Review title

Midwives' interventions for reducing fear of childbirth in pregnant women: a scoping review

Abstract

Objective: To map and analyze midwives' interventions for reducing fear of childbirth (FOC) in pregnant women.

Introduction: FOC is a phenomenon negatively affecting women's health and well-being before and during pregnancy and after childbirth. Over the past few decades, there has been a growing interest in research into interventions to approach FOC in childbearing women. One of the challenges in midwifery care is to provide an appropriate model of care for pregnant women with FOC. Therefore, further research efforts are needed to identify midwives' interventions for reducing FOC in pregnant women and examine their characteristics.

Inclusion criteria: This scoping review considered studies that included interventions for reducing FOC in pregnant women, led and/or implemented by midwives during the antenatal period, integrating all possible birth scenarios. Quantitative, qualitative, and mixed studies were included.

Methods: An a priori protocol was published, and the JBI methodology for conducting scoping reviews was used. Published and unpublished literature in English, Portuguese, and Spanish from 1981 to the present was included. MEDLINE, CINAHL Complete, Scopus, Web of Science, Embase, and the Cochrane Library databases were searched. Searches for gray literature were also undertaken. A three-step search strategy was followed. Two independent reviewers extracted the data using a data extraction tool developed specifically for this scoping review.

Results: A total of 3,688 articles were identified and screened, of which 34 articles were included with evidence from quantitative and qualitative research. The majority of studies had been published in the past 10 years (88.2%) in Scandinavian countries and Australia (79.4%). The literature describes a significant number of midwives' interventions aimed to reduce FOC in pregnant women. In 20 studies (58.8%), midwives lead and implement the interventions, alone (38.2%; *n* = 13) or with the participation of other health professionals (*n* = 7; 20.6%). In the remaining 14 studies (41.2%), midwives were part of a multidisciplinary team that included different health professionals (mainly obstetricians and psychologists) who had been involved in the delivery of interventions alongside midwives or with minor participation from midwives. Counselling (*n* = 12; 35.3%) and psychoeducation (*n* = 8; 23.5%) were the most common midwife' interventions. Midwives working across their full scope of practice are autonomous professionals, which may help explain the variety of midwives' interventions. Midwives' interventions were characterized by a facilitative format that varied significantly across the included studies.

Conclusions

Reducing FOC in pregnant women and promoting normal childbirth as a positive experience are important issues of midwife' interventions, which should include women's empowerment measures. The findings of this review can represent a methodological advance in practice and research on FOC for both midwifery-led care and multidisciplinary audiences. These data raise questions for future primary studies and systematic reviews.

Keywords: fear of childbirth; midwife; pregnancy; women

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Introduction

Pregnancy and childbirth are physiological events with an emotional and social impact on women's lives.[1] A significant number of childbearing women face worries, anxiety, and fears related to childbirth.[2] Over the last four decades, fear of childbirth (FOC) has become a serious issue in the field of perinatal health and well-being in many sociodemographic and cultural contexts.[2-4]

In literature, there is a lack of clarity around the definition of FOC.[4] The heterogeneity, and even possible inconsistencies, in the tools for assessing and measuring FOC can cause problems defining this concept and difficulties in its diagnosis and comparison of prevalence rates across practice and research.[3,4] Although the most widely used tool for measuring FOC in pregnant women is the Wijma Delivery Expectancy/Experience Questionnaire (WDEQ-A), there has been growing discussion that simpler, more culturally responsive tools can better identify women with FOC.[3] Studies have found that the prevalence of severe FOC, measured using the WDEQ-A (and the same cut-off score ≥ 85), ranges from 4.8% in Australia[5], 6.3% in Belgium[6], 10.0% in Portugal,[7] to 14.8% in Sweden.[6]

Although fear is multidimensional, current evidence shows that a previous negative birth experience or operative birth is the strongest predictor of fear in pregnant women[5] and is associated with women's preferences and future reproductive decisions. Studies have found several consequences of FOC in women's health and well-being,[2,8] with an economic impact on health services.[9] For some women, FOC affects their daily lives and their experience of pregnancy.[10] In the literature, FOC is associated with obstetric outcomes[11,12] and an increase in obstetric complications[12], number of requests for and rates of cesarean section (CS)[13-15], and postpartum mental disorders, including depression symptoms and post-traumatic stress disorder.[12,16]

In recent years, the scientific community has focused on the development, implementation, and evaluation of interventions for reducing FOC.[17–23] Studying interventions for reducing FOC in pregnant women supports the commitment to improve health policies in midwifery care before it negatively affects reproductive women's health and well-being. To date, interventions for reducing FOC have been tested and applied in different contexts of midwifery practice and different phases of the perinatal period, using different protocols with different approaches and/or activities implemented by unidisciplinary teams (e.g., teams of midwives) or multidisciplinary teams.[17–23] Within this scope of practice, health professionals play a pivotal mediating role in reducing women's fears.

Maternity care is a global health policy issue,[24] and a key priority with the Sustainable Developmental Goals agenda for 2030.[25] Women worldwide want a positive pregnancy experience through antenatal care. In this regard, the World Health Organization (WHO) recommendations on antenatal care for a positive pregnancy experience include a comprehensive guideline on routine antenatal care for women and adolescent girls. One of these recommendations is the promotion of Midwife-led Continuity of Care (MLCC) as an effective approach to organizing maternal and newborn care.[26] According to the International Confederation of Midwives (ICM), [27]

> "The midwife is recognized as a responsible and accountable professional who works in partnership with women to give the necessary support, care and advice during pregnancy, labor and the postpartum period, to conduct births on the midwife's own responsibility and to

> provide care for the newborn and the infant (…) has an important task in health counseling and education (…)".[27,p.1]

This definition is clear and appropriate and will guide this review.

For ICM, midwifery-led care is the most appropriate model of care for childbearing women, combining safe and high-quality care through the efficient use of resources and positive outcomes.[24,28–31] In MLCC models, a woman receives care from the same midwife (caseload midwifery) or small groups of known midwives (team midwifery); is supported throughout the antenatal, intrapartum, and postnatal period to facilitate a healthy pregnancy and childbirth; and is exposed to healthy parenting practices, through one-to-one support.[26,28,29,31] This model requires midwifery and, more specifically, midwives to position themselves as part of a team within a functional and conducive health system with an appropriately skilled and competent health workforce.[32]

Midwife-led care challenges the culture of pathologizing the fear and emphasizes the physiology of childbirth, the woman's potential to give birth, the continuity of care, and the possibility of being cared for by a known and trusted midwife.[33] Concerning the global discussion on the most qualified professionals to provide care to women, the ICM recognizes midwives as autonomous professionals of choice for delivering care to pregnant women in all regions of the world[27,30] and the primary caregivers and experts on supporting normal childbirth.[26,30,34,35]

Due to their crucial role in antenatal care for pregnant women,[26] midwives can help women reduce their FOC and/or adopt positive feelings about normal childbirth. FOC indicates the need for midwives to intervene with women to help them reshape their expectations and confidence levels, restore their trust in their bodies, improve their knowledge about labor and childbirth, and empower them with better decision-making skills. These strategies are essential to promoting normal childbirth and improving women's reproductive health.

Today's contexts of midwifery practice are constantly changing because of social transformations, scientific and technological advances in maternal and obstetric health, global demographic changes leading to increasingly fluctuating populations, the organization and culture of the working environments, women's expectations of pregnancy and childbirth experiences, and a paradigm shift in the health care model that places women at the center of care. Recognizing the need for adaptation to these emerging challenges, the scope of midwifery care will depend on access to current knowledge and the acquisition of specific skills, where FOC is an emerging field.

A significant number of systematic reviews have been published on FOC.[3,4,12,36-41] Some reviews focused on the effectiveness of interventions in reducing FOC,[36-41] but the type of health professional was not clearly defined in the inclusion criteria. Although many midwives are aware that fear has a detrimental effect on women's health and well-being, there is a lack of information about the midwife' interventions available to support pregnant women with FOC. To date, no reviews have synthesized the existing evidence on interventions for reducing FOC in pregnant women, led and/or implemented by midwives, during the antenatal period. Therefore, there is little knowledge about these interventions and their use by these specific health professionals. The literature does not clarify the role of midwives in leading and/or implementing the interventions.

Midwives are facing the need to implement an appropriate model of midwifery care to respond to the challenge of FOC, but the evidence on the approaches and/or activities used by midwives for reducing FOC in pregnant women has not yet been synthesized. Therefore, there is a need to map the evidence to establish the current extent, scope, and nature of this emerging field of research.[42,43] Furthermore, the information about these interventions and their approaches and/or activities, application contexts, and subgroups of pregnant women are dispersed in the literature, preventing the formulation of questions about the effectiveness of midwife-led interventions for reducing FOC in pregnant women. Without this clarification, it is not possible to conduct a systematic review on this topic. Consequently, important questions about the nature of the evidence in this area need to be answered before questioning the effectiveness of these interventions. By providing a detailed description and summary of the available information, this scoping review will contribute to the dissemination of research results and identify possible gaps in knowledge, providing conclusions about the research activity in this area and the need for future research.[42]

This scoping review was guided by the methodology proposed by the Joanna Briggs Institute (JBI) for scoping reviews[43] and used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist.[44]

A preliminary search of PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Database of Systematic Reviews and Implementation Reports was conducted. No scoping reviews (published or ongoing) were found that mapped the evidence on midwives' interventions for reducing FOC in pregnant women. Some systematic reviews,[36-41] three of them published in 2021,[39-41] have assessed interventions for reducing FOC. Although these systematic reviews provide insights, their strict inclusion and exclusion criteria do not address the broader criteria of this scoping review, mainly because they include interventions led, implemented, and evaluated by different health professionals. Also, they did not provide a systematic mapping of all evidence about midwives' interventions in pregnant women with FOC. Hence, these reviews are different from this scoping review, mainly in relation to the type of health care providers involved and assessed outcomes (primary and secondary) after the intervention.

It is indisputable that new knowledge about midwives' interventions for reducing FOC in pregnant women can be extracted and translated into evidence-based practice. Therefore, this scoping review aimed to map and analyze the published and unpublished literature on midwives' interventions for reducing FOC in pregnant women.

Review questions

i. Which interventions have been led and/or implemented by midwives for reducing FOC in pregnant women?
ii. What are the characteristics of the midwives' interventions for reducing FOC in pregnant women (e.g., theoretical concept or underpinning empirical evidence; core elements of the approach/activities; pathways of contact; health professionals involved; intervention design and supplemental Information)?

Inclusion criteria

Type of participants

This scoping review considered all studies that include a midwife (or midwifery teams) who works either independently or within a multidisciplinary team, with both cases explicitly identifying a midwife' intervention for reducing FOC in pregnant women. Studies addressing interventions, approaches, and/or activities implemented only by other health professionals for reducing FOC in pregnant women were excluded.

Professional titles vary across countries, as well as the legislation governing the profession. Therefore, this review considered all professionals holding the title of 'midwife', based on the universal standard underlying the definition of ICM:

> "A midwife is a person who has successfully completed a midwifery education programme that is based on the ICM Essential Competencies for Basic Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education and is recognized in the country where it is located; who has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title 'midwife'; and who demonstrates competency in the practice of midwifery."[27(p.1)]

Concept

This review included all studies exploring interventions led and/or implemented by midwives for reducing FOC in pregnant women. Any type of intervention was included, as long as it fell within the scope of midwives' autonomous competencies as described in the ICM Essential Competencies for Basic Midwifery Practice[45] and the ICM Global Standards for Midwifery Regulation.[46] The studies without these objectives were excluded, as well as the studies where FOC was not clearly defined in the research design as an outcome.

This scoping review considered all studies focused on pregnant women diagnosed with FOC and included midwives' interventions. The diagnosis of FOC was determined through validated self-reported questionnaires/tools or diagnostic interviews. Studies were excluded if they did not mention how FOC was diagnosed. The assessment or measurement of fear was considered at any particular moment of pregnancy. Studies addressing FOC in couples or men were excluded.

Context

This scoping review considered studies that included interventions led and/or implemented by a midwife during the antenatal period. Studies that included interventions for reducing FOC before pregnancy, during the intrapartum or postpartum period were excluded. All potential health care settings for midwifery practice[31,47] were considered for inclusion: hospitals, obstetric units/maternity units inside hospitals, units led by midwives (both alongside hospitals and freestanding), community, and women's homes. All geographical and cultural contexts were included.

Type of studies

This scoping review considered quantitative, qualitative, and mixed-method primary studies, as well as conference abstracts. It considered both experimental and quasi-experimental study designs, including randomized controlled trials, non-randomized controlled trials, before and after studies, and interrupted time-series studies. In addition, it considered analytical observational studies, including prospective and retrospective cohort studies, case-control studies, and analytical cross-sectional studies and descriptive-observational studies including case series, individual case reports, and descriptive cross-sectional studies.

This review considered studies that focused on qualitative data, including study designs, such as phenomenology, grounded theory, ethnography, action research, and feminist research.

Systematic reviews that met the inclusion criteria and text and opinion papers were also considered for inclusion in this scoping review. Articles published in English, Portuguese, and Spanish were included. Articles published from 1981 (year of publication of the first article on FOC) to the present were included. Duplicate articles and articles with full-text unavailable were excluded.

Methods

This scoping review followed JBI methodology for scoping reviews[42] and the PRISMA-ScR checklist.[44] The objectives, inclusion criteria and methods for this scoping review were specified in advance and documented in a protocol published in JBI Evidence Synthesis.[48] After its publication, the authors broadened the concept to cover interventions led and/or implemented by midwives for reducing FOC in pregnant women. If it considered interventions led and implemented by midwives, this review would exclude important information related to midwives' approaches, mostly within multidisciplinary teams when midwives are not taking primary responsibility for women's care. Therefore, the authors included studies that a) explored interventions led and implemented by midwives within midwifery teams or multidisciplinary teams; b) explored the participation of midwives in the implementation of an intervention within a multidisciplinary team. As recommended by the JBI Reviewer's Manual and Levac *et al.*,[43] a researcher specialized in midwifery-led care was consulted when preparing the analysis and presentation of results.

Search strategy

A three-step search was performed to locate both published and unpublished studies.[42] A research librarian (FV) refined the search strategy developed for MEDLINE for use in the other electronic databases. As described in the published protocol,[48] an initial limited search of MEDLINE and CINAHL databases was undertaken, using keywords/text words and indexed terms (MeSH descriptors and DeCS descriptors) to identify articles on the topic (first phase). The keywords/text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy (second phase). The search strategy, including all identified keywords and index terms, was adapted for each included information source. The reference list of all studies selected for inclusion was screened for additional studies (third phase). The first database search was

conducted on February 1, 2019 and updated on October 9, 2020 (covering the period from February 2019 to October 9, 2020). A full search strategy for the databases is detailed in Appendix I.

Information sources

The databases searched included:

- PubMed/MEDLINE
- CINAHL
- APA PsycInfo
- Scopus
- Embase
- Web of Science
- SciELO (Scientific Electronic Library Online)
- Cochrane Library, including Cochrane Database of Systematic Reviews, Cochrane Methodology Register, and Cochrane Central Register of Controlled Trials
- MedicLatina
- Academic Search Complete
- ERIC (Education Resources Information Center)
- Psychology and Behavioral Sciences Collection

Sources of unpublished studies and gray literature searched included:

- Repositório Científico de Acesso Aberto de Portugal (Portugal)
- ProQuest Dissertations and Theses
- British Library EThOS (Electronic Thesis Online Service)
- OvidSP Resource Center
- Banco de Teses da CAPES (Brazil)
- OpenGrey

Source of evidence screening and selection

Following the search, all identified records were collated and uploaded into Mendeley (Mendeley Ltd., Elsevier, Netherlands) and Rayyan – Intelligent Systematic Review,[49] and duplicates were removed. Two independent reviewers (SPS and RS) screened the titles and abstracts to assess eligibility based on the inclusion criteria for the review. The research team met several times early in the process to ensure that all reviewers understood the objectives, inclusion criteria, and methodology.

The full text of selected studies was retrieved and assessed against the inclusion criteria by teams of two independent reviewers per study (SPS and CC; RS and MJG). Reviewer disagreements about inclusion were resolved through discussion or with a third reviewer (APP). The authors of primary studies were contacted for clarification or missing information whenever necessary. Citation details about the studies that met the inclusion criteria were imported into the JBI System for the Unified Management, Assessment, and Review of Information (JBI SUMARI).[50]

Data extraction

Data were extracted from included studies by teams of two independent reviewers per study (SS, RA, RS, MJG, CC, and APP) using a modified version of the standardized JBI data extraction tool developed for this scoping review.[48] The data extracted included specific details about the concept, the participants, the context, and relevant data for the specific objective of this scoping review. Any disagreements between the reviewers were resolved through discussion with a third reviewer (APP or RA). In addition, where required, primary authors were contacted for further information/clarification of data.

Analysis and presentation of results

Extracted data are presented in diagrammatic or tabular form. The findings are organized based on the objectives of the scoping review and aligned with JBI guidelines.[42] A narrative summary accompanies the tabulated or charted results and describes how the results relate to the review's objective and questions.

For question 1 [Which interventions have been led and/or implemented by midwives for reducing FOC in pregnant women?], a table was included that mapped the interventions for reducing FOC in pregnant women, the midwives' role in the intervention, and the health care settings. A specific analysis of midwives' role in leading and/or implementing the intervention in all included studies was conducted and graphically presented. Although the published protocol[48] did not specify that such specific analysis would be undertaken, given the number of included articles and diversity of information, it was determined that this was an important topic for discussion.

For question 2 [What are the characteristics of the midwives' interventions for reducing FOC in pregnant women?], a table was developed that included detailed key information about each intervention. During data extraction, the authors found wide variation in the interventions' characteristics and added the following components to the extraction template: "theoretical concept or underpinning empirical evidence"; core elements of the approach / activities"; "pathways of contact"; "health professionals involved"; "intervention design", and "supplemental information".

Results

Search results

Database searches identified 3,688 records. Sixteen studies were identified through reference and forward citation searches.[51-66] Duplicates were removed. Of the 2,657 records screened by title and abstract, 2,546 were excluded. The full-text of 111 studies was assessed for eligibility, and, of these, 77 records were excluded. Appendix II lists the studies ineligible following full-text review with primary reasons for exclusion. The majority of studies were excluded due to ineligible concept (e.g., no intervention aimed to reduce FOC in pregnant women [*n* = 56]) or the diagnosis of FOC was inaccurate [*n* = 2]), ineligible participants (e.g., the midwives' role in leading and/or implementing the intervention was not explicitly identified [*n* = 8]), and ineligible context related to midwives' interventions delivered other than the antenatal period (*n* = 2). Other reasons for exclusion were ineligible language (*n* = 4), unable to obtain full-text (*n* = 4), and duplicate information (e.g., systematic reviews that added no value because all primary studies included in those reviews are included in this scoping review [*n* = 5]).

Thirty-four studies were included in this review.[17-20,51-53,56,59,64-88] The PRISMA flowchart[89] in Figure 1 describes the process for study inclusion.

