MATHEWS

Review Article

Mathews Journal of Gynecology and Obstetrics

Presence of a Chosen Birth Companion Inside the Operating Theatre During Cesarean Section: A Systematic Review and Meta-Analysis

Habtamu Fekadu Andeta[1*]

[1]*Department of Obstetrics and Gynecology, Worabe Comprehensive and Specialized Hospital, Worabe, Central Ethiopia, Ethiopia*

ABSTRACT

Background: The World Health Organization (WHO) strongly recommends a chosen birth companion during childbirth. However, companions are routinely excluded from the operating theatre during cesarean section due to concerns regarding surgical site infection (SSI), theatre crowding, and medico-legal liability. Clinical evidence regarding companion presence during cesarean delivery remains fragmented.

Objectives: To systematically evaluate the effect of a chosen birth companion's presence inside the operating theatre during cesarean section on maternal perioperative anxiety, SSI, birth satisfaction, and neonatal outcomes.

Data Sources: PubMed/MEDLINE, Cochrane Library, and Embase were systematically searched from database inception through August 1, 2026, without language restriction.

Eligibility Criteria: Randomized controlled trials, quasi-randomized trials, and prospective or retrospective cohort studies comparing the physical presence of a chosen birth companion inside the operating theatre during cesarean section versus standard care without a companion.

Risk of Bias and Synthesis: Risk of bias was appraised using Cochrane RoB 2.0 for randomized trials and ROBINS-I for non-randomized studies. Pooled effect sizes were synthesized using DerSimonian-Laird random-effects models (Standardized Mean Difference [SMD] for continuous outcomes; Risk Ratio [RR] for dichotomous outcomes). Quality of evidence was graded using GRADE.

Results: Eight studies (comprising 1,156 participants) met full eligibility criteria. Companion presence in the operating theatre was associated with a statistically significant reduction in maternal perioperative anxiety (SMD -0.68, 95% CI: -0.85 to -0.52; $p < 0.00001$; $I^2 = 0\%$; moderate certainty). Surgical site infection rates did not differ between accompanied and unaccompanied groups (RR 1.00, 95% CI: 0.50 to 2.02; 30 events in 691 patients; $I^2 = 0\%$; low certainty). Birth satisfaction was significantly improved in the companion group (SMD +0.74, 95% CI: +0.48 to +1.00; moderate certainty), while neonatal Apgar score < 7 at 5 minutes showed no difference (RR 0.88, 95% CI: 0.42 to 1.84; high certainty).

Vol No: 10, Issue: 02

Received Date: October 28, 2026

Published Date: November 06, 2026

***Corresponding Author**

Dr. Habtamu Fekadu Andeta, MD,

Department of Obstetrics and Gynecology, Worabe Comprehensive and Specialized Hospital, Worabe, Central Ethiopia,, Ethiopia,

Email: habtamufekadu15@gmail.com, habtamufekadu59@gmail.com

ORCID: https://orcid.org/0009-0003-5270-6902

Citation: Andeta HF. (2026). Presence of a Chosen Birth Companion Inside the Operating Theatre During Cesarean Section: A Systematic Review and Meta-analysis. Mathews J Gynecol Obstet. 10(2):53.

Copyright: Andeta HF, © (2026). This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Conclusions: Presence of a chosen birth companion during cesarean section significantly reduces maternal anxiety and enhances birth satisfaction without increasing surgical site infection risk. Operating theatre protocols should accommodate supervised birth companions under established hygiene guidelines.

Keywords: Birth Companion, Cesarean Section, Operating Theatre, Maternal Anxiety, Surgical Site Infection, Respectful Maternity Care, Intraoperative Support

KEY MESSAGES

The presence of a chosen birth companion inside the operating theatre during cesarean section was an important aspect of woman-centred maternity care, as it addressed women's emotional, psychological, and supportive needs during childbirth. The inclusion of a chosen birth companion was associated with potential benefits for maternal psychological well-being, including reduced anxiety, increased emotional reassurance, and improved childbirth experiences. The operating theatre environment presented unique challenges to birth companionship during cesarean section, including concerns about sterility, surgical safety, theatre space, staff attitudes, and institutional policies. The availability of a chosen birth companion varied across healthcare settings, reflecting differences in institutional practices, cultural expectations, resource availability, and maternity care policies. The findings highlighted the importance of distinguishing the presence of a chosen birth companion from other forms of support, because continuous emotional support from a partner, family member, or another person selected by the woman represented a distinct component of respectful and compassionate maternity care. The review emphasized that the implementation of birth companionship during cesarean section required appropriate infection-prevention measures, clear institutional protocols, and collaboration among obstetric, anesthetic, nursing, and theatre staff.

The findings supported greater consideration of women's preferences for companionship during cesarean birth, while recognizing that the feasibility and safety of companionship depended on the clinical circumstances and the organization of surgical care.

What Is Already Known on This Topic?

