Review Paper

Effectiveness of Peer Education and Support Groups on Maternal Health: A Systematic Review of Antenatal and Postnatal Interventions

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ABSTRACT

Background: Maternal health outcomes are shaped not only by clinical care but also by social and psychological factors. Peer support interventions—where women with lived experience provide emotional, informational, and practical support—have increasingly been used during the antenatal and postnatal periods to address gaps in maternal care. This systematic review aimed to synthesize available evidence on peer support interventions for maternal mental health during pregnancy and the postpartum period, including outcomes, feasibility, delivery, and implementation characteristics across study designs.

Methods: This study was conducted as a systematic review, following the preferred reporting items for systematic reviews and meta-analyses (PRISMA) 2020 guidelines. A comprehensive search of PubMed, Scopus, Web of Science, CINAHL, and PsycINFO was performed for studies published between January 2000 and March 2025. Study selection and screening were managed using reference management software (Mendeley) for duplicate removal and record organization. Randomized controlled trials, quasi-experimental studies, and pilot studies evaluating peer-based interventions among pregnant or postpartum women were included. Risk of bias was assessed using the Cochrane risk of bias 2 (RoB2) and the Joanna Briggs Institute (JBI) checklist. Due to substantial heterogeneity, findings were synthesized narratively.

Results: We included 28 studies, including randomized trials, quasi-experiments, and pilot programs across diverse countries. Peer support consistently showed benefits in reducing postpartum depression (PPD), particularly in high-risk groups. Telephone- and community-based supports were notably effective, while technology-based approaches showed potential for broader reach. Effects on breastfeeding and service utilization were mixed but generally positive when peer models were culturally tailored.

Conclusion: Peer education and support group interventions offer a promising, flexible approach to supporting maternal health, particularly mental health, during the antenatal and postnatal periods. While evidence suggests potential benefits across multiple outcomes, heterogeneity in study designs and reporting underscores the need for more rigorously designed trials, standardized outcome measures, and greater attention to implementation and long-term effectiveness.

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Highlights

- Maternal health is strongly influenced by social and psychological support during pregnancy and the postpartum period.
- Peer education and peer support interventions have been increasingly used to complement formal maternal healthcare services.
- This systematic review synthesized evidence from 28 studies across diverse countries and healthcare settings.
- Peer support interventions were consistently effective in reducing PPD, particularly among high-risk women.
- Telephone-based and community-delivered peer support showed the strongest effects, while digital platforms showed promising reach and acceptability.

Plain Language Summary

Maternal health is not only affected by medical care, but also by emotional and social support during pregnancy and after childbirth. Many women experience stress, anxiety, or depression during this period, especially first-time mothers and those living in difficult social or economic conditions. Peer support programs aim to help by connecting pregnant or postpartum women with other mothers who have lived experience and can provide understanding, encouragement, and practical advice. In this systematic review, we examined results from 28 studies across countries to determine whether peer education and support groups improve maternal health outcomes. The findings show that peer support is especially helpful in reducing symptoms of postpartum depression (PPD) and improving women's emotional well-being. Some studies also reported positive effects on breastfeeding practices and the use of maternal health services, although these results were less consistent. Overall, peer support appears to be a valuable and accessible way to improve maternal mental health, particularly for women at higher risk of emotional difficulties. These programs may complement existing healthcare services and help create more supportive and responsive maternal care systems.

Introduction

Maternal health remains a cornerstone of global public health initiatives because it directly affects maternal and child survival and well-being (Anyanwu et al., 2024). Each year, hundreds of thousands of women experience preventable complications during pregnancy, childbirth, and the postnatal period, particularly in low- and middle-income countries (Goldenberg et al., 2018; McCauley et al., 2020). Beyond physical outcomes, maternal mental health has emerged as a significant contributor to the overall burden of disease in reproductive-age women, with conditions such as postpartum depression (PPD), anxiety, and parenting stress affecting millions of mothers worldwide (Ara et al., 2022; World Health Organization & Society, 2009). The World Health Organization (WHO) estimates that approximately 10–15% of women globally suffer from PPD, with the rate rising to 20% or more in low-resource settings (Wang et al., 2021; WHO, 2020).

Social support is a key determinant of positive maternal health outcomes, buffering stress, enhancing maternal self-efficacy, and promoting healthy behaviors such as breastfeeding and healthcare utilization (Bedaso et al., 2021). Among various support strategies, peer support interventions where emotional and informational assistance is provided by individuals with shared experiences have gained increasing recognition (Chang et al., 2022). These interventions can be delivered in diverse formats, including one-on-one peer mentoring, group-based education sessions, home visits, and technology-based platforms, such as mobile apps or social media networks (Katirayi et al., 2024; McKinney, 2023; Olvera & Pastrana, 2024; Yeasmin et al., 2021).

Numerous studies have demonstrated the potential benefits of peer support in maternal health, particularly in reducing the incidence and severity of PPD and enhancing perceived social support. Randomized controlled trials (RCTs) and community-based interventions have reported improvements in maternal mental health, increased breastfeeding duration, and better engagement

with antenatal and postnatal care services (Gebretsadik et al., 2025; Yoseph et al., 2024). For instance, research by Dennis in Canada has consistently shown that telephone-based peer support reduces depressive symptoms in new mothers (Dennis, 2014). Similarly, community-based programs in South Asia have shown that women's groups improve neonatal survival and maternal knowledge (Ariff et al., 2024). However, the literature remains mixed, with some large-scale trials reporting null effects, particularly on behavioral outcomes like breastfeeding, and with variation in effectiveness across settings, populations, and delivery formats.

Despite the growing number of peer support programs, consolidated evidence remains limited on which peer support approaches are most effective, for whom, and under what conditions. Existing reviews have often focused narrowly on digital interventions, specific outcomes (e.g. depression only), or high-income settings, limiting their generalizability (Lewkowitz et al., 2024). Moreover, few reviews have comprehensively synthesized antenatal and postnatal interventions across multiple regions and platforms.