Of the 34 studies, three originated from the same project.[17,18,19] One study was a protocol describing the midwife-led intervention to address women's FOC in detail;[18] other two studies reported on the project, including evaluation method and outcomes.[17,19] Both studies were included because, together, they provided relevant information for this review. An additional study reported on the same midwife-led intervention but with a different purpose and evaluation design, being handled as an independent project.[80] Two other studies were also associated with the same project.[82,88] The study with a quantitative design[88] complemented a previously published qualitative study.[82]

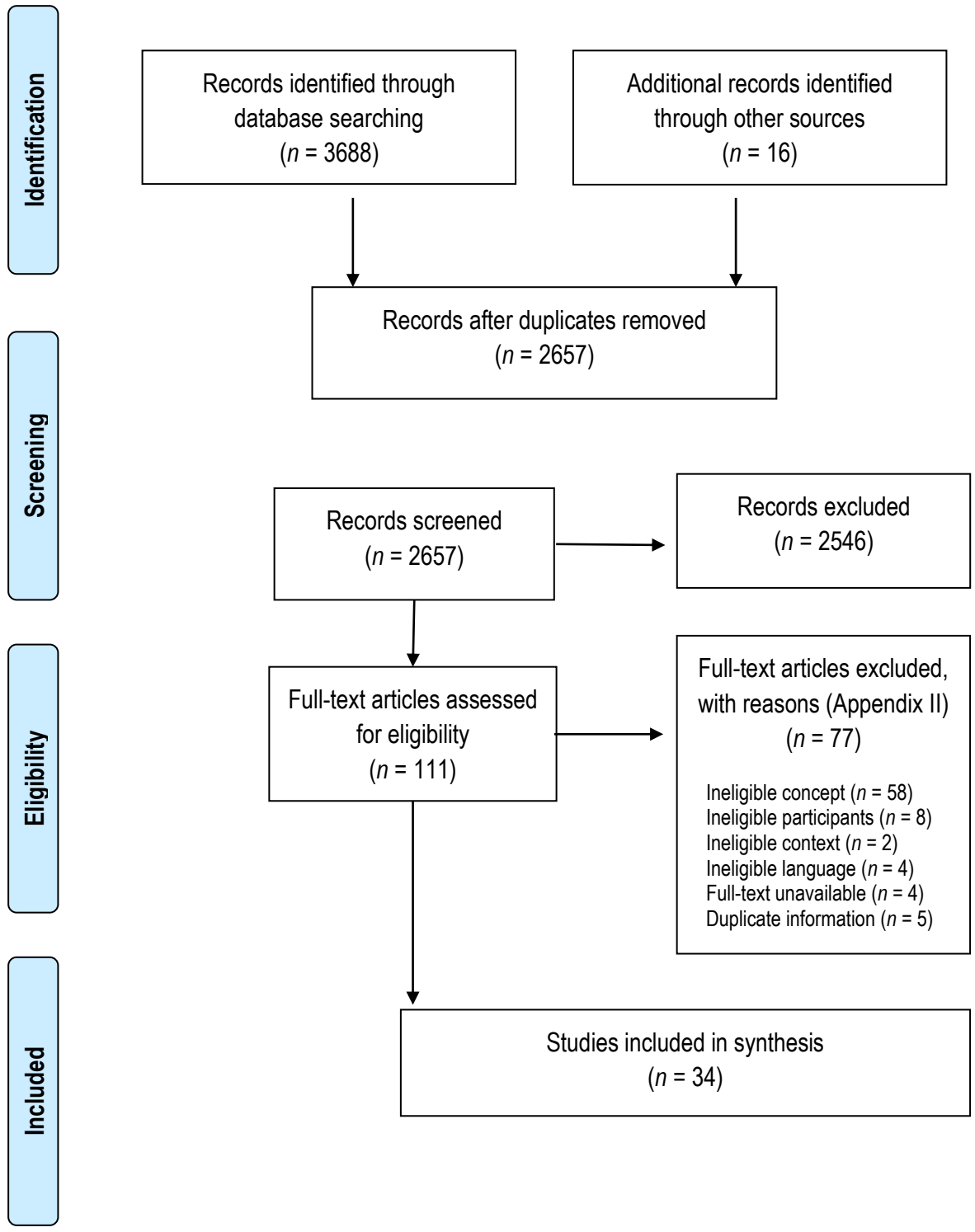

Figure 1. Flow diagram for the scoping review process adapted from the PRISMA statement by Moher and colleagues (2009).[89]

Inclusion of sources of evidence

The primary studies that clearly identified study design, FOC diagnosis, study sample, other outcomes assessed than FOC (if applicable), and any relevant details were analyzed. The characteristics of the included studies are described in detail in Appendix III.

Year of publication, country of origin, and number of studies per country

All studies included in this scoping review were published between 2001 and 2020, with 88.2% (*n* = 30) published in the last 10 years.[17-20,51-53,59,64-66,70-88] Figure 2 illustrates the number of included studies by year of publication (1981-2020). The included studies originated from 11 different countries (Figure 3). About two thirds of the studies originated from Scandinavian countries (*n* = 22). Sweden is the most represented country, with 26.5% of studies (*n* = 9),[20,64-66,69,73,82,83,88] followed by Iran (*n* = 7),[74,76,78,79,81,84,85] Australia (*n* = 5),[17-19,72,80] Finland (*n* = 4),[67,68,71,77] Norway (*n* = 3),[56,70,86] and Turkey (*n* = 2).[53,75] One study was conducted in the United Kingdom,[51] one in Iceland,[87] one in Poland,[52] one in Kenya,[59] and one in Denmark.[69]

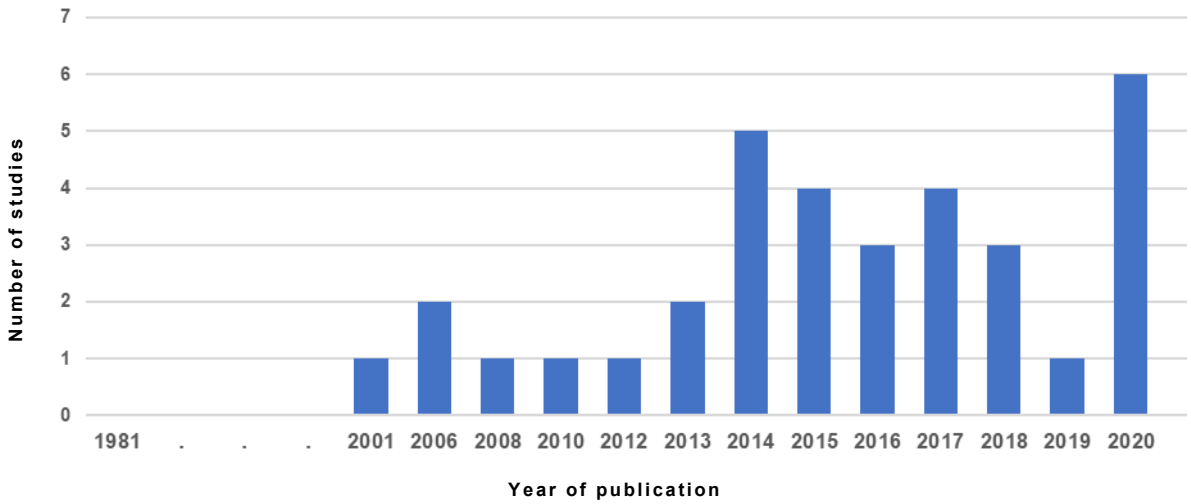

Figure 2. Number of include papers by year of publications

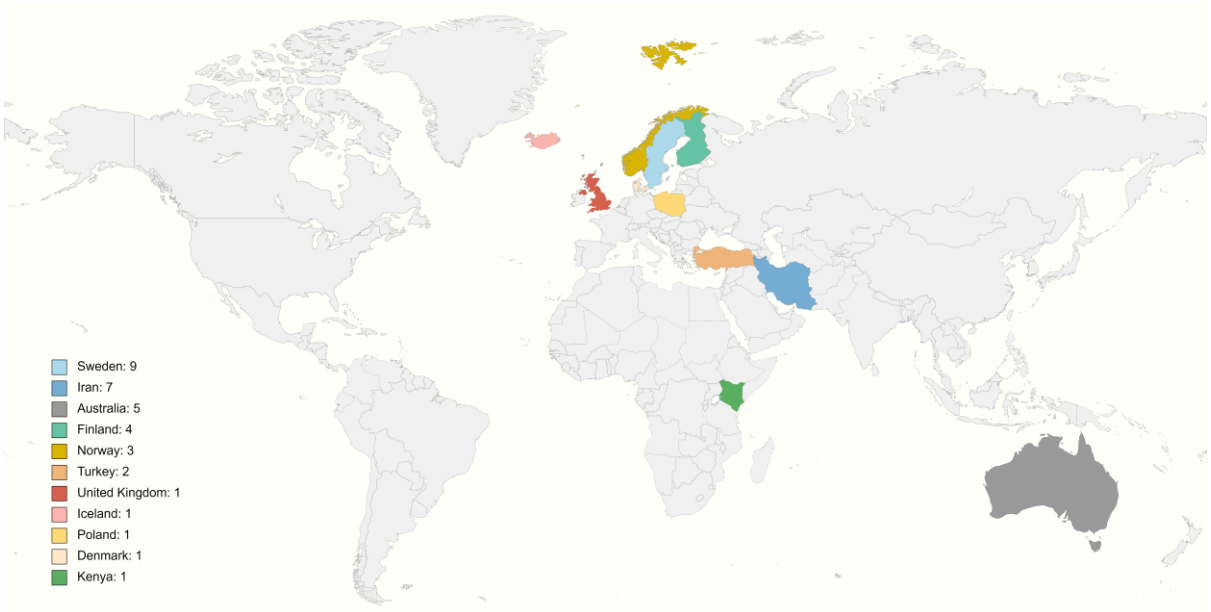

Figure 3. Country of origin and number of studies per country

Study design

All included studies were published as journal articles (research paper), reporting quantitative research studies (*n* = 29),[17-20,51-53,56,64-71,73-79,81,84-88] qualitative research studies (*n* = 3),[59,82,83] and mixed-method research studies (n= 2).[72,80]

FOC diagnosis

A key feature of the included studies was the use of a tool to measure or assess FOC in pregnant women. Among the diagnostic tools, authors used clinical diagnostic interviews,[51,56,64-66,70] non-validated self-report questionnaires,[71,73,81,88] and validated self-assessment instruments.[17-19,52,53,59,67-69,71,72,74-81,84,85-88] The validated instruments included: Fear of Vaginal Delivery Scale;[67,68] Wijma Delivery Expectancy/Experience Questionnaire Version A (WDEQ-A);[17-19,53,59,69,71,72,75,76,78,84-86,88] Fear of Childbirth Scale;[52] Childbirth Attitude Questionnaire (CAQ);[74,79] Feelings of Fear and Security Associated with Pregnancy and Childbirth Questionaire;[77] and Fear of Birth Scale (FOBS).[80,87] Although WDEQ-A is the most widely used diagnostic tool for assessing FOC during pregnancy (*n* = 15; 62.5%), different cut-off points have been used (e.g., WDEQ–A > 60,[84] WDEQ–A ≥ 66,[17-19,59,78,85] WDEQ–A ≥ 85,[69,86,88] WDEQ–A = 38–84,[76] WDEQ–A ≥ 100[71,88]).

The request for an elective CS was also a criterion for FOC diagnosis.[51,67,68] Three studies did not mention the tool used for FOC diagnosis.[82,83] In Wulcan *et al.,*[83] whose sample consisted of midwives working with fearful pregnant women, the FOC diagnosis was part of the assessment processes undertaken before the intervention. Wahlbeck *et al.*[82] developed a qualitative study aimed to examine if art therapy could reduce FOC. This study was complemented by a quantitative study published later on, in which the tool used for FOC diagnosis was mentioned.[88]

Study sample

Data were only extracted for pregnant women with FOC diagnosis, regardless of the diagnostic tool and the severity level. The majority of the included studies reported data on pregnant women at several gestational ages and from several clinical backgrounds. Sample size varied significantly, particularly in quantitative studies where sample size ranged from 37[65] to 833 participants.[73] In qualitative and mixed-method studies, sample size ranged from 12[72] to 33 pregnant women.[59]

Three studies mentioned midwives as study participants.[20,80,83] One cross-sectional study included midwives working with counseling for FOC from 43 obstetric clinics in Sweden.[20] Another study with mixed methods included 22 midwives who routinely provided pregnancy care.[80] In a qualitative study with focus group interviews and inductive content analysis, the participants consisted of 13 midwives who provided counseling and worked at a labor ward.[83]

Other outcomes assessed/measured

In addition to FOC, other outcomes were assessed or measured, as detailed in Appendix III. The collected outcomes were rather heterogeneous: anxiety levels;[67,68,72,81,84] requests for CS;[51,56,65,67,70,77] preference for mode of birth in present pregnancy;[51,56,73,74,85] preference for mode of birth in subsequent pregnancy;[17,19,56] childbirth self-efficacy;[19,53,72,79,84,85] mode of delivery;[17,19,51,64,66,68,70,71,78,86,88] obstetric outcomes (not including mode of birth);[19,56,64-66] satisfaction with the childbirth experience;[17,19,65,67,71,73] postpartum mental health;[17,19,53,67] and satisfaction with the intervention.[56,68,73,76,84,87] This information may not be available in studies with specific designs and objectives.[20,59,80,82,83]

Review findings

In the following section, key findings are presented in two groups to answer the review questions.

Concerning **question 1** [Which interventions have been led and/or implemented by midwives for reducing FOC in pregnant women?], the summary is presented based on three categories emerging from the inclusion criteria proposed for this review: interventions for reducing FOC in pregnant women; midwives' role in leading and/or implementing the intervention (related to participants), and health care settings (related to context). Table 1 shows the data presentation template for question 1.

Concerning **question 2** [What are the characteristics of the midwives' interventions for reducing FOC in pregnant women?], the studies described several details, including theoretical concept or underpinning empirical evidence; core elements of the approach/activities; pathways of contact; health professionals involved, intervention design, and supplemental information. Appendix III shows the data presentation template for question 2.

478 **Table 1.** Interventions for reducing FOC in pregnant women, the midwives' role, and the health care settings

Author(s)/Year of publication	Interventions for reducing FOC in pregnant women	Midwives' role in leading and/or implementing the intervention			Health care settings		
		The midwife leads and implements the intervention		The midwife is part of a multidisciplinary team	Home	Hospital or obstetric unit/ antenatal clinic inside the hospital	Health care centers
		Alone	With the participation of other health professionals				
Saisto *et al*. (2001)[67]	Intensive cognitive therapy			X		X	
Saisto *et al*. (2006)[68]	Psychoeducational therapy and relaxation			X		X	
Nerum *et al*. (2006)[56]	Crisis-oriented counselling			X		X	
Kjærgaard *et al*. (2008)[69]	Acquaintance with the midwife	X			X	X	X
Halvorsen *et al*. (2010)[70]	Crisis-oriented counseling			X		X	
Sydsjö *et al*. (2012)[66] (a)	Cognitive-behavioral therapy and psychoeducation			X		X	
Rouhe *et al*. (2013)[71] (a)	Psychoeducational group therapy			X		X	
Fenwick *et al*. (2013)[18]	Midwife-led psycho-education counselling: BELIEF	X				X	
Byrne *et al*. (2014)[72] (a)	Mindfulness-Based Childbirth Education: MBCE Program			X			X
Brodrick (2014)[51]	Midwife-led "Birth options" clinic		X		X	X	
Guszkowska (2014)[52]	Childbirth education classes			X		X	
Sydsjö *et al*. (2014)[64]	Cognitive-behavioral therapy and psychoeducation			X		X	
Toohill *et al*. (2014)[19]	Midwife-led psycho-education counselling: BELIEF Intervention	X				X	
Fenwick *et al*. (2015)[17]	Midwife-led psycho-education counselling: BELIEF Intervention	X				X	

Larsson *et al.* (2015)[73]	Counselling		X			X	
Navaee & Abedian 2015[74] (a)	Role play education	X					X
Sydsjö *et al. (*2015)[65]	Cognitive-behavioral therapy and psychoeducation and continuous support			X		X	
Gökçe İsbir *et al.* (2016)[53] (a)	Antenatal classes			X		X	
Karabulut *et al*. (2016)[75]	Antenatal classes	X				X	
Larsson *et al.* (2016)[20] (a)	Midwife-led counselling		X			X	
Andaroon *et al*. (2017)[76]	Individual counselling program	X					X
Haapio *et al*. (2017)[77]	Extended childbirth education	X				X	
Kordi *et al*. (2017)[78]	Psychoeducational program			X			X
Soltani *et al*. (2017)[79] (a)	Self-efficacy counselling	X					X
Fenwick *et al*. (2018)[80] (a)	Midwife-led psycho-education counselling: MIPP program	X				X #	
Ghasemi *et al*. (2018)[81]	Cognitive-behavioral counselling			X		X	
Wahlbeck *et al*. (2018)[82]	Art therapy	X				X	
Wulcan *et al.* (2019)[83]	Counselling		X			X	
Abdollahi *et al*. (2020)[84]	Motivational interviewing psychotherapy			X		X	
Firouzan *et al*. (2020)[85]	Midwife-led psycho-education counselling		X			X	
Henriksen *et al*. (2020)[86]	Counselling		X			X	
Onchonga *et al*. (2020)[59]	Midwife-led integrated pre-birth training		X			X	
Swift *et al*. (2020)[87]	Enhanced antenatal care	X				X	
Wahlbeck *et al.* (2020)[88]	Midwife-led counseling Art therapy	X				X	

(a) Authors contacted by e-mail.

#: Information clarified by primary authors.
BELIEF: Birth Emotions-Looking to Improve Expectant Fear; **MBCE**: Mindfulness-Based Childbirth Education; **MIPP**: Midwives Improving care through Psychoeducation in Practice

Interventions led and/or implemented by midwives for reducing FOC in pregnant women

Interventions for reducing FOC in pregnant women

The literature describes a significant number of interventions with midwife involvement for reducing FOC in pregnant women: intensive cognitive therapy;[67] psychoeducational therapy and relaxation;[68] crisis-oriented counselling;[56,70] acquaintance with the midwife;[69] cognitive-behavioral therapy and psychoeducation;[64,66] psychoeducative group therapy;[71] midwife-led psychoeducation counselling;[17,18,19,80,85] mindfulness-based childbirth education;[72] midwife-led "birth options" clinic;[51] childbirth education;[52,53,75] counselling;[73,76,83,86] role play education;[74] cognitive-behavioral therapy and psychoeducation continuous support;[65] midwife-led counselling;[20,88] psychoeducational program;[78] self-efficacy counselling;[79] cognitive-behavioral counselling;[81] art therapy;[82,88] motivational interviewing psychotherapy;[84] midwife-led integrated pre-birth training;[59] and enhanced antenatal care[87] (Table 1). The review authors decided to maintain the original designations provided by primary authors and not categorize the interventions to avoid misconceptions or defraud the underpinning theoretical concept.

Although the interest in FOC in pregnant women is greater in the discipline of midwifery, some results suggest that other disciplines such as Mental Health Nursing, Psychology, and Psychiatry have also expressed this interest. Therefore, a range of antenatal midwives' interventions was considered in this review, including but not limited to midwife-led team models of care.

Midwives' role in leading and/or implementing the intervention

All studies described details about antenatal interventions led and/or implemented by midwives for reducing FOC in pregnant women. Primary authors were contacted to clarify information about midwives' role in interventions.[20,53,66,71,72,74,79] (Table 1)

In 20 of the 34 studies (58.8%) the midwife led and implemented the intervention alone (*n* = 13; 38.2%)[17-19,69,74-77,79,80,82,87,88] or with the participation of other health professionals (*n* = 7; 20.6%).[20,51,59,73,83,85,86] In the remaining 14 studies (41.2%), the midwife was part of a multidisciplinary team[52,53,56,64-68,70-72,78,81,84] consisting of health professionals who had been involved in the delivery of the intervention alongside midwives or with minor participation from midwives. Figure 4 shows the distribution of midwives' role in leading and/or implementing interventions for reducing FOC in pregnant women.

