographic characteristics with participants. Studies were included if professionals provided training to peers on intervention delivery or if they were present to observe/monitor the intervention. Only studies with control or comparison group(s) of standard care, waitlist control, or any non–peer-administered intervention (eg, HCP-delivered or pharmacologic) for depression or anxiety were included. This control group criterion was selected as this is a stronger study design, enabling us to more accurately estimate the intervention's effect size, and helping us to distinguish between the effect of the peer-administered intervention from spontaneous symptom improvement, placebo effects, or other external factors. Primary outcomes were perinatal depression or anxiety diagnoses or symptoms measured at postintervention using validated questionnaires, structured clinical interviews, or other self-report measures. Given the knowledge gaps, we examined the effectiveness of peer-administered interventions overall and separately for both depression and anxiety, and stratified outcomes by intervention type to better account for the high heterogeneity between peer-administered interventions. Interventions were classified into 3 types: peer-delivered psychotherapy, individual peer support, and peer discussion groups.[30] The outcomes were examined by stratifying studies based on the type of intervention (ie, peer-delivered psychotherapy, individual peer support, peer discussion groups) to help clarify which delivery models are most effective for improving perinatal depression or anxiety.

Exclusion Criteria

Studies were excluded if they were primarily led by mental health professionals (eg, clinicians, therapists, nurses, midwives) or if professionals played an active treatment role during sessions. Studies of interventions that did not have the primary objective of improving perinatal depression or anxiety were also excluded.

Selection Process and Data Extraction

Titles and abstracts were screened in duplicate according to predefined criteria by 3 independent reviewers (A.M., M.C., K.K.), and disagreements were resolved by consensus. Full-text articles were then reviewed for eligibility. Data on the author, country, study design, participants, intervention characteristics, and the mean and standard deviation (SD) values for primary outcomes (depression or anxiety) at postintervention were extracted from included studies. The data extraction form was pilot tested with 5 studies to ensure adequate data capture.

Risk of Bias

Risk of bias of included studies was assessed independently and in duplicate by 2 reviewers (A.M., J.D.) using the Cochrane risk of bias 2 tool for RCTs.[35] Five domains were assessed, including (1) the randomization process, (2) effect of assignment to intervention, (3) missing outcome data, (4) measurement of the outcome, and (5) selection of the reported result. Each domain was rated as high risk of bias (+), low risk of bias (–), or some concerns (?). Conflicts were resolved through discussion.

Data Analysis and Synthesis of Results

Random-effects meta-analyses were performed to determine the effectiveness of peer-administered interventions for depression and anxiety outcomes separately. Standardized mean differences (SMDs) with 95% confidence intervals (CI) were calculated using the Review Manager Web Version software[36] for intervention and control groups. Cohen *d* effect size cutoffs (small [0.2]; medium [0.5]; large [0.8]) were used.[37] Heterogeneity was assessed using the I^2 statistic and Cochrane *Q* test. I^2 statistic values of $I^2 < 25\%$ were considered low heterogeneity, an I^2 of 26%–74% was considered moderate, and $I^2 \geq 75\%$ was high.[38]

The subgroup analyses for depression included the type of intervention, peer depression status, pregnancy or postpartum, country of publication, and delivery method of intervention (group, individual, or combination of both). Subgroup analyses were also conducted to explain sources of high heterogeneity ($I^2 \geq 75\%$) and to investigate whether specific variables affected outcomes. Subgroup analyses for anxiety only included the type of intervention. Remaining analyses were not conducted due to an insufficient number of studies reporting anxiety outcomes.

Evidence Certainty

The Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) framework was used to assess the certainty in effect estimates for depression and anxiety outcomes. Assessments were performed independently by 2 reviewers (A.M., J.D.), and conflicts were resolved by a senior reviewer (E.v.R.). The evidence certainty started at high due to the inclusion of RCTs and could be downgraded for (1) risk of bias, (2) inconsistency, (3) indirectness, and (4) imprecision. To account for high heterogeneity between peer-administered interventions, the GRADE assessments for depression and anxiety were conducted separately for each type of intervention (ie, peer-delivered psychotherapy, individual peer support, peer discussion groups). Each outcome was assigned an overall certainty rating: very low, low, moderate, or high. The assessments were presented in a tabular form using GRADEPro software (Supplementary Tables 1 and 2).[39]

RESULTS

Search Results

Our search identified 9,166 potentially relevant articles with 5,700 remaining after the removal of duplicates. Then, 162 articles were retrieved for the full-text review, of which 19 articles met inclusion criteria.[40–58] Interrater agreement was high (Cohen $\kappa = 0.90$). Out of 19 total studies, 18 were eligible for meta-analysis (Figure 1, PRISMA). The remaining study was included in a narrative synthesis since mean and SD values for primary outcomes were not available.[53]

Characteristics of Included Studies

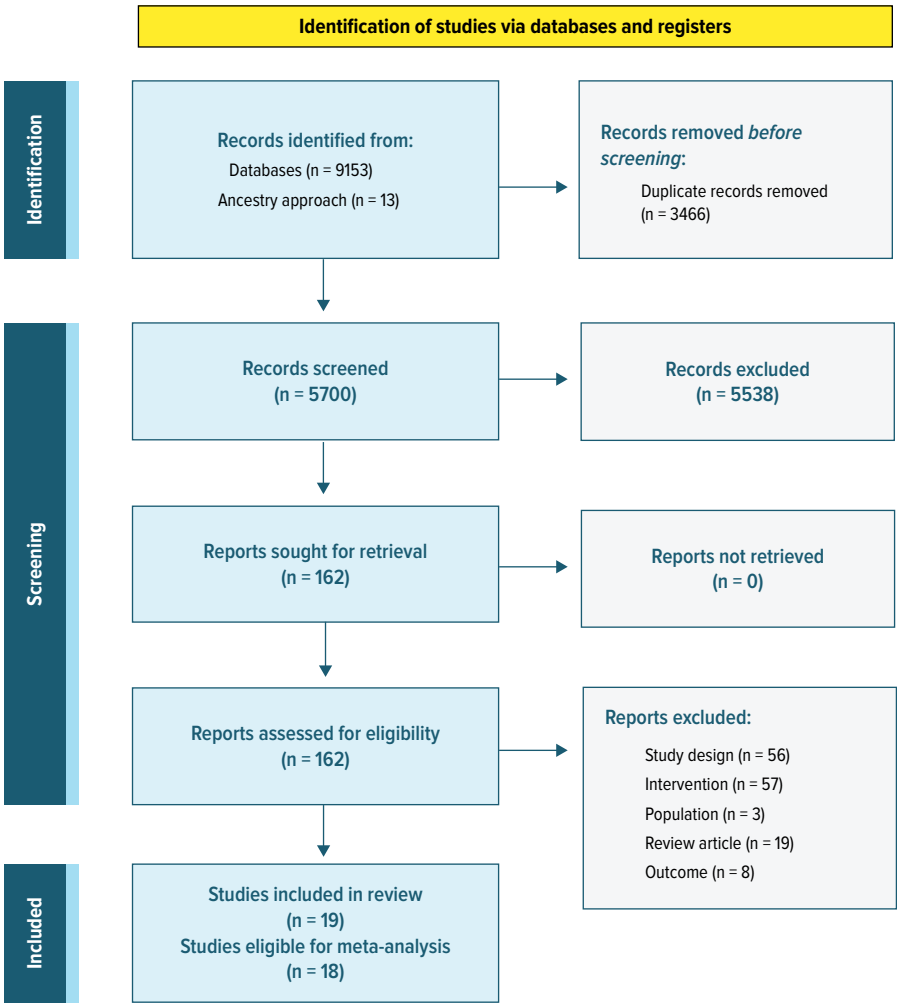
Eighteen studies were single or multisite RCTs, and 1 was a cRCT .[47] From these 19 studies, a total of 3,821 participants (1928 in the peer-administered intervention group and 1,893 in the control group) were included. Studies were conducted in 9 countries including Canada (k = 6), the United States (k = 5), India (k = 1), Pakistan (k = 2), Zimbabwe (k = 1), Tanzania (k = 1), Iran (k = 1), Singapore (k = 1), and Taiwan (k = 1).