Therefore, this systematic review aims to address this gap by synthesizing the available evidence on peer education and support group interventions for maternal health during the antenatal and postnatal periods. The review maps intervention outcomes related to maternal mental health, breastfeeding practices, healthcare utilization, social support, and other relevant maternal and infant health indicators, while also considering the feasibility, delivery formats, and implementation characteristics of these interventions across diverse settings. This synthesis aims to inform future program design, policy-making, and research on integrating peer support strategies into maternal health services globally.

Materials and Methods

Study design

This systematic review explores the effectiveness of peer education and support group interventions on maternal health outcomes during antenatal and postnatal periods. The review followed the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines to ensure transparency and methodological rigor (Page et al., 2021).

Search strategy

We conducted a comprehensive literature search across multiple databases, including PubMed, Scopus, Web of Science, CINAHL, and PsycINFO, covering publications from January 2000 to March 2025. The search strategy combined Medical Subject Headings (MeSH) and free-text terms related to "peer support," "maternal health," "antenatal," "postnatal," and "pregnancy." We used Boolean operators (AND, OR) to refine the search. Additional manual searches were conducted using the reference lists of relevant studies and reviews to ensure thorough inclusion. The full electronic search strategies for all databases are presented in Table 1.

Eligibility criteria

Studies were eligible for inclusion if they met the following criteria.

Population: pregnant or postpartum women (up to 12 months postpartum);

Table 1. Electronic search strategy used for each database

Database	Search terms and Boolean Operators
PubMed	("peer support" OR "peer education" OR "peer group*" OR "peer mentor*") AND ("maternal health" OR pregnancy OR antenatal OR prenatal OR postnatal OR postpartum)
Scopus	TITLE-ABS-KEY ("peer support" OR "peer education" OR "peer group*" OR "peer mentor*") AND TITLE-ABS-KEY ("maternal health" OR pregnancy OR antenatal OR prenatal OR postnatal OR postpartum)
Web of Science	TS=("peer support" OR "peer education" OR "peer group*" OR "peer mentor*") AND TS=("maternal health" OR pregnancy OR antenatal OR prenatal OR postnatal OR postpartum)
CINAHL	("peer support" OR "peer education" OR "peer group*" OR "peer mentor*") AND ("maternal health" OR pregnancy OR antenatal OR prenatal OR postnatal OR postpartum)
PsycINFO	("peer support" OR "peer education" OR "peer group*" OR "peer mentor*") AND ("maternal health" OR pregnancy OR antenatal OR prenatal OR postnatal OR postpartum)

Intervention: peer support or peer education interventions, including group-based sessions, telephone-based support, home visits, or digital/technology-based formats;

Comparator: routine care, no intervention, or alternative interventions (e.g. professional counseling);

Outcomes: maternal mental health outcomes (e.g. depression, anxiety), breastfeeding practices, maternal-infant interaction, healthcare service utilization, social support, or other relevant maternal or infant health indicators; Study design: randomized controlled trials, quasi-experimental studies, and other empirical study designs, including pilot studies, feasibility studies, and published study protocols, provided they described the structure, delivery, or implementation of a peer support intervention; language, english, publication type: peer-reviewed journal articles.

We intentionally included pilot studies, feasibility studies, and study protocols to synthesize evidence on intervention outcomes, delivery models, feasibility, and implementation characteristics of peer support interventions. We included studies without completed outcome data (e.g. protocols) only for descriptive synthesis.

Exclusion criteria included commentaries, editorials, conference abstracts, and studies that did not involve a peer-based intervention component.

Study selection

All identified records were imported into a reference manager, and duplicates were removed. Two independent reviewers screened titles and abstracts against the eligibility criteria. Full-text articles were retrieved and assessed independently. Disagreements between reviewers were resolved through discussion or consultation with a third reviewer.

Data extraction

Data from the included studies were extracted into a standardized table. Extracted data included: author(s) and year of publication, country, study design, sample size, target population, type and duration of peer support intervention, comparator(s), primary and secondary outcomes, tools used for measurement, and main findings. One reviewer extracted the data, and a second reviewer cross-checked it for accuracy.

Quality appraisal

Although not used as an exclusion criterion, the methodological quality of the included studies was assessed using appropriate critical appraisal tools. For randomized controlled trials, the Cochrane risk of bias 2 (RoB2) tool was applied. This risk of bias assessment was categorized into “low risk” (All domains were rated as low risk of bias); “some concerns” (at least one domain was rated as having some concern, and none was rated as high); “high risk” (one or more domains were rated as high risk, or multiple domains had some concern that substantially lowered confidence in the results). The methodological quality of non-randomized studies was assessed using the Joanna Briggs Institute (JBI) checklist for quasi-experimental studies. Studies with 7–9 ‘Yes’ responses were rated as low risk of bias, 4–6 as moderate, and 0–3 as high risk.

Data synthesis

Because study design, intervention characteristics, and outcome measures varied substantially, a meta-analysis was not feasible. Therefore, a narrative synthesis approach was used to summarize findings across studies. We performed subgroup synthesis based on intervention delivery type (e.g. technology-based, telephone, in-person), population risk profile (e.g. high-risk vs general population), and outcome categories (e.g. depression, breastfeeding, service utilization). A narrative subgroup synthesis was conducted to explore intervention patterns across different populations and delivery formats descriptively.

Results

The initial search of electronic databases yielded 10213 records. After removal of 2031 duplicates, 6376 unique articles were screened based on their titles and abstracts, of which 6294 records were excluded for not meeting the inclusion criteria. The remaining 82 full-text articles were assessed for eligibility. Following full-text review, 54 articles were excluded due to reasons such as unrelated outcomes, insufficient methodological detail, or lack of relevance to peer-based interventions.