Health care settings

Table 1 shows the health care settings of all included interventions. The authors of one study were contacted to clarify this information.[80] The majority of the analyzed interventions were implemented in hospitals or obstetric units/antenatal clinics inside a hospital (*n* = 28; 82.4%).[17-20,51-53,56,64-71,73,75,77,80-86] Six interventions were implemented in health care centers.[69,72,74,76,78,79] In the studies of Kjærgaard *et al.*[74] and Brodrick[51], women's homes were also a health care setting option to implement the intervention for reducing FOC in pregnant women.

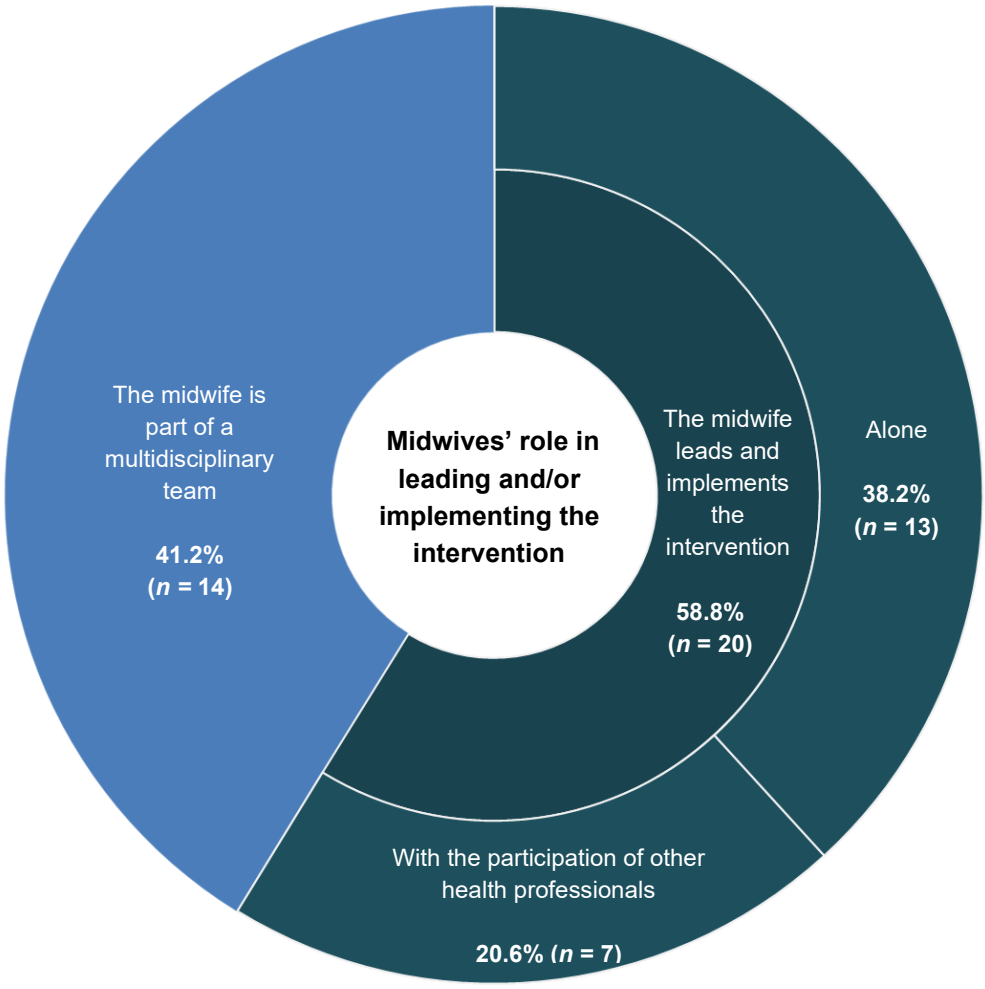

Figure 4. Midwives' role in leading and/or implementing interventions for reducing FOC in pregnant women.

Characteristics of the midwives' interventions for reducing FOC in pregnant women

The characteristics of the midwives' interventions for reducing FOC in pregnant women will be described based on the following aspects: theoretical concept or underpinning empirical evidence; core elements of the approach/activities; pathways of contact; health professionals involved; intervention design; and Supplemental information. Appendix IV summarizes the characteristics of the intervention led and/or implemented by midwives for reducing FOC in pregnant women. The details on the interventions varied across studies. In some studies, the information was not clear or even mentioned.

Appendix V shows the mapping of characteristics of the midwives' interventions for reducing FOC in pregnant women, including mentioned and missing information. This map provides an overview of the gaps in knowledge about the characteristics of the interventions for reducing FOC in pregnant women within midwifery-led care practice and areas for future research based on the thematic analysis.

Theoretical concept or underpinning empirical evidence

Twenty studies (58.8%) escribed the theoretical concepts or empirical evidence informing the approach or design of the interventions with midwife involvement.[17-19,53,56,65-68,70,72,74,76-78,80,81,84,85,88] Twelve studies mentioned the theory[56,77,78] or theoretical concept underpinning the included interventions.[53,65-68,70,81,84,88] The remaining 8 studies were based on a theoretical framework and empirical evidence from previous interventions.[17-19,72,74,76,80,85]

Core elements of the approach/activities

This review provides a heterogeneous mapping of the approaches / activities to support pregnant women with FOC (Appendix IV). All studies described multifaceted interventions. The following activities were the most common midwives' activities found in these studies:

• A written/verbal birth plan (*n* = 9; 26.5%).[20,51,56,65,67,68,71,83,88]

• A visit to the labor ward (*n* = 8; 23.5%).[20,64,65,67,71,77,82,88]

• Providing childbirth education (*n* = 27; 79.4%).[17-20,52,53,56,59,64,67,68,70,71-81,83,85,87,88] Childbirth education addressed several topics such as stages of labor; possible interventions during labor; advantages and disadvantages of a vaginal birth and a CS; pain relief options; breastfeeding; parenthood.

• Teaching relaxation and breathing techniques (*n* = 6; 17.6%).[53,72,79,81,82,88]

• Encouraging women to express their emotions and attitudes about childbirth through open questions, active listening, and feedback (*n* = 21; 61.8%).[17-20,51,53,56,59,64,70,73,76,79-85,87,88]

• Helping women to process previous negative birth experiences, focusing on the underlying causes for FOC or other elements of childbirth they identified as distressing, when applicable (*n* = 18; 52.9%).[17-20,51,53,56,64,70,73,76,79-83,85,88]

• Counselling approach with woman, encouraging to try vaginal birth[20,88] (*n* = 2; 5.9%) with the promise of medical options such as: pain relief (e.g., epidural analgesia); induction birth on maternal request; and assurance of a conversion to a CS on maternal request during labor if labor was perceived too traumatic and CS was medically safe.

• Meeting with the selected midwife[51,65,69,87] (*n* = 4; 11.8%) (assisting at the birth) during pregnancy from antenatal visits, home visits, or antenatal classes to establish a trustful relation.

• Access to the midwife via telephone, if women require additional support (*n* = 6; 17.6%).[17-19,65,67,85]

Pathways of contact

The majority of interventions for reducing FOC in pregnant women were delivered via face-to-face methods (*n* = 23; 67.6%).[20,51-53,56,64,66,68-72,74-79,81,82,84,87,88] In three studies (8.8%), the midwives' interventions were delivered only via the phone at a scheduled time convenient to the woman.[17-19] Other three studies (8.8%) mentioned a blended approach, such as face-to-face intervention and personalized telephone support.[65,67,85] In some studies (*n* = 5; 14.7%), the methods used to deliver the intervention were not always clear or even mentioned[59,73,80,83,86] (Appendix V).

Health professionals involved

All included studies had at least one midwife involved in the team. However, both health professionals' roles and involvement and team size varied across studies. Not all authors described the team members' roles,[20,53,66,71,72,74,79] which was the main reason of contact for clarification.

One or more health professionals were involved in leading and/or delivering the midwives' interventions. Midwives' interventions were delivered solely by a midwife or midwifery team working independently (*n* = 13; 38.2%)[17-19,69,74-77,79,80,82,87,88], a midwife or midwifery team working in collaboration with other health professionals (*n* = 7; 20.6%) [20,51,59,73,83,85,86], or a midwife or midwifery team working within a multidisciplinary team (*n* = 14; 41.2%). [52,53,56,64-68,70-72,78,81,84]

The results reinforce that, other than midwifes, the most common health professionals involved in the team were obstetricians (*n* = 13)[20,51,52,56,59,64-66,67,73,83,86,88] and psychologists (*n* = 13)[20,51-53,59,64,66,71,73,75,78,83,84]. Ten studies (29.4%) included professionals other than midwives, obstetricians and psychologists on the teams.[20,52,53,56,66,68,70,72,73,81] Other professionals included psychiatrists (*n* = 2),[70,81] social workers (*n* = 3),[20,56,73] psychotherapists (*n* = 2),[66,68] pediatricians (n= 1),[52] psychiatrist nurses (*n* = 1),[53] pediatric nurse (*n* = 1)[53] and meditation teachers (*n* = 1).[72]

Intervention design

Appendix IV shows the design of the interventions described in the studies included in this scoping review. One study[59] did not provide information on the intervention design (Appendix V). The elements of the midwives' interventions differed significantly across interventions in terms of start date, number of sessions, frequency of intervention, and duration of each session. In some interventions, the sessions were based on a specific program (*n* = 16; 47,1%).[17-19,53,71,72,74-76,78-81,84,85,87]

Working methods also differed depending on whether the intervention was delivered in groups (*n* = 9; 26.5%)[53,67,68,71,75,77-79,81] or individually (*n* = 13; 38.2%)[17-19,51,56,65,69,70,73,76,80,85,86] or either in group and individually (*n* = 6; 17.6%).[20,72,82,84,87,88] They also differed in the number of women assigned to each group (between 4 to 10 pregnant woman).

Supplemental information

Some studies reported on the health professionals' training (*n* = 22; 64.7%)[18,20,53,56,64-68,70-73,75,77,80-85,87] and expertise (*n* = 11; 32.3%)[20,53,67,71,72,75,77,79-81,84] and the strategies for supervising/assessing the interventions (*n* = 6; 17.6%).[18,20,66,70,80,83] The authors argue that these three aspects are ways of organizing midwifery care and important steps for these interventions, so they were also considered relevant data for collection. Data about health professionals' qualifications and training, as well as the supervision/assessment of deliver midwifery interventions are shown in Appendix IV.

Discussion

This scoping review aimed to map and analyze the interventions led and/or implemented by midwives for reducing FOC in pregnant women. To achieve this objective, 34 studies were included, with evidence from quantitative and qualitative research.

None of the systematic reviews found in the database search met all inclusion criteria. Although three reviews reached the full-text analysis phase, all were excluded after full-text reading because they reported data from antenatal interventions for pregnant women with FOC that were led and/or implemented only by health professionals other than midwives (e.g., obstetricians and psychologists)[36-38] and included participants whose characteristics were part of the exclusion criteria for this review.[48] All primary studies that integrated a midwife intervention focused on pregnant women diagnosed with FOC and contributed to the development of these systematic reviews were included in this review.

The inclusion criteria established in the protocol mentioned that this scoping review would consider all studies addressing interventions led and/or implemented by midwives for reducing FOC in pregnant women, as well as studies where FOC (measured or assessed) was clearly defined as a primary (or secondary outcome) in the research design.[48] FOC has been associated with the rising rate of CS, especially those on maternal request.[13-15,90] Therefore, the authors decided by consensus to include studies with pregnant women diagnosed with FOC or requesting a CS due to FOC. [51,67,68]

Beyond the scope of this review, many of the included papers reported other outcomes resulting from midwives' interventions for pregnant women with FOC. It should be noted that evaluation outcomes are not necessary for the development of a scoping review. However, the authors decided by consensus to include them wherever possible. One of the objectives of this scoping review was to inform future systematic reviews of the literature. The authors believed that it would not be appropriate to guide future researchers in developing a systematic review on the effectiveness or meaningfulness of a given intervention without qualitative or quantitative evaluation of the intervention in primary studies. Therefore, this mapping has clearly identified a gap in the literature about how midwives can provide the best care to support women with FOC during pregnancy.

During the past 20 years, midwives and other health professionals have given special attention to the phenomenon of FOC, and many studies have been conducted to learn how to help women who express this fear. Although the oldest article included in this review dates back to 2001,[67] the majority of studies about interventions led and / or implemented by midwives for reducing FOC in pregnant women were published in the past 10 years.[17-20,51-53,59,64-66,70-88] (Figure 2) Although most studies were published in Australia and Scandinavian countries (Figure 3), the care for pregnant women with FOC has increasingly been the focus of research in other countries. This timeline and geographical and cultural expansion may be explained by the fact that last year's global agendas have extended their focus to better maternal health outcomes,[24-26,32,35,90] emphasizing the importance of anticipating and mitigating challenges related to a positive childbirth experience.[32,35,90] Therefore, the debate around FOC highlights the need to carefully plan maternity care to increase pregnant women's confidence in a normal childbirth and provide them with a positive childbirth experience before this condition negatively affects their well-being, health, and reproductive choices. This approach can also reduce the number

of maternal requests for an elective CS, benefiting women in particular and public health in general.[9,13-15,90] Given that pregnant women with FOC are a vulnerable group, improving their support is an important issue of maternal health in every culture.

The findings from this review seem to suggest an increasing awareness of the midwives' role in addressing this need. The availability of midwives' interventions for pregnant women with FOC varies widely around the world. The different interventions reported in this review reflect how antenatal and maternity care are differently organized across countries, which is in line with Fisher *et al.*[1] who argue that FOC is shaped by the antenatal care provider and the maternity care system. Around half of the 34 included studies reported interventions led and / or implemented by midwives alone (*n* = 13; 38.2%)[17-19,69,74-77,79,80,82,87,88] or with the participation of other health professionals (*n* = 7; 20.6%)[20,51,59,73,83,85,86] In the remaining studies (41.2%; *n* = 14), the midwives were part of a multidisciplinary team.[52,53,56,64-68,70-72,78,81,84] On the one hand, midwives' interventions for reducing FOC in pregnant women are usually delivered within a multidisciplinary team. This situation can be explained by a growing demand for both interprofessional and inter-organizational competencies within each profession's disciplinary boundaries, tasks, languages, and values while attending to the complexity of this maternal condition. Given the multidisciplinary nature of this multifaceted intervention, midwives and other health professionals must collaborate to overcome the challenges associated with screening, supporting, and training, which should be a shared issue in addressing FOC. A culture of interprofessional collaboration and cooperation between midwives and other maternity care professionals brings health care benefits for mothers and children, reducing the duplication of tasks and solving the shortage of care providers in the maternity care system.[91]

On the other hand, this review revealed that midwives have several roles and activities in the delivery of care to pregnant women with FOC, mostly related to midwifery-led care. This finding confirms that midwives working across their full scope of practice are autonomous professionals in helping women cope with FOC and/or adopt positive feelings about normal childbirth. The MLCC is often described as caseload midwifery or models of maternity care where the midwife is the lead care provider[26,28,29,31] and/or care is delivered in a multidisciplinary network of consultation and referral with other health care providers. However, the MLCC is still not embedded in many contemporary health care systems as a mainstream option for all women, as it happens in Scandinavian countries, Australia, and the United Kingdom.

The access to the midwives' interventions included in this review also showed significant variation across countries. Most studies were conducted by teams where care pathways were well-established, but, according to O'Connell *et al.*[4], FOC is still not recognized or provided for in maternity care in several parts of the world. This heterogeneity in the availability of care to pregnant women with FOC hampered the reporting and discussion of the results. Nonetheless, although the comparisons across studies are of interest, they should be interpreted with caution given each country's sociocultural characteristics,[1,92,93] organization of maternity care,[92] culture of childbirth and ideologies of midwifery care, how health services encourage women to express their feelings and wishes openly[93], and how people assess events as stressful.[1] While the experience of childbirth is universal, it is also essentially cultural and contextual.

Pregnant women represent a unique population in health care, and appropriate support depends on strategic programs or interventions that ensure safe, equitable, compassionate, respectful, and evidence-based care.[26,30-32,35] Pregnant women with FOC should benefit from care on equal terms irrespective of place of residence or nationality, before this condition negatively affects their reproductive health and well-being. FOC should be recognized as a maternal health problem requiring a specialized approach that should be offered to all women within a national antenatal care program. However, given the heterogeneous midwifery settings worldwide and the multifactorial etiology of FOC, designing a universal support intervention for pregnant women with FOC will not be the best solution. FOC and midwifery-led care in women with fear are complex issues. Therefore, a national antenatal care program should rather be based on mass customization where generic interventions can be adapted to individual, local, and cultural needs and the characteristics of the maternity care system. Additional research is needed to identify which the best interventions for pregnant women with FOC and the contextual factors influencing them.

This review found that the description of the components used to design midwives' interventions for reducing FOC in pregnant women varied in quality and thoroughness. Some descriptions lacked or only briefly mentioned these components, making it difficult to compare or replicate the interventions. The description of midwives' interventions offers an understanding of how to design, lead, and implement these interventions in pregnant women with FOC; leaving out these descriptions foregoes the opportunity to assess their effectiveness and improve their quality in this field. Despite a sharp increase in the number of publications on support interventions for pregnant women with FOC, no scoping review aimed at mapping the studies covering midwife involvement in a wide range of clinical and cultural contexts with different health professionals involved. Therefore, a key contribution of this review is that it provides new knowledge on this specific concept of midwifery practice.

Counselling (*n* = 12; 35.3%)[17-20,73,76,79,80,83,85,86,88] and psychoeducation (*n* = 8; 23.5%)[17-19,75-77,80,85] were the commonly reported midwives' interventions. These interventions are more easily implemented within midwifery-led care models where midwives are the leading healthcare professionals, responsible for planning, organizing, and delivering care to a woman (within a midwifery team or a multidisciplinary team). Additionally, these studies reported on a wide range of midwives' approaches/activities whose overall aims were to promote a normal childbirth, strengthen the woman's belief in herself and her ability to give birth, and provide skills to assist in making informed choices regarding her pregnancy and childbirth. The following approaches were mostly used by the midwives: making a written/verbal birth plan;[20,51,56,65,67,68,71,83,88] visiting the labor ward; [20,64,65,67,71,77,82,88] providing childbirth education;[17-20,52,53,56,59,64,67,68,70,71-81,83,85,87,88] encouraging women to express their emotions and attitudes about childbirth through open questions, active listening, and feedback; [17-20,51,53,56,59,64,70,73,76,79-85,87,88] helping women to process previous negative birth experiences, focusing on the underlying causes for FOC or other elements of childbirth they identified as distressing (when applicable). [17-20,51,53,56,64,70,73,76,79-83,85,88] In general, these activities seem to be an important, well-functioning aspect in the delivered midwives' interventions. Based on the findings, midwives seem to be well positioned to support women's FOC working within their autonomous competencies. Midwives' interventions do not focus on psychopathology; rather, they reinforce and support women's resilience,

confidence, and a sense of competence in giving birth. Improving the approach to FOC and promoting normal childbirth are key issues of midwifery-led care in which medical interventions give way to women's empowerment measures.

