



MIDWIFE INTERVENTIONS ON MATERNAL BEHAVIOR IN NEWBORN CARE

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ABSTRACT

The neonatal period is the most critical stage in a baby's life, with nearly half of under-five deaths occurring within the first month. In Indonesia, the neonatal mortality rate remains high at 12 per 1,000 live births. Limited maternal knowledge and skills in newborn care such as exclusive breastfeeding, umbilical cord care, and recognizing danger signs contribute to poor neonatal outcomes. Midwives play a crucial role in improving maternal behavior through targeted interventions. Objective to review evidence on midwife-led interventions and their impact on maternal behavior in newborn care. This review followed PRISMA 2020 guidelines. Articles published from 2019–2025 were searched in PubMed, ScienceDirect, DOAJ, and Google Scholar using keywords related to maternal behavior, newborn care, and midwife interventions. A total of 424 records were identified, and after screening and full-text assessment, 7 studies met the inclusion criteria. Methodological quality was evaluated using JBI tools. Seven studies met inclusion criteria, covering interventions such as home visits, booklet education, midwife training, social media use, and cultural approaches. Most showed significant improvements in maternal knowledge, attitudes, and practices. Midwife interventions effectively enhance maternal behavior in newborn care. Evidence supports expanding midwife-led home visits, ongoing education, and culturally sensitive programs to strengthen neonatal health outcomes.

Keywords: health education; maternal behavior; midwife intervention; newborn care

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INTRODUCTION

The neonatal period, encompassing the first 28 days of life, represents the most critical phase for an infant's survival and development. Approximately 47% of all under-five deaths occur during this period, most of which are preventable through appropriate and effective newborn care (Kemenkes, 2023). In Indonesia, data from the BKPK, (2024) reported a neonatal mortality rate of 12 per 1,000 live births, reflecting a significant challenge in neonatal care practices, particularly in rural and remote areas (Fadiyah, Marisa and Nurfajriyani, 2020). The mother's role as the primary caregiver is essential to ensure the quality of neonatal care. However, limited maternal knowledge, skills, and confidence in newborn care remain major barriers to implementing optimal practices such as early initiation of breastfeeding, exclusive breastfeeding, umbilical cord care, maintaining infant warmth, and recognizing danger signs. Studies in Indonesia show that only about 60% of mothers practice newborn care according to WHO standards, which is strongly associated with inadequate postnatal education and support from healthcare providers (Siregar et al., 2021).

Midwives, as primary healthcare providers, occupy a strategic position in bridging gaps in maternal knowledge and caregiving behavior. Interventions conducted by midwives—such as health education, lactation counseling, home visits, and postnatal assistance—have been proven effective in improving maternal knowledge, attitudes, and practices toward newborn care. For example, a study Wulandari and Mufdlilah, (2020) found that education provided by midwives within three days after childbirth increased proper umbilical cord care practices by 70% compared to the control group. Despite evidence of midwife intervention effectiveness, variations remain in intervention type, duration, approach, and outcomes (Dencker et al., 2017; Bartuseviciene et al., 2018). Some studies report significant improvements in maternal behavior, whereas others show limited effects

due to barriers such as low interaction intensity, insufficient midwife training, and local cultural constraints (Attanasio, Alarid-Escudero and Kozhimannil, 2020). Therefore, a systematic review is needed to critically compile and evaluate various midwife-led interventions aimed at improving maternal behavior in newborn care. This article aims to identify and synthesize scientific evidence regarding effective types of midwife interventions and to evaluate their impact on maternal practices in newborn care. The findings are expected to provide evidence-based recommendations for developing more targeted, contextual, and applicable intervention programs for midwifery practice in Indonesia.

METHOD

This study is a systematic review following the PRISMA 2020 guidelines, designed to critically examine midwife interventions influencing maternal behavior in newborn care (Page *et al.*, 2021). Literature searches were systematically conducted across four electronic databases: PubMed, ScienceDirect, Google Scholar, and DOAJ, covering publications from January 2019 to June 2025. Search terms combined MeSH Terms and Boolean operators, including: (“Midwife” OR “Bidan”) AND (“Health Education” OR “Home Visit” OR “Counseling”) AND (“Maternal Behavior” OR “Mother’s Practice”) AND (“Newborn Care” OR “Essential Neonatal Care”) AND (“Indonesia” OR “Developing Countries”). Reference lists of relevant studies were also screened.