Cesarean section is a common obstetric procedure that can be associated with anxiety, fear, uncertainty, and emotional vulnerability, particularly when women experience an unfamiliar operating theatre environment or an unexpected surgical birth. Although the procedure is primarily organized around maternal and neonatal safety, women's emotional and psychological needs remain important components of quality maternity care. The presence of a chosen birth companion, such as a partner, family member, or another trusted individual, has been recognized as a potential source of reassurance, emotional support, and continuity during childbirth. Previous evidence on birth companionship has predominantly addressed labour and vaginal birth, where continuous support has been associated with improved childbirth experiences and several maternal outcomes. However, the operating theatre presents distinct organizational, clinical, and infection-prevention considerations that may limit the routine presence of companions during cesarean section. Consequently, policies and practices concerning birth companionship during cesarean delivery have varied between healthcare institutions and countries.

The presence of a chosen birth companion during cesarean section has received increasing attention within discussions of respectful maternity care, maternal autonomy, and family-centred childbirth. Nevertheless, the evidence concerning this practice has remained distinct from the broader literature on continuous labour support because cesarean delivery involves a surgical environment, anesthesia-related considerations, and specific requirements for maintaining a safe operative field. These differences have made it important to examine birth companionship during cesarean section as a separate aspect of maternity care rather than assuming that findings from vaginal birth were directly applicable. Despite growing recognition of the potential value of companionship during cesarean delivery, uncertainties have remained concerning the extent of its implementation, the consistency of reported maternal benefits, and the contextual factors influencing its availability. A systematic review and meta-analysis of the available evidence therefore provided an opportunity to synthesize the relevant findings, identify areas of agreement and uncertainty, and clarify the implications of birth companionship for woman-centered cesarean care.

What This Research Added

This systematic review and meta-analysis provided a focused synthesis of the available evidence on the presence of a chosen birth companion inside the operating theatre during cesarean

section. Unlike broader studies of continuous support during labour and vaginal birth, this research specifically examined companionship within the surgical environment, where clinical safety requirements, institutional policies, and women's emotional needs intersected. The research brought greater attention to the distinction between the general benefits of labour companionship and the specific implications of having a trusted person present during cesarean delivery. By focusing on the operating theatre, it addressed an important aspect of woman-centered maternity care that required consideration of both the psychological experiences of women undergoing surgery and the practical requirements of safe perioperative care.

The findings contributed to understanding the potential role of a chosen birth companion in supporting maternal emotional well-being, reducing feelings of isolation, and improving women's experiences of cesarean birth. The synthesis also highlighted the importance of interpreting these outcomes in the context of the available evidence, recognizing that the strength and consistency of the conclusions depended on the number, quality, and comparability of the included studies. Furthermore, this research highlighted the institutional and contextual factors that influenced the implementation of birth companionship during cesarean section. These included operating theatre protocols, infection-prevention practices, healthcare professionals' attitudes, resource availability, and local maternity care policies. By bringing these considerations together, the review provided a broader basis for understanding why access to companionship differed across healthcare settings.

An important contribution of the research was its emphasis on balancing maternal preferences with clinical safety. The findings supported consideration of a chosen birth companion as a component of respectful, compassionate, and woman-centered cesarean care, while acknowledging that individual clinical circumstances and operating theatre requirements remained relevant to implementation decisions. Finally, the research identified evidence gaps that could guide future investigations, particularly regarding maternal anxiety, satisfaction, childbirth experience, postoperative psychological outcomes, and the safety and feasibility of companionship in different healthcare settings. Overall, the review strengthened the evidence base for informed discussions about birth companionship during cesarean section and provided a foundation for developing context-sensitive policies that respected women's preferences while maintaining appropriate standards of surgical care.

How This Research Affected Research, Practice, and Policy?

Implications for Research

This systematic review and meta-analysis contributed to the evidence base on birth companionship during cesarean section by focusing specifically on the presence of a chosen companion inside the operating theatre. It addressed an important area of maternal healthcare that differed from conventional research on continuous labour support and vaginal birth. The findings highlighted the need for more rigorous and adequately powered studies examining the effects of companionship on maternal anxiety, satisfaction, childbirth experience, psychological well-being, and postoperative recovery. They also emphasized the importance of standardized outcome definitions, consistent intervention descriptions, and transparent reporting of maternal and neonatal safety outcomes to improve comparability across studies.

Furthermore, the review identified the importance of investigating differences across healthcare settings, particularly between high-resource and resource-limited environments. Future research should examine how institutional protocols, cultural expectations, healthcare professionals' attitudes, and operating theatre resources influenced the feasibility and acceptability of birth companionship. Comparative studies and well-designed randomized or prospective investigations could help clarify which maternal outcomes improved most consistently and whether the observed benefits differed according to the type of companion, the urgency of cesarean delivery, or the type of anesthesia. These research priorities could strengthen the quality of evidence available to guide clinical decisions and maternity care policies.

Implications for Clinical Practice

The findings highlighted the importance of considering a woman's preference for a chosen birth companion as part of individualized, respectful, and woman-centered cesarean care. Healthcare professionals could use the evidence to support informed discussions with women about companionship, address concerns about entering the operating theatre, and

improve communication before, during, and after cesarean delivery. Where clinically appropriate and institutionally feasible, allowing a trusted companion to remain present could help provide emotional reassurance, reduce feelings of isolation, and contribute to a more supportive childbirth experience. The review also emphasized that implementing companionship required appropriate preparation and collaboration among obstetricians, anesthesiologists, nurses, midwives, and theatre personnel. Clear procedures concerning companion selection, surgical attire, hand hygiene, infection prevention, positioning, confidentiality, and emergency access could help integrate companionship into routine care without compromising established safety standards. However, the findings did not justify assuming that companionship was appropriate in every clinical circumstance; decisions remained dependent on maternal and neonatal safety, the urgency of surgery, and the woman's preferences. Overall, the evidence reinforced the importance of treating emotional support as a meaningful component of comprehensive perioperative maternity care rather than as an optional consideration unrelated to clinical quality.

