

# Interventions for Tocophobia: A Systematic Review of Randomised Controlled Trials

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## ABSTRACT

**Introduction:** Many women experience fear regarding childbirth, scientifically known as tocophobia. Mild levels of tocophobia may be normal during pregnancy, but higher or severe levels can be pathological and detrimental to the health of both the pregnant woman and her unborn child. The present systematic review focuses on understanding the various interventions used to manage tocophobia among pregnant women.

**Aim:** To systematically evaluate and synthesise Randomised Controlled Trials (RCTs) published between 2019 and 2024 that examine the effectiveness of interventions in reducing tocophobia.

**Materials and Methods:** A systematic search was conducted using databases such as PubMed, EBSCOhost, and Google Scholar. Only articles that met the predefined inclusion and exclusion criteria were selected for this review. Studies were included if they were RCTs published in English and focused on interventions such as counselling, Cognitive Behavioural Therapy (CBT), psychoeducation, and mindfulness. Pharmacological studies and non-RCT designs were excluded. The methodological quality of the included studies was assessed using the Critical Appraisal Skills Programme (CASP) RCT Checklist (2018), which

evaluates 11 parameters: clarity of research focus, randomisation, follow-up, blinding, baseline group similarity, equal treatment, clarity of results, estimate precision, consideration of benefits versus harms, applicability, and value of findings.

**Results:** Eighteen RCTs met the inclusion criteria. Interventions included CBT, mindfulness-based interventions, midwife-led counselling, psychoeducation, and hypnobirthing. CBT and midwife-led interventions consistently reduced tocophobia scores. Quality appraisal showed that most studies had moderate to high methodological quality. These interventions ranged from 2 to 8 sessions and were delivered individually or in groups, through face-to-face, online, or telephonic formats.

**Conclusion:** Findings from this systematic review indicate that CBT and midwife-led counselling are highly effective in reducing childbirth-related fear. These non-pharmacological approaches enhance mental well-being and improve the overall birth experience. Implementing these evidence-based strategies can lead to more positive childbirth outcomes, greater maternal confidence, and reduced reliance on unnecessary medical interventions such as elective caesarean sections. Future research should focus on identifying the optimal timing, delivery format, and long-term impact of these interventions in diverse settings.

**Keywords:** Antenatal interventions, Anxiety, Cognitive behavioural therapy, Fear of childbirth, Midwife counselling

## INTRODUCTION

Childbirth is a pivotal event in a woman's life, yet for some, it evokes intense fear known as tocophobia. If left unaddressed, this fear can adversely affect the physical and mental well-being of both the mother and the unborn child. While mild apprehension about childbirth is common, severe tocophobia requires timely intervention. This systematic review examines the interventions used to manage tocophobia among pregnant women.

Tocophobia, defined as an irrational Fear of Childbirth (FOC), is a prevalent yet often overlooked issue. Understanding and effectively managing this condition is crucial for ensuring the health and well-being of both mother and baby [1]. The purpose of this review is to investigate the range of strategies implemented to reduce tocophobia during pregnancy.

Recent research indicates that approximately 14% of women experience significant FOC. The origins of FOC stem from a combination of obstetric, psychological, and socio-demographic factors. This fear can influence childbirth decisions, often leading to preferences such as elective caesarean sections, epidurals, longer labours, or emergency caesarean deliveries [2].

Understanding the causes of FOC is complex. Rachman's theory of fear acquisition proposes three pathways-conditioning, vicarious experiences, and transmission of information-which are supported by current evidence. Negative birth experiences, witnessing live births, and exposure to distressing childbirth stories contribute to the development of FOC. Cognitive factors such as childbirth-related thoughts and self-efficacy, along with behavioural

tendencies like pregnancy avoidance or preference for non-vaginal delivery, also play major roles. Physiological symptoms, including sleep disturbances and increased heart rate, can further intensify FOC [3].

Early detection and evidence-based interventions are essential to mitigate the adverse outcomes associated with FOC. Previous reviews suggest that educational interventions may help reduce FOC, although their narrow inclusion criteria may have limited their findings. To address these gaps, the present review aims to conduct a comprehensive systematic evaluation to assess the efficacy of interventions targeting FOC reduction or a decrease in elective caesarean section requests during the perinatal period.