Ultimately, 28 studies met the inclusion criteria and were included in the qualitative (narrative) synthesis. The study selection process is detailed in the PRISMA flow diagram (Figure 1).

Characteristics of eligible studies

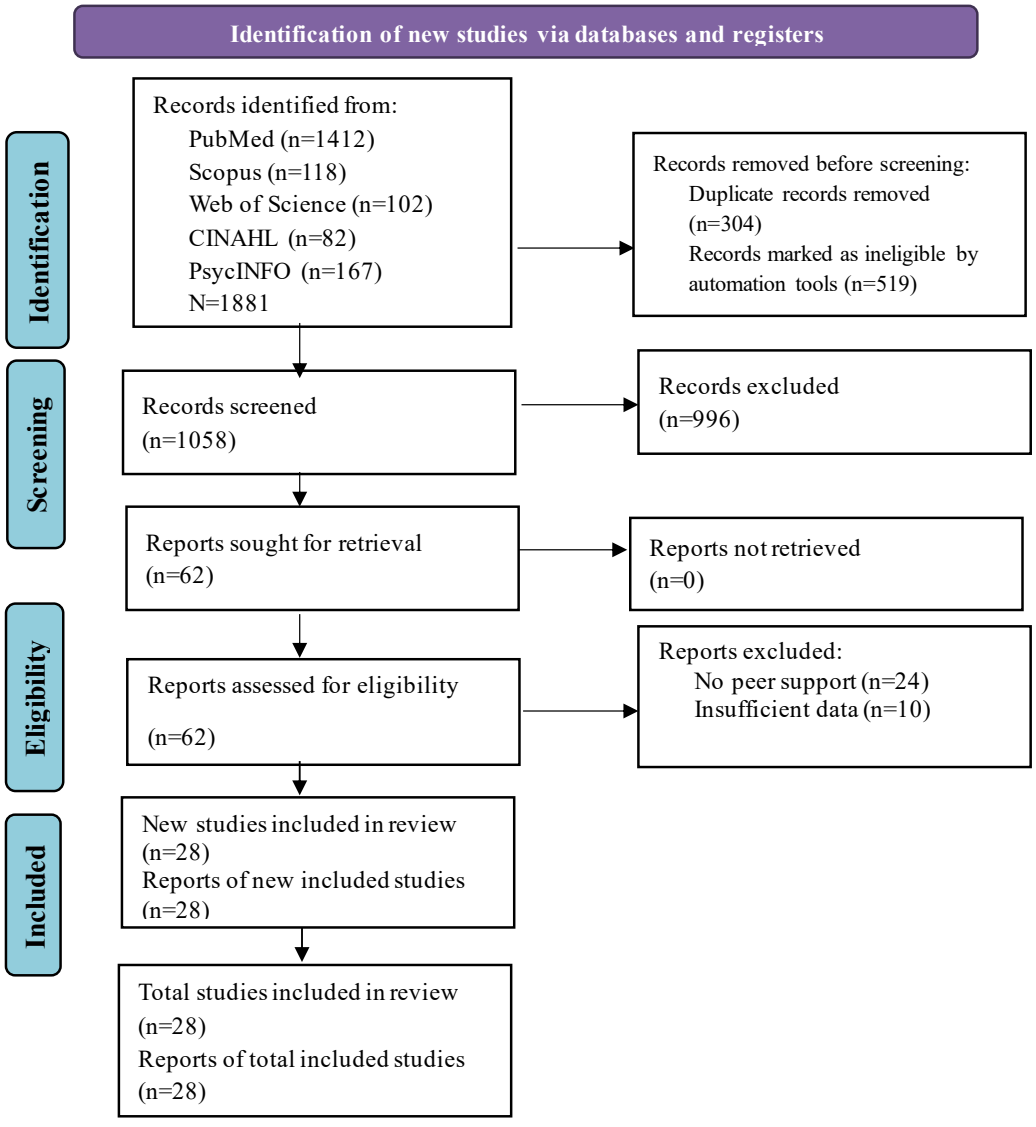

Figure 1. PRISMA flow diagram for study selection

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This review included 28 studies, spanning a wide geographical distribution and a variety of designs. The evidence synthesis is organized into key analytical categories derived from the extraction table: study design and setting, population characteristics, intervention types, comparators, outcome measures, and main findings (Table 2).

Study design and country settings

Of the 28 studies, 19 were randomized controlled trials (including pilot and cluster RCTs), while the remainder included feasibility studies, quasi-experimental designs, and protocol publications. The studies originated from diverse regions including Canada (n=7), the United Kingdom (n=3), the United States (n=4), Iran (n=2), India (n=3), China (n=2), Australia (n=2), Singapore (n=1), Pakistan (n=1), Taiwan (n=2), and Ghana (n=1), reflecting global interest in peer-based maternal health interventions across both high- and low-resource settings.

Population characteristics

Most studies focused on postpartum women, particularly those at high risk for PPD (Dennis et al., 2003; Letourneau et al., 2011). Several studies included pregnant women, either with depressive symptoms (Field et al., 2013; Carter et al., 2020) or broader community populations (Xiang et al., 2024; MacArthur et al., 2009). Several interventions targeted primiparous women (Ka-

malifard et al., 2013; Kamalifard et al., 2025) or first-time mothers (Law et al., 2021), recognizing this group's increased vulnerability.

Types of peer support interventions

Interventions were categorized based on delivery format. Telephone-based peer support, typically delivered by trained volunteers with lived maternal experience, was the most common modality (n=10). For example, in studies by Dennis et al. (2009) and Shorey et al. (2018), peer supporters provided scheduled telephone calls over several weeks postpartum, focusing on emotional support, problem-solving, and normalizing maternal experiences.