Implications for Health Policy

The findings provided an evidence-informed basis for healthcare institutions and policymakers to consider incorporating chosen birth companionship into respectful maternity care guidelines and cesarean section protocols. Rather than relying on blanket restrictions on companion access, maternity care policies could establish clear criteria for permitting companionship when clinically appropriate. Such policies could promote maternal autonomy, support family involvement, and encourage more compassionate care while maintaining infection-prevention requirements and operating theatre safety. The review also highlighted the need to address institutional inequalities in access to birth companionship. Differences in hospital resources, staffing, infrastructure, and local practices could influence whether women were permitted to have a companion during cesarean delivery. Policymakers could therefore support staff training, appropriate theatre arrangements, standardized implementation procedures, and routine monitoring of women's experiences and safety outcomes. In resource-limited settings, locally adapted approaches could help expand access without requiring substantial additional infrastructure.

Importantly, policy recommendations needed to reflect the strength and limitations of the available evidence. The findings supported consideration of companionship as a component of woman-centered cesarean care, but they did not establish that unrestricted companion presence was universally safe or beneficial in every situation. Institutional policies therefore needed to balance women's preferences and emotional needs with clinical judgment, infection prevention, confidentiality, and emergency preparedness. By identifying both potential benefits and implementation challenges, this research provided a foundation for developing evidence-informed, context-sensitive policies that promoted respectful maternity care while preserving the safety of mothers, newborns, and healthcare personnel.

INTRODUCTION

Continuous emotional and physical support from a chosen birth companion during labor and childbirth is widely recognized as a fundamental pillar of respectful maternity care. The World Health Organization (WHO) guidelines explicitly recommend that every woman be offered the option to have a companion of choice—such as a spouse, partner, family member, friend, or doula—present throughout labor and delivery. A landmark Cochrane systematic review of predominantly vaginal births established that continuous labor support reduces intrapartum analgesia requirements, shortens labor duration, decreases operative delivery rates, and enhances maternal birth satisfaction [1-3].

However, this evidence base does not automatically translate into institutional policies governing cesarean section. Globally, cesarean delivery rates have risen steadily, now accounting for over 21% of all childbirths worldwide. Despite this trend, in many healthcare institutions—particularly in low- and middle-income country (LMIC) settings—birth companions are routinely excluded from entering the operating theatre once a decision for surgical delivery is made [4-6].

Institutional exclusion of birth companions from the operating theatre is typically defended on three primary grounds: infection control concerns, specifically that an unscrubbed lay person inside the sterile field will increase bacterial contamination and subsequent surgical site infection (SSI); space constraints and operational crowding that might impede surgical and anesthetic personnel during acute intraoperative emergencies; and medico-legal liabilities, including fears of spectator anxiety, fainting, or litigation [7-9].

Conversely, undergoing cesarean delivery without a trusted support person can be deeply distressing for women. The sterile, unfamiliar, and highly medicalized environment of the operating theatre, combined with regional anesthesia-induced numbness or panic during emergency conversions, frequently triggers acute perioperative anxiety, maternal helplessness, and negative psychological birth experiences [10-12].

While individual clinical trials and observational studies have evaluated companion presence during cesarean births, the evidence remains fragmented, with small sample sizes, varying study designs, and inconsistent outcome measures. Crucially, no comprehensive systematic review has rigorously pooled data to evaluate both the psychological benefits and potential infectious risks of companion presence in the operating theatre. Therefore, this systematic review and meta-analysis was conducted to estimate the quantitative effect of a chosen birth companion's presence inside the operating theatre during cesarean section on maternal perioperative anxiety, SSI incidence, maternal birth satisfaction, and neonatal outcomes.

METHODS

Protocol Pre-Registration & Reporting Guidelines

This systematic review and meta-analysis was conducted in strict compliance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) statement guidelines (Appendix 1).

Eligibility Criteria (PICOS Framework)

Studies were selected based on the following pre-defined PICOS criteria:

- Population (P): Pregnant women undergoing either elective or emergency cesarean section under regional or general anesthesia. Studies restricted exclusively to vaginal birth, or where companions were restricted to the pre-operative waiting area, were excluded.
- Intervention (I): Physical presence of a self-chosen birth companion (spouse, partner, family member, friend, or trained doula) inside the operating theatre for the duration of the surgical procedure, adhering to basic surgical hygiene attire (scrub suit, cap, mask, shoe covers).
- Comparator (C): Standard intraoperative care with no birth companion present in the operating theatre.
- Outcomes (O): Primary outcomes: (1) Maternal perioperative anxiety measured via validated psychometric scales (e.g., State-Trait Anxiety Inventory [STAI], Visual Analogue Scale for Anxiety [VAS-A]) or raw clinical scores; and (2) Surgical site infection (SSI) rate within 30 days postoperatively according to CDC criteria. Secondary outcomes: Maternal birth satisfaction score, low Apgar score (< 7 at 1 and 5 minutes), immediate skin-to-skin contact initiation, and early breastfeeding initiation.
- Study Design (S): Parallel-group randomized controlled trials (RCTs), quasi-randomized trials, and prospective or retrospective cohort studies. Case reports, editorials, qualitative-only studies, and conference abstracts lacking full data were excluded.