## MATERIALS AND METHODS

The present systematic review aimed to explore the multifaceted landscape of childbirth fear, also known as tocophobia, and its related psychological constructs such as pregnancy-related anxiety, between 2019 and 2024. Through an extensive search of EBSCOhost, PubMed, and Google Scholar, the review comprehensively examined English-language literature relevant to the topic. A total of 276 articles were identified across these databases and through manual searches-81 from EBSCOhost, 119 from PubMed, and 76 from Google Scholar-using a combination of targeted keywords. After removing duplicates and confirming full-text availability, 18 studies were finalised for inclusion in the systematic review.

The search strategy incorporated terms such as "Childbirth Fear," "Tocophobia," "Pregnancy," "Childbirth," "Fear," "Anxiety,"

“Intervention,” “Counselling Approach,” and “RCT,” in order to gather evidence on interventions and counselling methods aimed at alleviating fear and anxiety related to childbirth among antenatal women.

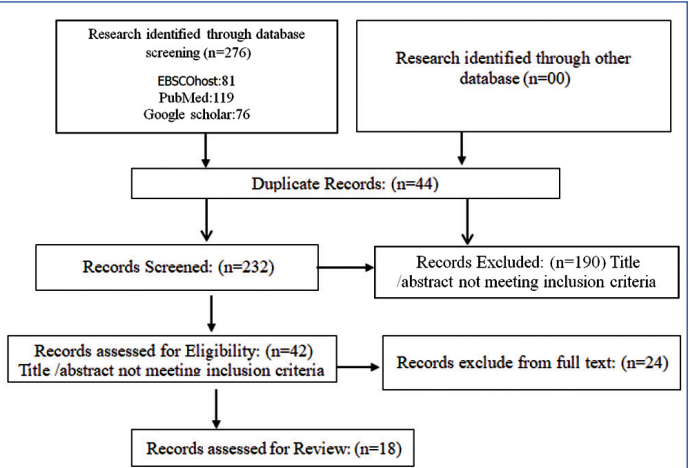
**Study selection:** During the initial screening phase, studies were evaluated based on their titles and abstracts. In the subsequent phase, full-text articles were reviewed for eligibility. Additionally, articles identified through manual searches were included in the full-text assessment. At each stage of the selection process, two independent reviewers conducted the screening, and any disagreements were resolved through discussion to reach a mutual agreement.

**Inclusion criteria:** The inclusion criteria for this review consisted of RCTs focusing on interventions such as counselling, motivational therapy, CBT and psychoeducation. Articles published between 2019 and 2024 in the English language were considered. Pregnant women of any age were eligible for inclusion.

**Exclusion criteria:** Exclusion criteria included study protocols, qualitative studies, reviews, case series, and case reports, as well as studies lacking a clearly described study design. Additionally, studies related to abortion or infertility were excluded, as were pharmacological intervention studies.

Study Procedure

Data extraction included study characteristics, types of interventions, outcomes, and the fear assessment tools used. The flow diagram [Table/Fig-1] depicting the article selection process was developed following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [4].



[Table/Fig-1]: Flow diagram of the article selection process using PRISMA guidelines.

**Quality assessment:** A quality assessment was conducted using the CASP RCT Checklist (2018) [Table/Fig-2][5]. This tool evaluates the quality of RCTs across 11 parameters to ensure the reliability and validity of the included studies [6-23].

**Critical Appraisal Skills Programme (CASP):** The CASP RCT Checklist includes the following criteria:

1. Clear research focus
2. Adequate randomisation
3. Complete follow-up
4. Blinding
5. Baseline group similarity
6. Equal treatment of groups
7. Clarity of results
8. Estimate precision
9. Consideration of benefits versus harms
10. Local applicability
11. Value of the findings