Technology-based peer support included mHealth apps, WhatsApp, and online forums (Shorey et al., 2018; Verma et al., 2024; Wu & Hung, 2019). Several studies used in-person peer groups (Chen et al., 2000; Jolly et al., 2012), while others used home visiting models (Lutenbacher et al., 2018). A few studies also explored culturally matched peer or couple-based models (Kuntagod et al., 2019; MacArthur et al., 2009).

Comparator conditions

In most trials, the comparator was standard or routine maternal care without structured peer involvement. In some pilot and feasibility studies, there was no formal control group (El Ayadi et al., 2022; Law et al., 2021), while others used minimal interventions or alternate supportive services such as doula care or interpersonal therapy (Gjerdingen et al., 2013; Field et al., 2013).

Main outcomes measured

PPD was the most commonly measured outcome, assessed using the Edinburgh postnatal depression scale (EPDS) in 13 studies. Results consistently showed lower depression scores in peer-supported groups in trials such as Dennis et al. (2009), Dennis (2003), Kamalifard et al. (2013), and Shafiei et al. (2024). Studies also measured anxiety and stress outcomes (Spielberger anxiety inventory, perceived stress scale), with significant reductions reported in studies such as Chen et al. (2000).

Breastfeeding outcomes were reported in 6 studies. Dennis et al. (2002) found significantly higher exclusive breastfeeding rates in the peer-supported group. In contrast, Jolly et al. (2012) and MacArthur et al. (2009) found no significant differences between groups at 6 weeks or 6 months.

Social support and maternal self-efficacy were assessed through qualitative reports or validated tools (e.g. ISEL [interpersonal support evaluation list], Rosenberg SES [self-esteem scale]), with most studies reporting perceived increases in support (El Ayadi et al., 2022; Letourneau et al., 2015).

Healthcare service utilization was reported in several studies from low- and middle-income countries. In rural China, Xiang et al. (2024) found that informal peer interaction was associated with increased prenatal screening and postpartum visits. Verma et al. (2024) similarly reported modest improvements in care-seeking and infant feeding practices through a community mHealth program.

A smaller subset of studies evaluated infant developmental outcomes, including cognitive and social development at follow-up (Maselko et al., 2020), showing positive trends aligned with maternal mental health gains.

Summary of main findings

Among the 28 studies, 24 reported at least one positive outcome favoring the intervention group. Statistically significant reductions in depressive symptoms were observed in 10 RCTs, including large-sample trials such as Dennis et al. (2009) and Maselko et al. (2020). Researchers also commonly reported improvements in social support, anxiety, and maternal-infant interaction.

However, 5 studies reported null or mixed findings. For example, Letourneau et al. (2011) found no improvement in interaction outcomes, and Jolly et al. (2012) found no difference in breastfeeding rates despite large sample sizes. These discrepancies may be linked to intervention fidelity, peer training, or the alignment between peer characteristics and participant needs.

Study quality assessment results

Methodological quality and risk of bias were assessed using design-specific appraisal tools, reflecting the heterogeneity of study designs included in this review. In total, 22 of the 28 included studies were eligible for formal risk-of-bias assessment, comprising 13 RCTs and 9 non-randomized intervention studies. The remaining studies were feasibility studies, pilot studies, or published protocols and were included only for descriptive synthesis.

We appraised 13 RCTs using RoB 2, and summarized the domain-level judgments in Figure 2. Overall, the in-

Table 2. Characteristics of the included studies

Author(s), Year	Country	Design	Population	Intervention	Comparator	Main Outcome(s)	Tool(s) Used	Main Findings
Kamalifard et al. (2013)	Iran	RCT	Primiparous women	Peer phone support from late pregnancy to 2 months postpartum	Routine care	PPD	EPDS	Intervention reduced depression scores significantly (10.25 vs 13.29 at 8 weeks, P<0.001)
El Ayadi et al. (2022)	India	Pilot intervention study	Postpartum women (1–3 months)	mHealth-based peer support + educational messages	None (pilot phase)	Feasibility, satisfaction, health behaviors	Qualitative, user reports	84% were very satisfied; social support enhanced despite technical barriers
Carter et al. (2020)	The UK	Feasibility RCT	Pregnant women with antenatal depression	6 peer support sessions (weekly)	Routine ANC	Antenatal depression symptoms	Whooley questions, interviews	Peer support seen as highly acceptable; reduced feelings of isolation
Chaput et al. (2023)	Canada	RCT	Pregnant women with antenatal depression	Behavioral activation + peer support (remote)	Standard care	Gestational age, depression, parenting self-efficacy	EPDS, follow-up questionnaires	Protocol only: hypothesis that peer support improves mental health and birth outcomes
Dennis et al. (2002)	Canada	RCT	Primiparous breastfeeding mothers	Telephone-based peer support after discharge	Routine care	Breastfeeding duration, satisfaction	Self-report, follow-up survey	Peer group: higher exclusive breastfeeding at 3 months (56.8% vs 40.3%, P=0.01)
Dennis (2003)	Canada	Pilot RCT	Mothers at high risk for PPD	Telephone-based peer support from recovered mothers	Routine postpartum care	PPD	EPDS	EPDS >12: 52.4% (control) vs 15% (intervention) at 8 weeks (P=0.01)
Dennis et al. (2009)	Canada	Multi-site RCT	Postpartum women (high-risk for PPD)	Telephone-based peer support	Routine postpartum care	PPD prevalence at 12 weeks	EPDS	PPD (EPDS >12): 25% (control) vs 14% (peer), number needed to treat (NNT)=8.8 (P<0.001)
Field et al. (2013)	The USA	RCT	Pregnant women with depression	Peer support vs IPT groups	Comparison IPT group	Depression, anxiety, cortisol	CES-D, STAI, cortisol levels	Both groups improved; cortisol drop larger in peer group
Gjerdingen et al. (2013)	The USA	Pilot RCT	Mothers with depressive symptoms	Peer phone support or postpartum doula	Routine care	Feasibility, depressive symptoms	Self-report scales	Peer support feasible, doulas rated higher satisfaction, no firm outcome effect yet
Jolly et al. (2012)	The UK	Cluster RCT	Pregnant & postpartum women	Peer support for breastfeeding continuation	Routine care	Breastfeeding rates at 6 weeks, 6 months	Questionnaire, routine records	No significant differences at 6 months; peer support had no added effect
Maselko et al. (2020)	Pakistan	Cluster RCT	Depressed and non-depressed pregnant women	Peer-delivered psychosocial group intervention + enhanced usual care	Enhanced usual care	Maternal depression, child development at 3 years	PHQ-9, child development measures	Reduced depression symptoms and improved child outcomes
Chen et al. (2000)	Taiwan	RCT	Postnatally distressed mothers	Weekly support group sessions	No intervention	Depression, stress, social support	BDI, PSS, ISEL	Significant improvements in intervention group

