



TOCOPHOBIA- FEAR OF CHILDBIRTH: A REVIEW

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Abstract

Tocophobia is a severe fear of childbirth, affecting the pregnancy outcomes of many women worldwide. It needs special attention, as it creates numerous medical complications during childbirth. This article provides a detailed review of the tocophobia fear of childbirth by exploring its types, causes, and significant impacts on mothers and infants. Also, the presented work analyzed different diagnostic tools such as the Wijma Delivery Expectancy Questionnaire (W-DEQ), Fear of Birth Scale (FOBS), Childbirth Attitudes Questionnaire (CAQ), and Fear of Childbirth Questionnaire (FCQ). It emphasized their efficiency in measuring the severity of fear among pregnant women. Furthermore, it explored various treatment strategies and found that Cognitive Behaviour Therapy (CBT) offered greater improvement in preventing FOC among women. The presented review underscores the importance of early diagnosis of FOC among women to improve maternal well-being and reduce their anxiety related to pregnancy and labor.

Keywords: Tocophobia, Fear of Childbirth, Pregnancy, Anxiety, Diagnostic Instrument, Preventive Measures

1. Introduction

In recent times, the tocophobia (fear of childbirth (FOC)) condition among women has been increasing in both clinical and empirical research [1]. It defines an anxiety disorder that creates an intense fear of childbirth and pregnancy and it is grouped into two namely: primary and secondary [2]. The former affects nulliparous women, while secondary tocophobia affects women who already have delivery experience [3]. This can lead to serious and long-term health impacts on both mother and baby. The reason for this disorder includes multiple factors and they vary based on individuals. The most common factors include long-term infertility conditions, previous miscarriages, sexual abuse, anxious personality, past traumatic birth experiences, smoking, poor relationships, and low social support [4]. These factors contribute to both primary and secondary tocophobia. There is no standard definition or protocol for outlining tocophobia and its influencing factors.

W-DEQ was considered a tool to diagnose this disorder [5]. This is an instrument frequently used to evaluate FOC among women by questioning women regarding their experiences before and after

pregnancy. In addition to this, some other instruments including FOBS and CAQ are used for diagnosing tocophobia [6]. Some women with this disorder avoid pregnancy and children and this condition can be resolved through early psychological treatment/support like counseling, cognitive behavioral therapy, psychotherapy, social support, etc., [7]. This psychological treatment process enables women with this disorder to discuss their fears with a trusted person. Due to its prevalence, special attention has been given to tocophobia disorder [8]. Many research works are being done to provide insights regarding FOC and its adverse impacts on childbirth and pregnancy.

Various reviews have been done to provide a detailed analysis of tocophobia, its types, causes, and interventions. Kumiko Kido and Yuko Uemura provided an integrative review of tocophobia to examine the prevalence and screening methods of FOC. In this study, only five research studies are chosen and analyzed for their objectives. The study concluded that the W-DEQ screening instrument was highly effective in assessing FOC [9]. Azam Bakhteh et al provided a comprehensive analysis of various intervention strategies for evaluating FOC in pregnant



mothers. This study found that psychotherapy and education have significantly minimized FOC [10].

Suraj Mandal et al presented a detailed review of the prevalence of FOC and its management strategies. This work concluded that only a few research are conducted in this domain and it focused on finding suitable intervention strategies for FOC reduction [11]. Vahideh Moghaddam Hosseini et al examined effective interventions applied for decreasing FOC among women. In this study, eight randomized clinical trials were conducted and found that education interventions reduced FOC [12]. Although various review works are conducted on FOC prevalence and interventions, only a few focus on examining its impacts, screening methods, and interventions. Considering that, the presented article aimed to offer valuable insights into tocophobia, its types, causes, and impacts along with diagnostic tools and intervention techniques.

The major contributions of the review are described below

- ❖ To explore tocophobia and its types considering its primary causes and potential impact on women and infants.
- ❖ To analyze and find the best instrument for measuring FOC among both pregnant and postnatal women.
- ❖ To explore and find the effective treatment approach among different strategies used for treating/managing FOC condition.

The enduring sections of the review are described as follows: section 2 presents the overview of tocophobia, types, causes, and its impacts, section 3 illustrates the outline of diagnostic tools used for measuring FOC, section 4 presents the overview of instruments used in FOC measurement, section 5 examines the treatment strategies used in managing FOC and section 6 describes the article conclusion.