While the care delivery model and the care management system are important, the individual qualities of midwives are the most vital aspect for ensuring satisfaction with the care provided. Some studies focused on the midwives' attitudes and approach. Communication, information, and relationships are paramount in midwifery care for FOC in pregnant women. Delivering midwifery interventions requires the core competencies of communication and professionalism that can only be achieved by cultivating a culture of shared responsibilities for and with the women.[56]

Some limitations include the lack of assessment of the interventions' long-term impact; the lack of information about theoretical concepts or underpinning empirical evidence; the use of non-validated measurement instruments; the different roles of midwives in intervention design. These limitations hinder the rigorous assessment of the impact of midwives' interventions on reducing FOC in pregnant women and should be addressed since the lack of accurate scientific evidence on their effectiveness is a barrier to their implementation. Despite its strength of using a standardized protocol and a rigorous search strategy, this review is subjected to selection bias because it was limited to the concepts of "midwife" or "midwifery". For this reason, some important studies reporting midwife support may not have been included.

Conclusions and recommendations

Conclusions

This scoping review provides a comprehensive overview of the midwives' interventions for reducing FOC in pregnant women. It found 34 studies conducted with different designs in several midwifery care contexts.

The availability of these interventions varies widely across countries, reflecting the different levels of organization of midwifery care. More than half of the 34 included studies reported interventions led and implemented by midwives, alone or with the participation of other health professionals. In the remaining studies, midwives were integrated into a multidisciplinary team.

The literature describes a significant number of interventions for reducing FOC in pregnant women with midwife involvement. The most common interventions were counselling and psychoeducation. The findings confirm that midwives are well-positioned to help women cope with FOC within their autonomous competencies, which may help explain the variability of interventions. Reducing FOC and promoting normal childbirth as a positive experience are important issues of midwife care that should use women's empowerment measures such as making a written/verbal birth plan; visiting the labor ward; providing childbirth education; encouraging women to express their emotions and attitudes about childbirth, and helping women to process previous negative birth experiences, when applicable.

The results can be used to inform the development of models of care addressed to pregnant women with FOC that place the midwife and the women at the center of care, as well as midwives' formal

education. The number of high-quality primary studies identified in this review make it possible to assess the effectiveness of midwives' interventions.

Implications for research

Midwives and other relevant stakeholders from different domains need scientific evidence how to support pregnant women with FOC, and the type of support provided according to the culture of maternity care and the health system’s organization.

The reviewed literature points to a need for more primary studies to respond to the challenge of FOC in pregnant women within midwifery autonomy and midwifery practice. In particular, researchers should develop and test interventions based on midwife-led interventions. Future studies should explore how formal, evidence-based education of midwives and supervision models may open up avenues for quality of midwifery practice.

Future studies require larger-scale trials with multiple and longer-term follow-ups to examine the effect of the intervention on women’s reproductive health and well-being. This is crucial to enable the development of systematic reviews on the effectiveness of midwifery interventions to inform the best practice in supporting women with FOC. In addition, future research should make a cost-effectiveness analysis of the impact of these interventions on the health system.

Based on these findings, future qualitative studies should also try to better understand the origins of FOC and the needs of women with FOC. By addressing the root of childbirth-specific fears, midwives will help women develop specific strategies to cope with their fears and achieve a better childbirth experience. Finally, theory-based frameworks of care for pregnant women with FOC should be developed, piloted, tested, and evaluated.

Implications for practice

This scoping review has provided a worldwide overview of the comprehensiveness, organization, and context of interventions led and/or implemented by midwives for reducing FOC in pregnant women in midwifery settings. These findings should be implemented into the clinical settings so that midwives and other healthcare professionals can recognize and address FOC. Translating evidence into practice is often challenging, and this research could bring valuable insights into improving and making sustainable changes to midwifery practice.

In many countries, FOC is not recognized as a problem that requires a specialized approach and integration into the national antenatal care program. Hence, these findings emphasized that raising awareness about FOC, its early diagnosis, and appropriate support should be top priorities in maternal health for reducing the clinical, social, and economic burden of FOC.

The use of a screening tool or a one-on-one conversation to identify pregnant women's fears should be a common practice throughout pregnancy, even if women do not raise the issue, so that appropriate expert support can be offered.

This review informs midwives caring for pregnant women with FOC about key interventions for reducing FOC, adopting positive feelings about normal childbirth, and increasing confidence to make informed birth decisions, therefore improving reproductive health. Additionally, midwives, obstetricians,

and other health professionals should work together to ensure timely and effective care for women with FOC.

Health policymakers seeking to provide equal access to maternity care should be aware of the inequalities in caring for pregnant women with FOC. Moreover, policymakers in regions of the world where health systems do not provide midwife-led care should recognize the importance of midwives in improving maternity care and review the funding of midwife-led services.

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Conflicts of interest

The authors declare no conflict of interest.

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Appendix I: Search strategy

Database: Scopus

Search conducted on October 8, 2020

ID	Query	Records retrieved
#1	TITLE-ABS-KEY (((fear OR afraid OR tokophobia) AND (partur* OR labor OR labour OR deliver* OR child* OR birth*) AND (midwi* OR (obstetr* AND nurs*))) OR ((medo OR tocofobia) AND (parturição OR parto OR trabalho de parto OR nascimento) AND (parteir* OR (enfermeir* AND obstetr*))) OR ((miedo OR tocofobia) AND (parturición OR alumbramiento OR parto OR trabajo de parto OR nacimiento) AND (parter* OR matron* OR comadron* OR (enfermer* AND obstetr*)))) AND (LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2007) OR LIMIT-TO (PUBYEAR , 2006) OR LIMIT-TO (PUBYEAR , 2005) OR LIMIT-TO (PUBYEAR , 2004) OR LIMIT-TO (PUBYEAR , 2003) OR LIMIT-TO (PUBYEAR , 2002) OR LIMIT-TO (PUBYEAR , 2001) OR LIMIT-TO (PUBYEAR , 2000) OR LIMIT-TO (PUBYEAR , 1999) OR LIMIT-TO (PUBYEAR , 1998) OR LIMIT-TO (PUBYEAR , 1997) OR LIMIT-TO (PUBYEAR , 1996) OR LIMIT-TO (PUBYEAR , 1995) OR LIMIT-TO (PUBYEAR , 1994) OR LIMIT-TO (PUBYEAR , 1993) OR LIMIT-TO (PUBYEAR , 1992) OR LIMIT-TO (PUBYEAR , 1991) OR LIMIT-TO (PUBYEAR , 1990) OR LIMIT-TO (PUBYEAR , 1989) OR LIMIT-TO (PUBYEAR , 1988) OR LIMIT-TO (PUBYEAR , 1987) OR LIMIT-TO (PUBYEAR , 1986) OR LIMIT-TO (PUBYEAR , 1985) OR LIMIT-TO (PUBYEAR , 1984) OR LIMIT-TO (PUBYEAR , 1983) OR LIMIT-TO (PUBYEAR , 1982) OR LIMIT-TO (PUBYEAR , 1981))	**768**

Database: Web of Science

Search conducted on October 8, 2020

ID	Query	Records retrieved
#1	((((fear OR afraid OR tokophobia) AND (partur* OR labor OR labour OR deliver* OR child* OR birth*) AND (midwi* OR (obstetr* AND nurs*))) OR ((medo OR tocofobia) AND (parturição OR parto OR trabalho de parto OR nascimento) AND (parteir* OR (enfermeir* AND obstetr*))) OR ((miedo OR tocofobia) AND (parturición OR alumbramiento OR parto OR trabajo de parto OR nacimiento) AND (parter* OR matron* OR comadron* OR (enfermer* AND obstetr*))))).	**801**

Database: Cochrane Library

Search conducted on October 8, 2020

ID	Query	Records retrieved
#1	(((fear OR afraid OR tokophobia) AND (partur* OR labor OR labour OR deliver* OR child* OR birth*) AND (midwi* OR (obstetr* AND nurs*))) OR ((medo OR tocofobia) AND (parturição OR parto OR trabalho de parto OR nascimento) AND (parteir* OR (enfermeir* AND obstetr*))) OR ((miedo OR tocofobia) AND (parturición OR alumbramiento OR parto OR trabajo de parto OR nacimiento) AND (parter* OR matron* OR comadron* OR (enfermer* AND obstetr*))))	**5**

Database: EBSCO

Psychology and Behavioral Sciences Collection; Academic Search Complete; CINAHL Complete; ERIC; MedicLatina

Search conducted on October 8, 2020

ID	Query	Records retrieved
#1	TI ((fear OR afraid OR tokophobia) AND (partur* OR labor OR labour OR deliver* OR child* OR birth*) AND (midwi* OR (obstetr* AND nurs*))) OR ((medo OR tocofobia) AND (parturição OR parto OR trabalho de parto OR nascimento) AND (parteir* OR (enfermeir* AND obstetr*))) OR ((miedo OR tocofobia) AND (parturición OR alumbramiento OR parto OR trabajo de parto OR nacimiento) AND (parter* OR matron* OR comadron* OR (enfermer* AND obstetr*))). OR SU ((fear OR afraid OR tokophobia) AND (partur* OR labor OR labour OR deliver* OR child* OR birth*) AND (midwi* OR (obstetr* AND nurs*))) OR ((medo OR tocofobia) AND (parturição OR parto OR trabalho de parto OR nascimento) AND (parteir* OR (enfermeir* AND obstetr*))) OR ((miedo OR tocofobia) AND (parturición OR alumbramiento OR parto OR trabajo de parto OR nacimiento) AND (parter* OR matron* OR comadron* OR (enfermer* AND obstetr*))). OR AB ((fear OR afraid OR tokophobia) AND (partur* OR labor OR labour OR deliver* OR child* OR birth*) AND (midwi* OR (obstetr* AND nurs*))) OR ((medo OR tocofobia) AND (parturição OR parto OR trabalho de parto OR nascimento) AND (parteir* OR (enfermeir* AND obstetr*))) OR ((miedo OR tocofobia) AND (parturición OR alumbramiento OR parto OR trabajo de parto OR nacimiento) AND (parter* OR matron* OR comadron* OR (enfermer* AND obstetr*))).	**751**

Database: RCAAP – Repositório Científico de Acesso Aberto de Portugal

Search conducted on October 9, 2020

ID	Query	Records retrieved
#1	TI ((medo parto) OR AB (medo parto) OR SU (medo parto))	**192**

Database: CAPES

Search conducted on October 9, 2020

ID	Query	Records retrieved
#1	medo do parto AND enfermeira obstetra	**181**
#2	medo do parto AND parteira	**43**
#3	medo do parto AND obstetriz	**21**

Database: OPEN GREY

Search conducted on October 9, 2020

No possibility of limiting the search to title, abstract and keywords

ID	Query	Records retrieved
#1	((fear OR afraid OR tokophobia) AND (partur* OR labor OR labour OR deliver* OR child* OR birth*) AND (midwi* OR (obstetr* AND nurs*))) OR ((medo OR tocofobia) AND (parturição OR parto OR trabalho de parto OR nascimento) AND (parteir* OR (enfermeir* AND obstetr*))) OR ((miedo OR tocofobia) AND (parturición OR alumbramiento OR parto OR trabajo de parto OR nacimiento) AND (parter* OR matron* OR comadron* OR (enfermer* AND obstetr*))).	**3**

Database: ETHOS

Search conducted on October 9, 2020

No possibility of replicating the term.

Simplified term: fear AND childbirth

ID	Query	Records retrieved
#1	fear AND childbirth	**30**

Database: OvidSP

Search conducted on October 9, 2020

ID	Query	Records retrieved
#1	(fear OR afraid OR tokophobia) AND (partur* OR labor OR labour OR deliver* OR child* OR birth*) AND (midwi* OR (obstetr* AND nurs*))	**43**

Database: APA PsycInfo

Search conducted on October 9, 2020

ID	Query	Records retrieved
#1	(Keywords: fear OR Keywords: afraid OR Keywords: tokophobia) AND (Keywords: parturition OR Keywords: labor OR Keywords: labour OR Keywords: delivery OR Keywords: childbirth OR Keywords: birth) AND (Keywords: midwife OR (Keywords: obstetric AND Keywords: nurse)) OR (Title: fear OR Title: afraid OR Title: tokophobia) AND (Title: parturition OR Title: labor OR Title: labour OR Title: delivery OR Title: childbirth OR Title: birth) AND (Title: midwife OR (Title: obstetric AND Title: nurse)) OR (Abstract: fear OR Abstract: afraid OR Abstract: tokophobia) AND (Abstract: parturition OR Abstract: labor OR Abstract: labour OR Abstract: delivery OR Abstract: childbirth OR Abstract: birth) AND (Abstract: midwife OR (Abstract: obstetric AND Abstract: nurse)) AND Year: 1981 To 2020	**18**

Database: ProQuest Dissertations and Theses

Applied Social Sciences Index & Abstracts (ASSIA), ASFA: Aquatic Sciences and Fisheries Abstracts, Coronavirus Research Database, ERIC, Library & Information Science Abstracts (LISA), National Criminal Justice Reference Service (NCJRS) Abstracts Database, PTSDpubs, Publicly Available Content Database, Sociological Abstracts, Sports Medicine & Education Index, Technology Collection

Search conducted on October 9, 2020

ID	Query	Records retrieved
#1	((fear OR afraid OR tokophobia) AND (parturition OR labor OR labour OR delivery OR childbirth OR birth) AND (midwife)) AND stype.exact ("Dissertations & Theses")	**1,089**

Appendix II: Studies ineligible following full-text review

1. Baylis R, Ekdahl J, Haines H, Rubertsson C. Women's experiences of internet-delivered Cognitive Behaviour Therapy (iCBT) for Fear of Birth. Women Birth 2020 May;33(3):e227–e233. https://doi.org/10.1016/j.wombi.2019.05.006

Reason for exclusion: ineligible concept

2. Bak C. The role of fear in the U.S. birthing process. Midwifery Today Int Midwife 2003 Fall;(67):24–27.

Reason for exclusion: ineligible concept

3. Baldry J, Earhart M, Carlson L, Porret D, Jones JK, Bea GL, Smith C, McDonald L. What do you do to overcome your fears in midwifery and/or birth? Midwifery Today Int Midwife 2003 Fall;(67):8, 66.

Reason for exclusion: ineligible concept

4. Bewley S, Cockburn J. Responding to fear of childbirth. Lancet 2002 Jun 22;359(9324):2128–2129. https://doi.org/10.1016/S0140-6736(02)09113-4

Reason for exclusion: ineligible concept

5. Burns E, Blamey C, Ersser SJ, Lloyd AJ, Barnetson L. The use of aromatherapy in intrapartum midwifery practice an observational study. Complement Ther Nurs Midwifery 2000 Feb;6(1):33–34. https://doi.org/10.1054/ctnm.1999.0901

Reason for exclusion: ineligible concept

6. Catling-Paull C, Dahlen H, Homer CS. Multiparous women's confidence to have a publicly-funded homebirth: a qualitative study. Women Birth 2011 Sep;24(3):122–128. https://doi.org/10.1016/j.wombi.2010.09.001

Reason for exclusion: ineligible concept

7. Christiaens W, Van De Velde S, Bracke P. Pregnant women's fear of childbirth in midwife- and obstetrician-led care in Belgium and the Netherlands: test of the medicalization hypothesis. Women Health 2011 May;51(3):220–239. https://doi.org/10.1080/03630242.2011.560999

Reason for exclusion: ineligible concept

8. Chuahorm U, Sripichyakarn K, Tungpunkom P, Klunklin A, Kennedy P. Fear and suffering during childbirth among Thai women. Thai J Nurs Res 2007;11(1):49–61.

Reason for exclusion: ineligible concept

9. Eriksson C, Jansson L, Hamberg K. Women's experiences of intense fear related to childbirth investigated in a Swedish qualitative study. Midwifery 2006 Sep;22(3):240–248. https://doi.org/10.1016/j.midw.2005.10.002
Reason for exclusion: ineligible concept

10. Eriz LA, Balboa BC, Hinarejos MF, Pascual EM. Miedo al parto. Metas de Enferm 2011 May;14(4): 20–25.
Reason for exclusion: ineligible concept

11. Fenwick J, Staff L, Gamble J, Creedy DK, Bayes S. Why do women request caesarean section in a normal, healthy first pregnancy? Midwifery 2010 Aug;26(4):394–400. https://doi.org/10.1016/j.midw.2008.10.011
Reason for exclusion: ineligible concept

12. Fernández IDM, Sellés EM. The birth plan. What do we know about it? Matronas Profesión 2011 Jan;11(2):53–57.
Reason for exclusion: ineligible concept

13. Field T. Facing fears, embracing birth. Midwifery Today Int Midwife. 2010 Summer;(94):42–43.
Reason for exclusion: unable to obtain full-text

14. Fletcher, G. RCM 'Campaign for normal birth' and the NCT: helping women fight fear of childbirth. RCM Midwives 2006;9(2):63.
Reason for exclusion: ineligible concept

15. Gamble J, Creedy D, Moyle W, Webster J, McAllister M, Dickson P. Effectiveness of a counseling intervention after a traumatic childbirth: a randomized controlled trial. Birth. 2005 Mar;32(1):11–19. https://doi.org/10.1111/j.0730-7659.2005.00340.x.
Reason for exclusion: ineligible concept

16. Gamble JA, Creedy DK, Toohill J, Fenwick J, Slavin VJ. Identifying barriers and enablers as a first step in the implementation of a midwife-led psychoeducation counselling framework for women fearful of birth. Int J Childbirth 2017 Sep;7(3):152–168. https://doi.org/10.1891/2156-5287.7.3.152
Reason for exclusion: ineligible concept

17. Gamble JA, Toohill J, Slavin VJ, Creedy DK, Fenwick J. Moving beyond the RCT to the real world of practice: Implementing BELIEF, a midwifery led counselling framework to reduce childbirth fear, into practice. Women and Birth 2017 Oct; 30:27. https://doi.org/10.1016/j.wombi.2017.08.069
Reason for exclusion: unable to obtain full-text (congress abstract)

18. Hanell L. Anticipatory discourse in prenatal education. Discourse & Communication 2018 Feb;12(1):3–19. https://doi.org/10.1177/1750481317735708
Reason for exclusion: ineligible concept

19. Hazard L. Beyond fear, tension and panic: helping men enjoy the birth experience. Midwifery Today Int Midwife. 2010 Autumn;(95):28–29.
Reason for exclusion: ineligible concept

20. Helk A, Spilling HS, Smeby NA. Psychosocial Support by Midwives of Women with a Fear of Childbirth: A Study of 80 Women. Nord J Nurs Res 2008 June 28(2):47–49. https://doi.org/10.1177/010740830802800211
Reason for exclusion: ineligible concept

21. Hildingsson IM, Nilsson C, Karlström A, Lundgren I. A longitudinal survey of childbirth-related fear and associated factors. J Obstet Gynecol Neonatal Nurs 2011 Sep-Oct;40(5):532–543. https://doi.org/10.1111/j.1552-6909.2011.01274.x
Reason for exclusion: ineligible concept

22. Hildingsson IM, Rubertsson C. Childbirth experiences among women with fear of birth randomized to internet-based cognitive therapy or midwife counseling. J Psychosom Obstet Gynaecol 2020 Sep;41(3):205–14. https://doi.org/10.1080/0167482X.2019.1634047
Reason for exclusion: ineligible concept

23. Hildingsson IM, Rubertsson C, Karlström A, Haines HM. A known midwife can make a difference for women with fear of childbirth-birth outcome and women's experiences of intrapartum care. Sex Reprod Healthc 2019 Oct;21:33–38. https://doi.org/10.1016/j.srhc.2019.06.004
Reason for exclusion: ineligible concept

24. Keast K. How midwives are reducing fear of childbirth. Aust Nurs Midwifery J 2016 Oct;24(4):30.
Reason for exclusion: ineligible concept

25. Kirkham M. Fear, Trust and Safety. Midwifery Matters 2011;131:3–4.
Reason for exclusion: ineligible concept

26. Kızılırmak A, Başer M. The effect of education given to primigravida women on fear of childbirth. Appl Nurs Res 2016 Feb;29:19–24. https://doi.org/10.1016/j.apnr.2015.04.002.
Reason for exclusion: ineligible participants

27. Klabbers GA, JAvB H, MAvdH M, AJJM V. Severe fear of childbirth: its features, assessment, prevalence, determinants, consequences and possible treatments. Psychol Topics 2016;25(1):107–127.
Reason for exclusion: ineligible concept

28. Klabbers GA, Wijma K, Paarlberg KM, Emons WH, Vingerhoets AJ. Treatment of severe fear of childbirth with haptotherapy: design of a multicenter randomized controlled trial. BMC Complement Altern Med 2014 Oct 8;14:385. https://doi.org/10.1186/1472-6882-14-385
Reason for exclusion: ineligible participants

29. Klabbers GA, Wijma K, Paarlberg KM, Emons WHM, Vingerhoets AJJM. Haptotherapy as a new intervention for treating fear of childbirth: a randomized controlled trial. J Psychosom Obstet Gynaecol 2019 Mar;40(1):38–47. https://doi.org/10.1080/0167482X.2017.1398230
Reason for exclusion: ineligible concept

30. Larsson B, Karlström A, Rubertsson C, Ternström E, Ekdahl J, Segebladh B, Hildingsson I. Birth preference in women undergoing treatment for childbirth fear: A randomised controlled trial. Women Birth 2017 Dec;30(6):460–467. https://doi.org/10.1016/j.wombi.2017.04.004
Reason for exclusion: ineligible concept

31. Likis FE. Evidence-based maternity care: change we need [Editorial]. J Midwifery Womens Health 2009 Mar-Apr;54(2):97. https://doi.org/10.1016/j.jmwh.2008.12.015
Reason for exclusion: ineligible concept

32. Lilian S. Facing birth fears. Prof Nurs Today 2016;20(2):48–49.
Reason for exclusion: ineligible concept

33. Lyberg A, Severinsson E. Fear of childbirth: mothers' experiences of team-midwifery care - a follow-up study. J Nurs Manag 2010 May;18(4):383–390. https://doi.org/10.1111/j.1365-2834.2010.01103.x
Reason for exclusion: ineligible context

34. Lyberg A, Severinsson E. Midwives' supervisory styles and leadership role as experienced by Norwegian mothers in the context of a fear of childbirth. J Nurs Manag 2010 May;18(4):391–399. https://doi.org/10.1111/j.1365-2834.2010.01083.x
Reason for exclusion: ineligible concept

35. Martin T, Hauck Y, Fenwick J, Butt J, Wood J. Evaluation of a next birth after caesarean antenatal clinic on women's birth intention and outcomes, knowledge, confidence, fear and perceptions of care. Evidence Based Midwifery 2014;12(1):11–15.