Author(s), Year	Country	Design	Population	Intervention	Comparator	Main Outcome(s)	Tool(s) Used	Main Findings
Dennis (2014)	Canada	RCT + process description	High-risk postpartum mothers	Telephone-based peer support by mothers with prior PPD	Routine care or none	Onset of PPD, satisfaction	EPDS	Effective at preventing PPD; well-accepted and replicable model
Kamalifard et al. (2025)	Iran	Single-blind RCT	Primiparous women	Weekly telephone peer support + routine care	Routine care	Anxiety, breastfeeding practices	Rosenberg SES, Spielberger Anxiety Inventory	Reduced state anxiety and improved breastfeeding continuation
Kuntagod et al. (2019)	India	Pilot community intervention	Young couples	Peer couple-to-couple approach (PCCA)	No formal comparator	Empowerment, maternal health indicators	Not specified	Promoted gender equity, improved maternal health behaviors
Law et al. (2021)	Australia	Feasibility study (non-RCT)	First-time mothers and peer mentors	Mummy buddy peer matching program	No control group	Stress, depression, maternal functioning	Not fully specified	High feasibility and satisfaction, maintained normal stress/depression levels
Letourneau et al. (2011)	Canada	RCT	Mothers with PPD	Home-based peer support + interaction teaching	Control (routine care)	Maternal-infant interaction, depression	Not specified	Control group fared better, peer-delivered teaching may not be effective
Letourneau et al. (2015)	Canada	Quasi-experimental	Mothers with depression up to 2 years postpartum	Telephone-based peer support	Pre-post within group	Depression, social support	EPDS or similar; social support scales	Depression declined significantly; social support improved
Lutenbacher et al. (2018)	The USA	RCT	Pregnant Hispanic women	Home visiting by trained peer mentors (MIHOW program)	Minimal education (printed materials)	Breastfeeding, depression, parenting stress	EPDS, PSI, breastfeeding/parenting scales	Significant improvement in depression, stress, breastfeeding outcomes
MacArthur et al. (2009)	The UK	Cluster RCT	Pregnant women in deprived, multiethnic area	Antenatal peer support by culturally similar volunteers	Standard ANC	Breastfeeding initiation	Hospital maternity records	No significant effect on breastfeeding initiation
Shorey et al. (2018)	Singapore	RCT, single-blinded, pre-post	Postnatal mothers at risk of PND	Tech-based peer support via calls, WhatsApp, email (4 weeks)	Standard postnatal care	PND symptoms, anxiety, loneliness, social support	EPDS, PHQ-9, STAI, UCLA loneliness scale, PSSP (perceived social support for parenting)	Peer support significantly reduced PND and anxiety at 3 months postpartum
Wu & Hung (2019)	Taiwan	Quasi-experimental, repeated measures	Pregnant women	Peer interaction in closed Facebook group (no mediator)	No virtual community	Depression, social support, pregnancy adaptation	EPDS, social support scale, pregnancy adaptation scale	Higher adherence in first-time and technology-assisted pregnancies; no significant group differences overall

Author(s), Year	Country	Design	Population	Intervention	Comparator	Main Outcome(s)	Tool(s) Used	Main Findings
Sun et al. (2018)	China	RCT	Women with fetal abnormalities requiring termination	Family-support program	Routine care	Family support, depression, PTSD symptoms	Family APGAR, EPDS, IES-R	Intervention group had higher family support, lower depression and PTSD symptoms
Verma et al. (2024)	India	Quasi-experimental pre-post pilot study	Postnatal mothers in Punjab	mHealth group sessions, WhatsApp chats, IVR, mobile app	Control arm (no structured intervention)	Knowledge of infant danger signs, feeding practices, healthcare use	Custom pre-post surveys	Group mHealth increased healthcare use and knowledge modestly; early breastfeeding initiation remained low
Xiang et al. (2024)	China	Cross-sectional with PSM	Rural postpartum women in NW China	Peer interaction (informal support)	No or limited peer interaction	Maternal health service utilization	Self-report surveys	Peer interaction improved prenatal/postnatal service use; mediated by knowledge gain
Shafiei et al. (2024)	Australia	RCT (ongoing)	Postpartum women at risk of depression	Peer volunteer telephone support	Standard community care	Depression, anxiety, parenting, loneliness, partner support	EPDS, DASS-21, EQ-5D-3L, UCLA Loneliness, Parenting Scales	Detailed outcome measures planned; aim is to assess impact on psychological well-being
Prevatt et al. (2018)	The USA	Survey-based quasi-experimental	New mothers	Online support program	Comparison group (no program)	Postpartum mental health	EPDS	Intervention group reported better well-being; findings support use of online support programs
Zielinski et al. (2023)	Ghana	Mixed methods (qualitative + descriptive stats)	Pregnant women in group ANC	Group ANC (G-ANC)	Not explicitly detailed	Experience with G-ANC	Focus group interviews, fidelity checklists	Participants appreciated G-ANC; improved engagement and satisfaction