All studies assessed depression as a primary outcome and used self-report questionnaires to assess depression, including the Edinburgh Postnatal Depression Scale (k = 12), Patient Health Questionnaire-9 (k = 5), Beck Depression Inventory (k = 1), and Center for Epidemiological Studies Depression (k = 1). Only 6 studies reported anxiety symptoms, and they used the Generalized Anxiety Disorder-7 scale (k = 3), State-Trait Anxiety Inventory (k = 2), and Prenatal Self-Evaluation Questionnaire-Short Form (k = 1).

Studies compared the effectiveness of peer-administered interventions to usual/standard care (k = 15), waitlist control (k = 3), or pharmacotherapy intervention (k = 1). The interventions included peer-delivered psychotherapies (k = 8), individual peer support (k = 7), and peer discussion groups (k = 4). Peer-delivered psychotherapy interventions were based on principles of CBT (k = 7) and problem-solving therapy (k = 1). The individual peer support interventions were all guided by a manual (k = 6), and peers were trained to provide various forms of social support via telephone (k = 4), home visits (k = 1), or technology (eg, mobile applications, email; k = 1). This included emotional support (eg, listening), informational support regarding perinatal mental health challenges, affirmational support (eg, words of encouragement), or practical support (eg, improving interaction with infant). Peers that were recruited to deliver the interventions were described as having lived experience with perinatal depression (k = 8) or sharing similar sociodemographic characteristics as participants with no required history of depression (k = 11). Peer facilitators received training ranging from 4 hours to 2 weeks. Only 2 studies reported financial compensation for peers (k = 2), and other studies recruited unpaid volunteers (k = 9) or did not report any financial compensation (k = 8). Interventions were initiated during pregnancy (k = 6) or postpartum (k = 13). The method of delivery included group-based (k = 9), individual (k = 8), and a combination of group/individual approaches (k = 2). Peer-delivered psychotherapies were delivered in a group (k = 6), individual (k = 1), or combination of group and individual (k = 1) formats. The summary and detailed characteristics of the included studies can be found in Table 1.

Figure 1.

PRISMA Flowchart of Randomized Controlled Trials Assessing the Effectiveness of Peer-Administered Interventions



Risk of Bias Assessment

For depression outcomes, 8 studies were judged as having high risk of bias overall (ie, having a high risk of bias in at least 1 domain), 9 studies were rated as having some concerns of bias (ie, having some concerns or low risk of bias for all domains), and the remaining 2 studies as low risk of bias (Supplementary Figure 1). For anxiety outcomes, 5 studies were judged as having high risk of bias overall, and 1 study had some concerns of bias (Supplementary Figure 2). Even though it is impossible in psychotherapy trials to blind participants to the treatment they are receiving, and the use of self-report measures is common, studies were most often at unclear of high risk of bias due to measurement of the outcome, as they used self-report measures and participants were aware of their assigned intervention, and due to missing outcome data.

Depression

A meta-analysis was conducted for 18 studies (n = 3,643) that assessed depression at postintervention. The results showed a statistically significant moderate effect size reduction in perinatal depression symptoms (SMD: −0.35; 95% CI, −0.54 to −0.17; $P = .0001$), suggesting that peer-administered interventions were more effective at reducing depression than control conditions. Subgroup analyses for depression were conducted since heterogeneity was high ($I^2 = 84\%$; $P < .00001$).

One study that did not provide meta-analyzable data examined the effectiveness of a home visiting program by peer mentors for Hispanic individuals and found that peer home visits were more effective for reducing depression than a psychoeducation intervention at 6 months postpartum.[53] These findings align with other included studies, suggesting that peer-administered interventions reduce depressive symptoms.

Table 1.

Summary of Characteristics

Author, year, country	Study design, sample	Participant characteristics/ eligibility	Peer characteristics, training	Intervention description	Control/comparison group	Review outcomes: 1. depression 2. anxiety	Assessment time points
Peer-delivered psychotherapies							
Amani et al,[40] 2022, Canada	Single-site RCT, PS: 27; WLC: 27	54 PP women, <18 y old, have an infant <12 mo, EPDS ≥10	10 women with recovery from PPD and below clinical cutoffs of BDI and GAD-7; 2 d of in-class instruction, 9-wk observership of intervention delivery by 2 experienced therapists, practice delivery in pairs	In-person, peer-led group CBT-based intervention. Sessions were 2 h (1 h didactic teaching of CBT skills and 1 h of unstructured discussion) and held every week, 9 wk total	WLC, received intervention after 9-wk delay	1. Yes (EPDS) 2. Yes (GAD-7)	Baseline (upon enrollment; T1), 9 wk (T2), and 6 mo later (T3)
Babiy et al,[41] 2024, Canada	Pre-post RCT, PS: 202; TAU: 203	405 PP women, living in Ontario, <18 y old, have an infant <12 mo, EPDS >10	5 mothers with experience of and recovery from PPD, below clinical cutoff for BDI-II and GAD-7; 2 d of classroom training and didactic teaching, mock workshop practice	Online peer-led group CBT-based intervention, 6 h workshop on 1 d	TAU	1. Yes (EPDS) 2. No	Baseline (upon enrollment; T1) and 9 wk later (T2)
Chibanda et al,[42] 2014, Zimbabwe	Multisite pilot RCT, PS: 30; PT: 29	58 women, 6–7 wk PP, >18 y old, attending postnatal clinic, EPDS ≥11	6 women living with HIV/AIDS currently providing community education, previous participation in program and had disclosed their HIV-positive status to partner or family member; 2-d training conducted by 2 psychiatrists	6 weekly sessions of structured group problem-solving therapy	Pharmacotherapy (received amitriptyline for depression treatment)	1. Yes (EPDS) 2. No	Baseline (T1) and 6 wk posttreatment (T2)
Fuhr et al,[43] 2019, India	Single-blind multisite RCT, PS: 140; EUC: 140	280 women in second or third trimester, >18 y old, PHQ-9 ≥10	26 lay-peers, middle-aged with children, similar sociodemographic background to participants; 25–40 h of interactive classroom training (discussion and roleplay), 2-mo internship to determine competency	Individually delivered CBT-based program in participants' homes for 6 mo	EUC from a gynecologist and information sheets	1. Yes (PHQ-9) 2. No	6 mo after childbirth (T1) and 3 mo PP (T2)
Kaaya et al,[44] 2022, Tanzania	Single-site RCT, PS: 395; EUC: 347	742 pregnant women, <30 wk gestation, living with HIV and depression, already attending study clinics	22 women with prior HIV-related group counseling experience; refresher course, 2 wk intensive training, and weekly supervision	In-person group support sessions on physical health and relationship building (2–3 h) and CBT content (1–1.5 h), 8 weekly sessions	Enhanced usual care for depression (1-d training for screening, diagnosis, and treatment for depression)	1. Yes (PHQ-9) 2. No	Baseline (during pregnancy; T1), 6 wk (T2) and 9-mo PP (T3)
Maselko et al,[45] 2020, Pakistan	Cluster RCT, PS: 283; EUC: 287	570 pregnant women in third trimester, >18 y old, PHQ-9 ≥10	Volunteer LHWs with similar sociodemographic background as participants and lived in the same community; 3 total training sessions (2 d each) with refresher trainings at 6 and 18 mo after initial training	Peer-led group sessions based on behavioral activation and problem solving, 18 sessions from 7 to 36 mo postnatal; first 6 sessions delivered monthly, then bimonthly until 36 mo	EUC	1. Yes (PHQ-9) 2. No	Baseline (T1), 3 mo (T2), 6 mo (T3), 12 mo (T4), 24 mo (T5), 36 mo (T6)