Reason for exclusion: ineligible concept

36. Masoumi SZ, Kazemi F, Oshvandi K, Jalali M, Esmaeili-Vardanjani A, Rafiei H. Effect of Training Preparation for Childbirth on Fear of Normal Vaginal Delivery and Choosing the Type of Delivery Among Pregnant Women in Hamadan, Iran: A Randomized Controlled Trial. J Family Reprod Health. 2016 Sep;10(3):115-121.

Reason for exclusion: ineligible participants

37. Melender HL. Fears and coping strategies associated with pregnancy and childbirth in Finland. J Midwifery Womens Health. 2002 Jul-Aug;47(4):256–63. https://doi.org/10.1016/s1526-9523(02)00263-5

Reason for exclusion: ineligible context

38. Menelli S. Positive birth stories transform fear into confidence and prospects into clients. Midwifery Today Int Midwife 2007 Winter;(84):31.

Reason for exclusion: ineligible concept

39. MoghaddamHosseini V, Nazarzadeh M, Jahanfar S. Interventions for reducing fear of childbirth: A systematic review and meta-analysis of clinical trials. Women Birth 2018 Aug;31(4):254–262. https://doi.org/10.1016/j.wombi.2017.10.007

Reason for exclusion: ineligible participants / duplicate information

40. Mogren I, Winkvist A, Dahlgren L. Trust and ambivalence in midwives' views towards women developing pelvic pain during pregnancy: a qualitative study. BMC Public Health 2010 Oct; 12;10:600. https://doi.org/10.1186/1471-2458-10-600

Reason for exclusion: ineligible concept

41. Mohlander M, Ryding, EL. [Counseling can help women with fear of childbirth. A visit to the Aurora Center in Stockholm assessed by questionnaire survey]. FT Samtal kan hjalpa kvinnor med forlossningsradsla. Besok pa Auroramottagning i Stockholm varderade genom enkatstudie. Lakartidningen 2013 110(12):618–620.

Reason for exclusion: ineligible language (Swedish language)

42. Moola, Sandeep [BDS MHSM (Hons) MPhil PhD]. Tokophobia (Fear of Childbirth): Interventions Offered to Pregnant Women.

Reason for exclusion: unable to obtain full-text

43. Nieminen K, Andersson G, Wijma B, Ryding E-L, Wijma K. Treatment of nulliparous women with severe fear of childbirth via the Internet: a feasibility study. J Psychosom Obstet Gynecol 2016;37:37–43. https://doi.org/10.3109/0167482X.2016.1140143

Reason for exclusion: ineligible participants

44. Nieminen K, Malmquist A, Wijma B, Ryding E-L, Andersson G, Wijma K. Nulliparous pregnant women's narratives of imminent childbirth before and after internet-based a qualitative study. BJOG 2015 Aug;122(9):1259–1265. https://doi.org/10.1111/1471-0528.13358.

Reason for exclusion: ineligible participants

45. Nilsson C, Bondas T, Lundgren I. Previous birth experience in women with intense fear of childbirth. J Obstet Gynecol Neonatal Nurs 2010 May-Jun;39(3):298–309. https://doi.org/10.1111/j.1552-6909.2010.01139.x

Reason for exclusion: ineligible concept

46. O'Connell M. Collaboration on fear of childbirth. Br J Midwifery 2017 Dec;25(12):808–809. https://doi.org/10.12968/bjom.2017.25.12.808

Reason for exclusion: ineligible concept

47. Ogawa S, Misao H. Effectiveness of midwife's [sic] private meeting with pregnant women at the outpatient clinic. Journal of St. Luke's Society for Nursing Research 2005;9(1):55–61

Reason for exclusion: ineligible language (Japanese language)

48. Otley H. Fear of childbirth: Understanding the causes, impact and treatment. Br J Midwifery 2011; 19(4):215–220. https://doi.org/10.12968/bjom.2011.19.4.215

Reason for exclusion: ineligible concept

49. Oyira EJ, Mgbekem M, Osuchukwu EC, Affiong EO, Lukpata FE, Ojong-Alasia MM. Delivery Pain Anxiety/Fear Control between Midwives among Women in Cross River State, Nigeria. J Educ Train Stud 2016 Mar;4(3):138–149. http://dx.doi.org/10.11114/jets.v4i3.1346

Reason for exclusion: ineligible concept

50. Plested M, Kirkham M. Risk and fear in the lived experience of birth without a midwife. Midwifery 2016 Jul;38:29–34. https://doi.org/10.1016/j.midw.2016.02.009

Reason for exclusion: ineligible concept.

51. Prata AP, Santos C, Santos M. The Fear of Childbirth: A Study in the North of Portugal. 2016:42–50.

Reason for exclusion: ineligible concept

52. Ramvi E, Tangerud M. Experiences of women who have a vaginal birth after requesting a cesarean section due to a fear of birth: a biographical, narrative, interpretative study. Nurs Health Sci. 2011 Sep;13(3):269–274. https://doi.org/10.1111/j.1442-2018.2011.00614.x.

Reason for exclusion: ineligible concept

53. Robinson J. Fear of childbirth: does counselling help? AIMS Journal 2004;16(1):3–4.
Reason for exclusion: unable to obtain full-text

54. Rouhe H, Salmela-Aro K, Toivanen R, Tokola M, Halmesmäki E, Ryding EL, Saisto T. Group psychoeducation with relaxation for severe fear of childbirth improves maternal adjustment and childbirth experience-a randomised controlled trial. J Psychosom Obstet Gynaecol 2015;36(1):1–9. https://doi.org/10.3109/0167482X.2014.980722.
Reason for exclusion: ineligible participants

55. Ryding EL, Persson A, Onell C, Kvist L. An evaluation of midwives' counseling of pregnant women in fear of childbirth. Acta Obstet Gynecol Scand 2003 Jan;82(1):10–17. https://doi.org/10.1034/j.1600-0412.2003.820102.x
Reason for exclusion: ineligible concept

56. Salmela-Aro K, Read S, Rouhe H, Halmesmäki E, Toivanen RM, Tokola MI, *et al*. Promoting positive motherhood among nulliparous pregnant women with an intense fear of childbirth: RCT intervention. J Health Psychol 2012;17:520–534. https://doi.org/10.1177/1359105311421050
Reason for exclusion: ineligible participants

57. Salomonsson B, Alehagen S, Wijma K. Swedish midwives' views on severe fear of childbirth. Sex Reprod Healthc 2011 Nov;2(4):153–159. https://doi.org/10.1016/j.srhc.2011.07.002
Reason for exclusion: ineligible concept

58. Salomonsson B, Bertero C, Alehagen S. Self-efficacy in pregnant women with severe fear of childbirth. J Obstet Gynecol Neonatal Nurs 2013 Mar-Apr; 42(2):191–202. https://doi.org/10.1111/1552-6909.12024
Reason for exclusion: ineligible concept

59. Salomonsson B, Wijma K, Alehagen S. Swedish midwives' perceptions of fear of childbirth. Midwifery 2010 Jun;26(3):327–337. https://doi.org/10.1016/j.midw.2008.07.003
Reason for exclusion: ineligible concept

60. Sapountzi-Krepia D, Tsaloglidou A, Psychogiou M, Lazaridou C, Julkunen KV. Mothers' experiences of pregnancy, labour and childbirth: a qualitative study in Northern Greece. Int J Nurs Pract. 2011 Dec;17(6):583–590. https://doi.org/10.13140/RG.2.1.2911.6963
Reason for exclusion: ineligible concept

61. Serçekuş P, Başkale H. Effects of antenatal education on fear of childbirth, maternal self-efficacy and parental attachment. Midwifery 2016;34:166-172. https://doi.org/10.1016/j.midw.2015.11.016
Reason for exclusion: Ineligible concept

62. Shahoei R, Abed Saeedi Z, Hesami K, Khosrawi F. P02-513 - Fears associated with pregnancy and childbirth among Kurdish women in Iran. Eur Psychiatry 2011 Dec 26(1):1109. https://doi.org/10.1016/S0924-9338(11)72814-0
Reason for exclusion: ineligible concept

63. Shahoei R, Riji HM, Saeedi ZA. 'Safe passage': pregnant Iranian Kurdish women's choice of childbirth method. J Adv Nurs 2011 Oct;67(10):2130–2138. https://doi.org/10.1111/j.1365-2648.2011.05656.x
Reason for exclusion: Ineligible concept

64. Sharifzadeh M, Haghighi NB, Keramat A, Goli M, Motaghi Z. Effectiveness of midwifery counseling based on solution-focused approaches on fear of childbirth. Koomesh 2018 Apr;20(2):375–383.
Reason for exclusion: ineligible language (Persian language)

65. Sheehy A, Foureur M, Catling-Paull C, Homer C. Examining the content validity of the birthing unit design spatial evaluation tool within a woman-centered framework. J Midwifery Womens Health 2011 Sep-Oct;56(5):494–502. https://doi.org/10.1111/j.1542-2011.2011.00059.x
Reason for exclusion: ineligible concept

66. Sjogren B, Thomassen P. Obstetric outcome in 100 women with severe anxiety over childbirth. Acta Obstet Gynecol Scand 1997;76: 948–952. https://doi.org/10.3109/00016349709034907.
Reason for exclusion: ineligible concept

67. Sjögren B. Fear of childbirth and psychosomatic support. A follow up of 72 women. Acta Obstet Gynecol Scand 1998 Sep;77(8):819–825. https://doi.org/10.1080/j.1600-0412.1998.770807.x
Reason for exclusion: ineligible concept

68. Striebich S, Mattern E, Ayerle GM. Support for pregnant women identified with fear of childbirth (FOC)/tokophobia - A systematic review of approaches and interventions. Midwifery 2018 Jun;61:97–115. https://doi.org/10.1016/j.midw.2018.02.013.
Reason for exclusion: ineligible concept / duplicate information

69. Stoll K, Swift EM, Fairbrother N, Nethery E, Janssen P. A systematic review of nonpharmacological prenatal interventions for pregnancy-specific anxiety and fear of childbirth. Birth 2018 Mar;45(1):7–18. https://doi.org/10.1111/birt.12316
Reason for exclusion: ineligible concept / duplicate information

70. Tiran D, Chummun H. Complementary therapies to reduce physiological stress in pregnancy. Complement Ther Nurs Midwifery 2004 Aug;10(3):162–167. https://doi.org/10.1016/j.ctnm.2004.03.006
Reason for exclusion: ineligible concept

71. Toohill J. Empowering midwives to address childbirth fear. Qld Nurse 2016 Sep;35(4):36.
Reason for exclusion: duplicate information

72. Toohill J, Callander E, Fox H, Lindsay D, Gamble J, Creedy D, et al. Socioeconomic differences in access to care in Australia for women fearful of birth. Aust Health Rev 2019 Jan;43(6):639–643. https://doi.org/10.1071/AH17271
Reason for exclusion: ineligible concept

73. Toohill J, Callander E, Gamble J, Creedy DK, Fenwick J. A cost effectiveness analysis of midwife psycho-education for fearful pregnant women - a health system perspective for the antenatal period. BMC Pregnancy Childbirth. 2017 Jul 11;17(1):217. https://doi.org/10.1186/s12884-017-1404-7
Reason for exclusion: ineligible concept

74. Yamamoto Y. Recognition and implementation of care by midwives for women leaving the island to give birth. J. Jpn. Acad. Midwif 2010; 24(2):294–306.
Reason for exclusion: ineligible language (Japanese language)

75. Young G. Intensive intervention for fear of childbirth did not reduce requests for caesarean section but decreased duration of vaginal labour. Evid Based Ment Health 2002 Aug;5(3):87. https://doi.org/10.1136/ebmh.5.3.87.
Reason for exclusion: ineligible concept

76. Walsh D. Birthwrite. Fear of labour and birth. Br J Midwifery 2002;10(2):78. https://doi.org/10.12968/bjom.2002.10.2.10189
Reason for exclusion: ineligible concept

77. Weaver J, Browne J, Aras-Payne A, Magill-Cuerden J. A comprehensive systematic review of the impact of planned interventions offered to pregnant women who have requested a caesarean section as a result of tokophobia (fear of childbirth). JBI Libr Syst Rev 2012;10(28 Suppl):1–20. https://doi.org/10.11124/jbisrir-2012-322
Reason for exclusion: ineligible concept / duplicate information

1609 **Appendix III.** Characteristics of included studies

1610

Author(s)/Year of publication/Country of origin	**Study design**	**FOC diagnosis** (e.g., tool and cutoff point used, if applicable)	**Study sample** Study and control group *N* = completed / included	**Other outcomes assessed/measured** (If applicable)	**Relevant details**
Saisto *et al*. (2001) Finland[67]	RCT	**FOC diagnostic tool:** Specific questionnaire with 10 screening questions: Fear of Vaginal Delivery Scale **Cutoff points used in FOC diagnosis:** . High level: if: 5 or more affirmative answers or . Request for an elective CS (question 10)	*N* = 176 obstetrically low-risk and physically healthy pregnant women **Allocation:** Intensive therapy: *n* = 85 . Primiparous: *n* = 44 . Nulliparous: n= 41 Conventional therapy: *n* = 91 . Primiparous: *n* = 46 . Nulliparous: *n* = 45	. Requests for CS . Pregnancy-related anxiety . Birth-related concerns . Satisfaction with childbirth experience . Puerperal depression	
Saisto *et al*. (2006) Finland[68]	Case-control study	**FOC diagnostic tool:** Specific questionnaire with 10 screening questions: Fear of Vaginal Delivery Scale **Cutoff points used in FOC diagnosis:** . High level: if: 5 or more affirmative answers or . Request for an elective CS (question 10)	*N* = 187 nulliparous women in the 3rd trimester **Allocation:** **.** Experimental group: *n* = 102 / 102 **.** Comparison group: *n* = 85 / 85	. Mode of delivery . Evaluation of intervention helpfulness	
Nerum *et al*. (2006) Norway[56]	Cohort study	**FOC diagnostic tool**: Clinical diagnostic interview with 5 dichotomous categories (regarding symptoms associated with fear) **Cutoff points used in FOC diagnosis:** . Moderate level: if confirmed 3 of 5 categories. . Severe level: if confirmed 4 or 5 categories.	*N* = 86 pregnant women with FOC and a concurrent request for CS . Moderate level: *n* = 28 . Severe level: *n* = 58 . Nulliparous: *n* = 13 . Multiparous: *n* = 73	. Change in maternal wishes for mode of birth - Choosing vaginal birth - Requests for CS . Birth outcomes . Women's satisfaction with intervention team . Preferences for mode of birth in future births	
Kjærgaard *et al*. (2008) Denmark & Sweden[69]	Cross-sectional correlational study	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score ≥ 85 / 100 (Severe FOC)	*N* = 165 nulliparous women **. 55 Swedish women** (had not met the midwife during pregnancy **. 110 Danish women:** **55** women had met the midwife during pregnancy **55** women had not met the midwife during pregnancy		This work includes two studies performed independently in Denmark and Sweden by two distinct research groups.
Halvorsen *et al*. (2010) Norway[70]	Experimental study	**FOC diagnostic tool**: 5 Clinical diagnostic interviews with 5 dichotomous variables for grading FOC (regarding symptoms associated with fear) **Cutoff points used in FOC diagnosis:**	Two samples of pregnant women with FOC and concurrent request for a CS, referred to the antenatal clinic. **. Sample 1: 86 women** (2000–2002): **43** counselled by midwife A (who conveyed a "coping"	• Change of requests for a CS to giving birth vaginally • Vaginal birth after counselling	