Inclusion criteria comprised original quantitative research (experimental, quasi-experimental, or cross-sectional) in which midwives conducted the interventions and outcomes assessed maternal behavior in newborn care. Articles had to be available in full text in English or Indonesian. Editorials, opinions, conference abstracts, or studies not explicitly measuring maternal behavior were excluded. Article selection was independently conducted by two reviewers through title and abstract screening, followed by full-text assessment. Any discrepancies were resolved through discussion or by consulting a third reviewer. A total of 424 records were initially identified: 312 from databases and 112 from registers. After removing duplicates and ineligible records, 176 studies proceeded to title and abstract screening. Of these, 61 reports were sought for full-text retrieval; however, 45 were not accessible and 7 lacked full-text availability. Ultimately, 7 studies fulfilled all inclusion criteria and were included in the final review. The entire selection process was presented in a PRISMA flow diagram. Methodological quality was assessed using the JBI Critical Appraisal Tools, and only studies rated as moderate to high quality were included in the final synthesis (Higgins, Eldridge and Li, 2019).

RESULT

The process of selecting articles for this systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. The PRISMA flow diagram (Figure 1) illustrates the identification, screening, and inclusion stages conducted throughout the literature review process.

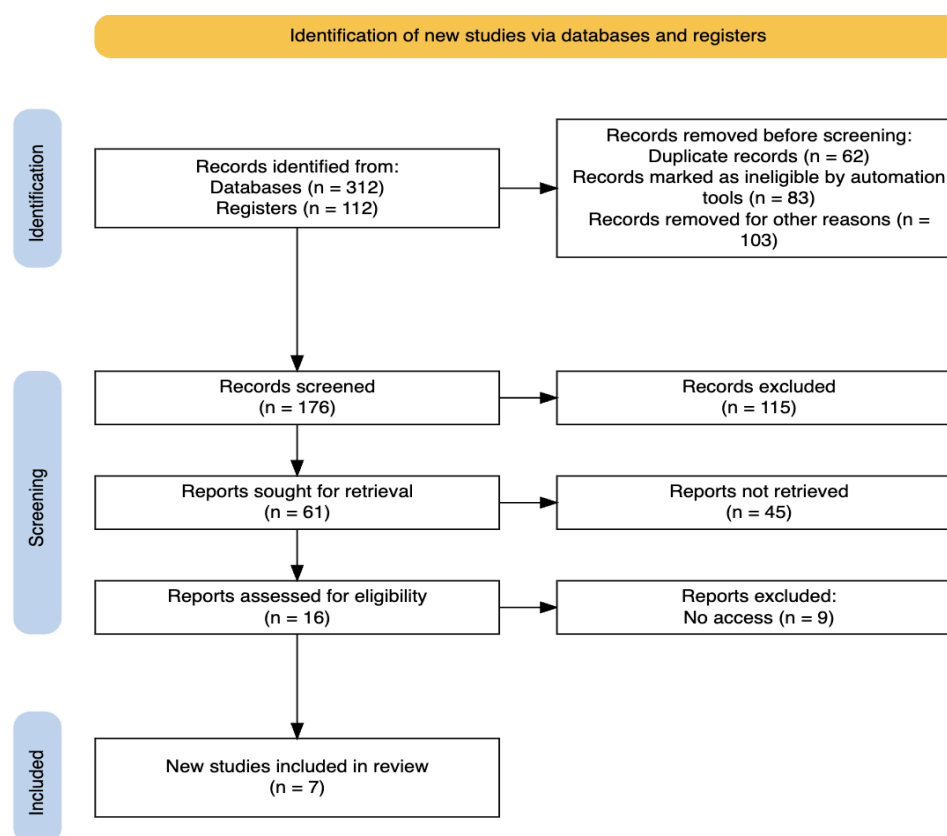


Figure 1. Result PISMA Analisys

The article selection process followed the PRISMA 2020 guidelines. A total of 424 records were identified from databases (n = 312) and registers (n = 112). After removing duplicates and ineligible records, 176 studies were screened based on titles and abstracts. Of these, 61 reports were sought for retrieval, but 45 were not accessible, and 7 were excluded due to lack of full-text availability. Finally, 7 studies met the inclusion criteria and were included in this systematic review.