(continued)

Table 1 (continued).

Author, year, country	Study design, sample	Participant characteristics/ eligibility	Peer characteristics, training	Intervention description	Control/comparison group	Review outcomes: 1. depression 2. anxiety	Assessment time points
Merza et al,[46] 2023, Canada	Single-site RCT, PS: 92; WLC: 91	183 PP women, >18 y old, have an infant <12 mo, EPDS ≥10	5 mothers with experience of and recovery from PPD, below clinical cutoff for BDI-II and GAD-7; 3-d training program with didactic teaching, practice, roleplay, and observership	In-person, peer-led group CBT-based intervention, sessions were 2 h and held every week, 9 wk total; half of each session for CBT skills, half for unstructured discussion	WLC, received same intervention as PS group after 9-wk delay	1. Yes (EPDS) 2. Yes (GAD-7)	Baseline (upon enrollment; T1), 9 wk later (T2), and 6 mo later (PS group only; T3)
Sikander et al,[47] 2019, Pakistan	Single-blind multisite cluster RCT, PS: 283; EUC: 287	570 women in third trimester, >18 y old, registered with local LHWs	66 mothers (3 per cluster) who were married with children, 30–35 y old, good communication skills, similar socioeconomic and education background as participants; attended brief classroom training with regular supervision	10 individual and 4 group therapy sessions, along with EUC from the third trimester to 6 mo PP	EUC	1. Yes (PHQ-9) 2. No	3 mo (T1) and 6 mo (T2) PP
Individually delivered peer support							
Dennis et al,[48] 2003, Canada	RCT, PS: 20; TAU: 22	42 women between 8 and 12 wk PP, >18 y old, single birth at <37 wk gestation, EPDS ≥9	19 mothers with lived experience of and subsequent recovery from PPD; 4 h training with handbook for use during trial	Unstructured online phone-based PS. Participants could contact peer-volunteers as needed, duration of calls averaged 34.4 min (SD=20)	TAU	1. Yes (EPDS) 2. No	Baseline (at randomization, between 8 and 12 wk PP (T1), 4 wk (T2), and 8 wk later (T3)
Dennis et al,[49] 2009, Canada	Multisite RCT, PS: 349; TAU: 352	701 women screened at 2 wk PP, <18 y old, EPDS ≥9	201 (12–66 per region) mothers with self-reported history and recovery from PPD	Unstructured telephone-based PS, minimum 4 contacts with more as needed, average total of 8.8 contacts (SD=6.0), duration of calls averaged 14.1 min (SD=18.5)	TAU	1. Yes (EPDS) 2. Yes (STAI)	Baseline (at randomization, around 2 wk PP; T1), 12 wk (T2), and 24 wk later (T3)
Gjerdingen et al,[50] 2013, US	Pilot RCT, PS: 25; TAU: 14	39 mothers PP >16 y old, infant <6 mo, PHQ-9 ≥10	Mothers with lived experience and recovery from PPD; training not reported	Access to doula or unstructured PS and TAU. Doula support spans 6 wk and PS for 3 mo, with the doula offering 24 h over 6 wk and 4 h weekly, and the PS adapting to the preferences of the moms	TAU	1. Yes (PHQ-9) 2. No	Baseline (T1) and 6 mo later (T2)
Kamalifard et al,[51] 2013, Iran	Single-blind RCT, PS + TAU: 50; TAU: 50	100 primiparous pregnant women, between 18 and 35 y old, psychologist confirmed diagnosis for PPD risk, EPDS 11–23	17 mothers with birth experience (by cesarean section or natural) and breastfeeding, ability to read and write in Persian; two 4-h training sessions	Unstructured PS via phone calls in addition to TAU. Weekly calls from last 3 mo of pregnancy to 2 mo after delivery	TAU	1. Yes (EPDS) 2. No	Baseline (before intervention; T1), and 8 wk after delivery (T2)
Letourneau et al,[52] 2011, Canada	RCT, PS: 27; WLC: 30	57 women PP, infant <9 mo, single birth, EPDS ≥12	Mothers with at least 2 y recovery from PPD; 8 h classroom training with regular follow-up debriefs with health care professionals	PS and maternal–infant interaction intervention. 12 wk of home visits and phone calls	WLC, received 2 wk of peer support after a 12-wk waiting period	1. Yes (EPDS) 2. No	Baseline (at randomization; T1), 6 wk (T2), and 12 wk later (T3)

(continued)

Table 1 (continued).

