

Review

Psychological perspectives on fear of childbirth



Elisabet Rondung*, Johanna Thomtén, Örjan Sundin

Department of Psychology, Mid Sweden University, 831 40 Östersund, Sweden

ARTICLE INFO

Article history:

Received 3 March 2016

Received in revised form 22 August 2016

Accepted 13 October 2016

Available online 18 October 2016

Keywords:

Anxiety

Fear

Avoidance

Childbirth

Pregnancy

Literature review

ABSTRACT

The objective of this narrative review was to examine the literature on fear of childbirth from a psychological perspective, addressing the specificity of childbirth fear, the pathways of fear acquisition, and the physiological, cognitive and behavioral aspects of fear. Systematic procedures for literature search, inclusion and exclusion left 86 original research papers for analysis. Findings summarize the body of knowledge for each area of interest, as well as the number of studies addressing each theme. Overall, few studies adopt a clear-cut psychological perspective, leaving the psychological mechanisms of childbirth fear largely unexplored. Although methodological limitations make conclusions difficult, results give a hint of etiological diversity and possible psychological mechanisms commonly described as transdiagnostic features in anxiety. Systematic investigations of psychological mechanisms, longitudinal studies exploring possible vicious circles of fear, and studies comparing psychological characteristics within the group of women fearing childbirth are identified as research areas of high priority.

© 2016 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Contents

1. Introduction.....	81
2. Method.....	81
3. Results.....	82
3.1. Fear of childbirth: a specific syndrome?.....	82
3.2. Fear acquisition.....	82
3.2.1. Fear conditioning.....	82
3.2.2. Vicarious experiences.....	83
3.2.3. Transmission via information.....	83
3.2.4. Primary and secondary fear of childbirth.....	83
3.2.5. A vicious cycle of fear.....	84
3.3. Physiological aspects.....	84
3.4. Cognitive aspects.....	84
3.4.1. Objects of fear.....	85
3.4.2. Self-efficacy and perceived stress coping ability.....	85
3.4.3. Pain catastrophizing.....	85
3.5. Behavioral aspects.....	85
4. Discussion.....	87
Appendices 1–5 Supplementary data.....	88
References.....	88

* Corresponding author.

E-mail addresses: elisabet.rondung@miun.se (E. Rondung), johanna.thomten@miun.se (J. Thomtén), orjan.sundin@miun.se (Ö. Sundin).

1. Introduction

Nearly 80% of pregnant women express worries and fears in relation to their pregnancy or upcoming childbirth (Melender, 2002a). For a great deal of these women the fears are strong enough to be clinically relevant. However, estimations of prevalence are equivocal, presumably due to the lack of clear-cut definitions and conceptualizations of the concept to be measured (Saisto & Halmesmaki, 2003).

A wide array of methods has been used to capture childbirth fear, including more or less validated instruments, single questions, and diagnostic codes. The most widely used measure of fear of childbirth, the Wijma Delivery Expectancy-Experience Questionnaire, W-DEQ (Wijma, Wijma, & Zar, 1998) is a 33 item 6 point Likert scale in which the items refer to cognitive and emotional expectations of the forthcoming childbirth (e.g. responding to the question, “How do you think you will feel in general during the labour and delivery”), with anchor words indicating opposite extremes of the expected experiences (e.g. “Extremely strong” vs. “Not at all strong” or “Extremely proud” vs. “Not at all proud”). The W-DEQ gives prevalence ratings of intense fear of childbirth in approximately 10–15% of pregnant women (Lukasse, Schei, Ryding, & Bidens Study, 2014; Nieminen, Stephansson, & Ryding, 2009; Söderquist, Wijma, & Wijma, 2004), and very intense fear in 5–6% (Heimstad, Dahloe, Laache, Skogvoll, & Schei, 2006; Nieminen et al., 2009), with examples of much lower ratings of intense fear in some populations (e.g. 4.5% among Belgian primiparas and 3.6% in Australian multiparas; Lukasse et al., 2015; Toohill, Fenwick, Gamble, & Creedy, 2014). Repeated factor analyses of the instrument have revealed its multidimensional structure (Fenaroli & Saita, 2013; Fenwick, Gamble, Nathan, Bayes, & Hauck, 2009; Garthus-Niegel, Størksen, Torgersen, Von Soest, & Eberhard-Gran, 2011; Johnson & Slade, 2002; Lukasse et al., 2014). Limitations in cultural transferability and the length of the instrument have led to further criticism (Haines et al., 2015). In the abundance of non-validated instruments and questions designed to measure childbirth fear, a new instrument, the Fear of Birth Scale, FOBS (Haines, Pallant, Karlström, & Hildingsson, 2011) has been developed. In FOBS, the question, “How do you feel right now about the approaching birth?” is to be answered using two visual analogue scales, with the anchors (a) “calm” and “worried”, and (b) “no fear” and “strong fear”. FOBS is thus considerably shorter than the W-DEQ, asking directly for childbirth fear instead of measuring the concept indirectly via expectations. Thus far, prevalence studies using a FOBS cut off point of ≥ 50 , find fear of birth in about 30% of pregnant women (Haines et al., 2011), and using a cut point of ≥ 60 revealed in a Swedish community sample childbirth fear in 18% of Swedish born and 37% of foreign born pregnant women (Ternström, Hildingsson, Haines, & Rubertsson, 2015).

Fear of childbirth is commonly framed as a phenomenon within the domain of anxiety (Huizink, Mulder, de Medina, Visser, & Buitelaar, 2004; Wijma et al., 1998), and clinical descriptions of childbirth fear are often characterized by symptom expressions resembling those of various emotional disorders. However, to our knowledge, findings relating childbirth fear to different parameters of anxiety have never been structurally aggregated and evaluated, and little is known about the psychological mechanisms underlying this problem.

Established psychological models of anxiety disorders typically include physiological, cognitive and behavioral components of anxiety. The physiological aspects of fear and anxiety include responses such as palpitations, hyperventilation, dizziness etc. (Diagnostic and statistical manual of mental disorders: DSM-5TM (5th ed.), 2013), and typically interact with cognitive and behavioral components in driving and maintaining an anxiety response (e.g. Clark, 1986; James, 1884). The cognitive components include concepts such as

negative automatic thoughts (Beck, 1976; Clark & Wells, 1995), negative beliefs and expectations about oneself, others, the world or the future (Beck, 1976; Foa, Huppert, & Cahill, 2006), and disorder specific attentional biases for threatening stimuli (Mineka & Sutton, 1992; Williams, Mathews, & MacLeod, 1996). Catastrophizing, or the tendency to exaggerate the possible negative aspects of future events is another relevant concept (Beck, 1976; Ellis, 1962), as is the related concept of pain catastrophizing that is used with regard to experiences of actual or anticipated pain (Sullivan, Bishop, & Pivik, 1995; Sullivan et al., 2001). Yet another example is the expectancy of personal mastery of a specific situation, self-efficacy, affecting the likelihood of exposing oneself to that particular situation (Bandura, 1977a).

By means of escaping from or avoiding unpleasant experiences, the behavioral components of anxiety function to avoid entering a state of anxious apprehension. Avoidance of private experiences such as thoughts, emotions, memories, and bodily sensations are commonly clustered using the term experiential avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Avoidance of aversive experiences and emotions (e.g. avoidance of uncertainty) can also be sought by means of reassurance (Salkovskis & Warwick, 1986), e.g. from family and friends, care givers, bodily checks or other sources of information. When avoiding fear relevant cues, the subsequent relief in negative affect will increase the strength of the avoidant behavior (Bouton, 2007). In the long run, avoidance behaviors make alternative, nonthreatening experiences of the avoided stimulus unlikely (Mowrer, 1947), and thus prevents learning of adaptive behaviors.

Fears can be acquired by at least three major pathways (Rachman, 1977); by conditioning, in which a learned association develops when a specific object or situation (e.g. being in hospital or thoughts of delivery) is paired with aversive experiences (e.g. discomfort), by vicarious exposure (e.g. when watching someone else give birth), and by indirect transmission via information (e.g. horror stories about childbirth). Research on vicarious exposure (or observational learning) has successfully demonstrated that vicarious experiences can lead to both fear acquisition (Bandura, 1977b) and fear reduction (Bandura, 1977a).

The object of this article is to review the existing knowledge on childbirth-related fear from a psychological perspective, giving an overview and critical evaluation of the current knowledge regarding the specificity of the syndrome, the pathways of fear acquisition, and the physiological, cognitive, and behavioral aspects of this form of anxiety.

2. Method

A computer-based literature search was conducted for the period January 1, 2000 to August 12, 2015, using the two databases Medline and Psychinfo to search for peer reviewed articles written in English. Titles and abstracts were screened in order to find papers focusing on fear of childbirth. The search string, therefore narrowed down to the words *childbirth AND (fear OR anxiety)* in any field, resulted in 639 articles. Fig. 1 shows all steps in the selection process.

Inclusion criteria: to be included in the review studies had to include the concept of fear of childbirth/childbirth-related anxiety and relate fear to any other factor relevant for the understanding of the concept – antecedents (e.g. obstetric history and other background factors), consequences (e.g. mode of birth and birth outcomes) or correlates of fear (e.g. psychiatric symptoms and psychological traits), as well as qualitative descriptions of women's experiences of childbirth fear. This first selection, fulfilling the above criteria, rendered 116 papers, and another 20 articles were added after review of their bibliographies. In a second screening for

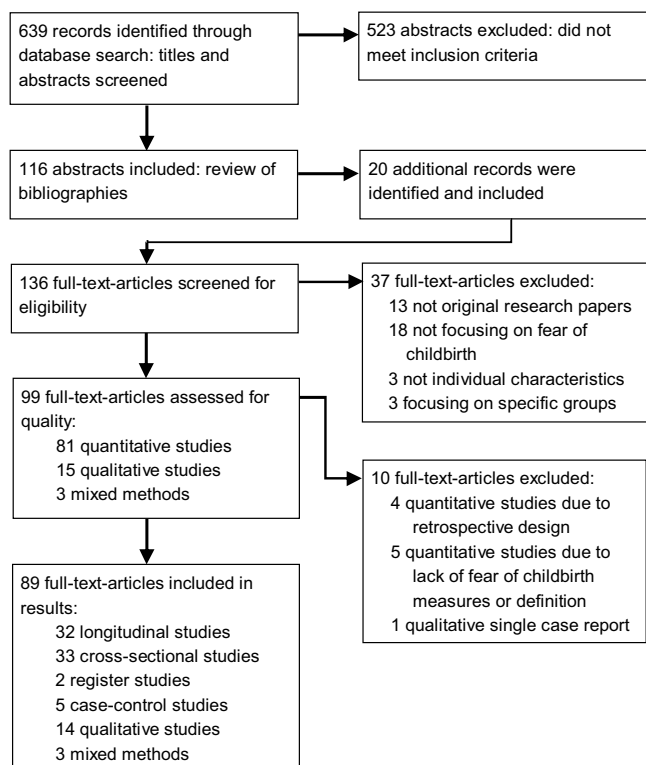


Fig. 1. The number of articles considered in each step of the process of inclusion and exclusion.

eligibility 13 articles that were not original research papers were excluded, as were 18 articles in which the focus on fear of childbirth was not evident (e.g. focusing on the childbirth process or anxiety in general), three articles that did not focus on characteristics of the individual (e.g. midwives' perspectives on childbirth fear), and three articles focusing on specific groups (e.g. women with diabetes), leaving 99 full text articles for quality assessment.

None of the included studies were of experimental design. Exclusion criteria for the quantitative studies were retrospective design (excluding four papers), lack of measurement of childbirth fear or failure in describing how cases and controls were selected (excluding five papers). The only exclusion criterion for qualitative studies was case reports of one single case (excluding one paper). Studies using mixed methods were evaluated using the criteria for qualitative studies. This exclusion left 89 articles for analysis.