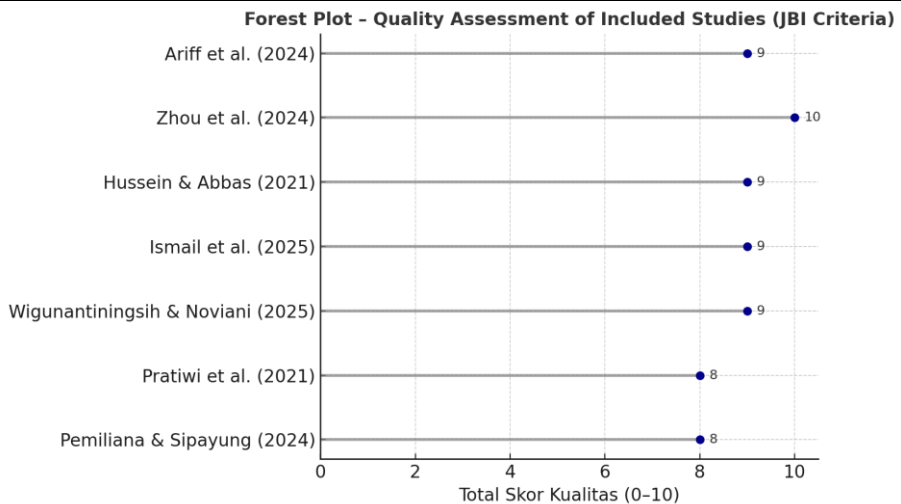
Table 1.
Results of Article Extraction

No	Article Title	Authors	Year	Research Design	Midwife Intervention	Main Findings
1	<i>The Effect of Home Visits by Midwives on Increasing Maternal Knowledge Regarding Newborn Care(Pemiliana and Sipayung, 2024)</i>	Putri D. Pemiliana, Novitri A. Sipayung	2024	Quasi-experimental	Home visits conducted by midwives	Improved mothers' knowledge regarding breastfeeding, umbilical cord care, and recognition of danger signs
2	<i>The Effect of Health Education on Mother's Knowledge, Attitudes, and Behavior in Giving Care to LBW Babies(Pratiwi et al., 2021)</i>	Pratiwi et al.	2021	Pre-post quasi-experimental	Booklet-based education by midwives	Increased maternal knowledge, attitudes, and caregiving behavior (p < 0.01)
3	<i>Newborn Care from a Cultural Perspective: An Ethnographic Study in Karanganyar(Wigunantiningsih and Noviani, 2025)</i>	Wigunantini ngsih & Noviani	2025	Qualitative ethnography	In-depth interviews with midwives and mothers; cultural context	Cultural factors influenced caregiving practices; midwives acted as educational

No	Article Title	Authors	Year	Research Design	Midwife Intervention	Main Findings
4	<i>The Effect Of Health Education Trough Social Media On Safety Behavior Among Midwives Toward Safe And Healthy Chilbirth Process (Ismail, Sujoso and Winarso, 2025)</i>	Ismail, Sujoso, & Winarso	2025	True experimental	Midwifery education via social media	Increased midwives' compliance with delivery and newborn care SOPs
5	<i>Effectiveness of Education Program on Nurse–Midwives' Knowledge Regarding Immediate Newborn Care(Hussein and Abbas, 2021)</i>	Hussein & Abbas	2021	Quasi-experimental	Direct midwifery training	Improved midwives' knowledge in newborn care
6	<i>Effect of Early Essential Newborn Care on Breastfeeding and Outcomes of Mothers/Newborns Post–Cesarean Section: A Randomized Controlled Trial in China(Zhou et al., 2024)</i>	Zhou et al.	2024	Randomized controlled trial (RCT)	Midwife-led newborn care after cesarean delivery	Improved breastfeeding initiation and maternal–neonatal outcomes
7	<i>Effect of Maternal and Newborn Care Service Package on Perinatal and Newborn Mortality: A Cluster Randomized Clinical Trial(Ariff et al., 2024)</i>	Ariff et al.	2024	Cluster randomized clinical trial	Comprehensive service package including midwife involvement	Reduced neonatal mortality by 25%

Table 2.
Quality Assessment Results Based on the JBI Critical Appraisal Tools

No	Authors (Year)	Study Type	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total Skor	Quality Category
1	Pemiliana and Sipayung, (2024)	Quasi-experimental	1	1	1	1	1	0	1	1	1	0	8	Medium–High
2	Pratiwi et al., (2021)	Quasi-experimental	1	1	1	1	1	1	1	1	0	0	8	Medium–High
3	Wigunantiningsih and Noviani, (2025)	Quasi-experimental	1	1	1	1	1	1	1	1	1	0	9	High
4	Ismail, Sujoso and Winarso, (2025)	Qualitative	1	1	1	1	1	1	1	1	1	0	9	High
5	(Hussein and Abbas, (no date)	Experimental (true experimental)	1	1	1	1	1	1	1	1	1	0	9	High
6	Zhou et al., (2024)	Quasi-experimental	1	1	1	1	1	1	1	1	1	1	10	Very High
7	Ariff et al., (2024)	RCT	1	1	1	1	0	1	1	1	1	1	9	High