Author, year, country	Study design, sample	Participant characteristics/ eligibility	Peer characteristics, training	Intervention description	Control/comparison group	Review outcomes: 1. depression 2. anxiety	Assessment time points
Lutenbacher et al,[53] 2018, US	Single-site RCT, PS: 94; EUC: 94	188 Hispanic pregnant women, <26 wk gestation, <18 y old	Women from target communities with shared race, culture, and language, with strong problem-solving and communication skills and familiarity with resources; 40 h of training on intervention	Individual PS visits in participant homes, focused on listening and educating on healthy pregnancies and PP. Visits were 1 h and took place once per month, starting at <26 wk gestation until 6 mo PP	Minimal education intervention that received the same printed educational material as the intervention group, but no peer visits	1. Yes (EPDS) 2. No	Baseline (at enrollment, ≤26 wk pregnant; T1), 35 wk pregnant (T2), 2 wk (T3), 2 mo (T4), and 6 mo PP (T5)
Shorey et al,[54] 2019, Singapore	Single-blind single-site RCT, PS: 69; TAU: 69	138 mothers at least 21 y old, ability to read/ speak English, own a mobile phone, planned to stay in Singapore for 3 mo PP, delivery of healthy baby, EPDS score ≥9	20 mothers, 21 y or older, ability to speak/ write in English, healthy infant at delivery, self-reported history and recovery from PPD, living in Singapore for 6 mo; half-day training with a psychiatrist + access to training booklet	Individually delivered technology-based PS for 4 wk	TAU	1. Yes (EPDS) 2. Yes (STAI)	1 mo (T1) and 3 mo PP (T2)
Peer discussion groups							
Chen et al,[55] 2000, Taiwan	Single-site RCT, PS: 30; Control: 30	PP women, 18 y or older, infant survived, minimum junior high school education, BDI ≥10	Support groups led by study participants, content of discussion determined by participants; a research coordinator was present to monitor/facilitate, but did not actively participate	4-wk unstructured support group, 1 session per week (1.5–2 h each), led by participants between 6 and 10 wk PP	Received no treatment	1. Yes (BDI) 2. No	Immediately before first session (T1) and immediately after final session (T2)
Field et al,[56] 2013, US	RCT, PS: 22; IPT: 22	44 pregnant women with only 1 child, 18–40 y old, SCID depression diagnosis, no obstetrical complications	Training not reported	12-wk unstructured support group, 1 session per week (20 min each), content of discussion was determined by participants	12-wk therapist-guided IPT group, 1 session per week (1 h each)	1. Yes (CES-D) 2. Yes (STAI)	
Mazzoni et al,[57] 2018, US	Multisite RCT, PS + IPC: 42; IPC: 42	84 pregnant women with type 2 or gestational diabetes (diagnosed with 2-step method at <32 wk gestation), English- or Spanish-speaking, ability to attend group visits at specified times	Pregnant women with gestational or type 2 diabetes; did not report training, intervention delivered with 1 peer and monitored by 1 obstetric provider	Group or IPC, every 2 wk or more until 37 wk gestation, then weekly until delivery, 10–20 minute sessions	IPC	1. Yes (EPDS) 2. No	Baseline (at randomization; T1), 38 wk gestation (T2), and 6–12 wk PP (T3)
Weis et al,[58] 2017, US	Repeated measures RCT, PS: 180; TAU: 187	367 mothers in first trimester, 18 y or older, and an active duty member or wife of a member of AAS	Mothers who are married to or were active members of AAS; formal training on rationale of intervention	Mentors Offering Maternal Support (MOMS): 16 wk of structured intervention, 8 biweekly sessions	TAU	1. Yes (EPDS) 2. Yes (PSEQ-SF)	First (upon enrollment; T1), second (21 wk at session 5; T2), and third trimester (30 wk at session 8; T3)

Abbreviations: AAS = American Armed Services, BDI-II = Beck Depression Inventory Second Edition, CES-D = Center for Epidemiological Studies Depression Scale, CIS-R = Clinical Interview Schedule–Revised, EUC = enhanced usual care, CBT = cognitive behavioral therapy, EPDS = Edinburgh Postnatal Depression Scale, GAD-7 = Generalized Anxiety Disorder Scale 7-item, IPC = individual prenatal care, IPT = Interpersonal Psychotherapy, K10 = Kessler-10 Item Scale, LHW = Lady Health Worker, MDD = major depressive disorder, PHQ-9 = Patient Health Questionnaire-9 Item, PP = postpartum, PPD = postpartum depression, PSEQ-SF = Prenatal Self-Evaluation Questionnaire-Short Form, PS = peer support, PT = pharmacotherapy, RCT = randomized controlled trial, SCID = Structured Clinical Interview for Depression, STAI = State-Trait Anxiety Inventory, TAU = treatment as usual, WLC = waitlist control.

Type of Peer-Administered Intervention. A subgroup analysis was conducted to examine the effect of the type of intervention (ie, peer-delivered psychotherapy, individual peer support, peer discussion groups) on depression. Peer-delivered psychotherapies had the largest effect size (k = 8; SMD: −0.51; 95% CI, −0.79 to −0.24) compared to control conditions. Individual peer support (k = 6; SMD: −0.30; 95% CI, −0.63 to 0.04) and peer discussion groups (k = 4; SMD: −0.09; 95% CI, −0.42 to 0.25) yielded smaller effect sizes that were not statistically significant.

Past Peer Depression. A subgroup analysis of 8 studies that involved intervention delivery by peers with lived experience of perinatal depression and 10 studies with intervention delivery by a peer with similar sociodemographic characteristics (but not identified lived experience) was conducted. Studies involving peers with lived experience included peer-delivered psychotherapies (k = 3), individual peer support (k = 4), and peer discussion groups (k = 1). Studies involving peers with similar characteristics also included peer-delivered psychotherapies (k = 5), individual peer support (k = 2), and peer discussion groups (k = 3). Interventions that engaged peers with lived experience (SMD: −0.43; 95% CI, −0.73 to −0.13) had larger effect sizes for depression than peers who did not (SMD: −0.30; 95% CI, −0.55 to −0.06), but the difference was not statistically significant.

Perinatal Period. Subgroup analyses for 18 studies examined whether the perinatal period (pregnancy or postpartum) during which the intervention was initiated impacted outcomes. Results show that interventions were effective for depression when initiated during the postpartum period (SMD: −0.35; 95% CI, −0.53 to −0.18), but not pregnancy (SMD: −0.29; 95% CI, −0.76 to 0.19).

Country. Studies were conducted in countries including Canada, the United States, India, Pakistan, Zimbabwe, Tanzania, Iran, Singapore, and Taiwan. A subgroup analysis for the country in which the included studies took place suggests that peer-administered interventions improved perinatal depression in both LMICs (SMD: −0.44; 95% CI, −0.77 to −0.12) and HICs (SMD: −0.30; 95% CI, −0.53 to −0.08).

Intervention Delivery Format. Results showed that interventions delivered in groups (SMD: −0.47; 95% CI, −0.77 to −0.18) or individually (SMD: −0.28; 95% CI, −0.54 to −0.03) improved perinatal depression. The group-based peer-administered interventions included peer-delivered psychotherapies (k = 6) and peer discussion groups (k = 3), whereas interventions delivered individually consisted of peer-delivered psychotherapies (k = 1) and individual peer support (k = 6). The remaining 2 studies included a combination of group and individual approaches.

Anxiety Symptoms

Interventions were not effective at reducing perinatal anxiety overall (SMD: −0.25; 95% CI, −0.57 to 0.08). Subgroup analyses for anxiety were conducted since heterogeneity was high ($I^2 = 86\%$; $P < .00001$) and statistically significant.

Type of Intervention. Peer-delivered psychotherapies (k = 3; SMD: −0.63; 95% CI, −0.95 to −0.31) reduced anxiety; however, individual peer support (k = 1; SMD: −0.14; 95% CI, −0.30 to 0.01) and peer discussion groups did not (k = 2; SMD: 0.28; 95% CI, 0.04–0.51).