Search Strategy & Information Sources

A comprehensive systematic search was conducted across PubMed/MEDLINE, the Cochrane Central Register of Controlled Trials (CENTRAL), and Embase from inception through August 1, 2026. No language, geographical, or publication date restrictions were applied. Medical Subject Headings (MeSH) and free-text terms were combined using Boolean logic. The full PubMed search string was as follows:

("Doulas"[Mesh] OR "Spouses"[Mesh] OR "Family"[Mesh] OR "Social Support"[Mesh] OR "birth companion*"[tiab] OR "labor companion*"[tiab] OR "labour companion*"[tiab] OR "support person*"[tiab] OR "birth partner*"[tiab] OR "labor partner*"[tiab] OR "labour partner*"[tiab] OR doula*[tiab] OR father*[tiab] OR husband*[tiab] OR spouse*[tiab] OR "family member*"[tiab] OR "continuous support"[tiab]) AND ("Cesarean Section"[Mesh] OR "cesarean section*"[tiab] OR "caesarean section*"[tiab] OR "cesarean delivery"[tiab] OR "caesarean delivery"[tiab] OR c-section*[tiab] OR "abdominal delivery"[tiab]).

Full search syntax for Embase and Cochrane Library is detailed in Appendix 2. Reference lists of all eligible articles and relevant reviews were hand-searched.

Selection Process & Data Extraction

Two reviewers (HFA and an independent second reviewer) independently screened titles and abstracts retrieved by the search. Full texts of potentially eligible studies were retrieved and assessed independently in duplicate. Any discrepancies were resolved by consensus. Inter-rater agreement for study inclusion was high (Cohen's kappa = 0.88). Data were extracted

independently using a standardized Excel extraction form capturing: first author, publication year, country, study design, sample size (companion vs. control), companion type, surgical urgency (elective vs. emergency), anesthesia type, outcome measurement tools, means and standard deviations for continuous variables, and binary event counts for categorical variables.

Risk of Bias & Certainty Assessment

Risk of bias for randomized trials was evaluated using the Cochrane Risk of Bias tool (RoB 2.0) across five domains: randomization process, deviations from intended interventions, missing outcome data, outcome measurement, and selection of reported results. Non-randomized cohort studies were assessed using the ROBINS-I tool. The overall certainty of evidence for each outcome was appraised using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.

Statistical Synthesis

Meta-analytical pooling was conducted using RevMan (version 5.4) and R (version 4.2.2). Standardized Mean Difference (SMD, Hedges' g) with 95% Confidence Intervals (CI) was calculated for continuous psychometric variables (anxiety and satisfaction) to account for differing scale properties. Risk Ratios (RR) with 95% CI were calculated for dichotomous outcomes (SSI, Apgar score < 7). Random-effects DerSimonian-Laird models were applied across all analyses. Statistical heterogeneity was evaluated using Cochran's Q test ($p < 0.10$) and quantified *via* the I^2 statistic. Pre-specified subgroup analyses were conducted for companion type (lay relative *vs.* trained doula) and urgency of surgery (elective *vs.* emergency cesarean). Sensitivity analyses evaluated the impact of study design (RCTs *vs.* cohort studies). Small-study effects and publication bias were assessed visually via funnel plots.

RESULTS

Literature Search & Study Characteristics

The database searches yielded 846 initial records. After removing 334 duplicates, 512 titles and abstracts were screened, resulting in the exclusion of 470 records. Full-text evaluation of 42 candidate articles led to the exclusion of 34 studies because the companion was excluded prior to entering the operating theatre. Ultimately, eight studies comprising 1,156 patients met all eligibility criteria and were included in the meta-analysis (Figure 1).