Results presented in identified articles were coded following the aims of this article, clustering results in five categories: syndrome specificity (results relating fear of childbirth to psychiatric care and diagnoses, and to different measures of anxiety and depression), pathways of fear acquisition (results describing antecedents to fear, perceived 'causes', and the vicious cycle perspective), physiological aspects (results describing physiological responses related to childbirth fear), cognitive aspects (results describing catastrophic perceptions or objects of fear, cognitive biases, and the role of self-efficacy) and behavioral aspects (results describing escape, avoidance, and reassurance seeking as strategies for coping with fear). Descriptions of all included studies can be found in [Appendix 1–5](#) in Supplementary material.

3. Results

3.1. Fear of childbirth: a specific syndrome?

Twenty-seven studies addressed the specificity of childbirth fear (see [Appendix 1](#) for study details in Supplementary material).

[Fig. 2](#) shows the number of studies addressing associations between childbirth fear and different parameters of anxiety and depression. With few exceptions making results somewhat ambiguous, the overall findings point to positive associations between childbirth fear and both anxiety and depression.

In addition to these studies, we found eight studies generally showing a positive association with psychiatric diagnoses, care or medication (e.g. [Andersson et al., 2003](#); [Söderquist et al., 2004](#); [Nordeng, Hansen, Garthus-Niegel, & Eberhard-Gran, 2012](#); [Rouhe, Salmela-Aro, Gissler, Halmesmaeki, & Saisto, 2011](#)). However, the global severity index of SCL-90R has been found to correlate with fear of childbirth only among nulliparous women ($r = 0.57, p < 0.01$), and in multiple regression analysis it was not a significant predictor of childbirth related fear at all ([Pazzagli et al., 2015](#)).

Associations between childbirth-related fear and various psychiatric syndromes, such as mood- and anxiety disorders, PTSD, psychosis, personality disorder, substance abuse, and eating disorder, with p -values ranging between 0.015 and < 0.001 , have generally been confirmed ([Rouhe et al., 2011](#); [Sieber, Germann, Barbir, & Ehlert, 2006](#); [Söderquist et al., 2004](#); [Andersson, Sundström-Poromaa, Wulff, Åström, & Bixo, 2004](#)), although others have failed to show such associations ([Zar, Wijma, & Wijma, 2002](#)).

3.2. Fear acquisition

In the fear of childbirth literature all three pathways of fear acquisition, as suggested by [Rachman \(1977\)](#) are represented. We also found results suggesting a possible vicious circle of fear.

3.2.1. Fear conditioning

We found five qualitative studies describing previous negative birth experiences as causes of fear, and 15 quantitative studies investigating associations between fear of childbirth during pregnancy and previous birth experiences. All studies are presented in [Appendix 2](#) in Supplementary material, and [Fig. 3](#) shows the number of studies investigating relationships between childbirth fear during pregnancy and previous birth experiences.

Birth mode has also been studied in relation to postpartum levels of fear ([Appendix 2](#) in Supplementary material), showing modes of delivery and intervention at birth in general ([Fenwick et al., 2009](#); [Handelzalts et al., 2015](#)), emergency Caesarean section ([Nilsson, Lundgren, Karlström, & Hildingsson, 2012](#)), and negative birth experiences ([Handelzalts et al., 2015](#); [Nilsson et al., 2012](#)), to be related to an increased risk for, or levels of, postpartum fear.

Despite acknowledging the importance of previous birth mode in the development of childbirth fear, women's perceptions of a negative birth experience have been shown to be of even greater importance in explaining subsequent fear of childbirth ([Nilsson et al., 2012](#)). Results from [Størksen, Garthus-Niegel, Vangen, and Eberhard-Gran, 2013](#) show that as many as 77.5% of women reporting a previous obstetric complication neither considered the birth a negative experience nor developed fear of childbirth in the subsequent pregnancy. Other factors than the specific modes of delivery may therefore be of importance in determining if a complicated delivery will generate a negative birth experience and give rise to subsequent childbirth fear.

Fear of childbirth could also be conceptualised as a generalization of anxiety acquired through conditioning in another situation (e.g. abuse). We found six quantitative studies considering experiences of abuse or trauma, showing a mixture of different associations ([Appendix 2](#) in Supplementary material). Fear of childbirth has been associated with self-reported childhood abuse in general as well as several specific forms of childhood abuse ([Heimstad et al., 2006](#); [Lukasse et al., 2010](#); [Lukasse, Vangen, Øian, & Schei, 2011](#)), with odds ratios ranging between 1.30 and 5.30 ([Lukasse et al., 2010, 2011](#)). Physical or sexual abuse in adult life or

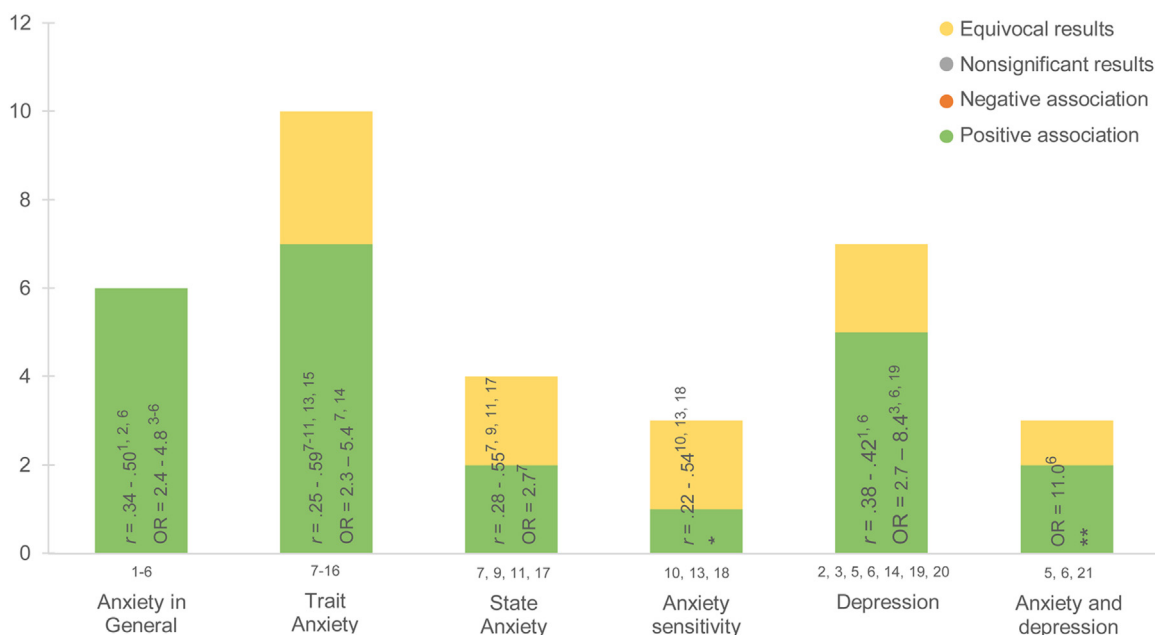


Fig. 2. The number of studies addressing associations between childbirth fear and parameters of anxiety and depression, including reported correlations and Odds Ratios. ¹Garthus-Niegel et al. (2011); ²Johnson and Slade (2003); ³Laursen et al. (2008); ⁴Rubertsson, Hellström, Cross, and Sydsjö, 2014; ⁵Saisto et al. (2001); ⁶Storksen et al. (2012); ⁷Alipour, Lamyian, Hajizadeh, and Vafaei, 2011; ⁸Beebe et al. (2007); ⁹Heimstad et al. (2006); ¹⁰Jokić-Begić et al. (2014); ¹¹Pazzagli et al. (2015); ¹²Ryding et al. (1998); ¹³Spice et al. (2009); ¹⁴Söderquist et al. (2004); ¹⁵Wijma et al. (2002); ¹⁶Zar et al. (2001); ¹⁷Hall et al. (2009); ¹⁸Handelzalts et al. (2015); ¹⁹Räisänen et al. (2014); ²⁰Waldenstrom et al. (2006); ²¹Huizink et al. (2004).

*Correlations between childbirth fear and the subscales of Anxiety Sensitivity Index: Physical concerns $r = 0.38$ to 0.45 and Psychological concerns $r = 0.22$ to 0.39 (Jokić-Begić et al., 2014; Spice et al., 2009); Social concerns $r = 0.28$ (Jokić-Begić et al., 2014). Physical concerns was the only subscale predicting childbirth fear using multiple regression analysis (Jokić-Begić et al., 2014; Spice et al., 2009).

**Clusters including Anxiety and Depression explained 8–27% of the variance in childbirth fear, at least in early and mid pregnancy (Huizink et al., 2004; Saisto, Salmela-Aro, Nurmi, & Halmesmäki, 2001).

lifetime sexual abuse has not been found predictive of childbirth fear (Heimstad et al., 2006; Schroll, Tabor, & Kjaergaard, 2011), while associations has been found between childbirth fear and experiences of being abused (e.g. offended, disrespected, taken advantage of) while visiting health services (Lukasse et al., 2015).

3.2.2. Vicarious experiences

Two studies investigated the role of vicarious experiences for fear of childbirth, one showing nonsignificant associations (Stoll, Edmonds, & Hall, 2015) and one that such experiences reduce rather than enhance fear. Stoll and Hall (2013b), found that young women who had never given birth themselves but who had witnessed a live birth expressed less childbirth fear than women who had not ($p < 0.001$, Cohen's $d = 0.52$, 95% CI 0.30–1.23), indirectly supporting live modeling as a means of fear reduction.

3.2.3. Transmission via information.

We found five quantitative and five qualitative studies relating childbirth fear to information from different sources (Appendix 2 in Supplementary material)

Nine of the studies found information from family and friends to be of importance in the development of childbirth fear (Fenwick et al., 2009; Fenwick, Hauck, Downie, & Butt, 2005; Fisher, Hauck, & Fenwick, 2006; Melender, 2002a; Melender, 2002b; Serçekeş & Okumuş, 2009; Stoll, Hall, Janssen, & Carty, 2014; Tsui et al., 2007). In two factor analyses of perceived causes of childbirth fear, the factor 'negative stories' has been one of the most important factors, with eigenvalues of 2.5–2.6, explaining 16.4–17.4% of the variance (Melender, 2002a; Tsui et al., 2007). 'Having received alarming information' has been found an independent factor, explaining 9.2–11.9% of the variance in perceived causes of fear among pregnant women (Melender, 2002a; Tsui et al., 2007). The woman's own

(professional) knowledge as a perceived cause of fear, as suggested in three studies (Fenwick et al., 2005; Melender, 2002a, 2002b), could be understood as a result of learning by either vicarious experiences or transmission of information.

In three qualitative studies public discourse and information in the media have been described as influencing childbirth expectations and childbirth fear among pregnant and postpartum women (Fenwick et al., 2005; Fenwick et al., 2009; Melender, 2002b). Likewise, media and school-based education have been found to negatively influence attitudes towards pregnancy among college students (Stoll et al., 2014; Stoll & Hall, 2013b; Stoll et al., 2015).