Certainty of Evidence

The GRADE approach was used to rate the depression and anxiety outcomes for each type of peer-administered intervention. The certainty of evidence was presented in the following order: (1) peer-delivered psychotherapies, (2) individual peer support, and (3) peer discussion groups. For depression outcomes, the certainty was moderate, low, and very low, respectively (Supplementary Table 1). For anxiety outcomes, the certainty was high, moderate, and low, respectively (Supplementary Table 2).

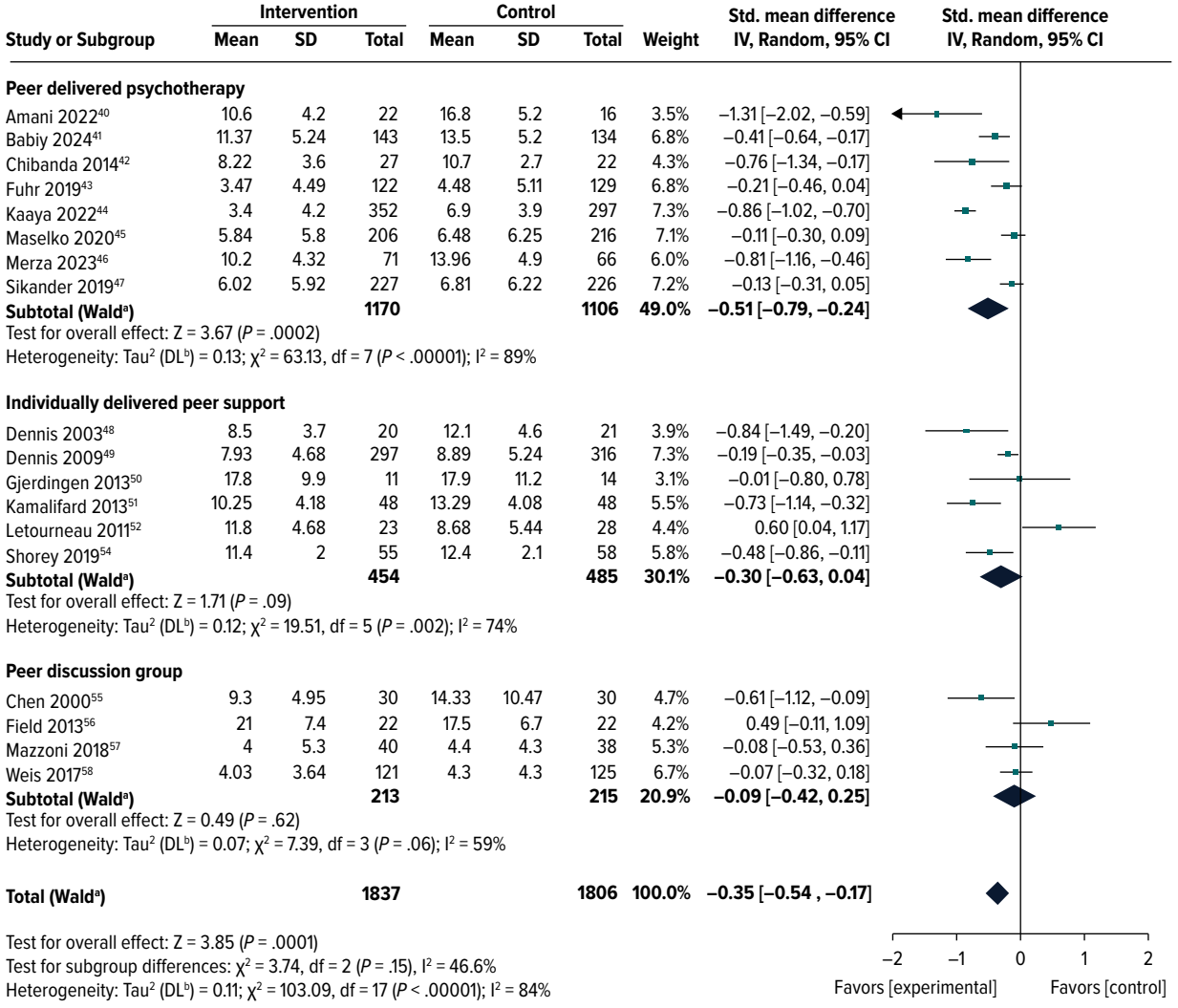
DISCUSSION

The present systematic review identified 19 RCTs that assessed the effectiveness of peer-administered interventions for perinatal depression or anxiety, 18 of which were meta-analyzed. Overall, we found that peer-administered interventions are more effective at improving perinatal depression than control conditions. Peer delivered psychotherapies were the most effective type of intervention. Group-based interventions delivered by peers with lived experience with perinatal depression may also result in larger improvements. Peer-delivered psychotherapies may be effective in reducing anxiety symptoms, with little evidence supporting other approaches.

The magnitude of improvement seen in peer-administered interventions for perinatal depression (SMD: −0.35; 95% CI, −0.54 to −0.17) was similar to previous perinatal reviews conducted in 2020 (SMD: −0.37; 95% CI, −0.66 to −0.08)[33] and 2022 (SMD: −0.39; 95% CI, −0.54 to −0.24).[32] These effects are moderate though consistent, suggesting the potential efficacy of peer-administered interventions for the perinatal population. The magnitude of these improvements is similar to interventions delivered by other NSPs (ie, nurses, midwives, community health workers) in HICs (SMD: −0.39; 95% CI, −0.54 to −0.24)[18] and LMICs (SMD: −0.38; 95% CI, −0.56 to −0.21).[19] Reviews of expert-delivered psychotherapy interventions suggest that they lead to statistically significant, moderate improvements in perinatal depression for CBT (Hedges *g:* 0.65; 95% CI,0.54–0.76, $P < .001$) [59] and IPT-based (Hedges *g:* 1.05; 95% CI, 0.7–2.04, $P < .05$) treatment interventions,[60] though peer-delivered psychotherapies in this review also led to improvements in the moderate effect size range (SMD: −0.51; 95% CI, −0.79 to −0.24).

Figure 2.

Effect of Peer-Administered Interventions (PAIs) on Perinatal Depressive Symptoms (PAI vs Control) at Postintervention