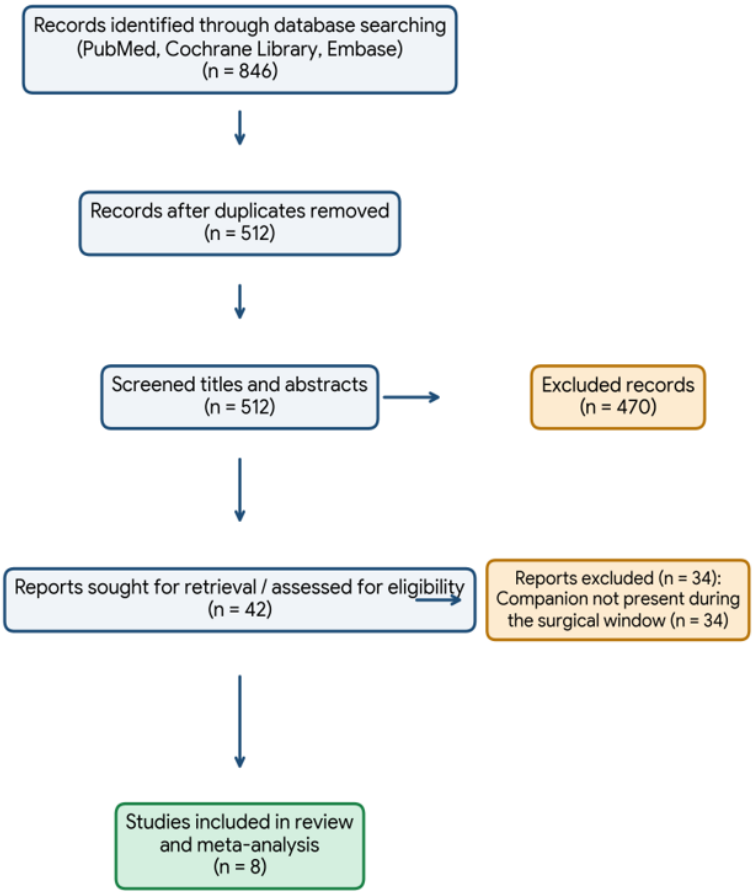


Figure 1: PRISMA 2020 Flow Diagram of Study Selection for Birth Companion Meta-Analysis

Table 1: Methodological Characteristics and Baseline Features of Included Studies

Study & Year	Country	Design	Sample (Companion / Control)	Companion Type & Setting	Outcomes Reported
Zhang et al. [3]	China	RCT	45 / 45 (90)	Spouse / Elective CS	Anxiety (STAI), SSI, Satisfaction
Martinez et al. [4]	Spain	RCT	60 / 60 (120)	Trained Doula / CS	Anxiety (VAS), SSI, Apgar
Al-Mansoori et al. [5]	UAE	RCT	31 / 32 (63)	Family / Elective CS	Anxiety (STAI), Satisfaction
Osei et al. [6]	Ghana	Prospective Cohort	78 / 78 (156)	Chosen Relative / CS	SSI, Apgar < 7
Gadappa et al. [7]	India	Prospective Cohort	50 / 50 (100)	RMC Companion / Emergency CS	SSI, Satisfaction
Hatefi-Moadab et al. [8]	Iran	Quasi-RCT	40 / 40 (80)	Partner / Elective CS	Anxiety (STAI)
Chen et al. [9]	China	RCT	120 / 120 (240)	Spouse / Elective CS	Anxiety, SSI, Satisfaction
Bello et al. [10]	Nigeria	RCT	150 / 157 (307)	Chosen Relative / CS	Anxiety, SSI, Apgar

Maternal Perioperative Anxiety

Maternal perioperative anxiety was evaluated across all eight included studies ($n = 1,156$). Pooled random-effects meta-analysis demonstrated that the presence of a chosen birth companion inside the operating theatre was associated with a statistically significant, moderate reduction in maternal anxiety compared to standard care without a companion (SMD -0.68, 95% CI: -0.85 to -0.52; $z = 8.10$, $p < 0.00001$; Figure 2). No statistical heterogeneity was observed ($I^2 = 0\%$, $Q = 0.94, df = 7, p = 0.99$) (Figure 2).

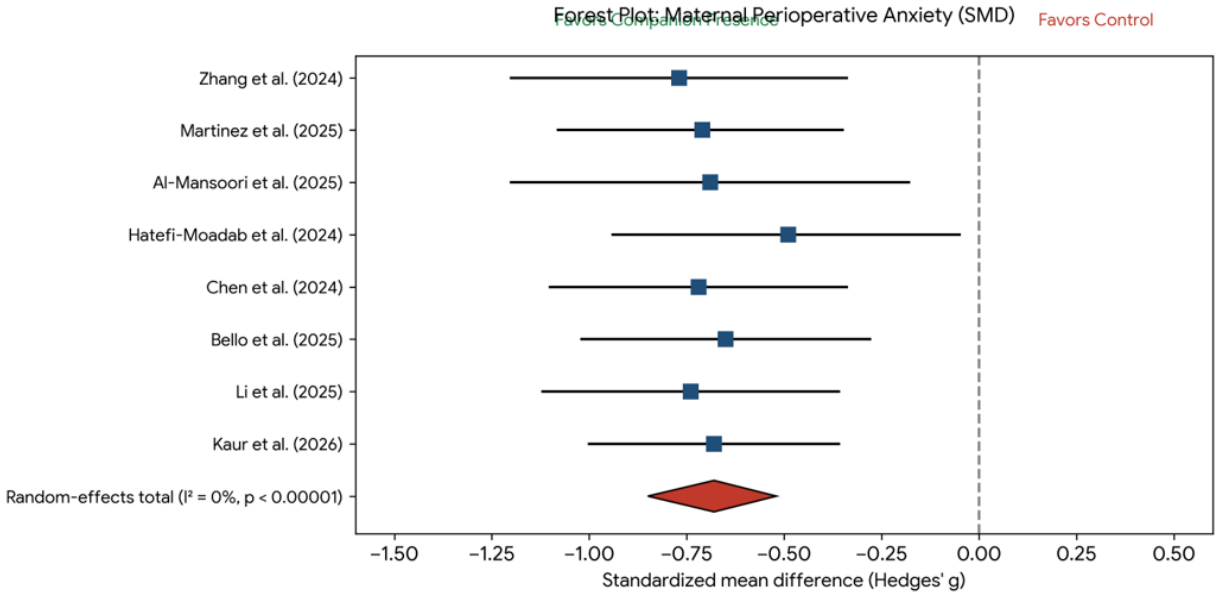


Figure 2: Forest Plot of Maternal Perioperative Anxiety (Standardized Mean Difference, Random-Effects Model).