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Abbreviations: RCT: Randomized controlled trial; QES: Quasi-experimental study; PPD: Postpartum depression; EPDS: Edinburgh postnatal depression scale; PHQ-9: Patient health questionnaire-9; CES-D: Center for epidemiologic studies depression scale; DASS-21: Depression anxiety stress scales-21; IES-R: Impact of event scale-revised; STAI: State-trait anxiety inventory; PSI-SF: Parenting stress index–short form; UCLA-LS: University of California: Los Angeles loneliness scale; APGAR: Family adaptation partnership growth affection and resolve index; mHealth: Mobile health; IVR: Interactive voice response; MIHOW: Maternal infant health outreach worker; PSM: Propensity score matching; SMS: Short message service; ANC: Antenatal care; PTSD: Post-traumatic stress disorder.

cluded RCTs had relatively high methodological quality. Most trials showed low risk of bias in randomization, outcome measurement, and handling of missing outcome data. Some variability was observed in the domain of deviations from intended interventions, where a small number of studies raised concerns or were rated high risk, often due to lack of blinding or unaddressed protocol deviations. Nevertheless, approximately 70% of RCTs demonstrated low risk of bias across most domains, supporting the overall internal validity of the randomized evidence base.

The 9 non-randomized intervention studies were assessed using the JBI critical appraisal checklist, as summarized in Table 3. Among these studies, 5 were rated as having a low risk of bias (high methodological quality)—namely Verma et al. (2024), Wu & Hung (2019), Letourneau et al. (2015), Xiang et al. (2024), and Prevatt et al. (2018)—having achieved seven or more "yes" responses across the nine appraisal criteria. These studies demonstrated clear methodological objectives, appropriate outcome measurement, suitable analytical approaches, and acceptable follow-up procedures.

The remaining 4 non-randomized studies (El Ayadi et al., 2022; Gjerdingen et al., 2013; Law et al., 2021; and Kuntagod et al., 2019) were assessed as having a moderate to high risk of bias, primarily due to incomplete

Table 3. Summary of JBI assessment

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	"Yes" count	Overall Rating
El Ayadi et al. (2022)	Y	Y	Y	N	N	U	Y	Y	Y	6	Moderate risk
Verma et al. (2024)	Y	Y	Y	N	Y	Y	Y	Y	Y	8	Low risk (high quality)
Wu & Hung (2019)	Y	Y	Y	N	Y	Y	Y	Y	Y	8	Low risk (high quality)
Gjerdingen et al. (2012)	Y	Y	Y	N	N	U	Y	Y	Y	6	Moderate risk
Letourneau et al. (2015)	Y	Y	Y	N	N	Y	Y	Y	Y	7	Low risk (high quality)
Kuntagod et al. (2019)	U	Y	Y	N	N	U	Y	U	Y	4	Moderate to High Risk
Law et al. (2020)	Y	Y	Y	N	N	U	Y	Y	Y	6	Moderate risk
Xiang et al. (2024)	Y	Y	Y	N	Y	Y	Y	Y	Y	8	Low risk (high quality)
Prevatt et al. (2018)	Y	Y	Y	N	Y	Y	Y	Y	Y	8	Low risk (high quality)

Abbreviations: Y: Yes; N: No; U: Unclear.

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reporting of follow-up procedures, absence of control groups, or limited adjustment for confounding factors. While these studies provided valuable insights into feasibility and implementation of peer support interventions, their findings were interpreted with appropriate caution.

Overall, the quality assessment indicates that the evidence base for peer support interventions in maternal health is supported by a substantial proportion of methodologically robust randomized and non-randomized studies, while also highlighting areas where future research could improve rigor and reporting transparency.

Thirteen RCTs included in this review were appraised using the RoB 2, which evaluates potential bias across five key domains: the randomization process, deviations from intended interventions, missing outcome data, measurement of outcomes, and selection of the reported results.

The included RCTs had relatively high overall methodological quality. Ten of 13 studies showed low risk of bias in randomization, indicating that most trials adequately randomized participants and concealed allocation. This issue strengthens confidence in the internal validity of these studies.

In the domain of deviations from intended interventions, some variability was noted. While most studies maintained a low risk, a few, such as Letourneau et al. (2011), were rated with some concerns or high risk because of lack of participant blinding or potential deviations not addressed in the analysis. This domain most often contributed to elevated bias ratings across studies.

The missing outcome data domain was generally well handled, with most studies reporting complete or appropriately managed follow-up. Only one study showed some concerns in this area.

For outcome measurement, most studies consistently used validated tools such as the EPDS, and outcome assessor blinding was generally maintained. All but one study was rated as low risk in this domain.

Regarding selective reporting, most trials adhered to pre-specified outcomes and used appropriate statistical analyses. However, studies such as Chaput et al. (2023) and Field et al. (2013) raised some concerns because they incompletely reported secondary outcomes or did not provide access to published protocols (Figure 2).

Overall, the RoB 2 assessment indicated that most included RCTs (approximately 70%) showed low risk of bias across most domains, supporting the strength and reliability of the evidence base for peer support interventions in maternal health. Nonetheless, a few studies exhibited methodological weaknesses that should be considered when interpreting the magnitude and consistency of intervention effects.