2. Tocophobia and its types

Definition

Tocophobia is a severe fear of pregnancy and childbirth among women. The word comes from the Greek words Tokos representing “childbirth”, and Phobos defining “fear”. This condition creates severe psychological distress among women and leads them to avoid pregnancy. There are two types of tocophobia namely: primary and secondary [1].

Primary tocophobia

This type of tocophobia occurs in women who have never experienced childbirth or pregnancy before. This kind of tocophobia usually starts in the adolescence stage or even during pregnancy and it may be due to some traumatic stories, or perceptions of pain and may also be associated with their mother's or sister's childbirth experience [2].

Secondary tocophobia

Secondary tocophobia affects women who already have a pregnancy or childbirth experiences. Typically, this condition occurs because of previous traumatic pregnancy incidents like miscarriage or abortion [2].

2.1 Causes of tocophobia

In women, FOC is caused by various psychological and physiological factors. The factors influencing tocophobia are described below.

Personal factors

Personal characteristics such as depression, lack of social support, anxiety, unhappiness with a partner, and neuroticism cause fear of delivery or FOC among women. The studies on FOC reported that women's thoughts, negative feelings, and emotions in the early pregnancy stage highly impact their behavior during delivery. Generally, FOC is termed as a hidden depression among women that leads to avoidance of pregnancy [13].

Fear of Pain (FOP)

FOP is the most common cause of FOC or tocophobia. Generally, the person who is prone to pain tolerance experiences fear related to labor and birth. Typically, women request for cesarean section in this category [14].

Fear of Being Incapable of Giving Birth

This factor is also one of the common causes of FOC and the studies reported that two-thirds of women with FOC often felt incapable of giving birth [15]. This is mainly due to their anxiety interconnected with previous birth experiences. Furthermore, this may also create harm to the fetus and the women often feel hopelessness.

Fear of Becoming a Parent

Fear of becoming a parent is most common among young couples. Childbirth usually creates more responsibility and in recent times to lack of role models that how to become a good mother and father

introduces more doubts regarding their capacity to take care of their children [15]. This makes the couple feel less confident regarding parenting.

Abuse and Trauma

A woman with a history of sexual abuse often experiences severe FOC because of their previous trauma. Also, FOC triggers their memories and creates feelings like anxiety, stress, loneliness, and helplessness. In addition, the women who are sexually abused experience intense fear of re-experiencing trauma [16]. This factor contributes to secondary pathological FOC and leads to childbirth avoidance, even though the woman wants a baby.

Socio-Cultural Factors

A Socio-cultural characteristic is another important factor contributing to FOC among women. Typically, a woman who lacks adequate support from society including her family members (father, mother), her partner's family, and communities experiences an increased risk of fear related to childbirth. Other parameters including unstable relationships, lack of education, and socioeconomic issues also play a significant role in influencing FOC [13, 14]. Furthermore, unemployment or the absence of cohabitation with the child's father increases the possibility of FOC. In addition, intergenerational impacts, such as a mother's unresolved childbirth fears shape a woman's reproductive anxieties. Socio-cultural factors underline the complex interplay between individual experiences and societal norms in shaping FOC. Table 1 lists the major causes of tocophobia and its brief explanation [17].

Table 1: Tocophobia causes

Factors	Causes
Person factors	Depression, general anxiety, self-integrity, physical complications, lack of social support, negative thoughts, lack of moral support, and unhappiness with partner
Fear of pain	Lack of pain tolerance, high sensitivity to pain
Fear of being incapable	Past pregnancy trauma such as miscarriage or abortion, fear about the child, hopelessness, loneliness, and helplessness.
Fear of becoming a parent	Lack of family support, fear of new responsibilities, modern lifestyle changes, low confidence about postpartum, fear of postpartum depression
Abuse and trauma	Past sexual abuse trauma, fear of re-traumatization
Socio-cultural factors	Lack of education, moral support, and social support, unstable relationships, unemployment, socio-economic challenges, intergenerational anxiety

2.3 Impacts of tocophobia on women and baby

Tocophobia condition has a huge impact on women and babies. Women with FOC often make decisions such as abortion, miscarriage, and pregnancy avoidance. Also, they prefer cesarean section, which creates difficulties in establishing a bond and attachment with the baby because of their physical and emotional trauma [4]. Figure 1 outlines the impacts of tocophobia with FOC.