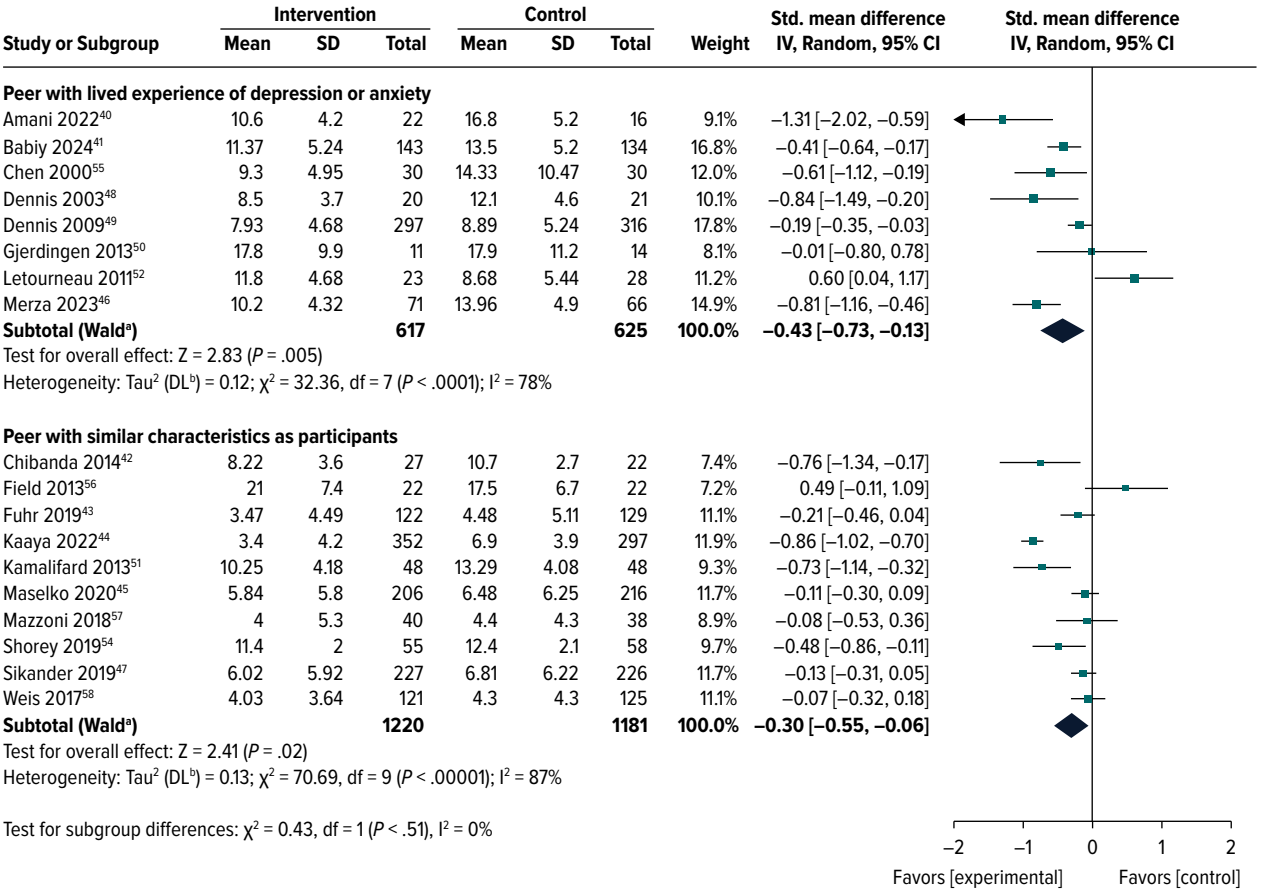


While the details on peer facilitator training and supervision were inconsistently reported across the peer-delivered psychotherapy studies, all of them involved a structured training program led by an expert,[40–47] and a few also mentioned psychotherapy supervision by a mental health professional.[40–42,44,46,47] Expert involvement in training or supervision may have improved intervention fidelity and clinical effectiveness, possibly contributing to the comparable moderate effect sizes with expert-delivered interventions. Additionally, the use of structured, manualized intervention protocols across both peer- and expert-led psychotherapy interventions could have enabled the delivery of core therapeutic components (eg, psychoeducation, behavioral activation) and help explain the similar magnitude of effects observed. Importantly, standardized approaches to peer facilitator training and measurement-based supervision have been developed in LMICs, and evidence suggests that peers can be trained to provide supervision and assess the quality of therapy delivery.[61] Future studies could draw on existing implementation processes for peer training and supervision,[16,62,63] which offer guidance to improve intervention fidelity, support the long-term sustainability of the peer workforce, and enhance the scalability of peer-administered interventions.

Given that not all peer-administered interventions may have the same effects on treating depression or anxiety, a significant contribution of this work is that it provides some of the first insights into the effectiveness of different types of peer-administered interventions on perinatal depression (Figure 2). The results suggest that peer-delivered psychotherapies had the largest effect sizes overall and moderate certainty of evidence. These findings align with previous reviews of peer-

Figure 3.

Effect of Peer-Administered Interventions (PAIs) on Perinatal Depressive Symptoms (PAI vs Control) at Postintervention According to Past Peer Depression



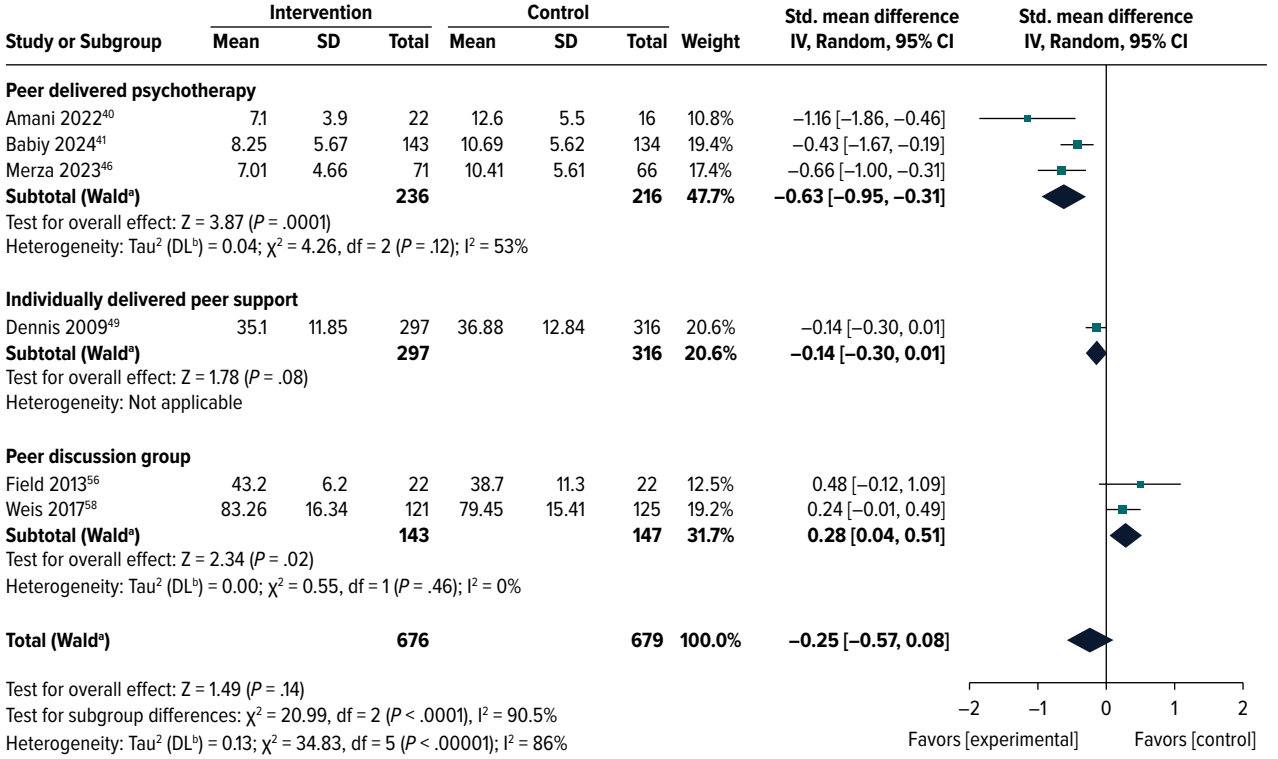
administered interventions in general population samples[25,30] suggesting that evidence-based interventions (eg, CBT) are more effective than primarily supportive ones. While individual peer support had a moderate effect size impact on perinatal depression, this was not statistically significant, and evidence certainty was low. Finally, peer discussion groups had a small, nonsignificant effect on depression with very low evidence certainty, suggesting that while these support groups may help provide some benefits like improved social support, they may not as positively impact clinical outcomes like depression or anxiety. However, there are relatively small numbers of trials of individual peer support and discussion groups. Future research should explore the effective ingredients of peer-administered interventions (eg, content, training, intensity, and structure) to help optimize the effectiveness of individual peer support and peer discussion groups.