Subgroup synthesis

To further explore patterns in intervention effectiveness and delivery, we conducted a narrative subgroup synthesis. We identified subgroups inductively based on recurring characteristics across the included studies, including target population risk status (e.g. high-risk mothers), mode of peer support delivery (e.g. technology-based peer support),

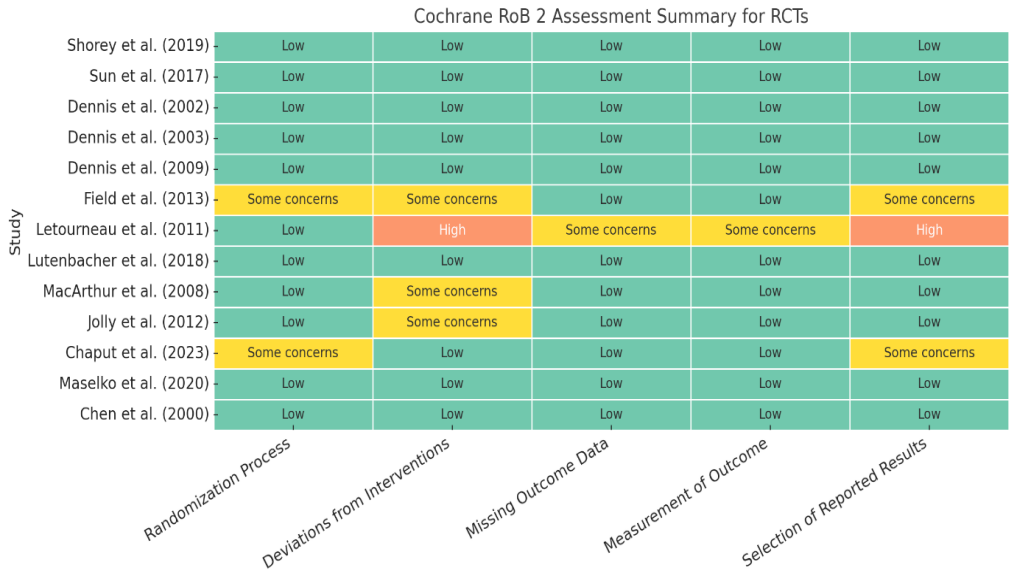

Figure 2. Summary of quality appraisal using RoB 2

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and intervention format. These subgroup categories were not defined for statistical comparison but were used to organize and interpret heterogeneity in study populations and intervention approaches within the qualitative synthesis. The subgroup findings should therefore be interpreted as descriptive patterns rather than formal comparative effects.

High-risk mothers

Several interventions specifically targeted women identified as high-risk for adverse maternal outcomes, particularly those at elevated risk of PPD or psychological distress. In this subgroup, peer support was typically delivered through telephone or home-based models and was found to be particularly effective. Dennis et al. (2009) and Dennis (2003) conducted large-scale RCTs among postpartum women with elevated EPDS scores and reported significantly lower rates of PPD in the intervention groups. Similarly, Kamalifard et al. (2013 & 2025) focused on primiparous women and found reductions in both depression and anxiety levels in those receiving peer telephone support. Other studies such as Letourneau et al. (2015) and Gjerdingen et al. (2013) included mothers with self-reported depressive symptoms and demonstrated feasibility and potential for symptom improvement. In sum, interventions targeting high-risk groups consistently showed greater impact, particularly on mental health indicators, than those delivered to general populations.

Technology-based interventions

Six studies used technology as the primary medium for delivering peer support, using mobile apps, WhatsApp messaging, online forums, or structured mHealth platforms. Shorey et al. (2018) in Singapore and Verma et al. (2024) in India integrated multiple digital communication modes to deliver peer-based psychological and informational support. These studies reported reductions in postnatal depression symptoms, improvements in perceived social support, and modest increases in healthcare utilization, such as infant check-ups and adherence to immunization schedules. Wu & Hung (2019) studied a closed Facebook peer group and found that first-time and technology-assisted pregnancy participants were more likely to adhere to and benefit from the intervention. While overall results for digital platforms were positive, challenges included digital literacy, access to technology, and the absence of live peer moderators in some formats. Nevertheless, the adaptability and scalability of tech-based peer support make it a promising model, especially in resource-limited or pandemic-affected contexts.

Depression vs breastfeeding outcomes

PPD was the most consistently and extensively measured outcome across studies. Of the 18 studies reporting on depression or related mental health outcomes, 13 used the EPDS, and most found significant reductions in depression scores in the peer intervention group. Studies such as Dennis et al. (2009), Kamalifard et al. (2013), and Shafiei et al. (2024) reported statistically significant improvements over 6 to 12 weeks postpartum, with some demonstrating clinically meaningful reductions that persisted at follow-up.

In contrast, breastfeeding outcomes showed more variability. Of the 6 studies that focused on breastfeeding duration or exclusivity, some of them reported positive outcomes. Dennis et al. (2002) demonstrated increased exclusive breastfeeding at 3 months in the peer group (56.8% vs 40.3%; P=0.01), and Lutenbacher et al. (2018) observed enhanced breastfeeding practices among Hispanic women receiving peer home visits. However, larger trials such as Jolly et al. (2012) and MacArthur et al. (2009) found no significant difference in breastfeeding rates at 6 weeks or 6 months, suggesting that peer influence may be more limited in contexts where broader systemic or cultural factors affect infant feeding practices.

Overall, peer support appeared more consistently effective at improving mental health outcomes than at sustaining breastfeeding practices, though both areas showed potential depending on population, timing, and mode of delivery.

Discussion

This systematic review synthesized evidence from 28 studies examining peer education and support group interventions for maternal health across the antenatal and postnatal periods. Overall, the findings suggest that peer-based interventions—particularly those addressing maternal mental health—are associated with promising outcomes and offer important insights into feasibility, delivery, and implementation across diverse settings. These findings align with a growing body of literature supporting peer support as a complementary model to professional care in maternal health.

The most consistent finding across the reviewed studies was the potential benefit of peer support in reducing PPD and related emotional distress. This finding aligns with Shorey et al. (2018), who conducted a meta-analysis of digital peer support and found significant reductions in PPD scores across different delivery modes. Similarly, Milani et al. (2015) demonstrated in an RCT that telephone-based peer support reduced depressive symptoms among postpartum women, findings echoed in our review through studies such as Dennis et al. (2009), Dennis (2003), and Kamalifard et al. (2013). These results reinforce the notion that peer-delivered emotional support, when timely and culturally appropriate, may help buffer the psychological stressors of early motherhood.