3.2.4. Primary and secondary fear of childbirth

The commonly used distinction between primary and secondary fear of childbirth (or primary vs secondary tokophobia, see Hofberg & Brockington, 2000; Hofberg & Ward, 2007) seems to suggest different pathways of fear acquisition in parous and nulliparous women. However, we have not found any studies explicitly addressing the role of parity in fear acquisition. Instead, parity is generally investigated as a background variable influencing the level of childbirth fear. Differences in fear level between nulliparous and parous women during pregnancy have been addressed in 14 papers found in this literature overview (Appendix 2 in Supplementary material). One study showed results indicating that mean levels of fear were higher among nulliparas, although more parous women reported severe fear of childbirth (Nieminen et al., 2009), and one study showed that while the frequency of reporting "intense fear" was stable regardless of parity, the frequency of reporting "some fear" decreased and "no fear" increased with parity (Geissbuehler & Eberhard, 2002). Two articles (using the same database) failed to show any association between parity and fear level during pregnancy (Hildingsson, Nilsson, Karlström, & Lundgren, 2011; Nilsson

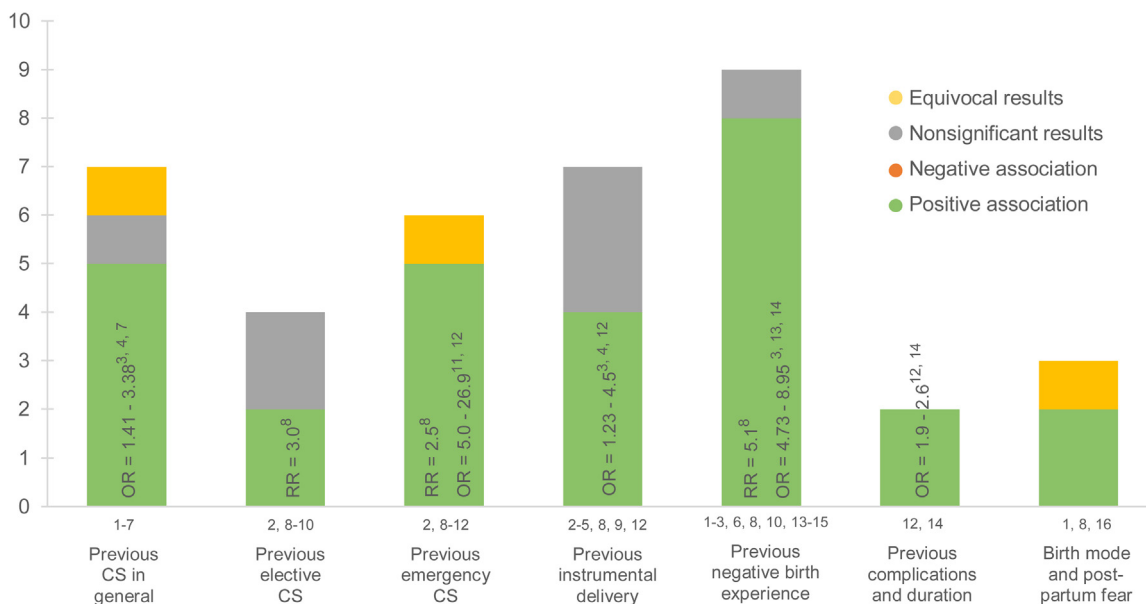


Fig. 3. The number of studies addressing associations between childbirth fear and previous birth mode and birth experiences, including reported Relative Risks and Odds Ratios.

CS = Caesarean section

¹Fenwick et al. (2009); ²Haines et al. (2011); ³Lukasse et al. (2011); ⁴Nieminen et al. (2009); ⁵Rouhe et al. (2009); ⁶Ryding et al. (2015); ⁷Räisänen et al. (2014); ⁸Nilsson et al. (2012); ⁹Toohill, Fenwick, Gamble, and Creedy (2014); ¹⁰Waldenstroem et al. (2006); ¹¹Larsson et al. (2015); ¹²Saisto et al. (1999); ¹³Lukasse et al. (2010); ¹⁴Størksen et al. (2013); ¹⁵Söderquist et al. (2004); ¹⁶Handelzalts et al. (2015).

et al., 2012). The remaining 11 studies reported significantly higher fear levels during pregnancy among nulliparous women, or an increased risk for nulliparous women to experience severe childbirth related fear.

Two of four articles considering differences in the postpartum level of childbirth fear, found that parity does influence fear levels during pregnancy, but not after delivery (Fenwick et al., 2009; Zar, Wijma, & Wijma, 2001). The other two articles (using the same data set) revealed quite the opposite pattern, with no differences in fear during pregnancy but a significantly higher prevalence of childbirth fear among primiparas compared to multiparas one year after childbirth (Hildingsson et al., 2011; Nilsson et al., 2012).

In sum, the overall evidence points to a significant role of parity in the understanding of childbirth fear, which is further supported by results showing different patterns in ranking of item–total correlations depending on parity – a difference that disappears following delivery (Wijma et al., 1998).

3.2.5. A vicious cycle of fear

In contrast to a simple dichotomization between primary and secondary fear of childbirth, with presumably different pathways of fear acquisition, the course of fear over time has been described in terms of a vicious circle (Wijma, Ryding, & Wijma, 2002; Zar et al., 2001). We found 11 studies investigating correlations of fear at different points in pregnancy, during childbirth, in the postpartum period, or over pregnancies (Appendix 2 in Supplementary material). All 11 studies (two of them reporting from the same data set) show significant associations of fear over time, with correlations ranging between $r=0.21$ and $r=0.84$ (Alehagen, Wijma, & Wijma, 2006; Kjærgaard, Wijma, Dykes, & Alehagen, 2008; Ryding, Wirfelt, Wångborg, Sjögren, & Edman, 2007; Schroll et al., 2011; Wijma et al., 1998; Wijma et al., 2002). Levels of antenatal fear have been found predictive of postnatal fear scores (Fenwick et al., 2009; Zar et al., 2001), with odds ratios for reporting fear one year after delivery or in a subsequent pregnancy ranging from 4.4 to 6.24 (Larsson, Karlström, Rubertsson, & Hildingsson, 2015; Lukasse et al., 2011; Nilsson et al., 2012).

Is it plausible that fear at one point in time might negatively influence the experience of future stimuli, thus initiating a vicious circle of increased fear. We identified 21 articles investigating different outcomes related to childbirth fear during pregnancy, see Fig. 4 and Appendix 3 in Supplementary material. Although results diverge, a majority of studies indicate that childbirth fear has negative consequences during childbirth and in the postpartum period.

Combining these results, viewing fear development in terms of a vicious circle seem relevant. Fear of childbirth during pregnancy appears to be related to fear during labor and in the postpartum period, possibly also to differences in birth mode, a more complicated delivery, and a birth experience that is more negative. Further, a negative birth experience appears to be associated with an increased risk of childbirth fear in a subsequent pregnancy.

3.3. Physiological aspects

Physiological manifestations of childbirth fear are described in as few as six studies in the current review (Appendix 3 in Supplementary material). Sleep disturbances are described in five studies (Hall et al., 2009; Melender, 2002a; Nilsson & Lundgren, 2009; Sjögren, 1997; Tsui et al., 2007), tachycardia in three (Melender, 2002a; Nilsson & Lundgren, 2009; Tsui et al., 2007), tenseness, restlessness and nervousness in two (Melender, 2002a; Tsui et al., 2007), and finally nightmares (Sjögren, 1997) and stomach pains (Nilsson & Lundgren, 2009) in one study each. However, the potential role of these symptoms or experiences in the development and maintenance of fear has not been established.

3.4. Cognitive aspects

Although women with childbirth fear more commonly report having childbirth related thoughts compared with women with no fear (OR = 2.7, 95% CI 1.62–4.37; Hildingsson, Thomas, Karlström, Olofsson, & Nystedt, 2010), no single study with the agenda of exploring childbirth fear from a cognitive perspective was found. However, by examining the reported objects of fear among

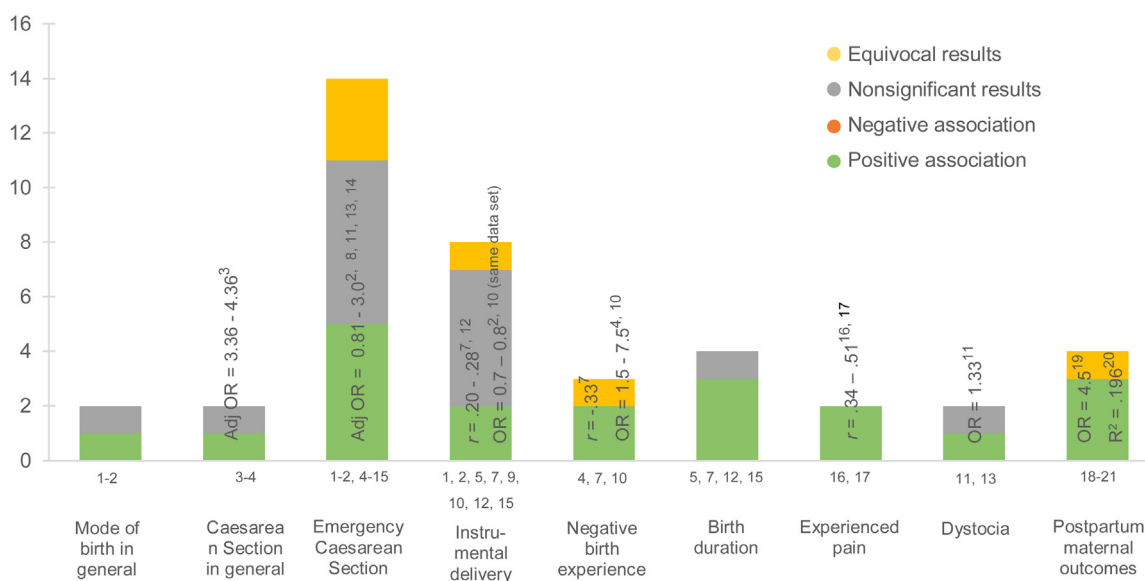


Fig. 4. The number of studies addressing associations between childbirth fear during pregnancy and birth modes, complications and birth experiences during childbirth, including reported statistics.

¹Heimstad et al. (2006); ²Hildingsson (2014); ³Räisänen et al. (2014); ⁴Waldenstroem et al. (2006); ⁵Adams et al. (2012); ⁶Fenwick et al. (2009); ⁷Handelzalts et al. (2015); ⁸Jespersen, Hegaard, Schroll, Rosthøj, and Kjærgaard, 2014; ⁹Johnson and Slade (2002); ¹⁰Larsson et al. (2015); ¹¹Laursen, Johansen, and Hedegaard, 2009; ¹²Reck et al. (2013); ¹³Ryding et al. (2015); ¹⁴Ryding et al. (1998); ¹⁵Sydsjö et al. (2013); ¹⁶Beebe et al. (2007); ¹⁷Kjærgaard et al. (2008); ¹⁸Pazzagli et al. (2015); ¹⁹Rouhe et al. (2011); ²⁰Sieber et al. (2006); ²¹Wijma et al. (2002).

pregnant women, ideas about cognitive beliefs and expectations relating to pregnancy and childbirth may be inferred. We also found analogues of the two cognitive concepts *self-efficacy* and *pain catastrophizing*, and one study identifying lower sense of coherence as a direct cause of childbirth fear ($\beta = -0.89$, $p < 0.001$; Takegata et al., 2014).

3.4.1. Objects of fear

In all, 15 studies were found to consider objects of fear relating to childbirth (Appendix 4 in Supplementary material). In addition to differences in research design and study population, differences in factor structure, thematic organization and specificity make comparisons across these studies difficult. The reported findings are summarized in Table 1.

3.4.2. Self-efficacy and perceived stress coping ability

Eleven quantitative studies (Appendix 4 in Supplementary material) have investigated the role of self-efficacy or self-rated coping ability in fear of childbirth, with results generally being in line with the model suggested by Bandura (1977a).