Author/Year	1	2	3	4	5	6	7	8	9	10	11	Overall
Andaroon N et al., – 2019 [6]	✓	×	✓	✓	✓	✓	✓	×	✓	✓	✓	Moderate
Shahsavani F et al., – 2020 [7]	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	High
Esfandiari M, et al., – 2020 [8]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	High
Khojasteh F, et al., 2021 [9]	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	Moderate
Gargari MA et al., –2021 [10]	✓	✓	✓	✓	✓	×	✓	×	×	✓	✓	Moderate
Andriani Y, et al., – 2021 [11]	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	High
Miller YD 2021 [12]	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	High
Duman M et al., – 2022[13]	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	High
Ahmadpour P et al., -2022 [14]	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	High
Skovbjerg S - 2023 [15]	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	High
Vakilani K et al., - 2023[16]	✓	×	✓	✓	×	✓	✓	×	✓	✓	✓	Moderate
Sari T and Gürhan N 2023 [17]	×	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	Moderate
Sadiyeh J (2023) [18]	✓	✓	×	✓	✓	×	✓	✓	×	✓	✓	Moderate
Indrayani D et al., 2023 [19]	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	High
Khademioore S et al., 2023 [20]	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	High
Alizadeh-Dibazari Z. et al., 2024 [21]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	High
Golden BN et al., 2024 [22]	✓	✓	×	✓	✓	✓	×	×	✓	✓	✓	Moderate
Diñç S et al., 2024 [23]	✓	✓	✓	✓	×	×	✓	✓	✓	✓	×	Moderate

[Table/Fig-2]: Critical Appraisal Skills Programme (CASP) Scale analysis [6-23].

**Summary of quality assessment:** Each study was evaluated using the 11 CASP criteria. Based on the number of criteria met:

- High Quality: 10 studies
- Moderate Quality: 8 studies
- Low Quality: 0 studies

RESULTS

**Characteristics of included studies:** The table [Table/Fig-3] summarises the literature search strategy and outcomes across the three academic databases. It outlines the specific search terms and Boolean operators used for each search, along with the number of articles extracted for initial screening [4].

**Details of intervention:** Between 2019 and 2024, a variety of interventions were implemented to reduce FOC. The most common interventions included CBT, midwife-led supportive counselling, relaxation techniques, mindfulness programmes, psychoeducation, peer and partner support, and digital tools such as mobile applications. These interventions ranged from 2 to 8 sessions and were delivered individually or in groups, through face-to-face, online, or telephonic formats.

Target populations included primigravida women, multigravida women with previous traumatic birth experiences, adolescents, women with high trait anxiety, and those living in rural or remote areas [6-23]. The most frequently used assessment instruments

Data Base	Search terms/Boolean operators used	Article extracted
PubMed	("Childbirth Fear" OR "Tocophobia" OR "Anxiety during Pregnancy") AND ("Counselling approach" OR "Intervention") AND ("Pregnancy" OR "Childbirth")	119
EBSCOhost	("Fear of Childbirth" OR "Tocophobia") AND ("CBT" OR "Psychoeducation" OR "Midwife-led counselling") AND ("Pregnant Women")	81
Google Scholar	("Tocophobia" OR "Fear of Childbirth") AND ("Anxiety" OR "Psychological Intervention") AND ("RCT" OR "Randomised Controlled Trial")	76

[Table/Fig-3]: Search terms/Boolean operators used for the systematic review.

were the Wijma Delivery Expectancy Questionnaire (W-DEQ) and the Fear of Birth Scale (FOBS).

Overall, these interventions led to reduced childbirth fear, increased birth confidence and preparedness, improved emotional resilience, enhanced partner involvement, improved access to care, and greater satisfaction with the childbirth experience.

An important observation from the present review was the variability in the gestational age at which interventions were initiated. Some studies began interventions in the first trimester, particularly those involving cognitive-behavioural approaches, while others introduced support closer to the third trimester, such as midwife-led counselling or birth planning sessions [6-23]. This inconsistency limits the ability to determine the most effective timing for intervention initiation. Future research should compare outcomes based on trimester-

specific intervention delivery to identify the optimal period for psychological support during pregnancy.

A total of 18 studies met the inclusion criteria of the present review and were included in this systematic analysis [Table/Fig-4] [6-23].

Outcomes

The included 18 RCTs utilised validated tools to assess FOC, with the most common being the W-DEQ and the FOBS. The W-DEQ was used in 11 studies and the FOBS in 7 studies, both demonstrating strong psychometric reliability for measuring childbirth-related fear [14-17]. Across all interventions, there was a statistically significant reduction in FOC scores postintervention ( $p<0.05$ ), highlighting the effectiveness of the psychological and supportive strategies employed.