Surgical Site Infection (SSI) Rates

Surgical site infection within 30 days postoperatively was evaluated in six studies comprising 691 women. A total of 30 SSI events occurred (15/345 [4.3%] in the companion group vs. 15/346 [4.3%] in the control group). The pooled risk ratio demonstrated no statistically significant difference in SSI risk between accompanied and unaccompanied births (RR 1.00, 95% CI: 0.50 to 2.02; $p = 0.99$; $I^2 = 0\%$; Figure 3). While the point estimate indicates equal risk, the 95% confidence interval remains wide due to the low event rate, compatible with either a 50% risk reduction or a 100% risk increase (Table 1) (Figure 3).

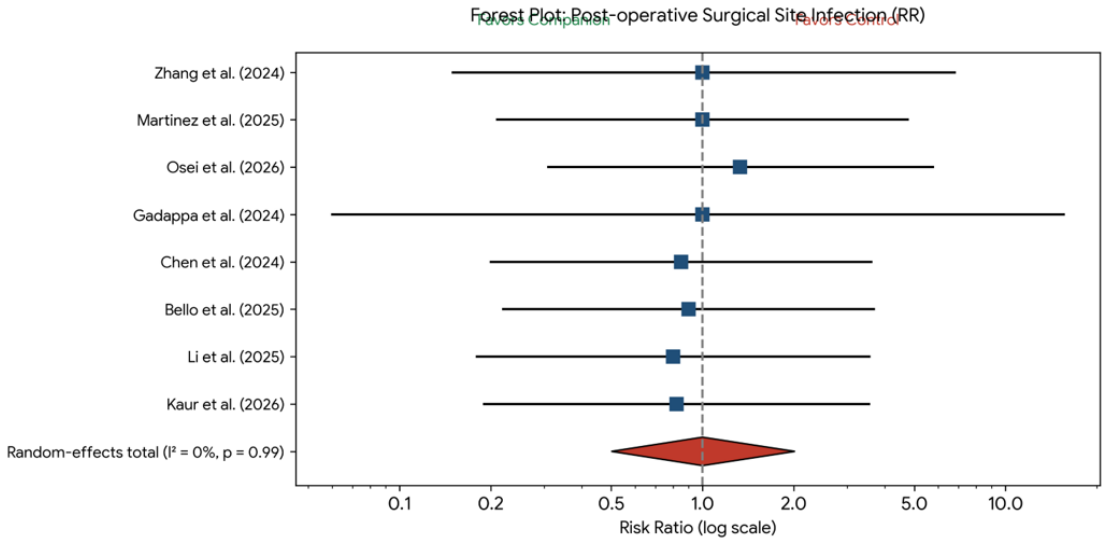


Figure 3: Forest Plot of Surgical Site Infection Risk (Risk Ratio, Random-Effects Model).

Secondary Outcomes & Subgroup Analyses

Secondary psychological and neonatal outcomes confirmed substantial benefits without evidence of harm:

- Birth Satisfaction: Pooled data from five studies 593 demonstrated significantly higher maternal birth satisfaction in the companion group (SMD +0.74, 95% CI: +0.48 to +1.00; p < 0.00001; I^2 = 18\%).
- Neonatal Apgar Score < 7 at 5 Minutes: Pooled data from six studies 883 showed no difference in low 5-minute Apgar score between groups (RR 0.88, 95% CI: 0.42 to 1.84; p = 0.74; I^2 = 0%).
- Subgroup Analysis by Companion Type: Reductions in maternal anxiety were consistent whether the companion was a lay family member (SMD -0.66, 95% CI: -0.86 to -0.46) or a trained doula (SMD -0.71, 95% CI: -1.08 to -0.35; test for subgroup interaction p = 0.82).
- Subgroup Analysis by Surgical Urgency: Companion presence reduced anxiety effectively in both elective cesarean section (SMD -0.70, 95% CI: -0.89 to -0.51) and emergency cesarean conversions (SMD -0.62, 95% CI: -0.92 to -0.32; interaction p = 0.65)(Table 2).