Childbirth specific self-efficacy is commonly measured using the instrument Childbirth Self-Efficacy Inventory (CBSEI) and its two subscales; outcome efficacy and efficacy expectancy (Lowe, 1993). This inventory was related to different measures of childbirth fear in five studies. Results point to fear correlating negatively with total score of CBSEI, range $r = -0.322$ to $r = -0.59$ (Beebe, Lee, Carrieri-Kohlman, & Humphreys, 2007; Sieber et al., 2006), with the efficacy expectancy subscale, range $r = -0.36$ to $r = -0.68$ (Beebe et al., 2007; Lowe, 2000; Salomonsson, Gullberg et al., 2013; Schwartz et al., 2015), and to a lesser extent with the outcome expectancy subscale, range $r = 0.191$ to $r = -0.337$ (Salomonsson, Gullberg et al., 2013; Schwartz et al., 2015).

Both CBSEI and childbirth self-efficacy as a single item have been found to be significant predictors ($p < 0.001$) of childbirth fear (D'Cruz & Lee, 2014; Salomonsson, Gullberg et al., 2013), and lack of self-efficacy has been suggested as a separate factor in fear of childbirth using either exploratory (Lukasse et al., 2014), or both

exploratory and confirmatory, factor analysis (Garthus-Niegel et al., 2011) on W-DEQ items.

In three studies childbirth fear has been related to the individual's appraisal of her adaptive resources to cope with stressful situations, using the Stress Coping Inventory, SCI (Ryding, Wijma, Wijma, & Rydhström, 1998), showing significant between group differences (Ryding et al., 1998; Söderquist et al., 2004). An increased risk of childbirth fear during pregnancy has been reported among women, indicating low stress coping ability, OR = 1.8, 95% CI 1.1–2.8, $p = 0.01$ (Söderquist et al., 2004), while other results suggest that it does not predict fear of childbirth in the postpartum period (Wijma et al., 2002).

Self-efficacy or perceived stress coping ability was addressed in four of the qualitative studies of childbirth fear included in this review (Appendix 4 in Supplementary material). In one of these, the expectations of imminent childbirth among women with severe fear of childbirth was compared before and after eight weeks of internet-based cognitive behavioral therapy. The authors concluded that participating women described a more realistic attitude towards childbirth, more self-confidence and more active coping strategies following the intervention (Nieminen et al., 2015).

3.4.3. Pain catastrophizing

One article discussed pain catastrophizing in relation to childbirth fear, suggesting that pain catastrophizing could play a role by mediating the relationship between fear of pain and the preference for elective Caesarean section (Dehghani, Sharpe, & Khatibi, 2014).

3.5. Behavioral aspects

Logically, the most radical form of avoidance relating to childbirth fear would be complete avoidance of pregnancy or postponing of pregnancy, which was found in four studies (Appendix 5 in Supplementary material). Nine to eleven percent of pregnant women report having postponed the current pregnancy due to fear, or had considered ending it through abortion (Tsui et al., 2007). The wish to avoid an ongoing pregnancy or forthcoming childbirth has been found to explain 10.2–12% of the variance in manifestations

Table 1
Objects of fears described in the literature, including number of articles addressing each theme, reported frequencies and explained variance in factor analyses.

Fears relating to	Number of identified studies	Frequency in general population	Frequency in FOC population	Explained variance in factor analysis
The childbirth process	13 ^{1–13}	71–97.4% ^{2,6}		19.8–21.3% ^{6,7,12}
emergency interventions, anesthesia and hemorrhage		6.3–13.3% ⁵		6% ⁷
fear of pain		33–39.8% ^{5,8}	44–65% ^{8,10}	
The life and wellbeing of the mother and baby	12 ^{1–7,9–13}	29–93.9% ^{2,5,6}		10.5–14.5% ^{6,7,12}
maternal death		5% ²	9 ^{2,10}	
infant death			30 ¹⁰	
maternal and infant death			16 ¹⁰	
Own capabilities and reactions during childbirth including losing control	7 ^{1,2,4–6,10,11}	37–86.8% ^{2,6}	44 ¹⁰	4.2% ⁶
Uncertainty including unpredictability and the lack of guarantees	6 ^{3,4,9,11,14,15}			
The competence and behavior of health care personnel	9 ^{2,5–10,12,13}	20–90.1% ^{2,6}	73% ¹⁰	8.3–12.3% ^{6,7,12}
powerlessness and inability to influence events		13.2–18% ^{5,8}	42–61% ^{8,10}	
The future role and life including sexuality, the maternal role, the partner relationship, and the child's rearing	6 ^{3,6,7,9,10,12}	67.8% ⁶		7.1–11.1% ^{6,7,12}
Other themes				
integrity, privacy, exposedness	2 ^{1,11}			
partner's capabilities and reactions during childbirth	2 ^{2,3}	2% ²		

Note. FOC = Fear of Childbirth

¹Areskog, Uddenberg, and Kjessler, 1981; ²Eriksson, Westman, et al. (2006); ³Fenwick et al. (2009); ⁴Fisher et al. (2006); ⁵Geissbuehler and Eberhard (2002); ⁶Matinnia et al. (2015); ⁷Melender (2002a); ⁸Ryding et al. (2007); ⁹Serçekuş and Okumuş (2009); ¹⁰Sjögren (1997); ¹¹Stoll & Hall (2013a); ¹²Tsui et al. (2007); ¹³Tugut, Tirkes, and Demirel, 2015; ¹⁴Melender (2002b); ¹⁵Nilsson and Lundgren (2009).

of fears among pregnant women reporting childbirth-related fear (Melender, 2002a; Tsui et al., 2007), and the time elapsed since the preceding delivery has been found longer for parous pregnant women in fear of childbirth counseling compared to non-fearful controls (OR 1.22–1.44; Saisto, Ylikorkala, & Halmesmäki, 1999; Sydsjö et al., 2013).

Regarding avoidance of vaginal delivery, we found 15 quantitative and two qualitative studies reporting fear of childbirth in relation to preferences for Caesarean section as mode of birth (Appendix 5 in Supplementary material). Fear levels have repeatedly been found to be higher among women preferring Caesarean section as birth mode (D'Cruz & Lee, 2014; Dehghani et al., 2014; Haines et al., 2011; Matinnia et al., 2015; Nieminen et al., 2009; Rouhe, Salmela-Aro, Halmesmaeki, & Saisto, 2009). However in the study by Haines et al. (2011) there were two samples, one of them not showing significant differences. Also, students preferring Caesarean section as a future mode of birth report higher levels of fear (Stoll et al., 2014). Likewise, a positive association has been found between level of childbirth fear and the tendency to wish for, or request a Caesarean section (Hildingsson et al., 2011; Kringeland, Daltveit, & Moeller, 2009; Lukasse et al., 2011; Ryding et al., 2015; Salomonsson, Gullberg et al., 2013; Stoll et al., 2015), with reported odds ratios and relative risks ranging between 3.84 and 11.6 (Hildingsson et al., 2011; Kringeland et al., 2009; Lukasse et al., 2011; Stoll et al., 2015). Qualitative results also indicate a relation between high levels of fear and the wish for birth interventions (Stoll & Hall, 2013a), and that women with childbirth fear perceive Caesarean section as a way of enhancing control over the birth process, offering safety and alleviation of fear (Fenwick, Staff, Gamble, Creedy, & Bayes, 2010).

Seven quantitative longitudinal studies (Appendix 5 in Supplementary material) have explored the association between childbirth fear and rates of actual Caesarean sections, six of these

indicating a positive relation. Five articles (two of them reporting findings from the same study) indicate that elective Caesarean sections are more common among women fearing childbirth (Hildingsson, 2014; Larsson et al., 2015; Ryding et al., 2015; Sydsjö et al., 2013; Waldenstroem, Hildingsson, & Ryding, 2006) with odds ratios ranging between 1.66 and 5.6 (Hildingsson, 2014; Larsson et al., 2015; Ryding et al., 2015). Higher fear levels among women requesting a Caesarean section compared to women opting for vaginal delivery are shown in one study (Handelzalts et al., 2012), while another finds no differences in fear levels according to subsequent mode of birth (Johnson & Slade, 2002).

Regarding specific types of avoidance, (e.g. avoidance of pain), results are equivocal (Appendix 5 in Supplementary material). Although a stronger wish to avoid pain has been reported among women with childbirth fear (Hildingsson, 2014), the relation between fear of childbirth and use of epidural analgesia (EDA) is not straightforward, with three studies suggesting a positive relation (Adams, Eberhard-Gran, & Eskild, 2012; Saisto et al., 1999; Stoll et al., 2014), one study failing to show differences in fear (Alehagen et al., 2006), and two showing ambiguous results (Fenwick et al., 2009; Räisänen et al., 2014). Many pregnant women have also been found to fear either epidural or general anesthesia (13.0% and 11.8% respectively; Geissbuehler & Eberhard, 2002).

Other forms of behavioral avoidance, not specifically relating to the process of giving birth, are not as well described in the literature. Results from three qualitative studies show what could be labeled experiential or cognitive avoidance, in which women with fear of childbirth try to avoid thoughts and memories that are related to their fears (Beck & Watson, 2010; Eriksson, Jansson et al., 2006; Nilsson & Lundgren, 2009). These studies also describe how pregnant women try to avoid their fear by not talking about it (Nilsson & Lundgren, 2009) or by avoiding situations that might trigger fear or anxiety responses (Eriksson, Jansson, & Hamberg,

2006). This kind of avoidance is exemplified when women with childbirth fear avoid ultrasounds and medical examinations (Beck & Watson, 2010), avoid opportunities to receive information about childbirth, or refuse to participate in parental educational groups (Eriksson, Jansson, et al., 2006).

More subtle strategies to avoid, alleviate or cope with fear (e.g. seeking information about pregnancy and childbirth, checking fetal movements, and seeking medical help and reassurance in the form of tests, examinations, information, guarantees, and support) are anecdotally described (Beck & Watson, 2010; Eriksson, Jansson, et al., 2006; Melender, 2002a, 2002b; Tsui et al., 2007). Even if the short term result of engaging in these activities would be fear relief, no study investigating long-term effects of reassuring activities on fear of childbirth was found.

4. Discussion

The objective of the current review was to examine the literature on fear of childbirth from a psychological perspective. Specifically, the study sought to address the specificity of this fear, its pathways of fear acquisition, and its physiological, cognitive and behavioral manifestations.

Overall, few studies were found to demonstrate a clear-cut psychological perspective on fear of childbirth. Instead ideas about psychological mechanisms often had to be derived from studies with other objectives. Also when psychological concepts were considered, a stable foundation in psychological theory was often lacking. None of the included studies used an experimental design, and although one third of the studies were of longitudinal design, a predominance of analyses relevant for the understanding of childbirth fear were based on cross-sectional data. Definitions of the concept under investigation were not coherent, and the included studies used a wide array of operationalizations of included variables. Altogether, this makes it difficult to draw conclusions about the etiology of childbirth fear and its psychological mechanisms.

The descriptions of fear acquisition suggest that both fear conditioning and indirect transmission via information might be pathways to consider in the development of childbirth fear. The role of observational learning is yet largely unexplored. The vast majority of studies investigating the possible role of fear conditioning focus on previous childbirth experiences and are therefore conducted only among parous women. We did not find one single study examining the possibility of these women experiencing fear also prior to, or during, their first pregnancy. In fact, among all the included studies only one has monitored levels of fear over two pregnancies (Lukasse et al., 2011). Hence, it could be argued that the distinction between primary and secondary fear of childbirth is premature. A possible vicious circle in fear of childbirth has been suggested before (Wijma et al., 2002; Zar et al., 2001), and our review makes us inclined to agree. Women with high antenatal levels of childbirth fear might have an increased risk of experiencing fear during labor and appraise an ongoing delivery as threatening. This might increase the odds of having a negative birth experience and reporting childbirth fear in the postnatal period or in a subsequent pregnancy. Hence, fear of childbirth in parous women, might also be the result of a complex process, with several factors interacting over time. Likewise, fear of childbirth among nulliparous women must not necessarily be the result of indirect transmission of fear. Given the positive association between childbirth fear and general symptoms of anxiety and depression (e.g. Laursen, Hedegaard, & Johansen, 2008; Räisänen et al., 2014; Storksen, Eberhard-Gran, Garthus-Niegel, & Eskild, 2012), as well the emerging association with previous experiences of abuse (Heimstad et al., 2006; Lukasse et al., 2010; Lukasse et al., 2011), childbirth fear among nulliparous women could possibly also be the result of a

generalization of other anxieties. Since a biopsychosocial perspective, comprising several etiological factors, is typical for clinical anxiety (Barlow & Durand, 2015), a complex etiology also for childbirth related anxiety would be of no surprise.