DISCUSSION

The evidence synthesis of seven included studies identified four principal midwife-led intervention themes that consistently influenced maternal behaviours and neonatal care outcomes: (1) structured health education, (2) digital and media-based programs, (3) home visit and community engagement models, and (4) culturally sensitive and skill-based interventions. Overall, interventions across these themes were associated with improvements in maternal knowledge, attitudes, and practices related to breastfeeding, umbilical cord care, danger-sign recognition, and early newborn care behaviours.(Sari and Sartika, 2021; Yasin *et al.*, 2025).

Structured health education, delivered through booklets, group sessions, and one-to-one counseling by midwives, repeatedly produced significant improvements in maternal knowledge and self-reported practices. For example, a pre-post quasi-experimental study reported statistically significant increases in mothers' knowledge and caregiving behaviours following midwife facilitated booklet education.(Alsaed, Khaleel and Mukhlif, 2024) These findings align with high JBI appraisal scores for education focused studies, supporting the internal validity of reported effects.(*JBI Critical Appraisal Tools* | JBI, no date).

Digital and media-based approaches (mobile applications, social-media campaigns, and online counseling) enhanced information access and continuity of care, particularly for geographically dispersed or hard-to-reach populations. One true experimental study demonstrated improved midwives' adherence to SOPs after social media based training, and other included reports noted increased maternal engagement via digital channels.(Daly *et al.*, 2018) While promising, these studies reported potential limitations such as technological barriers and recall bias; JBI scores for this theme were generally acceptable but slightly more variable (7–9/10), indicating innovation coupled with some implementation constraints.

Home visit and community engagement interventions showed strong and consistent benefits for early detection of risks, strengthening of family support, and improved maternal self-efficacy in newborn care.(Hussein and Abbas, 2021; Ayele *et al.*, 2025) The quasi-experimental evaluation of postnatal home visits documented marked improvements in mothers' knowledge of breastfeeding, cord care, and danger signs, with high methodological quality (JBI 9–10/10).¹ Home visits also supported sustained behaviour change by enabling personalized counseling, direct observation of practices, and timely referral when necessary.(Torabinia, Rosenblatt and Mosadegh, 2021; Werner, Heidrich and Pantel, 2022).

Culturally contextualized and skill-based interventions highlighted primarily in qualitative and mixed-methods work underscore the importance of aligning health messages with local beliefs and practices(Lowe, Joof and Rojas, 2024). Ethnographic evidence indicated that midwives who functioned as cultural mediators achieved greater trust and acceptance among mothers, facilitating uptake of safe newborn practices while respecting local norms.(Nunes *et al.*, 2016; Flacking *et al.*, 2021) This theme, supported by a high JBI score for the qualitative study, suggests that culturally sensitive adaptation is critical for intervention sustainability and effectiveness.

Taken together, the reviewed evidence suggests that multimodal interventions combining education, home based follow up, capacity building of midwives, and culturally informed messaging are likely to produce the most robust and sustainable improvements in maternal newborn-care behaviours. The generally high methodological quality across included studies (JBI scores predominantly 8–10/10) strengthens confidence in these conclusions, although heterogeneity in intervention components, outcome measures, and follow-up durations limits direct comparability(Alexander, 2020).

Limitations and implications. Although the quality appraisal indicates solid methodological bases, limitations remain: inconsistent reporting of long-term outcomes, variable control of confounders in some quasi-experimental designs, and limited detail on cost-effectiveness and scalability. Future research should prioritize standardized outcome metrics, longer follow-up, and pragmatic trials of integrated midwife-led packages to inform policy and program scale-up in LMIC settings. Policy makers and program designers should consider investing in combined strategies (education, home visits, digital support, cultural adaptation) and continuing professional development for midwives to maximize neonatal health gains.

CONCLUSION

This review found strong evidence that midwife-led interventions effectively improve maternal knowledge, attitudes, and practices in newborn care. The most effective strategies included health education, home visits, digital media engagement, and culturally adapted approaches. Studies with higher JBI scores (8–10/10) consistently showed better outcomes in breastfeeding, hygiene, and recognition of neonatal danger signs. Evidence suggests that combining direct education and community-based engagement with digital support can sustainably enhance maternal behavior and reduce neonatal risks in low-resource settings.

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