These findings are consistent with the Cochrane review by O'Connell MA et al., (2021), which concluded that CBT and other psychological interventions significantly reduce fear scores among pregnant women [1]. Another systematic review (2020) reported a significant decrease in childbirth fear among participants who received midwife-led psychoeducation incorporating CBT elements [24].

The present review also aligns with the findings of Loughnan SA et al., who emphasised the effectiveness and scalability of internet-delivered CBT in reducing perinatal anxiety and fear, noting its cost-effectiveness and accessibility [25]. Similar results were reported by Golden BN, Elrefaay S (2024) both of whom found significant reductions in FOC with digital interventions measured using the W-DEQ [22].

Year	Author(s)	Intervention type	Sample size	Duration/ Frequency	Format	Target group	Tool Used	Main Outcome
2019	Andaroon N et al., 2019 [6]	Individual counselling (midwife)	62	2 prenatal + 1 follow-ups	Individual, antenatal clinic	High-risk pregnancies	W-DEQ	↓ fear, ↑ self-efficacy
2020	Shahsavan F et al., 2020 [7]	Cognitive Behavioural Therapy (CBT)	102	6 weekly sessions	Individual, face-to-face	Primigravida	W-DEQ	↓ fear, ↑ vaginal birth
2020	Esfandiari M et al., 2020 [8]	Peer support intervention	75	Weekly drop-in groups	Peer-led discussion	Adolescent mothers	FOBS	↓ fear, ↑ social support
2021	Khojasteh F et al., 2021 [9]	Online CBT	150	6 modules over 6 weeks	Self-paced online	Women with high fear	W-DEQ	↓ tocophobia, high accessibility
2021	Gargari MA et al., -2021 [10]	Midwife-led psychoeducation	110	3 antenatal classes	Group-based (clinic)	Pregnant women	W-DEQ	↓ fear, ↑ birth preparedness
2021	Andriani Y et al., [11] 2021	Antenatal education with imagery	90	3 sessions	In-person guided imagery	Primigravida	W-DEQ	↓ negative anticipation
2021	Miller YD 2021 [12]	Birth Story Processing (CBT-based)	92	4 sessions	Narrative group sessions	Multigravida w/ trauma	W-DEQ	↓ fear, emotional closure
2022	Duman M et al., 2022 [13]	Relaxation training	80	4 weekly sessions	Face-to-face, with home tasks	First-time mothers	FOBS	↓ stress, ↑ sleep quality
2022	Ahmadpour P et al., 2022 [14]	Positive birth planning sessions	85	2 individual sessions	Nurse-led counselling	Primigravida	W-DEQ	↓ childbirth fear
2023	Skovbjerg S 2023 [15]	Mindfulness-based stress reduction	112	8 sessions + home practice	Group + individual support	Mixed parity	FOBS	↓ anxiety, ↑ birth confidence
2023	Vakilian K et al., 2023 [16]	Acceptance and commitment therapy	89	6-week program	Group or individual	High trait anxiety	FOBS	↓ avoidance, ↑ resilience
2023	Sari T and Gürhan N 2023 [17]	Psychoeducation + partner support	102	3 couple-based sessions	In-person	Primigravida couples	W-DEQ	↓ fear, ↑ partner involvement
2023	Sadiyah J (2023) [18]	Hypnobirthing	88	5 weekly sessions	Group with audio guidance	Mixed parity	FOBS	↓ tocophobia, ↑ satisfaction
2023	Indrayani D et al., 2023 [19]	Yoga for pregnancy	100	8-week program	Group yoga + breathing	Mixed parity	W-DEQ	↓ stress, ↓ fear (modest)
2023	Khademioore S et al., 2023 [20]	Mobile app (CBT content)	140	On-demand	Self-guided via app	Rural women	W-DEQ	↓ fear, ↑ feasibility
2024	Alizadeh-Dibazari Z et al., 2024 [21]	Antenatal cognitive restructuring	76	5 group sessions	CBT-based workshop	Nulliparous women	W-DEQ	↓ fear, ↑ coping strategies
2024	Golden BN et al., 2024 [22]	Virtual midwife chat support	98	Weekly until 36 weeks	Telephonic/ video sessions	Remote settings	FOBS	↓ fear, ↑ access to care
2024	Diñç S et al., - 2024 [23]	Mindful birth program	95	6-week course	Mindfulness + CBT elements	Mixed parity	FOBS	↓ anxiety, ↑ control

[Table/Fig-4]: Publication chart year-wise depicting the association between facial measurements and self-expressed behaviours [6-23].