In the existing literature the cognitive aspects of childbirth fear are for the most part represented by studies describing the content of fears among pregnant women. These studies reveal a great variety of future-oriented fears, that depending on the subjective appraisal of the woman, easily could be linked to the objects of fear typical for many anxiety disorders (e.g. generalized anxiety disorder, illness anxiety disorder, specific phobias of blood, injections, injuries or hospitals, social anxiety disorder and panic disorder).

The reported fear objects could also be used to generate ideas about the cognitive processes possibly maintaining fear. Based on the results, the cognitive concepts self-efficacy, pain catastrophizing and intolerance of uncertainty might be of relevance in the understanding of childbirth fear. While associations between self-efficacy and childbirth fear have been investigated in a few studies, the role of the two other concepts remains to be understood. The few studies directly investigating catastrophizing in relation to childbirth suggest that pain catastrophizing is not only of importance for the anticipation of childbirth pain, but also associated with fear of being overwhelmed by pain (Van den Bussche, Crombez, Eccleston, & Sullivan, 2007), preferred mode of birth (Dehghani et al., 2014), the experience of pain intensity during delivery, and poorer physical recovery following childbirth (Flink, Mroczek, Sullivan, & Linton, 2009). Regarding intolerance of uncertainty, even less is known. This concept was originally established as one of the mechanisms explaining worry in generalized anxiety disorder (Dugas, Gagnon, Ladouceur, & Freeston, 1998; Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994), but has in recent research been identified as a transdiagnostic feature across anxiety disorders and depression (Carleton et al., 2012; Gentes & Ruscio, 2011; McEvoy & Mahoney, 2012). In this review, fears relating to uncertainty were reported in several studies investigating objects of fears, and also suggested a distinctive concept in the W-DEQ (Wijma et al., 1998). As Cheung, Ip, & Chan, 2007 found feelings of control during labor to be negatively correlated with maternal anxiety, studies addressing intolerance of uncertainty as a mechanism in fear of childbirth would be highly interesting.

Although possibly of interest, the physiological aspects of childbirth fear have not been a prioritized area of research. Domschke, Stevens, Pfeleiderer, & Gerlach, 2010 argue that the heightened interoceptive sensitivity seen in individuals with elevated trait or state anxiety, anxiety sensitivity or anxiety disorders, increases the number of perceived bodily sensations that may be misinterpreted in a catastrophic manner, resulting in a vulnerability for anxiety responses and disorders. Individual differences in interoceptive sensitivity and correlates of such differences have not, to our knowledge, been investigated in a pregnant population. However, physiological aspects of the related concept anxiety sensitivity, i.e. the belief that anxiety experiences are dangerous or have negative implications (Reiss, Peterson, Gursky, & McNally, 1986), have been positively associated with childbirth fear (Jokić-Begić, Žigić, & Radoš, 2014; Spice, Jones, Hadjistavropoulos, Kowalyk, & Stewart, 2009). Anxiety sensitivity has further been found predictive of experiences of pain during labor (Carvalho, Zheng, & Aiono-Le Tagalao, 2014; Curzik & Jokic-Begic, 2011; Lang, Sorrell, Rodgers, & Lebeck, 2006), and experimental pain studies have identified an interpretive bias of ambiguous information as a possible cognitive mechanism accounting for the association between anxiety sensitivity and experimental pain (Keogh & Cochrane, 2002; Vanclief, Hanssen, & Peters, 2016). Such interactions between heightened sensitivity for internal cues and catastrophic interpretive biases may thus be of interest in future studies of mechanisms underpinning childbirth fear.

Behavioral aspects such as escape, avoidance and reassurance are of great importance in understanding the maintenance of anxiety disorders, and both high state anxiety and pregnancy-specific distress have been found to predict avoidance as a general strategy for coping during pregnancy (Hamilton & Lobel, 2008). Despite the possible importance of behavioral factors, this perspective too has been quite overlooked with regard to fear of childbirth. In fact, we did not find one single study directly addressing avoidance or reassurance in relation to childbirth fear. However, when screening the literature for clues regarding these areas, some interesting themes emerged. The association between fear of childbirth and preferred, requested, and actual mode of birth could probably be understood in the light of avoidance of vaginal delivery. The odds ratio of preferring a Caesarean section has recently been found to be almost twice as high as actual delivery by one (OR 4.6, 95% CI 2.9–7.3 vs. OR 2.4, 95% CI 1.2–4.99; Storksen, Garthus-Niegel, Adams, Vangen, & Eberhard-Gran, 2015), indicating other factors (e.g. medical risk factors) to be of greater importance in determining mode of birth and each woman's opportunities to avoid a vaginal delivery.

When relating fear of childbirth to different measures of anxiety and depression, as well as to psychiatric diagnoses, care and medication, all studies identified support some degree of positive association. Correlations range from small to large ($r=0.22$ to $r=0.59$, OR = 2.3–11.0; see Fig. 2), none of them indicating that fear of childbirth could be completely accounted for by another variable or set of variables. Building on correlational results like these, fear of childbirth has been suggested to constitute a relatively distinctive syndrome, yet within the domain of anxiety (Huizink et al., 2004; Johnson & Slade, 2002; Wijma et al., 1998). However, childbirth-related fear or anxiety, as measured with the W-DEQ and PRAQ-R, does not seem to be a coherent construct, but rather a multidimensional phenomenon (Fenwick et al., 2009; Garthus-Niegel et al., 2011; Huizink et al., 2004; Johnson & Slade, 2002; Lukasse et al., 2014). Still, even if we could capture childbirth fear as a unidimensional construct (e.g. by using the FOBS), the group of women reporting such fear would probably still be quite heterogeneous in terms of fear manifestations, etiology and maintaining factors. This would imply that fear of childbirth perhaps not is the appropriate level for analysis, or at least not the most helpful one for treatment purposes. The heterogeneity of the group of women expressing fear of childbirth has been sparingly studied, and the possibility of within group differences, cancelling each other out in between group analyses needs further investigation. At this point then, conclusions regarding both the specificity and the cohesiveness of the phenomenon seem premature.

The clinical implications of adopting a multidimensional perspective on fear of childbirth, acknowledging the possibility of heterogeneity in etiology, manifestations, and mechanisms, would be to individualize the treatment following a thorough assessment of the unique circumstances of each woman. Recent research suggests that psycho-educational interventions might be effective in reducing childbirth-related fear (Rouhe et al., 2015; Salmela-Aro et al., 2012; Toohill, Fenwick, Gamble, Creedy, Buist, et al., 2014) and qualitative results suggest that internet-administered self-help, based on cognitive behavioral therapy, may have an effect on fearful women's attitudes, self-confidence and coping strategies relating to childbirth (Nieminen et al., 2015). Nonetheless, the number of intervention studies is limited, and since the mechanisms underpinning childbirth fear are not thoroughly explored, these interventions are likely to be based more on clinical impressions and expertise than empirically derived models of anxiety. Emphasizing a psychological perspective on fear of childbirth has the potential of contributing both to a deepened scientific understanding of this form of anxiety, and to the development of clinical interventions based on functional analysis of the etiological and maintaining factors contributing to fear for each individual.

This narrative review has identified three areas of research that seem to be of potential interest and importance to the field, namely systematic investigations of psychological mechanisms such as avoidance, reassurance and cognitive biases in fear of childbirth, longitudinal studies over more than one pregnancy exploring possible vicious circles, and within group comparisons of psychological characteristics among women fearing childbirth. Empirical knowledge about these aspects would be of great benefit in understanding the phenomenon of childbirth-related fear, and in developing interventions that might be helpful for the large number of women experiencing anxiety of this kind.

Appendices 1–5. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.janxdis.2016.10.007>.

1

References

- Adams, S. S., Eberhard-Gran, M., & Eskild, A. (2012). Fear of childbirth and duration of labour: A study of 2206 women with intended vaginal delivery. *BJOG: an International Journal of Obstetrics and Gynaecology*, 119(10), 1238–1246. <http://dx.doi.org/10.1111/j.1471-0528.2012.03433.x>
- Alehagen, S., Wijma, B., & Wijma, K. (2006). Fear of childbirth before, during, and after childbirth. *Acta Obstetrica Et Gynecologica Scandinavica*, 85(1), 56–62. <http://dx.doi.org/10.1080/00016340500334844>
- Alipour, Z., Lamyian, M., Hajizadeh, E., & Vafaei, M. A. (2011). The association between antenatal anxiety and fear of childbirth in nulliparous women: A prospective study. *Iranian Journal of Nursing and Midwifery Research*, 16(2), 169–173 [Retrieved from]. <http://search.proquest.com/docview/914667342?accountid=12495>
- Andersson, L., Sundström-Poromaa, I., Bixo, M., Wulff, M., Bondestam, K., & Åström, M. (2003). Point prevalence of psychiatric disorders during the second trimester of pregnancy: A population-based study. *American Journal of Obstetrics and Gynecology*, 189(1), 148–154. <http://dx.doi.org/10.1067/mob.2003.336>
- Andersson, L., Sundström-Poromaa, I., Wulff, M., Åström, M., & Bixo, M. (2004). Implications of antenatal depression and anxiety for obstetric outcome. *Obstetrics and Gynecology*, 104(3), 467–476. <http://dx.doi.org/10.1097/01.AOG.0000135277.04565.e9>
- Areskog, B., Uddenberg, N., & Kjessler, B. (1981). Fear of childbirth in late pregnancy. *Gynecologic and Obstetric Investigation*, 12(5), 262–266 [Retrieved from]. <http://search.proquest.com/docview/73599963?accountid=12495>
- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <http://dx.doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1977b). *Social learning theory*. Oxford: Prentice-Hall.
- Barlow, D. H., & Durand, V. M. (2015). *Abnormal psychology: An integrative approach* (7th ed.). Belmont, CA: Wadsworth Cengage Learning.
- Beck, C. T., & Watson, S. (2010). Subsequent childbirth after a previous traumatic birth. *Nursing Research*, 59(4), 241–249. <http://dx.doi.org/10.1097/NNR.0b013e3181e501fd>
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. Oxford: International Universities Press.
- Beebe, K. R., Lee, K. A., Carrieri-Kohlman, V., & Humphreys, J. (2007). The effects of childbirth self-efficacy and anxiety during pregnancy on prehospitalization labor. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 36(5), 410–418. <http://dx.doi.org/10.1111/j.1552-6909.2007.00170.x>
- Bouton, M. E. (2007). *Learning and behavior: A contemporary synthesis*. Sunderland, MA: Sinauer Associates.
- Carleton, R. N., Mulvogue, M. K., Thibodeau, M. A., McCabe, R. E., Antony, M. M., & Asmundson, G. J. G. (2012). Increasingly certain about uncertainty: Intolerance of uncertainty across anxiety and depression. *Journal of Anxiety Disorders*, 26(3), 468–479. <http://dx.doi.org/10.1016/j.janxdis.2012.01.011>
- Carvalho, B., Zheng, M., & Aiono-Le Tagalao, L. (2014). A prospective observational study evaluating the ability of prelabor psychological tests to predict labor pain, epidural analgesic consumption, and maternal satisfaction. *Anesthesia and Analgesia*, 119(3), 632–640. <http://dx.doi.org/10.1213/ane.0000000000000357>
- Cheung, W., Ip, W.-Y., & Chan, D. (2007). Maternal anxiety and feelings of control during labour: A study of Chinese first-time pregnant women. *Midwifery*, 23(2), 123–130. <http://dx.doi.org/10.1016/j.midw.2006.05.001>

¹ References included in the article. For a complete list of references included in the review see Appendix 1–5 in Supplementary material.

- Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In: R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment* (pp. 69–93). New York, NY: Guilford Press.
- Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy*, 24(4), 461–470. [http://dx.doi.org/10.1016/0005-7967\(86\)90011-2](http://dx.doi.org/10.1016/0005-7967(86)90011-2)
- Curzik, D., & Jokic-Begic, N. (2011). Anxiety sensitivity and anxiety as correlates of expected, experienced and recalled labor pain. *Journal of Psychosomatic Obstetrics and Gynaecology*, 32(4), 198–203. <http://dx.doi.org/10.3109/0167482x.2011.626093>
- D'Cruz, L., & Lee, C. (2014). Childbirth expectations: An Australian study of young childless women. *Journal of Reproductive and Infant Psychology*, 32(2), 199–208. <http://dx.doi.org/10.1080/02646838.2013.875134>
- Dehghani, M., Sharpe, L., & Khatibi, A. (2014). Catastrophizing mediates the relationship between fear of pain and preference for elective caesarean section. *European Journal of Pain*, 18(4), 582–589. <http://dx.doi.org/10.1002/j.1532-2149.2013.00404.x>
- (2013). *Diagnostic and statistical manual of mental disorders: DSM-5TM* (5th ed.). Arlington, VA: American Psychiatric Publishing, Inc.
- Domschke, K., Stevens, S., Pfeleiderer, B., & Gerlach, A. L. (2010). Interoceptive sensitivity in anxiety and anxiety disorders: An overview and integration of neurobiological findings. *Clinical Psychology Review*, 30(1), 1–11. <http://dx.doi.org/10.1016/j.cpr.2009.08.008>
- Dugas, M. J., Gagnon, F., Ladouceur, R., & Freeston, M. H. (1998). Generalized anxiety disorder: A preliminary test of a conceptual model. *Behaviour Research and Therapy*, 36(2), 215–226. [http://dx.doi.org/10.1016/S0005-7967\(97\)00070-3](http://dx.doi.org/10.1016/S0005-7967(97)00070-3)
- Ellis, A. (1962). *Reason and emotion in psychotherapy*. Oxford: Lyle Stuart.
- Eriksson, C., Jansson, L., & Hamberg, K. (2006). Women's experiences of intense fear related to childbirth investigated in a Swedish qualitative study. *Midwifery*, 22(3), 240–248. <http://dx.doi.org/10.1016/j.midw.2005.10.002>
- Eriksson, C., Westman, G., & Hamberg, K. (2006). Content of childbirth-related fear in Swedish women and men – Analysis of an open-ended question. *Journal of Midwifery & Women's Health*, 51(2), 112–118. <http://dx.doi.org/10.1016/j.jmwh.2005.08.010>
- Fenaroli, V., & Saita, E. (2013). Fear of childbirth: A contribution to the validation of the Italian version of the Wijma Delivery Expectancy/Experience Questionnaire (WDEQ) TPM-Testing. *Psychometrics. Methodology in Applied Psychology*, 20(2), 131–154. <http://dx.doi.org/10.4473/TPM20.XXXXXX>
- Fenwick, J., Hauck, Y., Downie, J., & Butt, J. (2005). The childbirth expectations of a self-selected cohort of Western Australian women. *Midwifery*, 21(1), 23–35. <http://dx.doi.org/10.1016/j.midw.2004.07.001>
- Fenwick, J., Gamble, J., Nathan, E., Bayes, S., & Hauck, Y. (2009). Pre- and postpartum levels of childbirth fear and the relationship to birth outcomes in a cohort of Australian women. *Journal of Clinical Nursing*, 18(5), 667–677. <http://dx.doi.org/10.1111/j.1365-2702.2008.02568.x>
- Fenwick, J., Staff, L., Gamble, J., Creedy, D. K., & Bayes, S. (2010). Why do women request caesarean section in a normal, healthy first pregnancy? *Midwifery*, 26(4), 394–400. <http://dx.doi.org/10.1016/j.midw.2008.10.011>
- Fisher, C., Hauck, Y., & Fenwick, J. (2006). How social context impacts on women's fears of childbirth: A Western Australian example. *Social Science & Medicine*, 63(1), 64–75. <http://dx.doi.org/10.1016/j.socscimed.2005.11.065>
- Flink, I. K., Mroczek, M. Z., Sullivan, M. J. L., & Linton, S. J. (2009). Pain in childbirth and postpartum recovery—The role of catastrophizing. *European Journal of Pain*, 13(3), 312–316. <http://dx.doi.org/10.1016/j.ejpain.2008.04.010>
- Foa, E. B., Huppert, J. D., & Cahill, S. P. (2006). Emotional processing theory: An update. In: B. O. Rothbaum (Ed.), *Pathological anxiety: Emotional processing in etiology and treatment* (pp. 3–24). New York, NY: Guilford Press.
- Freeston, M. H., Rhéaume, J., Letarte, H., Dugas, M. J., & Ladouceur, R. (1994). Why do people worry? *Personality and Individual Differences*, 17(6), 791–802. [http://dx.doi.org/10.1016/0191-8869\(94\)90048-5](http://dx.doi.org/10.1016/0191-8869(94)90048-5)
- Garthus-Niegel, S., Størksen, H. T., Torgersen, L., Von Soest, T., & Eberhard-Gran, M. (2011). The Wijma delivery expectancy/experience questionnaire—a factor analytic study. *Journal of Psychosomatic Obstetrics & Gynecology*, 32(3), 160–163. <http://dx.doi.org/10.3109/0167482X.2011.573110>
- Geissbuehler, V., & Eberhard, J. (2002). Fear of childbirth during pregnancy: A study of more than 8000 pregnant women. *Journal of Psychosomatic Obstetrics & Gynecology*, 23(4), 229–235. <http://dx.doi.org/10.3109/01674820209074677>
- Gentes, E. L., & Ruscio, A. M. (2011). A meta-analysis of the relation of intolerance of uncertainty to symptoms of generalized anxiety disorder, major depressive disorder, and obsessive-compulsive disorder. *Clinical Psychology Review*, 31(6), 923–933. <http://dx.doi.org/10.1016/j.cpr.2011.05.001>
- Haines, H., Pallant, J. F., Karlström, A., & Hildingsson, I. (2011). Cross-cultural comparison of levels of childbirth-related fear in an Australian and Swedish sample. *Midwifery*, 27(4), 560–567. <http://dx.doi.org/10.1016/j.midw.2010.05.004>
- Haines, H. M., Pallant, J. F., Fenwick, J., Gamble, J., Creedy, D. K., Toohill, J., et al. (2015). Identifying women who are afraid of giving birth: A comparison of the fear of birth scale with the WDEQ-A in a large Australian cohort. *Sexual & Reproductive HealthCare*, 6(4), 204–210. <http://dx.doi.org/10.1016/j.srhc.2015.05.002>
- Hall, W. A., Hauck, Y. L., Carty, E. M., Hutton, E. K., Fenwick, J., & Stoll, K. (2009). Childbirth fear, anxiety, fatigue, and sleep deprivation in pregnant women. *Journal of Obstetric, Gynecologic, & Neonatal Nursing: Clinical Scholarship for the Care of Women, Childbearing Families, & Newborns*, 38(5), 567–576. <http://dx.doi.org/10.1111/j.1552-6909.2009.01054.x>
- Hamilton, J. G., & Lobel, M. (2008). Types, patterns, and predictors of coping with stress during pregnancy: Examination of the Revised Prenatal Coping Inventory in a diverse sample. *Journal of Psychosomatic Obstetrics & Gynecology*, 29(2), 97–104. <http://dx.doi.org/10.1080/01674820701690624>
- Handelzalts, J. E., Fisher, S., Lurie, S., Shalev, A., Golan, A., & Sadan, O. (2012). Personality, fear of childbirth and cesarean delivery on demand. *Acta Obstetrica Et Gynecologica Scandinavica*, 91(1), 16–21. <http://dx.doi.org/10.1111/j.1600-0412.2011.01287.x>
- Handelzalts, J. E., Becker, G., Ahren, M.-P., Lurie, S., Raz, N., Tamir, Z., et al. (2015). Personality, fear of childbirth and birth outcomes in nulliparous women. *Archives of Gynecology and Obstetrics*, 291(5), 1055–1062. <http://dx.doi.org/10.1007/s00404-014-3532-x>
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, 64(6), 1152–1168. <http://dx.doi.org/10.1037/0022-006X.64.6.1152>
- Heimstad, R., Dahloe, R., Laache, I., Skogvoll, E., & Schei, B. (2006). Fear of childbirth and history of abuse: Implications for pregnancy and delivery. *Acta Obstetrica Et Gynecologica Scandinavica*, 85(4), 435–440. <http://dx.doi.org/10.1080/00016340500432507>
- Hildingsson, I., Thomas, J., Karlström, A., Olofsson, R. E., & Nystedt, A. (2010). Childbirth thoughts in mid-pregnancy: Prevalence and associated factors in prospective parents. *Sexual & Reproductive Healthcare: Official Journal of the Swedish Association of Midwives*, 1(2), 45–53. <http://dx.doi.org/10.1016/j.srhc.2009.11.003>
- Hildingsson, I., Nilsson, C., Karlström, A., & Lundgren, I. (2011). A longitudinal survey of childbirth-related fear and associated factors. *Journal of Obstetric, Gynecologic, & Neonatal Nursing: Clinical Scholarship for the Care of Women, Childbearing Families, & Newborns*, 40(5), 532–543. <http://dx.doi.org/10.1111/j.1552-6909.2011.01274.x>
- Hildingsson, I. (2014). Swedish couples' attitudes towards birth, childbirth fear and birth preferences and relation to mode of birth – a longitudinal cohort study. *Sexual & Reproductive Healthcare: Official Journal of the Swedish Association of Midwives*, 5(2), 75–80. <http://dx.doi.org/10.1016/j.srhc.2014.02.002>
- Hofberg, K., & Brockington, I. (2000). Tokophobia: An unreasoning dread of childbirth. A series of 26 cases. *The British Journal of Psychiatry*, 176, 83–85. <http://dx.doi.org/10.1192/bjp.176.1.83>
- Hofberg, K., & Ward, M. (2007). Tokophobia: A profound dread and avoidance of childbirth (when pathological fear effects the consultation). In: J. Cockburn, & M. E. Pawson (Eds.), *Psychological challenges in obstetrics and gynecology: The clinical management* (pp. 165–172). New York, NY: Springer Science + Business Media.
- Huizink, A. C., Mulder, E. J. H., de Medina, P. G. R., Visser, G. H. A., & Buitelaar, J. K. (2004). Is pregnancy anxiety a distinctive syndrome? *Early Human Development*, 79(2), 81–91. <http://dx.doi.org/10.1016/j.earlhumdev.2004.04.014>
- James, W. (1884). What is an emotion? *Mind*, 9(34), 188–205 [Retrieved from:]. http://www.jstor.org/stable/pdf/2246769.pdf?_seq=1471259442791
- Jespersen, C., Hegaard, H. K., Schroll, A.-M., Rosthøj, S., & Kjærgaard, H. (2014). Fear of childbirth and emergency caesarean section in low-risk nulliparous women: A prospective cohort study. *Journal of Psychosomatic Obstetrics & Gynecology*, 35(4), 109–115. <http://dx.doi.org/10.3109/0167482X.2014.952277>
- Johnson, R., & Slade, P. (2002). Does fear of childbirth during pregnancy predict emergency caesarean section? *BJOG: An International Journal of Obstetrics and Gynaecology*, 109(11), 1213–1221. <http://dx.doi.org/10.1046/j.1471-0528.2002.01351.x>
- Johnson, R. C., & Slade, P. (2003). Obstetric complications and anxiety during pregnancy: Is there a relationship? *Journal of Psychosomatic Obstetrics & Gynecology*, 24(1), 1–14. <http://dx.doi.org/10.3109/01674820309042796>
- Jokić-Begić, N., Žigić, L., & Radoš, S. N. (2014). Anxiety and anxiety sensitivity as predictors of fear of childbirth: Different patterns for nulliparous and parous women. *Journal of Psychosomatic Obstetrics & Gynecology*, 35(1), 22–28. <http://dx.doi.org/10.3109/0167482X.2013.866647>
- Keogh, E., & Cochrane, M. (2002). Anxiety sensitivity, cognitive biases, and the experience of pain. *Journal of Pain*, 3(4), 320–329. <http://dx.doi.org/10.1054/jpai.2002.125182>
- Kjærgaard, H., Wijma, K., Dykes, A.-K., & Alehagen, S. (2008). Fear of childbirth in obstetrically low-risk nulliparous women in Sweden and Denmark. *Journal of Reproductive and Infant Psychology*, 26(4), 340–350. <http://dx.doi.org/10.1080/02646830802408498>
- Kringeland, T., Daltveit, A. K., & Moeller, A. (2009). What characterizes women in Norway who wish to have a caesarean section? *Scandinavian Journal of Public Health*, 37(4), 364–371. <http://dx.doi.org/10.1177/1403494809105027>
- Lang, A. J., Sorrell, J. T., Rodgers, C. S., & Lebeck, M. M. (2006). Anxiety sensitivity as a predictor of labor pain. *European Journal of Pain*, 10(3), 263–270. <http://dx.doi.org/10.1016/j.ejpain.2005.05.001>
- Larsson, B., Karlström, A., Rubertsson, C., & Hildingsson, I. (2015). The effects of counseling on fear of childbirth. *Acta Obstetrica Et Gynecologica Scandinavica*, 94(6), 629–636. <http://dx.doi.org/10.1111/aogs.12634>
- Laursen, M., Hedegaard, M., & Johansen, C. (2008). Fear of childbirth: Predictors and temporal changes among nulliparous women in the Danish National Birth Cohort. *BJOG*, 115(3), 354–360. <http://dx.doi.org/10.1111/j.1471-0528.2007.01583.x>
- Laursen, M., Johansen, C., & Hedegaard, M. (2009). Fear of childbirth and risk for birth complications in nulliparous women in the Danish National Birth Cohort. *BJOG: An International Journal of Obstetrics and Gynaecology*, 116(10), 1350–1355. <http://dx.doi.org/10.1111/j.1471-0528.2009.02250.x>