		. Moderate level: if confirmed 3 of 5 categories. . Severe level: if confirmed 4 or 5 categories.	attitude and approach) **43** counselled by midwife B (who conveyed an "autonomy" attitude and approach) **. Sample 2: 107 women** (2004–2006): **63** counselled by midwife A **44** counselled by midwife B (Both counselors conveyed a "coping" attitude and approach)		
Sydsjö *et al.* (2012) Sweden[66]	Case-control study	**FOC diagnostic tool**: Clinical diagnosis via a diagnostic interview based on DSM-IV **Cutoff point used in FOC diagnosis:** severe FOC (according to DSM-IV)	Index group *n* = 353 pregnant women with severe FOC . 34.7% nulliparous Reference group: *n* = 579 pregnant women without FOC . 41.8% nulliparous	• Delivery data: - Delivery outcome - Birth complications - Complications during delivery • Complications postpartum • Complications during pregnancy	
Rouhe *et al*. (2013) Finland[71]	RCT	**1. FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score used: ≥ 100 / 165 points **2. FOC diagnostic tool:** Visual Analogue Scale (VAS) "How afraid they were of childbirth" (scale from 0–10)	*N* = 371 / 412 nulliparous women with 11–13 weeks of gestation **Allocation:** Intervention group: *n* = 131 / 172 Control group: *n* = 240 / 240	• Mode of delivery - Spontaneous vaginal delivery - Instrumental vaginal delivery - Elective CS - Emergency CS • Delivery satisfaction	
Fenwick *et al*. (2013) Australia[18]	RCT	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used to FOC diagnosis:** Score used: ≥ 66 / 165 points (High FOC)	Pregnant women in their 2nd trimester of pregnancy (Both nulliparous and multiparous) **Allocation:** Intervention group: *n* = 150 Control group: *n* = 150	• Decisional conflict • Depressive symptoms • Childbirth self-efficacy • Health and obstetric outcomes	Study protocol: BELIEF intervention
Byrne *et al.* (2014) Australia[72]	Mixed-methods	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** MD	*N* = 12/18 healthy nulliparous women with 18–28 weeks of gestation	• Mindfulness • Depression, anxiety, stress levels • Childbirth self-efficacy • Birth outcome expectancies	Study protocol: MBCE intervention
Brodrick (2014) United Kingdom[51]	Case study	**FOC diagnostic tool:** Interview focusing on maternal request for an elective CS related to childbirth-related fears.	*N* = 71 pregnant women referred to a 'birth options' clinic (Both nulliparous and multiparous) 60% (*n* = 43) of these women had requested CS related to FOC *n* = 43	• Requests of CS • Preferred mode of birth after consultation • Mode of birth	
Guszkowska (2014) Poland[52]	Non-experimental study	**FOC diagnostic tool:** Fear of Childbirth Scale **Cutoff points used in FOC diagnosis:** MD	*N* = 109 healthy pregnant women (primigravida) in their 17th to 32nd week of pregnancy. **Allocation:** Physical exercise classes: *n* = 62 Childbirth classes: *n* = 47	• Beliefs concerning locus of labor pain control	

Sydsjö *et al.* (2014) Sweden[64]	Case-control study	**FOC diagnostic tool**: Clinical diagnosis via a diagnostic interview based on DSM-IV **Cutoff used in FOC diagnosis:** severe FOC with features of both physical and emotional signs such as avoidance, strong fear, anxiety, and panic.	Index group: *n* = 181 / 608 nulliparous women with severe FOC Reference group: *n* = 431 / 431 nulliparous women without FOC	• Pregnancy complications • Inpatient care during pregnancy • Complications during delivery • Mode of delivery - Vaginal delivery - Instrumental delivery - Elective CS - Emergency CS • Active labor duration • Birth weight • Length at birth • Gestation week at birth	
Toohill *et al*. (2014) Australia[19]	RCT	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score used: ≥ 66 / 165 points (High FOC)	*N* = 198 / 339 pregnant Australian women in their 2nd trimester of pregnancy (Both nulliparous and multiparous) **Allocation:** Study group: *n* = 101/170 Control group: *n* = 97/169	• Childbirth self-efficacy • Decisional conflict • Depressive symptoms	Study based on the BELIEF intervention Details have been published in the study by Fenwick *et al.*[18]
Fenwick *et al*. (2015) Australia[17]	RCT	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score used: ≥ 66 / 165 points (High FOC)	*N* = 184 / 339 pregnant Australian women in their 2nd trimester of pregnancy (Both nulliparous and multiparous) **Allocation:** Intervention group: . pre-intervention: *n* = 170 . post-intervention: *n* = 91 Control group: *n* = 93 / 169	• Mode of birth and obstetric events - Mode of birth - Preference of CS in a subsequent pregnancy - Induction of labor - Use of epidural - Neonatal admission to a care nursery - Satisfaction with birth mode • Psychological factors - Depressive symptoms - Distressing flashbacks to birth - Parenting confidence	Study based on the BELIEF intervention Details have been published in the studies by Fenwick *et al.*[18] and Toohill *et al*.[19]
Larsson *et al.* (2015) Sweden[73]	Comparative longitudinal study	**FOC diagnostic tool:** self-reported childbirth fear through follow question: "Worries and fears are common feelings among women when facing childbirth. To what extent do you experience worry and fear at present?" 4-point Likert-scale ranging from "a great deal" to "not at all".	*N* = 833 / 936 women pregnant women **Allocation:** • Intervention group: *n* = 70 / 70 pregnant women underwent counselling due to FOC 45 % nulliparous 55% multiparous • Control group: *n* = 763 / 866 pregnant women without counselling	• Experience of counseling • Birth experience • Preferred mode of birth	
Navaee & Abedian (2015) Iran[74]	RCT	**FOC diagnostic tool:** Childbirth Attitude Questionnaire (CAQ) **Cutoff points used in FOC diagnosis:** Score used: > 28 / 56 points	*N* = 67 primiparous women with pregnancy at 34–36 weeks and with no indication of CS **Allocation:** • Role play group: *n* = 35 • Lecture education group: *n* = 32	• Decision on the mode of birth	

Sydsjö *et al.* (2015) Sweden[65]	Case-control study	**FOC diagnostic tool**: Clinical diagnosis via a diagnostic interview based on DSM-IV **Cutoff points used in FOC diagnosis:** severe FOC (according to DSM-IV)	*N* = 37 / 42 pregnant women Index group: *n* = 11 / 14 pregnant women with severe FOC . 3 primiparous . 8 parous Reference group: *n* = 26 / 28 pregnant women without FOC	• Childbirth outcomes - Duration of active labor - Use of pain relief - Frequency of emergency CS • Subjective evaluation of childbirth experience	
Gökçe İsbir *et al.* (2016) Turkey[53]	Quasi-experimental study	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score used: MD	*N* = 90 / 100 nulliparous women with 20–32 weeks of gestation **Allocation:** Intervention group: *n* = 44 / 50 Control group: *n* = 46 / 50	• Maternal self-efficacy • Post-traumatic stress disorder symptoms after childbirth	
Karabulut *et al*. (2016) Turkey[75]	Quasi-experimental study	**FOC diagnostic tool:** W-DEQ version A (Administered via face-to-face interview) **Cutoff points used in FOC diagnosis:** Score used: MD	*N* = 192 / 300 primiparous women within weeks 24–28 of gestation **Allocation:** Intervention group: *n* = 69 / 100 Control group: *n* = 123 / 200	• Acceptance of pregnancy • Identification with motherhood role	
Larsson *et al*. (2016) Sweden[20]	Nationl cross-sectional study	**FOC diagnostic tool:** **Several methods:** . The antenatal midwife approached the woman and asked about FOC. . The woman self-identified with FOC. . A screening instrument for FOC was used. . FOC was assessed based on existing guidelines before referral. (Data extracted from study results)	Midwives working with counselling for FOC in obstetric clinics in Sweden *N* = 43 / 45 participating clinics	Outcomes: NA **Topics addressed in the results:** • Extent of counseling • Organization of the counselling team • Work procedure • Content of counseling • Evaluation of the counseling • The midwives' requests	Study aim: To study comprehensiveness, content and organization of the midwife-led counseling for FOC in all obstetric clinics in Sweden.
Andaroon *et al*. (2017) Iran[76]	RCT	**FOC diagnostic tool:** W-DEQ version A (Administered via face-to-face interview) **Cutoff points used in FOC diagnosis:** Score used: 38–84 / 165 points (Moderate and high FOC)	N= 90 / 96 primiparous women, with gestational ages of 28–30 weeks and low-risk pregnancy **Allocation:** Intervention group: n= 45 / 48 Control group: *n* = 45 / 48	• Level of satisfaction with counselling	
Haapio *et al*. (2017) Finland[77]	RCT	**FOC diagnostic tool:** two subscales (objects of fears and manifestations of fears) from the questionnaire "Feelings of Fear and Security Associated with Pregnancy and Childbirth"	*N* = 659 / 715 nulliparous women < 14 weeks gestation **Allocation:** Intervention group: *n* = 338 / 367 Control group: *n* = 321 / 348	• Objects of childbirth fears as a primary outcome: - Childbirth-related fear - Fear for child's and mother's well-being - Fear related to CS	

		• The subscale of objects of fears - 5-point Likert scale (1 = disagree totally to 5 = agree totally) . Slight fear (sum variable mean ≤ 2) . Moderate fear (2 < sum variable mean <4) . Severe fear (sum variable mean ≥4) • The subscale for manifestations of fears was dichotomous (1 = no, 2 = yes) . In the 'yes' category, respondents had symptoms due to fear . In the 'no' category, the respondents were asymptomatic.		• Manifestations of childbirth fears as a secondary outcome - Influence on everyday life - Stress symptoms - Wish to have a CS	
Kordi *et al*. (2017) Iran[78]	Quantitative research: RCT	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score used: ≥ 66 / 165 points	*N* = 122 / 140 primigravida women with a gestational age of 14 to 28 weeks **Allocation:** Intervention group: *n* = 60 / 70 Control group: *n* = 62 / 70	• Mode of delivery	
Soltani *et al*. (2017) Iran[79]	RCT	**FOC diagnostic tool:** CAQ **Cutoff points used in FOC diagnosis:** Score ≥ 28 / 56 points	*N* = 106 primigravida women, with a gestational age of 26 to 32 weeks **Allocation:** Intervention group: *n* = 53 Control group: *n* = 53	• Childbirth self-efficacy	
Fenwick *et al*. (2018) Australia[80]	Mixed-methods	**1. FOC diagnostic tool:** Fear of Birth Scale (FOBS) Two-item visual analogue scale (VAS): "How do you feel right now about the approaching birth?" **Cutoff points used in FOC diagnosis**: A score between 0–10 indicates the severity of their feelings for "calm" to "worried" and "no fear" to "strong fear". The two scores are averaged. Scores >6 = high FOC	*N* = 22 midwives, who routinely provided pregnancy care	Quantitative data • Midwives' knowledge of, and confidence around, childbirth fear • Midwives' micro-counselling skills. • Confidence to provide psychoeducation counselling Qualitative data • Barriers and enablers to embedding BELIEF into midwifery practice . *No time to care* . *Models of care: 'limited or no continuity'*	This paper reports on Phase two (knowledge translation) of the MIPP study Phase one of MIPP had been tested in reference no. 16 of the studies ineligible following full-text review
Ghasemi *et al*. (2018) Iran[81]	RCT	**Fear* measurement tool:** 10-point Likert scale * Fear, together with anxiety, has been considered physiological reaction as source of self-efficacy.	*N* = 60 nulliparous women who had not chosen their method of delivery. **Allocation:** Intervention group: *n* = 30 Control group: *n* = 30	• Self-efficacy levels on the choice of a normal vaginal delivery • Fear and anxiety levels	

Wahlbeck *et al*. (2018) Sweden[82]	Hermeneutic study	NA	*N* = 19 women . 10 nulliparous . 9 multiparous	Outcomes: NA	Study aim: To elucidate the experience of undergoing art therapy in women with FOC.
Wulcan *et al*. (2019) Sweden[83]	Focus group interviews and inductive content analysis	NA	*N* = 13 midwives who provided counselling and worked at a labor ward	Outcomes: NA	Study aim: to explore and describe the counselling of women with intense FOC from the viewpoint of midwives.
Abdollahi *et al*. (2020) Iran[84]	RCT	**1. FOC diagnostic tool:** W-DEQ version A (*) **Cutoff points used in FOC diagnosis:** Score > 60 = yes Score ≤ 60 = no **2. FOC diagnostic tool:** a 10-point Likert scale from 1 to 10 (1 = little to 10 = very much) before and after the intervention: "To what extent do you have FOC?" (**)	*N* = 70 pregnant women with gestational age of 26–33 weeks **Allocation:** Intervention group: *n* = 35 / 35 Control group: *n* = 34 / 35	Primary outcomes: • FOC levels (*) • Pregnancy-specific stress • General anxiety • Childbirth self-efficacy Secondary outcomes: • Subjective clinical improvement of FOC (**) • Intervention compliance • Participants' satisfaction with psychotherapy intervention	
Firouzan *et al*. (2020) Iran[85]	RCT	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score used: ≥ 66 / 165 points	*N* = 80 nulliparous women in weeks 20-23 of gestation **Allocation:** Intervention group *n* = 35 / 40 Control group *n* = 33 / 40	• FOC levels • Childbirth self-efficacy • Childbirth preference	Intervention based on the BELIEF protocol
Henriksen *et al*. (2020) Norway[86]	Cohort study	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score used: ≥ 85 / 165 points	*N* = 2145 pregnant women (Both primiparous and multiparous) Birthplace allocation: • Ålesund: n= 471 • Drammen: *n* = 417 • Trondheim: = 444 • Tromsø: *n* = 359 • Oslo: *n* = 454 Women without FOC: *n* = 1887 Women with FOC: *n* = 258	• FOC levels • Counselling received • Mode of birth • Unnecessary CS	Source data was extracted from the Norwegian cohort of the BIDENS study.[6]
Onchonga *et al*. (2020) Kenya[59]	Qualitative interview study	**FOC diagnostic tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** Score used: ≥ 66 / 165 points	*N* = 33 women . 16 primiparous women . 17 multiparous women	Outcomes: NA	
Swift *et al*. (2020) Iceland[87]	RCT	**FOC diagnostic tool:** FOBS Two-item 100 VAS: "How do you feel right now	*N* = 92 nulliparous women **Allocation:**	• Women's satisfaction with care • Autonomy in decision-making	

		about the approaching birth?" **Cutoff points used in FOC diagnosis**: A score between 0–100 indicates the severity of their feelings for "calm" to "worried" and "no fear" to "strong fear". The two scores are averaged. Scores >60 = high FOC.	Intervention group: *n* = 32 Control group: *n* = 60		
Wahlbeck *et al*. (2020) Sweden[88]	RCT	**1. FOC screening tool:** VAS: scale ranges from "0 – No fear of the birth" to "10 – Extremely fearful of the birth." **Cutoff points used in FOC diagnosis:** Score used: VAS of ≥7 **2. FOC diagnosis tool:** W-DEQ version A **Cutoff points used in FOC diagnosis:** . High FOC = W-DEQ-A score 8599 . Severe FOC = W-DEQ-A score ≥ 100 Measurement point: at any time during pregnancy up to the 35th week.	*N* = 82 pregnant women (Both primiparous and multiparous) **Allocation:** Intervention group: *n* = 39 / 55 Control group: *n* = 43 / 48	• Number of pregnant women whose FOC decreased from severe (≥100 W-DEQ points) to any level below this (≤99 W-DEQ points) • Changes in the mean W-DEQ • Number of MC sessions required by both groups • Mode of birth (uncomplicated vaginal birth; instrumental vaginal birth and emergency CS; planned CS) • Number of women with higher levels of FOC.	This study is a complement to a formerly published qualitative study.[82]

BELIEF: Birth Emotions-Looking to Improve Expectant Fear; **CAQ:** Childbirth Attitude Questionnaire; **CBSEI:** Childbirth self-efficacy inventory; **CS:** Cesarian section; **DSM-IV:** Diagnostic and Statistical Manual of Mental Disorders, 4ed; **FOBS:** Fear of Birth Scale; **FOC**: Fear of Childbirth; **MIPP: Midwives Improving care through Psychoeducation in Practice**; **NA:** Not Applicable; **MD:** Missing Data; **RCT:** Randomized controlled trial; **VAS:** Visual Analogue Scale; **WDEQ-A:** Wijma Delivery Expectancy/Experience Questionnaire Version A

Appendix IV. Characteristics of midwives' interventions for reducing FOC in pregnant women

Author(s)/Year of publication	Theoretical concept or underpinning empirical evidence	Core elements of the approach / activities	Pathways of contact (e.g., telephone, Face-to-face, electronic)	Health professionals involved	Intervention design					Supplemental Information: A. Qualifications/Training of professionals involved B. Expertise of professionals involved C. Supervision/Assessment of the intervention
					Start date	Working methods	Number of sessions	Frequency	Duration	
Saisto *et al*. (2001)[67]	Cognitive therapy based on the theoretical principles of psychotherapy.	• Routine obstetric check-ups combined with cognitive therapy: . 6 sessions . Visits to the obstetric ward . Access to the obstetrician and midwife via telephone . Provision of the same written information about mode of delivery and pain relief options. Specific information: • At 1st session: written information was given regarding the pros and cons of vaginal delivery and of CS and alternative modes of pain relief available at the hospital. • A session with the midwife and visits to the obstetric ward were recommended to provide more practical information about pain relief and possible interventions during labor and delivery. • At the last session before birth, the woman's personal written wishes related to labor and birth care were discussed and attached in the maternity file.	. Face-to-face . Via telephone (with obstetrician or midwife between sessions)	. An obstetrician who was a qualified therapist and had completed a course in childbirth psychology and cognitive therapy. (5 sessions at 24, 28, 32, 36 and 38 weeks of gestation) . A midwife (1 session at week 37 of pregnancy)	At week 26 of gestation	In group: Separately for the nulliparous and parous women	6 sessions	At 24, 28, 32, 36, 37, 38 weeks of gestation.	. Total duration with obstetrician: 225 hours 45 minutes / session . Total duration with midwife: 90 minutes	A and B
Saisto *et al*. (2006)[68]	Cognitive therapy based on the theoretical principles of psychoeducation.	Activities: discussions, visualization exercises, and relaxation exercises. • Each of the 5 sessions had a theme: . Effects of relaxation . Stages of delivery . Pain relief (a midwife described the process of labor and informed the women about pain relief options) . Parenthood . Wishes and written notes addressed to the midwife • Each session included a guided relaxation exercise. This exercise aimed to guide the women through all stages of delivery in a relaxed state of mind. Each woman was encouraged to create strengthening and soothing images.	Face-to-face	. 1 psychotherapist qualified in psychodynamic therapy . 1 midwife	At week 31 of gestation	In group: groups of 6 participants	7 sessions: . 5 sessions with psychotherapist .1 session with midwife . 1 session at 3rd month after birth	Weekly	Total duration: 10 hours 120 minutes / session Each session included a 45 minutes guided relaxation exercise.	A

Nerum *et al.* (2006)[56]	Based on Caplan's theory of psychological crises.	• Women were encouraged to express their feelings, thoughts, concerns, and experiences freely. Events and experiences that had direct relevance to the FOC were focused on and processed. • Information was given to correct women's mistaken perceptions about pregnancy and birth. • For some women, individual birth plans were made; wishes and needs were documented in writing and approved by the midwifery heads of the labor and postnatal wards. • The social worker gave advice and information on rights under the law. • Those women who, after counselling, maintained their request for CS were referred to the team obstetric consultant near the end of pregnancy.	Face-to-face	. 2 experienced midwives with additional training in mental health . 1 senior obstetric consultant . 1 social worker	Week 27 of pregnancy	Individually	Mean number of sessions:3.5 (Range 1–10) Variable number of sessions (according to individual needs and the woman's due date)	MD	. 1st session = 2 hours . Further sessions: variable . Mean duration of the intervention: 5.1 hours (range 1.0-15 hours)	A
Kjærgaard *et al.* (2008)[69]	MD	Main element of approach: • to meet the midwife (assisting at the birth) during pregnancy from antenatal visits, home visit or antenatal classes; from admission to hospital during pregnancy or from "other encounters".	Face-to-face	A midwife	MD	Individually	MD	MD	MD	MD
Halvorsen *et al.* (2010)[70]	Crisis-oriented counselling therapy based on a patient-oriented method: A. Coping attitude B. Autonomy attitude	The counselling approach included an initial thorough examination of the woman's previous and present mental health status, including her present FOC. • Midwife A – communicated an attitude that vaginal birth is the safest and most natural mode of birth, and that any emotional obstacle to a vaginal birth can be overcome through counselling aimed at helping the woman to place previous life experiences in context with those obstacles ('coping attitude') • Midwife B – communicated that while vaginal birth is the best, it ultimately is the woman herself who decides how she will give birth and that she would support the woman's choice ('autonomy attitude').	Face-to-face	. 2 midwives (A and B) who received training in mental health with weekly qualified guidance . Psychiatrist (the conceptualization of attitudes, the approach and its theoretical basis were elaborated in co-operation)	MD	Individually	Sample 1: . Midwife A: Mean 3.4 ± 1.6 sessions . Midwife B 3.7 ± 1.5 sessions Sample 2: . Midwife A Mean 3.1 ± 1.5 sessions . Midwife B Mean 3.3 ± 0.9 sessions	MD	Sample 1: . Midwife A Mean 5.1 ± 2.5 hours . Midwife B Mean 5.1 ± 2.0 hours Sample 2: . Midwife A Mean 5.3 ± 2.1 hours . Midwife B Mean 5.7 ± 1.3 hours	A and C