## DISCUSSION

This systematic review aimed to evaluate the effectiveness of various non-pharmacological interventions in reducing tocophobia, with a specific focus on RCTs published between 2019 and 2024. The review highlights CBT, midwife-led counselling, and digital interventions as some of the most effective strategies for reducing FOC in pregnant women.

The findings of this review align with O'Connell MA et al., who reported that psychological interventions-especially CBT-led to moderate reductions in FOC, improved maternal self-efficacy, and reduced requests for elective caesarean sections [1]. The effectiveness of CBT observed in this review is further supported by Najafi TF et al., (2021), who demonstrated that CBT effectively targets and modifies negative thoughts and unhelpful coping strategies associated with tocophobia [26].

Similarly, these results are consistent with a 2020 study which found that women who participated in midwife-led psychoeducation incorporating CBT techniques experienced substantial reductions in childbirth fear and were more likely to choose vaginal delivery [24].

Midwife-led interventions were also widely used and effective across the reviewed trials. Andaroon N et al., demonstrated that supportive counselling delivered by midwives was beneficial in high-risk pregnancies, reducing fear and improving self-efficacy [6]. Likewise, Ahmadvpour, P., Moosavi, S., reported positive outcomes from midwife-facilitated psychoeducation sessions, with significant improvements in birth preparedness and emotional resilience among nulliparous women [14].

The findings of the present review further align with earlier literature (2020), which concluded that midwife-led psychoeducation incorporating CBT strategies resulted in significant reductions in childbirth fear and increased the likelihood of opting for vaginal delivery [24]. These outcomes underscore the importance of empathetic communication and professional rapport in midwife-led interventions.

Digital platforms also emerged as promising modes for delivering psychological support. Online CBT programs, mobile applications, and virtual midwife consultations enhanced accessibility to care. Studies by Golden BN, Elrefaay S (2024) demonstrated that self-paced online CBT programs were effective in reducing tocophobia and were especially beneficial in low-resource or rural settings [22]. These findings support Loughnan SA et al., (2019), who showed that internet-delivered CBT reduces perinatal anxiety while offering scalability and low cost [25].

The FOBS and W-DEQ were the most frequently used assessment tools across studies in this review [27]. These instruments are also recommended by Mudgal S et al., (2024) for their validity and reliability in measuring childbirth-related fear [28].

Unlike earlier reviews that included non-randomised or qualitative studies and consequently provided broader but less definitive conclusions, the present review exclusively included RCTs, thus generating more reliable evidence for clinical practice.

## Limitation(s)

This systematic review has several limitations: There was substantial heterogeneity in the interventions, including variations in type, duration, and delivery methods, which prevented direct comparison or meta-analysis. A lack of standardised measurement tools posed challenges, as different studies used different fear assessment scales (e.g., W-DEQ, FOBS), making quantitative pooling difficult. Interventions were administered at varying gestational stages, making it unclear which period of pregnancy is most optimal for initiating psychological support. Several studies lacked detailed reporting on the expertise and training of intervention providers, which may have influenced intervention quality. The absence of uniform guidelines for specific therapies, such as CBT or psychoeducation, resulted in inconsistencies in

intervention structure and delivery across studies, complicating comparisons of baseline fear levels.

## CONCLUSION(S)

The findings of this systematic review indicate that CBT and midwife-led counselling are highly effective in reducing childbirth fear. These non-pharmacological approaches enhance maternal mental well-being and improve the overall birth experience. The review supports the integration of these interventions into routine antenatal care to address the psychological needs of expectant mothers. Incorporating such therapeutic approaches into daily antenatal practice may prove beneficial in reducing tocophobia.

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**PLAGIARISM CHECKING METHODS:** [\[Jain H et al.\]](#)

• Plagiarism X-checker: Jun 29, 2025

• Manual Googling: Oct 30, 2025

• iThenticate Software: Nov 01, 2025 (7%)

**ETYMOLOGY:** Author Origin

**EMENDATIONS:** 7

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• Was informed consent obtained from the subjects involved in the study? No

• For any images presented appropriate consent has been obtained from the subjects. No

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