Peer-administered interventions delivered by peers with lived experience had larger effect sizes than those who only shared similar demographic characteristics with participants. While there were not large numbers of studies, these findings suggest that there could be value in including those with lived experience in peer-delivered interventions (Figure 3). While all peers may provide an empathic and nonjudgmental perspective on common concerns in the perinatal period, recovered peers may have important lived experience and be perceived as effective role models for recovery. Those with perinatal depression or anxiety do report reduced feelings of loneliness and isolation, better familial relationships, and feel hopeful that others had recovered from similar struggles.[15,22] Peers with lived experience also feel empowered in their roles, allowing them to reflect on their own recovery and feel a sense of fulfillment as they support others.[64] Considering that peers are widely available and since many are eager to be involved in mental health care provision, implementing peer-administered interventions may help improve mental health workforce shortages[65] and present a cost-effective, scalable, and effective strategy to task-share perinatal mental health care delivery to increase treatment engagement and access.

Peer-administered interventions were effective in the postpartum period, but not in pregnancy. This aligns with

Figure 4.

Effect of Peer-Administered Interventions (PAIs) on Perinatal Anxiety Symptoms (PAI vs Control) at Postintervention



previous findings from Sockol[59] (2015) which found that interventions initiated in the postpartum period led to larger improvements compared to those in pregnancy. Furthermore, both group and individual intervention delivery were effective for perinatal depression. Although previous research has suggested that individual interventions may be more effective than groups,[59,66] a recent perinatal review suggests that both are beneficial.[32] The results also suggest that group-based interventions had a larger effect size than individually delivered interventions, but of 9 group-based interventions, 6 of them were peer-delivered psychotherapies (not individual peer support or peer discussion groups), potentially contributing to this finding. Group-based interventions can help increase social support, often providing opportunities for birthing parents to connect with one another, reduce stigma, normalize symptoms, and share effective coping strategies.[29,67] Beyond these psychosocial benefits, group interventions may be less resource-intensive and more cost-effective while increasing treatment access. However, there may be barriers to group delivery in both HIC and LMIC settings. For example, attendance may be impacted, particularly for in-person interventions, due to mobility challenges, lack of transportation, and caregiving responsibilities.[10,68] These limitations highlight the importance of the potential availability of flexible or alternative intervention formats (eg, home-based, digital) that would be most accessible for those in HICs or LMICs, if possible.

Subgroup analyses for anxiety revealed that peer-delivered psychotherapies were capable of leading to medium effect size improvements (Figure 4). It is important to note that only one of these interventions were designed to treat perinatal anxiety specifically,[58] and this finding is based on 3 CBT-based interventions from the same research group.[40,41,46] This may be because psychotherapies are more effective for anxiety than nonspecific support or discussion groups or because CBT is the most effective nonpharmacologic treatment for anxiety disorders in general population samples.[69,70] Given the high prevalence of perinatal anxiety problems, and the adverse effects it can have perinatally,[3] there is a substantial need for large-scale RCTs to provide more robust evidence regarding the efficacy of peer-administered interventions for perinatal anxiety.

Limitations

It is important to acknowledge the limitations in the present review. First, there were a relatively small number

of included RCTs. Only English language articles were included, though we did not locate studies that were not published in English. The RCTs were primarily focused on treating perinatal depression and not anxiety, which led to a limited number of studies included in the meta-analyses for perinatal anxiety. Subgroup analyses were conducted for depression outcomes to explore possible causes of high heterogeneity. Although the subgroup analysis for the type of peer-administered intervention reduced heterogeneity from high to moderate (84%–46.6%), some heterogeneity remained due to varying intervention characteristics (eg, content, peer training, intensity, structure) between studies. However, heterogeneity was high (>75%) overall in past reviews of peer-administered and nonspecialist-delivered interventions for perinatal depression as well.[18,19,32,33] Unfortunately, a meta-regression analysis for depression outcomes could not be conducted since the minimum criteria of 10 studies per subgroup analysis were not met.[38]

CONCLUSIONS

The results of this review provide additional, contemporary context on the types of peer-administered interventions that may be most effective for perinatal depression or anxiety. Incorporating peer-delivered interventions or support into treatment plans could enhance the effectiveness of interventions and improve outcomes. Clinicians and policymakers should consider the individual needs and preferences of parents when recommending such interventions and tailoring treatment approaches to address perinatal depression or anxiety. However, more research is needed to explore the durability and long-term effectiveness of peer-administered interventions for perinatal depression and anxiety, as well as other factors influencing treatment outcomes. Studies could also examine the feasibility of integrating peer support into existing perinatal services and community organizations and explore potential facilitators of and barriers to implementation (eg, training, resource constraints) in both HIC and LMIC settings.[68,71] Attention should also be directed at understanding the structural and administrative requirements for scaling peer-administered interventions such as developing standardized peer training, supervision, ensuring role clarity and fair compensation for peer facilitators, and integrating peer-administered interventions into existing care models.[71] Addressing these implementation needs will help ensure that evidence-based interventions can be sustainably delivered and made accessible to as many pregnant people and birthing parents as possible to improve the lives of them and their families.

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Author Affiliations: Neuroscience Graduate Program, McMaster University, Hamilton, Ontario, Canada (Mansoor, Kousha, Owais); Department of Psychiatry and Behavioral Neurosciences, McMaster University, Hamilton, Ontario, Canada (Drage, Campbell, van Reekum, Van Lieshout).

Corresponding Author: Arooba Mansoor, St. Joseph's Healthcare Hamilton, West 5th Campus, 100 West 5th St, Hamilton Ontario, Canada L9C 0E3 (mansoa30@mcmaster.ca).