- Lowe, N. K. (1993). Maternal confidence for labor: Development of the childbirth self-efficacy inventory. *Research in Nursing & Health*, 16(2), 141–149. <http://dx.doi.org/10.1002/nur.4770160209>
- Lowe, N. K. (2000). Self-efficacy for labor and childbirth fears in nulliparous pregnant women. *Journal of Psychosomatic Obstetrics and Gynaecology*, 21(4), 219–224. <http://dx.doi.org/10.3109/01674820009085591>
- Lukasse, M., Vangen, S., Oeian, P., Kumle, M., Ryding, E. L., & Schei, B. (2010). Childhood abuse and fear of childbirth—a population-based study. *Birth*, 37(4), 267–274. <http://dx.doi.org/10.1111/j.1523-536X.2010.00420.x>
- Lukasse, M., Vangen, S., Øian, P., & Schei, B. (2011). Fear of childbirth, women's preference for cesarean section and childhood abuse: A longitudinal study. *Acta Obstetrica Et Gynecologica Scandinavica*, 90(1), 33–40. <http://dx.doi.org/10.1111/j.1600-0412.2010.01024.x>
- Lukasse, M., Schei, B., Ryding, E. L., & Bidens Study, G. (2014). Prevalence and associated factors of fear of childbirth in six European countries. *Sexual & Reproductive Healthcare: Official Journal of the Swedish Association of Midwives*, 5(3), 99–106. <http://dx.doi.org/10.1016/j.srhc.2014.06.007>
- Bidens Study Group, Lukasse, M., Schroll, A.-M., Karro, H., Schei, B., Steingrimsdottir, T., & Van Parys, A.-S. (2015). Prevalence of experienced abuse in healthcare and associated obstetric characteristics in six European countries. *Acta Obstetrica Et Gynecologica Scandinavica*, 94(5), 508–517. <http://dx.doi.org/10.1111/aogs.12593>
- Matinnia, N., Faisal, I., Juni, M. H., Herjar, A. R., Moeini, B., & Osman, Z. J. (2015). Fears related to pregnancy and childbirth among primigravidae who requested caesarean versus vaginal delivery in Iran. *Maternal and Child Health Journal*, 19(5), 1121–1130. <http://dx.doi.org/10.1007/s10995-014-1610-0>
- McEvoy, P. M., & Mahoney, A. E. J. (2012). To be sure, to be sure: Intolerance of uncertainty mediates symptoms of various anxiety disorders and depression. *Behavior Therapy*, 43(3), 533–545. <http://dx.doi.org/10.1016/j.beth.2011.02.007>
- Melender, H.-L. (2002a). Experiences of fears associated with pregnancy and childbirth: A study of 329 pregnant women. *Birth: Issues in Perinatal Care*, 29(2), 101–111. <http://dx.doi.org/10.1046/j.1523-536X.2002.00170.x>
- Melender, H.-L. (2002b). Fears and coping strategies associated with pregnancy and childbirth in Finland. *Journal of Midwifery & Women's Health*, 47(4), 256–263. [http://dx.doi.org/10.1016/S1526-9523\(02\)00263-5](http://dx.doi.org/10.1016/S1526-9523(02)00263-5)
- Minaka, S., & Sutton, S. K. (1992). Cognitive biases and the emotional disorders. *Psychological Science*, 3(1), 65–69. <http://dx.doi.org/10.1111/j.1467-9280.1992.tb00260.x>
- Mowrer, O. H. (1947). On the dual nature of learning—a re-interpretation of conditioning and problem-solving. *Harvard Educational Review*, 17, 102–148 [Retrieved from]. <http://proxybib.miun.se/docview/615198313?accountid=12495>
- Nieminen, K., Stephansson, O., & Ryding, E. L. (2009). Women's fear of childbirth and preference for cesarean section—a cross-sectional study at various stages of pregnancy in Sweden. *Acta Obstetrica Et Gynecologica Scandinavica*, 88(7), 807–813. <http://dx.doi.org/10.1080/00016340902998436>
- Nieminen, K., Malmquist, A., Wijma, B., Ryding, E. L., Andersson, G., & Wijma, K. (2015). Nulliparous pregnant women's narratives of imminent childbirth before and after internet-based cognitive behavioural therapy for severe fear of childbirth: A qualitative study. *BJOG: an International Journal of Obstetrics and Gynaecology*, 122(9), 1259–1265. <http://dx.doi.org/10.1111/1471-0528.13358>
- Nilsson, C., & Lundgren, I. (2009). Women's lived experience of fear of childbirth. *Midwifery*, 25(2), e1–e9. <http://dx.doi.org/10.1016/j.midw.2007.01.017>
- Nilsson, C., Lundgren, I., Karlström, A., & Hildingsson, I. (2012). Self reported fear of childbirth and its association with women's birth experience and mode of delivery: A longitudinal population-based study. *Women and Birth: Journal of the Australian College of Midwives*, 25(3), 114–121. <http://dx.doi.org/10.1016/j.wombi.2011.06.001>
- Nordeng, H., Hansen, C., Garthus-Niegel, S., & Eberhard-Gran, M. (2012). Fear of childbirth, mental health, and medication use during pregnancy. *Archives of Women's Mental Health*, 15(3), 203–209. <http://dx.doi.org/10.1007/s00737-012-0278-y>
- Pazzagli, C., Laghezza, L., Capurso, M., Sommella, C., Lelli, F., & Mazzeschi, C. (2015). Antecedents and consequences of fear of childbirth in nulliparous and parous women. *Infant Mental Health Journal*, 36(1), 62–74. <http://dx.doi.org/10.1002/imhj.21483>
- Räsänen, S., Lehto, S. M., Nielsen, H. S., Gissler, M., Kramer, M. R., & Heinonen, S. (2014). Fear of childbirth in nulliparous and multiparous women: A population-based analysis of all singleton births in Finland in 1997–2010. *BJOG: an International Journal of Obstetrics and Gynaecology*, 121(8), 965–970. <http://dx.doi.org/10.1111/1471-0528.12599>
- Rachman, S. (1977). The conditioning theory of fear-acquisition: A critical examination. *Behaviour Research and Therapy*, 15(5), 375–387. [http://dx.doi.org/10.1016/0005-7967\(77\)90041-9](http://dx.doi.org/10.1016/0005-7967(77)90041-9)
- Reck, C., Zimmer, K., Dubber, S., Zipser, B., Schlehe, B., & Gawlik, S. (2013). The influence of general anxiety and childbirth-specific anxiety on birth outcome. *Archives of Women's Mental Health*, 16(5), 363–369. <http://dx.doi.org/10.1007/s00737-013-0344-0>
- Reiss, S., Peterson, R. A., Gursky, D. M., & McNally, R. J. (1986). Anxiety sensitivity, anxiety frequency and the prediction of fearfulness. *Behaviour Research and Therapy*, 24(1), 1–8. [http://dx.doi.org/10.1016/0005-7967\(86\)90143-9](http://dx.doi.org/10.1016/0005-7967(86)90143-9)
- Rouhe, H., Salmela-Aro, K., Halmesmaki, E., & Saisto, T. (2009). Fear of childbirth according to parity, gestational age, and obstetric history. *BJOG*, 116, 67–73. <http://dx.doi.org/10.1111/j.1471-0528.2008.02002.x>
- Rouhe, H., Salmela-Aro, K., Gissler, M., Halmesmaki, E., & Saisto, T. (2011). Mental health problems common in women with fear of childbirth. *BJOG*, 118(9), 1104–1111. <http://dx.doi.org/10.1111/j.1471-0528.2011.02967.x>
- Rouhe, H., Salmela-Aro, K., Toivanen, R., Tokola, M., Halmesmaki, E., Ryding, E.-L., et al. (2015). Group psychoeducation with relaxation for severe fear of childbirth improves maternal adjustment and childbirth experience—A randomised controlled trial. *Journal of Psychosomatic Obstetrics & Gynecology*, 36(1), 1–9. <http://dx.doi.org/10.1080/01674820802034631>
- Rubertsson, C., Hellström, J., Cross, M., & Sydsjö, G. (2014). Anxiety in early pregnancy: Prevalence and contributing factors. *Archives of Women's Mental Health*. <http://dx.doi.org/10.1007/s00737-013-0409-0>
- Ryding, E. L., Wijma, B., Wijma, K., & Rydhström, H. (1998). Fear of childbirth during pregnancy may increase the risk of emergency cesarean section. *Acta Obstetrica Et Gynecologica Scandinavica*, 77(5), 542–547. <http://dx.doi.org/10.1034/j.1600-0412.1998.770512.x>
- Ryding, E. L., Wirfelt, E., Wängborg, I.-B., Sjögren, B., & Edman, G. (2007). Personality and fear of childbirth. *Acta Obstetrica Et Gynecologica Scandinavica*, 86(7), 814–820. <http://dx.doi.org/10.1080/00016340701415079>
- Ryding, E. L., Lukasse, M., Van Parys, A. S., Wangel, A. M., Karro, H., Kristjansdottir, H., et al. (2015). Fear of childbirth and risk of cesarean delivery: A cohort study in six European countries. *Birth: Issues in Perinatal Care*, 42(1), 48–55. <http://dx.doi.org/10.1111/birt.12147>
- Söderquist, J., Wijma, K., & Wijma, B. (2004). Traumatic stress in late pregnancy. *Journal of Anxiety Disorders*, 18(2), 127–142. [http://dx.doi.org/10.1016/S0887-6185\(02\)00242-6](http://dx.doi.org/10.1016/S0887-6185(02)00242-6)
- Saisto, T., & Halmesmaki, E. (2003). Fear of childbirth: A neglected dilemma. *Acta Obstetrica Et Gynecologica Scandinavica*, 82(3), 201–208. <http://dx.doi.org/10.1034/j.1600-0412.2003.00114.x>
- Saisto, T., Ylikorkala, O., & Halmesmaki, E. (1999). Factors associated with fear of delivery in second pregnancies. *Obstetrics and Gynecology*, 94(5 pt 1), 679–682 [Retrieved from]. <http://search.proquest.com/docview/69231879?accountid=12495>
- Saisto, T., Salmela-Aro, K., Nurmi, J. E., & Halmesmaki, E. (2001). Psychosocial characteristics of women and their partners fearing vaginal childbirth. *BJOG: an International Journal of Obstetrics and Gynaecology*, 108(5), 492–498. <http://dx.doi.org/10.1111/j.1471-0528.2001.00122.x>
- Salkovskis, P. M., & Warwick, H. M. (1986). Morbid preoccupations, health anxiety and reassurance: A cognitive-behavioural approach to hypochondriasis. *Behaviour Research and Therapy*, 24(5), 597–602. [http://dx.doi.org/10.1016/0005-7967\(86\)90041-0](http://dx.doi.org/10.1016/0005-7967(86)90041-0)
- Salmela-Aro, K., Read, S., Rouhe, H., Halmesmaki, E., Toivanen, R. M., Tokola, M. I., et al. (2012). Promoting positive motherhood among nulliparous pregnant women with an intense fear of childbirth: RCT intervention. *Journal of Health Psychology*, 17(4), 520–534. <http://dx.doi.org/10.1177/1359105311421050>
- Salomonsson, B., Gullberg, M. T., Alehagen, S., & Wijma, K. (2013). Self-efficacy beliefs and fear of childbirth in nulliparous women. *Journal of Psychosomatic Obstetrics & Gynecology*, 34(3), 116–121. <http://dx.doi.org/10.3109/0167482X.2013.824418>
- Schroll, A.-M., Tabor, A., & Kjaergaard, H. (2011). Physical and sexual lifetime violence: Prevalence and influence on fear of childbirth before, during and after delivery. *Journal of Psychosomatic Obstetrics & Gynecology*, 32(1), 19–26. <http://dx.doi.org/10.3109/0167482X.2010.547965>
- Schwartz, L., Toohill, J., Creedy, D. K., Baird, K., Gamble, J., & Fenwick, J. (2015). Factors associated with childbirth self-efficacy in Australian childbearing women. *BMC Pregnancy and Childbirth*, 15, 29. <http://dx.doi.org/10.1186/s12884-015-0465-8>
- Serçekeş, P., & Okumuş, H. (2009). Fears associated with childbirth among nulliparous women in Turkey. *Midwifery*, 25(2), 155–162. <http://dx.doi.org/10.1016/j.midw.2007.02.005>
- Sieber, S., Germann, N., Barbir, A., & Ehlert, U. (2006). Emotional well-being and predictors of birth-anxiety, self-efficacy, and psychosocial adaptation in healthy pregnant women. *Acta Obstetrica Et Gynecologica Scandinavica*, 85(10), 1200–1207. <http://dx.doi.org/10.1080/00016340600839742>
- Sjögren, B. (1997). Reasons for anxiety about childbirth in 100 pregnant women. *Journal of Psychosomatic Obstetrics and Gynaecology*, 18(4), 266–272. <http://dx.doi.org/10.3109/01674829709080698>
- Spice, K., Jones, S. L., Hadjistavropoulos, H. D., Kowalyk, K., & Stewart, S. H. (2009). Prenatal fear of childbirth and anxiety sensitivity. *Journal of Psychosomatic Obstetrics & Gynecology*, 30(3), 168–174. <http://dx.doi.org/10.1080/01674820902950538>
- Størksen, H. T., Garthus-Niegel, S., Vangen, S., & Eberhard-Gran, M. (2013). The impact of previous birth experiences on maternal fear of childbirth. *Acta Obstetrica Et Gynecologica Scandinavica*, 92(3), 318–324. <http://dx.doi.org/10.1111/aogs.12072>
- Stoll, K., & Hall, W. A. (2013). Attitudes and preferences of young women with low and high fear of childbirth. *Qualitative Health Research*, 23(11), 1495–1505. <http://dx.doi.org/10.1177/1049732313507501>
- Stoll, K., & Hall, W. (2013). Vicarious birth experiences and childbirth fear: Does it matter how young Canadian women learn about birth? *The Journal of Perinatal Education*, 22(4), 226–233. <http://dx.doi.org/10.1891/1058-1243.22.4.226>
- Stoll, K., Hall, W., Janssen, P., & Carty, E. (2014). Why are young Canadians afraid of birth? A survey study of childbirth fear and birth preferences among Canadian University students. *Midwifery*, 30(2), 220–226. <http://dx.doi.org/10.1016/j.midw.2013.07.017>