Sydsjö *et al.* (2012)[66]	Based on the CBT and the theoretical principles of psychoeducation.	MD	Face-to-face	**#** . Obstetricians . Psychotherapists or psychologists . Midwives (coworkers)	MD	MD	Most often women had 1-10 sessions: . 1–7 sessions with a specially trained midwife . 1–5 sessions with an obstetrician . 1–10 sessions with psychotherapist / psychologist	MD	MD	A and C
Rouhe *et al.* (2013)[71]	MD	All sessions had the same structure: a focused topic and a guided relaxation exercise. 1. Focused topic . 1st session: information about fear and anxiety, group therapy and effects of relaxation. . 2nd session: information about FOC, normalization of individual reactions and information about stages of labor. . 3rd session: Hospital routines, birth process and pain relief. This meeting took place in a delivery room with a midwife specialized in treating FOC. . 4th session: Becoming a family, changes in relationship, parenthood and enhancing mutual understanding between becoming parents. . 5th session: Becoming a mother, recognizing the signs of postnatal depression and bonding with the fetus. . 6th session: Completing preparation for delivery and birth plan. . 7th session: meeting 2–3 months after delivery with newborns, discussion of delivery experiences, detection of trauma and depression symptoms, and discussion of mother–infant relationship. 2. Guided relaxation exercise This exercise guided the participants through stages of imaginary delivery in a relaxed state of mind with positive, calming and supportive suggestions.	Face-to-face	**#** . 4 Psychologists (with special group therapeutic skills in pregnancy-related issues) . Midwife specialized in treating FOC (coworker)	Approximately at week 26 of gestation	In group (a maximum of 6 women / group) (1 additional group session after birth) Each group was led by the same psychologist from the beginning to the end of intervention.	. 6 sessions (During the antenatal period) . 1 session with the newborns (6–8 weeks after delivery)	MD	Each 2-hour session: . focused topic: 90 minutes . guided relaxation exercise: 30 minutes	A and B

Fenwick *et al.* (2013)[18]	BELIEF Intervention was adapted from the concept 'Promoting Resilience in Mother's Emotions' (PRIME) which improved the health of women in the postpartum period.	1. BELIEF Intervention: • Listening and responding to women's feelings about childbirth, providing accurate information about labor and birth, and teaching women strategies to cope with elements of childbirth they identified as distressing. Key elements of BELIEF: . Therapeutic connection between midwife and woman . Accept and work with women's perceptions . Support the expression of feelings . Filling in the missing pieces . Connect the event with emotions and behaviors . Review prior labor management . Enhance social support . Reinforce positive approaches to coping . Explore solutions 2. Educational element • Education is integrated into the counselling intervention strategies • All women will be given the evidence-based consumer resource "Choosing how to birth your baby" with information regarding advantages and disadvantages of a vaginal birth and a CS to provide decision-making support. • If women require additional support, they will also be provided with a contact telephone number of a midwife (available 9 am–8 pm).	Via telephone (At a scheduled time convenient to the woman)	Midwives	At week 24 of gestation	Individually	2 sessions = 2 calls	Approximately: . 1st session: at week 24 of gestation . 2nd session: at week 34 of gestation	MD	A and C
Byrne *et al.* (2014)[72]	MBCE Program integrates a skills-based prenatal education program with MBSR.	MBCE Program included: group work, role play, and decision-making practice using the BRAIN model for decision making, as well as incorporating daily mindfulness meditation homework. Childbirth education and mindfulness were incorporated into each session. 1. Childbirth education • The education part of the program provided women and their support persons with the knowledge and skills to assist in making informed choices regarding their pregnancy, birth, and parenting. A wide range of learning activities (group discussion, role play, problem-solving activities) were used. • To meet this aim, participants were provided with evidence-based information regarding their choices. • In addition, participants had assigned reading, usually related to prenatal information content. 2. Mindfulness meditation • Participants received books and compact discs (CDs) with mindfulness homework practice prior to beginning session one. • Participants learned how to apply the practice of mindfulness to discomfort during pregnancy, labor pain, and	Face-to-face	**#** . A qualified childbirth educator (midwife) . A specialist antenatal yoga teacher (midwife) . Mindfulness meditation teacher (midwife) . An assistant who was a registered yoga and meditation teacher (cofacilitator of the sessions)	MD	In group and individually (at home)	8 sessions	Weekly	Each session ± 2.5 hours	A and B

		early parenting. • Participants had homework CDs with mindfulness meditation instructions and a workbook to use during the week between sessions. • Daily practice of techniques learned was encouraged.								
Brodrick (2014)[51]	MD	For the majority of women, core elements of the approach included: • Debrief of previous birth and discussion of fears • Dialogue focusing on coping strategies • Individualized plan of care for labor and birth Depending on the extent and the reasons for their fears, some women will require more support. For these women, there are two further levels of support available: • 1:1 care, offering continuity through the rest of pregnancy and the labor. This is available with a caseloading team of midwives who provide antenatal care tailored to individual needs and care for women at home or in hospital when they labor. • Access to a psychologist to discuss deep-seated fears or for women with symptoms of post-traumatic stress disorder following childbirth.	Face-to-face	. A caseloading team of midwives . A consultant obstetrician . A psychologist	MD	Individually	MD	MD	MD	MD
Guszkowska (2014)[52]	MD	• Focus on education concerning pregnancy, childbirth, postpartum, and infant development, how to behave during labor, and how to care for the newborn baby.	Face-to-face	. Midwives . Obstetricians . Pediatricians . Psychologists	Lasted 6 weeks	MD	MD	Twice a week	Variable (depending on the subject) Each session: 45 to 60 minutes.	MD
Sydsjö *et al.* (2014)[64]	MD	• Approaches through psychoeducation: provision of information adjusted to women's knowledge on childbirth, relaxation instructions, information regarding physiological features of fear and panic. • Approaches through CBT: recognition of feelings and thoughts, discussion of avoidance and ways to alter the reactions on certain thoughts. For most of the women, an individual visit to the delivery ward was part of the treatment as a way of confrontation.	Face-to-face	. 1 midwife . 1 obstetrician . 1 psychologist	MD	Individually	Variable (Based on the woman's individual needs) Mean: 3.2 sessions Range: 1-12	MD	MD	A
Toohill *et al.* (2014)[19]	BELIEF intervention was adapted from a midwifery counselling framework for distressed postpartum women (PRIME).	. Listening and responding to women's feelings about childbirth, providing accurate information about labor and birth, and teaching women strategies to cope with elements of childbirth they identified as distressing. . In addition, all women received a booklet: *Having a baby in Queensland* with information regarding advantages and disadvantages of a vaginal birth and a CS to provide decision-making support.	Via telephone (At a scheduled time convenient to them)	Midwives	At week 24 of gestation	Individually	2 sessions = 2 calls	Approximately: . 1st session: at week 24 of gestation . 2nd session: at week 34 of gestation	Approx. 1 hour / session 1st session: 58 minutes (range = 22–125 minutes) 2nd session: 45 minutes (range = 10–104 minutes)	MD

Fenwick *et al.* (2015)[17]	BELIEF intervention was adapted from a midwifery counselling framework for distressed postpartum women (PRIME).	. Listening and responding to women's feelings about childbirth, providing accurate information about labor and birth, and teaching women strategies to cope with elements of childbirth they identified as distressing. . In addition, all women received a booklet: *Having a baby in Queensland* with information regarding advantages and disadvantages of a vaginal birth and a CS to provide decision-making support.	Via telephone (At a scheduled time convenient to them)	Midwives	At week 24 of gestation	Individually	2 sessions = 2 calls	Approximately: . 1st session: at week 24 of gestation . 2nd session: at week 34 of gestation	Approx. 1 hour / session 1st session: 58 minutes (range = 22–125 minutes) 2nd session: 45 minutes (range = 10–104 minutes)	MD
Larsson *et al.* (2015)[73]	MD	. The counselling is initially characterized by an informal conversation where the women talk about their thoughts and feelings about being pregnant and giving birth. Among parous women, previous birth experiences are central to the dialogue. . By support, information and preparation for childbirth, the woman may be strengthened in her belief in herself and her ability to give birth.	MD	. Specially trained midwife . Antenatal midwife . Obstetrician . Psychologist . Social worker	MD	Individually	Variable . 2–4 sessions with specially trained midwives . Sessions with other providers, if needed	MD	MD	A
Navaee & Abedian (2015)[74]	Based on the theoretical principles of the role play.	. Education through role play was conducted in the form of three scenarios during seven steps. Each scenario included: . Warm up . Selecting the participant . Preparing the scene . Preparing observers . Play . Discussion . Evaluation . In these scenarios, the reasons for mothers' fear of normal childbirth and CS were discussed. After these three scenarios, participants were asked to talk about their friends' / relatives' experiences of the two types of delivery.	In-person	**#** 1 midwife	In group	MD	MD	MD	MD	MD
Sydsjö *et al.* (2015)[65]	Based on the CBT and the theoretical principles of psychoeducation.	. Meeting with the selected midwife during the 3rd trimester to establish a trustful relation (the partner was also welcomed). . Continuous support* during the 3rd trimester, labor and birth. . Visit to the labor ward once or twice and explanation of obstetric equipment, explanation of the process of labor and birth. . Writing a birth plan with the woman (if it had not been established together with the obstetrician in routine prenatal care of FOC). . Providing individual support via phone or schedule additional visits to the delivery ward for further support or information (by a midwife), if needed. . Providing labor care by 1-2 known midwives. * Continuous support was defined as the presence of an experienced midwife with specific training in psychological	. Face-to-face . Via telephone (If needed)	. 2 Midwives . Obstetrician	During the last trimester	Individually	Variable	MD	MD	A

		treatment of women with FOC throughout the labor and birth.								
Gökçe İsbir *et al.* (2016)[53]	The content and structure of antenatal education classes was based on Dick-Read`s "natural labor"; Lamaze`s "psychoprophylaxis"; Balaskas's "active birth" and Mongan's "hypnobirthing" philosophy".	• Each session included presentation of theoretical information, warm-up and stretching exercises, and relaxation exercises. • Content of the antenatal education class: . 1st session: raising awareness of FOC; strategies to cope with FOC. . 2nd session: psychological and physiological and adaptation to birth. . 3rd session: understanding birth; having a sense of control over birth. . 4th session: positive appraisal of birth; preservation of positive birth memories	Face-to-face .	**#** . A midwife . A psychiatrist nurse . A pediatric nurse . A birth psychologist	MD	In group (Groups of 5–8 pregnant women)	4 sessions	weekly	Duration total: 16 hours 240 minutes / session . Theoretical information: 150 minutes . Warm-up and stretching exercises: 45 minutes . Relaxation exercises: 45 minutes	A and B
Karabulut *et al.* (2016)[75]	MD	• The antenatal education program consisted of five consecutive sessions. The topics of each session were as follows: . 1st session: Health in pregnancy . 2nd session: Birth and breathing exercises . 3rd session: Breastfeeding . 4th session: Baby care . 5th session: Post-partum period and family planning • Motion, demonstration, and interactive education methods were used in the sessions.	Face-to-face	1 midwife (Clinical Midwife Antenatal Educator)	MD	In group (Each group consisted of 6–10 pregnant women)	5 sessions	Weekly	Duration total: 15-hours Each session: 180 minutes, between 01:00–04:00 pm	A and B
Larsson *et al.* (2016)[20]	MD	**#** • During counseling, the following approaches were used by the midwives at all clinics: strengthening the woman in her belief in herself and her ability to give birth; information about the birth process; promise of early pain relief, such as epidural analgesia; information about pros and cons of birth methods (i.e., vaginal vs. cesarean section); a written birth plan and a review of the past birth record (when applicable) through a joint discussion between the individual woman and the midwife. • Women were encouraged to give birth vaginally, and a visit to the labor ward was included in the counselling meetings. • Some clinics taught the woman relaxation and breathing techniques. • Women with an initial wish for CS could sometimes give birth vaginally if they were assured that a conversion to a CS on maternal request was an option during labor if labor was perceived too traumatic and CS was medically safe. • In addition, the possibility of inducing birth on maternal request also made it possible for some women to be able to confront a vaginal birth.	Face-to-face	**#** . The majority of the clinics had between 1–5 midwives. The midwife typically worked independently. . Obstetricians . Social workers . Psychologists	In the majority of the clinics, the first counselling session with the woman occurred between weeks 17 and 25 of pregnancy.	Individually and / or In group	The number of sessions ranged from 1 to 6.	MD	The average time midwives had allocated to counselling was 17 hours per week, with a range from 2 to 80 hours per week. Expressed in minutes per childbirth, the clinics varied between 5.7 and 47.6 minutes.	A, B and C

Andaroon *et al.* (2017)[76]	Program based on the content of the consultation model in the Gamble's study.	. Content of the individual counselling program: . 1st session: To encourage women to express emotions and attitudes about childbirth through open questions, active listening, and feedback on women's concerns. . 2nd session: To ask questions from women for communicating between present feelings and behaviors with predetermined beliefs and expectations about important aspects for the evaluation of feelings and thoughts about giving birth, providing information about the stages of natural delivery, and solving abortions and strengthening positive thoughts of mother. . 3rd session: To strengthen positive approaches to delivery (proposing positive strategies to reduce childbirth fears) and providing solutions. The woman was asked questions with regard to identifying and deciding about potential solutions, such as: choosing the type of delivery. Her decision was helped and supported.	Face-to-face	Midwives	. 1st session: between weeks 28–30 . 2nd session: between weeks 30–32 . 3rd session: between weeks 32–34	Individual	3 sessions	Every 2 weeks based on the days of the mother's visit to the health centers during weeks 28–30, 30–32, 32–34	Each session: 60–45 minutes	MD
Haapio *et al.* (2017)[77]	The theoretical foundation of the intervention is constructivism. The key elements of constructivism are social and cognitive.	1. Extended childbirth education. The intervention consisted of: • a leaflet including basic Information on pregnancy and delivery, which was given to the participants at the first ultrasound screening at the hospital's maternity outpatient clinic. • A childbirth education session before 34 weeks of gestation. The session took place inside of the delivery room and included several exercises to learn about pain relief options, birthing positions, and delivery instrument. The delivery rooms served as a learning environment and allowed parents to become familiar with the future place of birth. The content was constructed based on the participants' needs and previous. Although the contents varied, the method (active interaction) was standardized to be repeated. 2. Traditional childbirth education. It consisted of: • Voluntary childbirth education class at a health clinic and a short visit to the maternity ward.	Face-to-face	Midwives	Before week 34 of gestation	In group	1 session	One time	Childbirth education session: 2 hours	A and B
Kordi *et al.* (2017)[78]	The overall approach was based on Rosenbaum's resourcefulness theory and the interventions were based on cognitive rehabilitation training and problem-solving	• Content of the psychoeducational program: 1st session: . Explaining the delivery stages and pain relief methods . Raising women's awareness regarding prenatal emotional changes . Identifying different ways to deal with prenatal stress and fear . Understanding the sources of prenatal stress and fear . Determining the relationship between behavior, thoughts,	Face-to-face	. Clinical psychologist . Midwife	MD	In group Groups of 10 participants	3 sessions	Weekly	Each session: 90 minutes	MD

	skills for pregnant women.	and feelings . Explaining the physical changes, process of labor, and pain relief methods . Compatibility with new roles and responsibilities . Teaching motherhood skills . How to communicate with family and friends . Deep, released, differential, and conditioned relaxation techniques, as well as childbirth-related imagery 2nd session: . Description of the role of thoughts in women's excitement and behavior . Teaching the concept of logical and illogical thoughts . Enabling women to challenge the irrational thoughts to accept the maternal role (ABC Model) . Deep, released, differential, and conditioned relaxation techniques, and childbirth-related imagery 3rd session: . Familiarizing the women with problem-solving methods . Teaching the principles of problem-solving for women . Raising women's self-esteem and ability to cope with child care, defining the problem, goal setting, choosing solutions, and problem-solving . Deep, released, differential, and conditioned relaxation techniques, as well as childbirth-related imagery • In the first training session, a midwife described the labor stages and pain relief methods for 15 minutes. • At the end of each session, a clinical psychologist explained the relaxation techniques as a coping skill to deal with labor.								
Soltani et al. (2017)[79]	MD	Approaches: various methods of speech, question and answer, group discussion, demonstration techniques, and the use of peers. • Content of self-efficacy counselling sessions: . 1st session: preliminary presentation of the anatomy and physiology of the reproductive system of women and the process of natural delivery, generalizations on how to perform CS and its complications. Discussion on the benefits and delivery times of natural delivery and CS. . 2nd session: teaching muscle relaxation, encouraging mothers to exercise and walking, training on the use of respiratory techniques during pain and walking in the interval of pain. . 3rd session: during this session, mothers were asked to take the relaxation and exertion techniques they were trained at the previous session, and they were encouraged to do their mother tasks properly, and it was reminded that, as they succeeded in doing so, they would probably succeed in the delivery. . 4th session: Encouraging mothers to express their	Face-to-face	**#** A midwife (Master of Science in Midwifery Consultation)	MD	In group Each group:10–11 participants	6 sessions	Weekly	. 1st session: 60 minutes . 2nd session: 60 minutes . 3rd session: 60 minutes . 4th session: 90 minutes . 5th session: 60 minutes . 6th session: 60 minutes	B

		successful experiences in different fields and their ability to control stressful situations. A collective discussion about the success of mothers in life and keeping them in a position to succeed. . 5th session: inviting mothers who have experienced natural delivery and asking them to share their experiences with those who are overwhelmed with fear. 6th session: teaching the use of religious prayers during pain, teaching behavioral techniques, distracting the senses during pain, such as thinking of the neonates and other family members, and concentrating on a particular subject during pain, as well as teaching positive induction during labor. • In addition, pregnant women received a common pregnancy care service.								
Fenwick *et al.* (2018)[80]	Based on the BELIEF counselling intervention, which was adapted from Gamble and Creedy.	• Key topics of the BELIEF counselling intervention: . Therapeutic relationship between the midwife and woman . Work with women's perceptions of childbirth and maternity services . Support expression of feelings . Connecting emotions and beliefs with the woman's view of childbirth or world view / prior birth experiences / or reproductive events Clarification Fill in the missing pieces around birth related events/ reproductive histories Help woman develop understanding of her own emotions / fears . If applicable - review prior birth related events . Promoting positive expectations / anticipation around the upcoming birth event Use woman-centered language Work from a normal birth philosophy Counter distorted thinking about risk and danger . Positive approaches to birth planning Provide evidenced-based information Encourage birth support (prevent / deal with feelings of isolation) Canvass how to best work with the health system Coping and planning for unexpected outcomes . Enhance ongoing social support	MD	Midwives	MD	Individual	MD	MD	MD	A and C
Ghasemi *et al.* (2018)[81]	Based on the CBT.	• Core elements of cognitive-behavioral counselling sessions: . 1st session: training the participants in the cognitive-behavioral approach (triangle), providing explanations regarding efficacy in the selection and delivery, cognitive assessment participants of the discussion on vaginal childbirth, vaginal childbirth benefits and advantages and disadvantages of CS. . 2nd session: use of supporting and rejecting evidence for	Face-to-face	. A psychiatrist . An experienced midwife (who had passed a two-year course on midwifery counseling)	Between weeks 29 and 34 of gestation	In group Each group: 6–10 participants	3 sessions	Sessions with weekly intervals	Each session: 2 hours	A and B

		cognitions and beliefs on different types of delivery and eliminating misunderstandings by the counselor, evaluation of concerns (identification of concerns, the advantages and disadvantages of concerns), improving pain management and training relaxation skills with breathing techniques. . 3rd session: solving the participants' problems of the above-mentioned cognitive exercise, practicing relaxation skills along with breathing techniques, individual assessment of her abilities.								
Wahlbeck *et al*. (2018)[82]	MD	All women in this study were provided with counselling, which includes a discussion of the woman's fears, a review of past obstetrical case notes, if such exist, information about childbirth, and a visit to the birthing environment. • Each session began with guided relaxation with focus on breathing and body awareness. • At each session, a new framework was given for the therapy. Frameworks varied from generalized subjects, such as "paint a tree", others where specifically pregnancy related such as "paint the child" and "paint your own body". The subjects" anxiety" and" control" gave the women an opportunity to express these feelings in a concrete way. • In later sessions directed frameworks such as" Where am I going?"," What is hindering me?" and" How can I get through this?" were used to coach the participants into creating a mental picture of the goals they wanted to achieve. • During the sessions, the art therapist discussed the pictures and reflected on these together with the participants. • In the final session, the whole process was illustrated by hanging up all pictures in the order they were made to give the woman a final chance to reflect over her therapeutic process together with the art therapist. Main Theme: Gaining hope and self-confidence Themes and subthemes: 1. Carrying heavy baggage . Fear of hospital and physical damage to self and the baby . Being unable to identify oneself as a mother 2. Creating images as a catalyst for healing . Uncovering and verbalizing hidden feelings . Sharing the burden with others . Images became treasured articles 3. Acquiring new insights and abilities . Depositing the heavy baggage . Facilitating attachment to the baby	Face-to-face	Midwife trained in art therapy	MD	• Individually (each woman has a one-to-one meeting with a midwife) • In group (Depending on the participants' personal preference and on recruitment). Number of women / working method: . 8 women were treated individually (one-to-one) . 7 women went into group art therapy . 4 women tried both group and individual art therapy.	MD	MD	Each session began with ten minutes of guided relaxation Each session began with 10 minutes of guided relaxation Each session lasted 1.5–2 h, depending on group size	A