In contrast, some studies included in our review, such as Letourneau et al. (2011) and Jolly et al. (2012), reported limited or non-significant changes in depression or breastfeeding outcomes. These inconsistencies are mirrored in previous literature. For example, Pyles et al. found mixed evidence that peer support affects breastfeeding duration, often mediated by external factors such as maternal intention, hospital practices, and partner support (Pyles et al., 2021). Peer support may enhance emotional readiness for breastfeeding, but systemic and contextual barriers continue to hinder long-term breastfeeding success (Bengough et al., 2022).

Our review also identified technology-based peer support as an emerging and increasingly prevalent modality, especially in urban or digitally connected settings. Studies such as Shorey et al. (2018) and Verma et al. (2024) showed positive trends in reducing depressive symptoms and improving maternal knowledge and care engagement through WhatsApp, SMS, or app-based platforms. These findings align with recent evaluations like Yeo et al., which found that digital interventions leveraging peer-to-peer contact showed high feasibility and engagement across Southeast Asia (Yeo et al., 2022). However, challenges with digital literacy and access remain, especially in low-resource settings, as our synthesis of studies from India and China notes.

The evidence base for healthcare utilization improvements in response to peer support, as observed in Xiang et al. (2024) and Verma et al. (2024), is also supported by findings from Perry et al., who found that women's group-based peer support models improved maternal and neonatal outcomes (Perry et al., 2015). Such community-based participatory approaches often serve as vehicles not only for education but also for social mobilization, which may explain their broader impact on healthcare engagement.

Notably, our subgroup analysis revealed that interventions targeting high-risk mothers, such as those with prior mental health conditions, first-time mothers, or those living in low-income or rural settings, showed more consistent benefits. This aligns with Strecher et al., who emphasized that tailored interventions addressing individual risk profiles are more likely to produce sustained effects (Strecher et al., 2002). In this context, peer support may serve as both a therapeutic and empowering mechanism, bridging gaps between formal care and lived experience.

At the same time, it is essential to recognize areas where peer support may be less effective. For example, large-scale UK trials such as Jolly et al. (2012) and MacArthur et al. (2009) reported no significant improvements in breastfeeding initiation or continuation. Rhodes et al. (2024) support this finding, noting that peer support

alone may not be sufficient to influence breastfeeding outcomes unless integrated with professional lactation services and responsive healthcare infrastructure.

The heterogeneity of findings across studies also reflects variation in peer training, intervention intensity, frequency, and content. Some studies did not report in detail how peer supporters were trained or supervised, which may contribute to differences in effectiveness. As Simmons et al. note, the quality and fidelity of peer support delivery are crucial to success, particularly in interventions addressing sensitive issues like mental health and infant feeding (Simmons et al., 2023).

Regarding limitations, our review aligns with prior work (Morrell et al., 2009) in recognizing the methodological diversity among studies, which limits cross-study comparability. Many studies included in this review were small-scale, pilot trials or feasibility studies, and only a minority reported long-term follow-up beyond six months postpartum. Additionally, outcome measurement tools varied, and few studies reported cost-effectiveness or implementation data, limiting conclusions about scalability.

Despite these limitations, this review confirms the growing relevance of peer education and support in maternal health frameworks. As healthcare systems globally seek sustainable, culturally sensitive, and community-rooted solutions to maternal mental health and well-being, peer support remains a promising intervention. Its adaptability across high- and low-income settings, and its capacity to integrate into digital platforms, make it especially pertinent in the post-pandemic context. Furthermore, while feasibility studies and published protocols help explain intervention delivery and implementation, conclusions about effectiveness should be interpreted cautiously. They should primarily reflect evidence from completed outcome studies.

Conclusion

This systematic review indicates that peer education and support group interventions hold considerable promise for improving maternal health outcomes, particularly in the domains of PPD, perceived social support, and maternal care engagement. Evidence from 28 studies conducted across diverse geographical and socioeconomic settings suggests that peer support interventions may be especially beneficial for high-risk groups, including first-time mothers and those with elevated psychosocial vulnerability. Telephone-based and community-delivered interventions consistently showed positive patterns, while technology-enabled platforms offer scalable, increasingly relevant alternatives.

While improvements in maternal mental health outcomes were commonly reported, findings related to breastfeeding and other behavioral outcomes were more variable, underscoring the influence of contextual, cultural, and systemic factors. Key elements such as the quality of peer training, timing of intervention, modality of delivery, and alignment between peer supporters and recipients appear to shape the effectiveness of peer support. The findings also suggest that peer-led interventions may strengthen maternal health service utilization, particularly in under-resourced and rural settings.

Despite these encouraging patterns, the current evidence base remains heterogeneous, with many studies characterized by limited follow-up durations, variability in outcome measures, and insufficient reporting of implementation processes. Future research should address these gaps through rigorously designed trials, standardized use of validated instruments, and greater emphasis on implementation, process, and economic outcomes.

In conclusion, peer support is a valuable, flexible strategy for addressing gaps in maternal care systems worldwide. When integrated thoughtfully into formal healthcare pathways and adapted to local contexts, peer-based interventions can empower mothers, reduce psychosocial burdens, and increase engagement with essential health services. As global efforts to advance maternal health equity continue, peer support should be considered an important component of comprehensive, woman-centered care models.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations in this research.

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Authors' contributions

Conceptualization, review and editing: Indria Hafizah; Study design, supervision, and data coordination: Edy Husnul; Data collection, analysis and interpretation: Heriviyatno J. Siagian; Investigation and writing the original draft: La Ode Alifariki.

Conflict of interest

The authors declared no conflict of interest.

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