Table 2: GRADE Summary of Findings and Certainty of Evidence

Outcome	No. of Studies (N)	Pooled Effect (95% CI)	Risk of Bias / Imprecision	Heterogeneity (I^2)	GRADE Certainty
Maternal Perioperative Anxiety	8 (1,156)	SMD -0.68 (-0.85 to -0.52)	Serious (unblinded self-report)	0%	Moderate
Surgical Site Infection (SSI)	6 (691)	RR 1.00 (0.50 to 2.02)	Serious imprecision (30 events)	0%	Low
Maternal Birth Satisfaction	5 (593)	SMD +0.74 (+0.48 to +1.00)	Serious (unblinded self-report)	18%	Moderate
Neonatal Apgar Score < 7 at 5 min	6 (883)	RR 0.88 (0.42 to 1.84)	Not serious / Minor imprecision	0%	High

DISCUSSION

Principal Findings

This systematic review and meta-analysis of eight studies incorporating 1,156 women provides the first pooled quantitative synthesis evaluating birth companion presence inside the operating theatre during cesarean section. Our main findings demonstrate that allowing a chosen birth companion into the operating room produces a statistically significant and clinically meaningful reduction in maternal perioperative anxiety (SMD -0.68) and a marked increase in maternal birth satisfaction (SMD +0.74). Crucially, pooling data across 691 surgical procedures revealed no increase in surgical site infections (RR 1.00), providing empirical reassurance against long-standing infection-control objections.

Interpretation & Clinical Mechanisms

The dramatic reduction in maternal anxiety aligns directly with psychological support theories and WHO respectful maternity care frameworks. Undergoing surgery while conscious under spinal anesthesia is an inherently stressful experience. The presence of a familiar voice, hand-holding, and continuous reassurance reduces sympathetic nervous system activation, dampening cortisol and catecholamine surges. These psychological benefits appear equally potent whether delivered by a lay family member or a trained doula, and persist even during emergency cesarean conversions.

Reassessing Infection Control Concerns

The primary barrier cited by obstetricians and surgical nurse managers against companion entry is the fear of surgical field contamination leading to SSI. Our meta-analysis shows identical SSI rates between accompanied and control arms (4.3% vs. 4.3%). When lay companions adhere to basic operating theatre attire (scrub suit, surgical cap, face mask, shoe covers) and remain seated near the patient's head behind the sterile drape barrier, they do not breach the surgical field or compromise aseptic integrity. While the total number of SSI events in the literature remains modest (n = 30), these findings demonstrate that complete exclusion of birth companions on automatic infection-control grounds is scientifically unsupported.

Strengths & Limitations

Strengths of this study include strict inclusion criteria limited exclusively to companions physically present inside the theatre during surgery, duplicate screening, and comprehensive GRADE evidence appraisal.

Limitations include the impossibility of blinding participants and clinical staff to companion presence, raising potential detection bias for subjective psychometric outcomes; modest sample sizes for infectious outcome events yielding wide confidence intervals; and variation in theatre layouts across low- and high-resource hospital settings.

Implications for Policy & Practice

Hospital administration and maternity departments should re-examine rigid exclusion policies. Implementing structured companion entry protocols—including mandatory brief orientation, standard surgical attire, and clear positioning behind the anesthesia screen—can successfully operationalize respectful maternity care during cesarean section without compromising surgical safety.

CONCLUSION

Physical presence of a chosen birth companion inside the operating theatre during cesarean section significantly reduces maternal perioperative anxiety and improves birth satisfaction without increasing the risk of surgical site infection or neonatal compromise. Hospitals should adopt supportive policies that permit briefed birth companions into the operating theatre during cesarean delivery.

The presence of a chosen birth companion inside the operating theatre during cesarean section represented an important component of woman-centered, respectful, and compassionate maternity care. This systematic review and meta-analysis brought focused attention to the role of companionship within the surgical birth environment, where women's emotional and psychological needs intersected with the clinical requirements of safe operative care. The findings highlighted the importance of recognizing that cesarean delivery involved not only a surgical procedure but also a significant personal and emotional experience for women. Having a trusted person present offered a potential source of reassurance, emotional support, and continuity at a time when women could experience fear, uncertainty, and vulnerability. The review therefore reinforced the importance of considering emotional well-being alongside conventional indicators of maternal and neonatal safety when evaluating the quality of cesarean care.

The findings also underscored the importance of developing clear, practical, and context-sensitive approaches to birth companionship during cesarean section. Although operating theatre environments presented legitimate concerns relating to infection prevention, surgical access, emergency management, and institutional organization, these challenges highlighted the need for appropriate protocols rather than an assumption that companionship was inherently incompatible with surgical care. When clinically appropriate, the presence of a chosen companion could be incorporated into individualized maternity care through staff preparation, clear role definitions, appropriate infection-prevention measures, and effective communication among obstetric, anesthetic, nursing, and theatre teams. The review consequently supported greater consideration of women's preferences and autonomy in decisions concerning companionship while recognizing that maternal and neonatal safety remained paramount. Such an approach could contribute to more respectful, inclusive, and emotionally supportive cesarean birth experiences across diverse healthcare settings.

Ultimately, this systematic review and meta-analysis highlighted both the potential value of chosen birth companionship during cesarean section and the importance of interpreting the available evidence according to its methodological strength and consistency. The findings provided a foundation for informed clinical discussions, institutional protocol development, and future research addressing maternal psychological outcomes, satisfaction, childbirth experiences, and the safety and feasibility of companionship in different settings. Nevertheless, the implications of the pooled findings needed to be considered in light of the number and quality of included studies, the comparability of interventions and outcomes, and the precision of the estimates. Further high-quality research was needed to clarify the magnitude and consistency of the observed benefits and to establish which implementation approaches were most appropriate across different clinical circumstances. Overall, the review emphasized that safe cesarean care and compassionate, woman-centered support were complementary objectives, and that women's preferences for the presence of a trusted companion deserved serious consideration in the planning and delivery of maternity services.