- Stoll, K., Edmonds, J. K., & Hall, W. A. (2015). Fear of childbirth and preference for cesarean delivery among young american women before childbirth: A survey study. *Birth: Issues in Perinatal Care*, <http://dx.doi.org/10.1111/birt.12178>
- Storksen, H. T., Eberhard-Gran, M., Garthus-Niegel, S., & Eskild, A. (2012). Fear of childbirth; the relation to anxiety and depression. *Acta Obstetrica Et Gynecologica Scandinavica*, *91*(2), 237–242. <http://dx.doi.org/10.1111/j.1600-0412.2011.01323.x>
- Storksen, H. T., Garthus-Niegel, S., Adams, S. S., Vangen, S., & Eberhard-Gran, M. (2015). Fear of childbirth and elective caesarean section: A population-based study. *BMC Pregnancy Childbirth*, *15*, 221. <http://dx.doi.org/10.1186/s12884-015-0655-4>
- Sullivan, M. J. L., Bishop, S. R., & Pivik, J. (1995). The pain catastrophizing scale: Development and validation. *Psychological Assessment*, *7*(4), 524–532. <http://dx.doi.org/10.1037/1040-3590.7.4.524>
- Sullivan, M. J. L., Thorn, B., Haythornthwaite, J. A., Keefe, F., Martin, M., Bradley, L. A., et al. (2001). Theoretical perspectives on the relation between catastrophizing and pain. *The Clinical Journal of Pain*, *17*(1), 52–64. <http://dx.doi.org/10.1097/00002508-200103000-00008>
- Sydsjö, G., Angerbjörn, L., Palmquist, S., Bladh, M., Sydsjö, A., & Josefsson, A. (2013). Secondary fear of childbirth prolongs the time to subsequent delivery. *Acta Obstetrica Et Gynecologica Scandinavica*, *92*(2), 210–214. <http://dx.doi.org/10.1111/aogs.12034>
- Takegata, M., Haruna, M., Matsuzaki, M., Shiraishi, M., Okano, T., & Severinsson, E. (2014). Antenatal fear of childbirth and sense of coherence among healthy pregnant women in japan: A cross-sectional study. *Archives of Women's Mental Health*, *17*(5) <http://dx.doi.org/10.1007/s00737-014-0415-x>
- Ternström, E., Hildingsson, I., Haines, H., & Rubertsson, C. (2015). Higher prevalence of childbirth related fear in foreign born pregnant women—findings from a community sample in Sweden. *Midwifery*, *31*(4), 445–450. <http://dx.doi.org/10.1016/j.midw.2014.11.011>
- Toohill, J., Fenwick, J., Gamble, J., Creedy, D. K., Buist, A., Turkstra, E., et al. (2014). A randomized controlled trial of a psycho-education intervention by midwives in reducing childbirth fear in pregnant women. *Birth: Issues in Perinatal Care*, *41*(4), 384–394. <http://dx.doi.org/10.1111/birt.12136>
- Toohill, J., Fenwick, J., Gamble, J., & Creedy, D. K. (2014). Prevalence of childbirth fear in an Australian sample of pregnant women. *BMC Pregnancy and Childbirth*, *14*, 275. <http://dx.doi.org/10.1186/1471-2393-14-275>
- Tsui, M. H., Pang, M. W., Melender, H.-L., Xu, L., Lau, T. K., & Leung, T. N. (2007). Maternal fear associated with pregnancy and childbirth in Hong Kong Chinese women. *Women & Health*, *44*(4), 79–92. http://dx.doi.org/10.1300/J013v44n04_05
- Tugut, N., Tirkas, D., & Demirel, G. (2015). Preparedness of pregnant women for childbirth and the postpartum period: Their knowledge and fear. *Journal of Obstetrics and Gynaecology: the Journal of the Institute of Obstetrics and Gynaecology*, *35*(4), 336–340. <http://dx.doi.org/10.3109/01443615.2014.960375>
- Van den Bussche, E., Crombez, G., Eccleston, C., & Sullivan, M. J. L. (2007). Why women prefer epidural analgesia during childbirth: The role of beliefs about epidural analgesia and pain catastrophizing. *European Journal of Pain*, *11*(3), 275–282. <http://dx.doi.org/10.1016/j.ejpain.2006.03.002>
- Vancleef, L. M., Hanssen, M. M., & Peters, M. L. (2016). Are individual levels of pain anxiety related to negative interpretation bias? An examination using an ambiguous word priming task. *Eur J Pain*, *20*(5), 833–844. <http://dx.doi.org/10.1002/ejp.809>
- Waldenstroem, U., Hildingsson, I., & Ryding, E. L. (2006). Antenatal fear of childbirth and its association with subsequent caesarean section and experience of childbirth. *Bjog*, *113*(6), 638–646. <http://dx.doi.org/10.1111/j.1471-0528.2006.00950.x>
- Wijma, K., Wijma, B., & Zar, M. (1998). Psychometric aspects of the W-DEQ: a new questionnaire for the measurement of fear of childbirth. *Journal of Psychosomatic Obstetrics and Gynaecology*, *19*(2), 84–97. <http://dx.doi.org/10.3109/01674829809048501>
- Wijma, K., Ryding, E. L., & Wijma, B. (2002). Predicting psychological well-being after emergency caesarean section: A preliminary study. *Journal of Reproductive and Infant Psychology*, *20*(1), 25–36. <http://dx.doi.org/10.1080/02646830220106776>
- Williams, J. M. G., Mathews, A., & MacLeod, C. (1996). The emotional Stroop task and psychopathology. *Psychological Bulletin*, *120*(1), 3–24. <http://dx.doi.org/10.1037/0033-2909.120.1.3>
- Zar, M., Wijma, K., & Wijma, B. (2001). Pre- and postpartum fear of childbirth in nulliparous and parous women. *Scandinavian Journal of Behaviour Therapy*, *30*(2), 75–84. <http://dx.doi.org/10.1080/02845710152507418>
- Zar, M., Wijma, K., & Wijma, B. (2002). Relations between anxiety disorders and fear of childbirth during late pregnancy. *Clinical Psychology & Psychotherapy*, *9*(2), 122–130. <http://dx.doi.org/10.1002/cpp.305>