Wulcan *et al.* (2019)[83]	MD	Framework of the midwives' counselling of women with intense FOC in one region of Sweden: Main Theme: *Striving to create a safe place for exploring fear of childbirth* Meaning: the midwives were dedicated in their attempt to achieve a mutual dialogue and a trusting relationship in an atmosphere where the women felt safe and free to examine previous and present fears together with them. *Categories and subcategories:* *Category i. Providing a reliable relationship* *. Creating security and a trusting relationship by means of clarity and openness* *. Providing knowledge, inspiring hope and strengthening the women* *. Openly discussing alternatives and formulating a birth plan* *Category ii. Investigating previous and present fears* *. Enabling the women's notions to match the reality* *. Enabling the women to put their previous birth experience in the present context* *Category iii. A strong dedication to the women* *. Dedication that is rewarding* *. Dedication that drains energy and requires support*	MD	. Midwives . Obstetricians . Psychologist	MD	MD	2-3 appointments / woman	MD	MD	A and C
Abdollahi *et al.* (2020)[84]	Motivational intervieweing (MI) psychotherapy based on theoretical principles introduced by Miller and Rollnick.	• MI psychotherapy included 5 sessions: Session 1: *Stages of change.* Assess the stage of change of the client for FOC and pregnancy stress. Definitions of causes of anxiety and FOC, the importance of coping with pain, anxiety and FOC. Assess the client's motivation and confidence on subjective scales of 1–10. Session 2: *Maternal feelings and ambivalences.* Attention to her negative and positive feelings; Attention to ambivalences regarding the vaginal delivery; detecting facilitators for changing ambivalent behaviors. Session 3: P*ositive and negative aspects of behavior change.* Elicit the "pros" and "cons" of any stress or fear regarding the pregnancy or childbirth. Session 4: *Values and goals.* Provide a menu of important values to address any barriers for changing the ambivalences. Session 5: *Dangerous situations and tempting return.* To deal with the dangerous situations and tempting return of pregnancy stress and FOC. • During the sessions, the therapist used the MI techniques to deliver the intervention, which guided pregnant women on applying the MI model to cope with their fears and stress. • A therapist assistant (counselling in midwifery) helped the therapist in the sessions. The assistant taught the women	. Face-to-face	. Psychologist / therapist with experience in the MI approach . Midwife trained in the MI approach (assistant)	MD	In group	5 sessions	Weekly	120 minutes / session	A and B
					Homework assignment/individual practice:					
					MD	Individually	Formal practice	Daily (Over a period of 5 weeks)	For 30 minutes / day	

			through group work and guided exercise. She also encouraged them to complete exercises and review the assignments with key learning points handed out after each session. • To consolidate their knowledge, the participants were given home exercises and were encouraged to write their exercises on a daily record sheet. At the beginning of each session, the assistant asked the participants to describe their individual experience of FOC outside of the class.								
Firouzan *et al.* (2020)[85]		Based on the BELIEF counselling intervention, which was adapted from Gamble and Creedy.	Core elements of the BELIEF Intervention: . Listening and responding to women's feelings about childbirth, providing accurate information about labor and birth, and teaching women strategies to cope with elements of childbirth they identified as distressing.	. Face-to-face (2 sessions) . Via telephone (8 sessions)	Midwives	At week 24 of gestation	Individually	10 sessions: . 2 face-to-face counselling sessions based on the BELIEF protocol . 8 telephone-counselling sessions (between these two face-to-face sessions)	Face-to-face counselling sessions based on the BELIEF protocol: at week 24 and 34 of gestation Telephone-counselling sessions: once a week	MD	A
Henriksen *et al.* (2020)[86]	Ålesund Hospital (Ålesund)	MD	• No special method used. • When the medical issues were sorted out and no clear indication for a CS was found, the woman was referred to a midwife for counselling.	MD	. Midwives . Obstetricians	MD	Individually	MD	MD	Have no record of this	A
	Drammen hospital (Drammen)	MD	• Empathic communication was used as a tool. • The main goal was to help each woman to feel safe and prevent depression, so she could cope with motherhood. Secondary aim to prevent CS. • Drammen offered all women an individual birth preparation talk regardless of FOC.	MD	. Midwives . Obstetricians	MD	Individually	MD	MD	Approximately 3–4 h per woman	MD
	St. Olav University Hospital (Trondheim)	MD	• No special method; a mix of cognitive therapy and empathic communication. • The main goal was to help women to achieve personal growth and cope with pregnancy and birth and feel comfortable with a vaginal birth, and some with a planned CS.	MD	. Midwives . Obstetricians . 1 Psychologist	MD	Individually	MD	MD	Average 1.75 h per woman	MD
	University Hospital of north Norway (Tromsø)	MD	• Core elements of approach: cognitive therapy • It was important for providers to map why the woman had FOC and teach them how to cope with it. Main goal was to prepare women and help them feel safe, make individual birth plans and avoid CS.	MD	. 2 midwives with additional education as psychiatric midwives . An obstetrician . A social worker	MD	Individually	MD	MD	Approximately 4 h per woman	MD

	Oslo University Hospital (Oslo)	MD	• No special method used. Some used empathic communication as a tool. • Main goal was to make an individual birth plan. Some women were offered a known midwife if they initially wanted a CS section but would try a vaginal birth with the known midwife. During this period, if women wanted a CS, this was usually granted.	MD	. Midwives . Obstetricians	MD	Individually	MD	MD	Have no record of this hours	MD
Onchonga *et al*. (2020)[59]		MD	• Women's views and experience of midwife-led integrated pre-birth training: • Overall theme: *Midwife-led pre-birth training promoted constructive disposition and enhanced trust in the process of giving birth* • Themes and subthemes: Theme 1: Significance of midwife-led pre-birth training: . The training handled my shame, guilt, and fears . The midwife understood me without judgement . The training sessions were more practical than theoretical Theme 2: Significance of interactive conversations: . The midwife gave useful medical advice in all sessions . The conversations were open, informative and real . The training was integrated Theme 3: Adapting to procedures for improved childbirth experience . Professional support beyond pregnancy and childbirth . Individualized psychologic/obstetric support . Improved assertiveness towards childbirth	MD	. Midwives Coworkers: . Obstetrician . Psychologist	MD	MD	MD	MD	MD	MD
Swift *et al*. (2020)[87]		MD	• EAC is intended to increase contact time for expecting parents with their primary midwife (compared to usual care), discussion sessions with topics relevant to pregnancy, birth and parenthood as well as opportunities for one-on-one contact and continuity of care. • The topics included physiology and anatomy of labor and birth, coping with labor pain, breastfeeding, postpartum depression, newborn care, and parenting. • The midwives presented these topics within the framework of the midwifery model of care, which assumes that pregnancy and birth are normal processes. • When attending the group sessions, women were provided with a 10-15 min private antenatal check-up with their primary midwife to assess fetal and maternal well-being according to the Icelandic national guidelines on antenatal care. • While each group session varied depending on the group needs, the EAC protocol outlined a recommended structure and discussion topics for each session: . Weeks 8-12: Folic acid, fetal screening and ultrasound, smoking and nutrition during pregnancy . Week 16: MD	Face-to-face	2 midwives. (At least one was the primary midwife providing antenatal care throughout pregnancy)	The individual visits are provided in the 1st and 2nd trimesters of gestation (according to EAC protocol: week 8-12, 16, 25, 38, 40, 41) The group sessions are offered between gestational weeks 25–36 (according to EAC protocol: weeks 28, 31,34 and 36)	. Individually . In group (Group of 4-6 women)	10 sessions: . 6 one-to one visits . 4 group sessions	The group sessions are offered every two weeks.	10 hours (contact time between woman and midwife within EAC) 1st visit: 1-hour Subsequent visits: 20-minutes Group sessions: 90-minutes	A

		. Week 25: MD . Week 28: Overview of the physiology and anatomy of labor. Signs of labor and an overview of the stages of labor. Props: A model of pelvis, baby, placenta and uterus. Pictures and books on anatomy. Books on the birth process and birth stories. . Week 31: Place of birth. Breastfeeding. The first days after giving birth. Support in the early days. Newborn care. Home visits from the midwife; when, how and what. Props: A model of pelvis, baby, placenta and uterus. Pictures and books on anatomy. Books on parenting and birth stories. . Week 34: Comfort during labor and managing pain during labor with and without medication. Early labor – when to call. Packing a birth bag. Writing a birth plan. . Week 36: Pregnancy to parenting transition. Emotional adjustments, baby blues and postpartum depression. Newborn care and safety. Seeking support. Birth control. Breastfeeding. . Week 38: Provide opportunity for discussion and questions. . Week 40: Provide opportunity for discussion and questions. . Week 41: Provide information about induction of labor and offer membrane sweep. . The group sessions provided ample time for discussion about pregnancy, birth and parenthood. . After 36 weeks, women continued their antenatal care with individual visits with their midwife.								
Wahlbeck *et al*. (2020)[88]	Midwife-led counselling based on CBT and psychoeducation [88a]	• The sessions are not based on a manual; each midwife assesses the needs of the individual woman. • For multiparous women, the midwife and woman examine case notes from previous birth(s) together and the woman is asked about her experiences of what is written in the case notes. Any uncertainties about what occurred are discussed and explanations provided where possible. • If the woman is not familiar with the birthing environment a visit to the birthing unit is suggested. • In the majority of cases, the woman and midwife draw up a plan for the approaching birth together. • Continued sessions are based on the woman's individual and personally expressed needs. • An obstetrician can be asked to join the discussion when a woman expresses a wish for a planned induction or cesarean section.	Face-to-face	Midwife-led counselling team: . 5 midwives . 1 obstetrician.	MD	Individually (each woman has a one-to-one meeting with a midwife from the specialist team) In group (Depending on each woman's needs)	MD	MD	Control group: mean of 2.79 (±1.14) MC sessions	MD
	Art Therapy: MD[88b]	• The women were given an introduction to the process of AT and assured that they were the owners of everything they created. During the creation of images, the art therapist communicated with each woman about the work in progress and in the case of group activity, the women discussed their creations amongst themselves. • Each session began with guided relaxation with a focus on	Face-to-face Materials: paper, watercolors, pastel crayons, sponges, and paintbrushes	. Art therapist (midwife)	The sessions were given between weeks 28 and 36of gestation	If one participant was recruited: individually If more than one participant was	Each session: lasted 90-120 minutes First 10 minutes of each session: guided relaxation	Weekly	Study group: mean of 2.21 (±1.11) MC sessions plus 5 sessions AT	

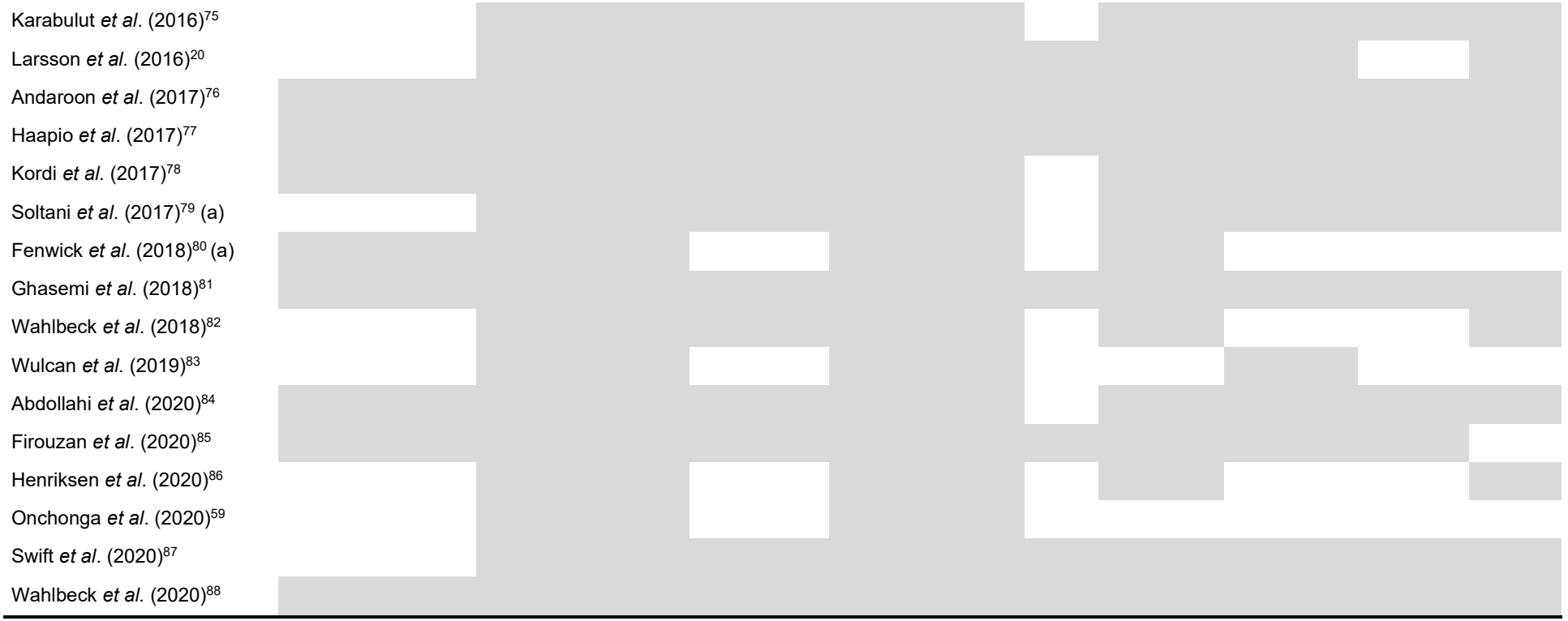
		breathing and body awareness. • Each session has a theme to be used as a structural framework. . 1st session: “Paint a tree” followed by “Paint the baby", a general theme in order to ease the participants into the creation of images. . 2nd session: themes connected to the approaching birth were introduced: “Mind and body mapping,” “Paint your own body,” and “Worry and fear.” . 3rd session: the theme was “The birthing room”, allowing the participants to approach difficult scenarios concretely. . 4th session: the women painted their goals based on the themes “Where am I going?” “How can I get through this?” and “What is hindering me?” with the intention of helping the women to find their own goal picture to bear with them on the journey toward birth. . 5th session: the women painted a final image to conclude their birth preparation process. . At the final session, the therapist once more spoke about the process involved in AT in order to give the women a chance to reflect on their journey.	working on an easel.			recruited: Individually and/or in group (participant option) (Group was limited to 3 participants)				

AT: Art Therapy; **BELIEF**: Birth Emotions-Looking to Improve Expectant Fear; **BRAIN**: Benefits, Risks, Alternatives, Intuition, Nothing; **CBT:** Cognitive-behavioral therapy**; CDs**: compact discs**; CS:** Cesarean Section**; FOC**: Fear of Childbirth; **EAC**: Enhanced Antenatal Care; **MBCE**: Mindfulness-Based Childbirth Education; **MBSR**: Mindfulness-Based Stress Reduction; **MC:** Midwife-led counselling; **MI:** Motivational interviewing; **MD**: Missing Data; **PRIME**: Promoting Resilience in Mother's Emotions

#: Information clarified by primary authors.

Appendix V. Mapping of the characteristics of midwives' interventions for reducing FOC in pregnant women: available data versus missing data

Author(s)/Year of publication	Theoretical concept or underpinning empirical evidence	Core elements of the approach / activities	Pathways of contact	Health professionals involved	Intervention design				
					Start date	Working methods	Number of sessions	Frequency	Duration
Saisto *et al*. (2001)[67]									
Saisto *et al*. (2006)[68]									
Nerum *et al*. (2006)[56]									
Kjærgaard *et al*. (2008)[69]									
Halvorsen *et al*. (2010)[70]									
Sydsjö *et al.* (2012)[66]									
Rouhe *et al*. (2013)[71]									
Fenwick *et al*. (2013)[18]									
Byrne *et al.* (2014)[72]									
Brodrick (2014)[51]									
Guszkowska (2014)[52]									
Sydsjö *et al.* (2014)[64]									
Toohill *et al*. (2014)[19]									
Fenwick *et al*. (2015)[17]									
Larsson *et al.* (2015)[73]									
Navaee & Abedian 2015[74]									
Sydsjö *et al. (*2015)[65]									
Gökçe İsbir *et al.* (2016)[53]									


Karabulut *et al*. (2016)[75]
Larsson *et al*. (2016)[20]
Andaroon *et al*. (2017)[76]
Haapio *et al*. (2017)[77]
Kordi *et al*. (2017)[78]
Soltani *et al*. (2017)[79] (a)
Fenwick *et al*. (2018)[80] (a)
Ghasemi *et al*. (2018)[81]
Wahlbeck *et al*. (2018)[82]
Wulcan *et al*. (2019)[83]
Abdollahi *et al*. (2020)[84]
Firouzan *et al*. (2020)[85]
Henriksen *et al*. (2020)[86]
Onchonga *et al*. (2020)[59]
Swift *et al*. (2020)[87]
Wahlbeck *et al*. (2020)[88]
Available data
Missing data