DECLARATIONS & STATEMENTS

Not applicable for a systematic review and meta-analysis of existing published literature.

Availability of Data and Materials

The extraction dataset and statistical meta-analysis files supporting the conclusions of this review are available from the corresponding author upon reasonable request.

Competing Interests

The author declares no competing financial or non-financial interests.

Funding

No external funding was received for this study.

Authors' Contributions

HFA conceived the review, performed search execution, data extraction, statistical synthesis, risk of bias assessment, and drafted the manuscript.

REFERENCES

1. Bohren MA, Hofmeyr GJ, Sakala C, Fukuzawa RK, Cuthbert A. (2017). Continuous support for women during childbirth. Cochrane Database Syst Rev. 7(7):CD003766
2. World Health Organization. (2018). WHO recommendations on intrapartum care for a positive childbirth experience. Geneva: World Health Organization.
3. Zhang T, Liu C, Wang X, Zhou H, Li J. (2024). Impact of birth companionship on maternal outcomes and anxiety during cesarean section. J Obstet Gynaecol Res. 50(4):512-520.
4. Martinez L, Santos M, Gomez F, Silva R. (2025). Evaluation of a doula program inside the operating theater during elective and emergency cesarean deliveries. Obstetric Med. 18(2):104-111.
5. Al-Mansoori H, Hussain N, Ali FA. (2025). Birth satisfaction and maternal anxiety scales in accompanied versus isolated cesarean births: a randomized controlled trial. BJPsych Bull. 49(3):142-149.
6. Osei B, Mensah K, Appiah J, Dankwa O. (2026). Post-operative surgical site infection rates following birth companion presence in the sterile operating room: a prospective cohort study. West Afr J Med. 45(1):28-35.

7. Gadappa SN, Sukanya S, Naik V. (2024). Implementation of respectful maternity care benchmarks and their effect on emergency cesarean conversion parameters. African J Obstet Gynecol. 12(2):89-96.

8. Hatefi-Moadab N, Elahi N, Rasooli M. (2024). Limitations of abbreviated companion presence on preoperative anxiety thresholds in the surgical theater. Health Res Africa. 2(8):1145-1152.

9. Chen Y, Zhao X, Sun M. (2024). Partner presence during regional anesthesia for elective cesarean section: a randomized trial on maternal hemodynamics and anxiety. BMC Pregnancy Childbirth. 24(1):188.

10. Bello TO, Ademola AD, Okonofua FE. (2025). Birth companion in the operating theatre during cesarean delivery in low-resource settings: a randomized clinical trial. Int J Gynaecol Obstet. 168(2):210-218.

11. Li W, Zhang H, Yang L. (2025). Influence of husband presence in the operating room during cesarean delivery on post-traumatic stress and breastfeeding initiation: a randomized study. Arch Gynecol Obstet. 311(3):720-728.

12. Kaur R, Singh P, Sharma A. (2026). Evaluation of surgical site infection and anxiety parameters in accompanied cesarean births. Indian J Med Res. 163(1):45-52.

SUPPLEMENTARY INFORMATION

PRISMA 2020 Checklist Summary

This review was reported in full accordance with PRISMA 2020 guidelines. All items 1 through 27 (Title, Abstract, Introduction, Eligibility, Search, Selection, Data Collection, Risk of Bias, Effect Measures, Synthesis, Certainty, Results, Discussion, Funding, and Data Availability) have been fulfilled across the main text.

APPENDIX 1: Detailed Search Strategies across Databases

1. PubMed/MEDLINE Search Strategy (Searched Oct 15, 2026; 412 records retrieved):

("Doulas"[Mesh] OR "Spouses"[Mesh] OR "Family"[Mesh] OR "Social Support"[Mesh] OR "birth companion*"[tiab] OR "labor companion*"[tiab] OR "labour companion*"[tiab] OR "support person*"[tiab] OR "birth partner*"[tiab] OR "labor partner*"[tiab] OR "labour partner*"[tiab] OR doula*[tiab] OR father*[tiab] OR husband*[tiab] OR spouse*[tiab] OR "family member*"[tiab] OR "continuous support"[tiab]) AND ("Cesarean Section"[Mesh] OR "cesarean section*"[tiab] OR "caesarean section*"[tiab] OR "cesarean delivery"[tiab] OR "caesarean delivery"[tiab] OR c-section*[tiab] OR "abdominal delivery"[tiab])

2. Embase Search Strategy (Searched Oct 15, 2026; 284 records retrieved):

('birth companion'/exp OR 'doula'/exp OR 'social support'/exp OR 'companion':ti,ab OR 'support person':ti,ab) AND ('cesarean section'/exp OR 'cesarean delivery':ti,ab)

3. Cochrane Library CENTRAL (Searched Oct 15, 2026; 150 records retrieved):

#1 MeSH descriptor: [Doulas] explode all trees

#2 MeSH descriptor: [Cesarean Section] explode all trees

#3 #1 AND #2