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Supplementary Material

Article Title: Effectiveness of Peer-Administered Interventions for Perinatal Depression or Anxiety: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Authors: Arooba Mansoor, BSc; Jaslyn Drage, BSc; Madisyn Campbell, BSc; Kian Yousefi Kousha, BSc, MSc; Sawayra Owais, MSc, PhD; Emma A. van Reekum, MD; Ryan J. Van Lieshout, MD, PhD

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LIST OF SUPPLEMENTARY MATERIAL FOR THE ARTICLE

1. **Figure 1** Traffic Light Plot Presenting Risk of Bias for Studies Assessing Perinatal Depression
2. **Figure 2** Traffic Light Plot Presenting Risk of Bias for Studies Assessing Perinatal Anxiety
3. **Table 1** GRADE Assessment – Perinatal Depression Outcomes
4. **Table 2** GRADE Assessment – Perinatal Anxiety Outcomes

DISCLAIMER

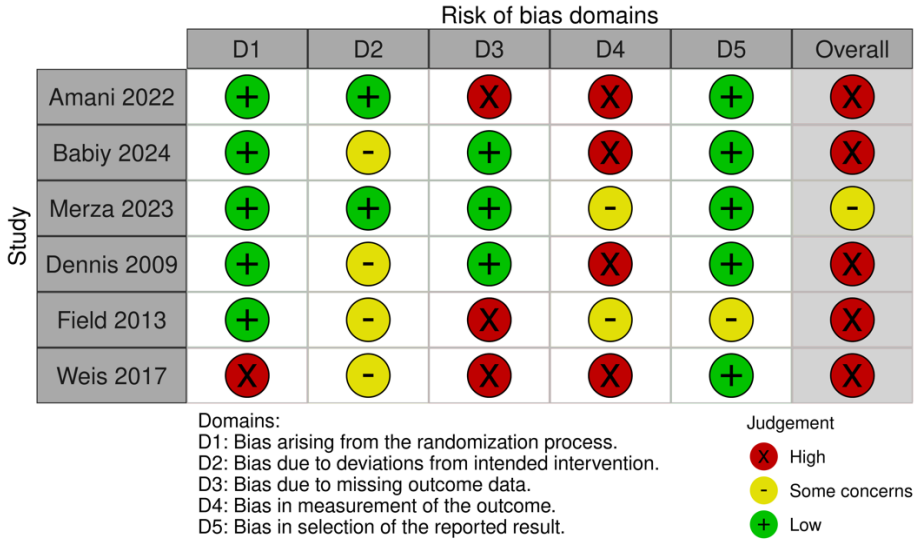
This Supplementary Material has been provided by the authors as an enhancement to the published article. It has been approved by peer review; however, it has undergone neither editing nor formatting by in-house editorial staff. The material is presented in the manner supplied by the author.

Supplemental Material – Effectiveness of PAIs for Perinatal Depression and/or Anxiety

Risk of Bias Summary for Perinatal Depression and Anxiety Outcomes

Supplementary Figure 1. Traffic light plot presenting risk of bias for studies assessing perinatal depression

Supplementary Figure 2. Traffic light plot presenting risk of bias for studies assessing perinatal anxiety



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Supplementary Table 1. GRADE Assessment – Perinatal Depression Outcomes

Question: Peer administered interventions (PAIs) compared to control for perinatal depression

Certainty assessment							№ of patients		Effect		Certainty	
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	peer administered interventions (PAIs)	control	Relative (95% CI)	Absolute (95% CI)		
Depression (peer delivered psychotherapy vs control)												
8	randomised trials	not serious[a]	serious[b]	not serious	not serious	none	1170	1106	-	SMD **0.51 SD lower** (0.79 lower to 0.24 lower)	⨁⨁⨁◯ Moderate[a,b]	
Depression (individual peer support vs control)												
6	randomised trials	not serious[a]	serious[c]	not serious	serious[d]	none	454	485	-	SMD **0.3 SD lower** (0.63 lower to 0.04 higher)	⨁⨁◯◯ Low[a,c,d]	
Depression (peer discussion groups vs control)												

Certainty assessment							№ of patients		Effect		Certainty	
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	peer administered interventions (PAIs)	control	Relative (95% CI)	Absolute (95% CI)		
4	randomised trials	serious[e]	serious[f]	not serious	very serious[g]	none	213	215	-	SMD **0.09 SD lower** (0.42 lower to 0.25 higher)	⊕◯◯◯ Very low[e,f,g]	

CI: confidence interval; **SMD:** standardized mean difference

Explanations

a. All studies were at a low risk of bias for randomization. Studies were most often at unclear or high risk of bias due to the measurement of the outcome domain, as they used self-report measures and participants were aware of their assigned intervention.

b. Heterogeneity was high overall (I^2 of 89%) for peer-delivered psychotherapies. Some clinical heterogeneity may be due to varying intervention characteristics (e.g., content, peer training, intensity, structure) between studies.

c. Heterogeneity was high overall (I^2 of 74%) for individual peer support. Some clinical heterogeneity may be due to varying intervention characteristics (e.g., content, peer training, intensity, structure) between studies.

d. The confidence interval (95% CI: -0.63, 0.04) overlaps the clinical threshold (i.e., SMD of 0.20) for benefit. Rated down for imprecision.

e. One out of four studies were at a high risk of bias for randomization. Studies were most often at unclear or high risk of bias due to the measurement of the outcome domain, as they used self-report measures and participants were aware of their assigned intervention.

f. Heterogeneity was moderate overall (I^2 of 59%) for peer discussion groups. Some clinical heterogeneity may be due to varying intervention characteristics (e.g., content, peer training, intensity, structure) between studies.

g. The confidence interval (95% CI: -0.42, 0.25) overlaps both clinical thresholds (i.e., SMD of 0.20) for benefit and harm, therefore rated down twice for imprecision.

Supplementary Table 2. GRADE Assessment – Perinatal Anxiety Outcomes

Question: Peer administered interventions (PAIs) compared to control for perinatal anxiety

Certainty assessment							№ of patients		Effect		Certainty
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	peer administered interventions (PAIs)	control	Relative (95% CI)	Absolute (95% CI)	
Anxiety (peer delivered psychotherapy vs control)											
3	randomised trials	not serious	not serious[a]	not serious	not serious	none	236	216	-	SMD **0.63 SD lower** (0.95 lower to 0.31 lower)	⊕⊕⊕⊕ High[a]
Anxiety (individual peer support vs control)											
1	randomised trials	not serious	not serious[a]	not serious	serious[b]	none	297	316	-	SMD **0.14 SD lower** (0.3 lower to 0.01 higher)	⊕⊕⊕◯ Moderate[a,b]
Anxiety (peer discussion groups vs control)											

Certainty assessment							№ of patients		Effect		Certainty
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	peer administered interventions (PAIs)	control	Relative (95% CI)	Absolute (95% CI)	
2	randomised trials	serious[c]	not serious[a]	not serious	serious[d]	none	143	147	-	SMD **0.28 SD higher** (0.04 higher to 0.51 higher)	⨁⨁◯◯ Low[a,c,d]

CI: confidence interval; **SMD:** standardized mean difference

Explanations

a. No significant heterogeneity between studies.

b. The confidence interval (95% CI: -0.30, 0.01) overlaps the clinical threshold (i.e., SMD of 0.20) for benefit. Rated down for imprecision.

c. One out of two studies were at a high risk of bias for randomization. Studies were most often at unclear or high risk of bias due to the measurement of the outcome domain, as they used self-report measures and participants were aware of their assigned intervention.

d. The confidence interval (95% CI: 0.04, 0.51) overlaps the clinical threshold (i.e., SMD of 0.20) for harm. Rated down for imprecision.