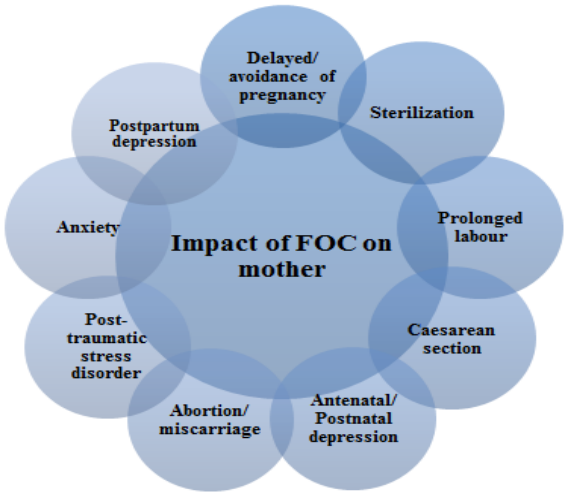


Figure 1: Impacts of FOC on mothers

Similarly, tocophobia has a significant impact on babies [4]. The major impact is the reduction of



bonding or attachment between baby and mother, which creates an emotional imbalance in the future. Also, FOC results in increased NICU admissions and it also reduces the birth weight of the child. Furthermore, it creates long-term emotional effects on infants.

3. Diagnostic tools

Tocophobia condition can be diagnosed using three different tools namely: the W-DEQ, FOBS, and CAQ [6]. The below subsections provide a detailed view of these tools.

3.1 W-DEQ

W-DEQ is the popular tool deployed for estimating FOC among women. It was conceptualized as a uni-dimensional tool and is a 33-item questionnaire covering different aspects of childbirth such as fear, anxiety, control, etc. Each question has a Likert scale (0 to 5) and women participating in the assessment rate their response based on how they felt during pregnancy and after delivery [5, 6]. Then, their responses are converted into a cumulative score, which indicates the FOC level. Generally, the score ranges from 0 to 165 in which 0 indicates a lower level or no FOC, while 165 represents a higher level of FOC. There are two versions of W-DEQ namely: W-DEQ version A (W-DEQ A) and W-DEQ version B (W-DEQ B).

W-DEQ-A

W-DEQ A is a diagnostic tool that measures FOC by analyzing the women's expectations relative to childbirth and their own experiences. Here the data was gathered from pregnant women before childbirth regarding their expectations and anticipation about childbirth [18].

W-DEQ-B

W-DEQ-B is an instrument used to determine FOC by analyzing the women's delivery experience. Here the data was collected based on their own real-time delivery experiences.

3.2 FOBS

A FOBS is a simple and effective instrument used for evaluating FOC in pregnant women. It is a two-item visual analog scale (VAS) and evaluates the participants feeling towards childbirth. Here, the participants are requested to place a mark on two 100mm scales with a low mark indicating less FOC

and a high mark denoting a high FOC level [19]. Also, it is a two-dimensional approach and measures FOC as "calm/worried" and "no fear/strong fear". This diagnostic tool was designed as a questionnaire deployed in a longitudinal study in northern Sweden.

3.3 CAQ

CAQ is a psychometric instrument developed for measuring women's thoughts, beliefs, and feelings towards childbirth. It is a 40-item questionnaire and uses a Likert scale of 0 to 4 in which 0 indicates no fear and 4 denotes extreme fear. Generally, this assessment was done by collecting responses for all 40 items from the participants and the cumulative score was estimated [20]. If the cumulative score is higher, it indicates greater FOC. This instrument helps in finding individuals' perspectives on childbirth and pregnancy.

3.4 Fear of Childbirth Questionnaire (FCQ)

FCQ is a 20-item scale instrument used for assessing the intensity and different dimensions of FOC among women [21]. It considers various aspects of FOC such as emotional, physical, and psychological factors associated with childbirth and pregnancy. The participants rate their responses to each question based on their level of agreement and disagreement and finally total score is determined to measure the fear. Typically, a higher score represents a high fear level and vice versa.

These diagnostic tools evaluate the level of fear among the women related to childbirth considering various dimensions of factors.

4. Overview of the research articles

This section offers a detailed analysis of selected works related to the assessment of tocophobia.

David Onchonga MPH et al. [22] presented a study to determine FOC by assessing the readability of W-DEQ A and the techniques such as the FOG scale, Flesch Reading Ease Formula, Coleman-Liau Index, Flesch-Kincaid Grade Level, and Automated Readability Index was used for measuring the accessibility of W-DEQ A. This study considered 26 women from Kenya and they were arranged in four focus group discussions (FGDs). This research found that W-DEQ A was readable for women having basic secondary education and they achieved SMOG index score of 7.6 and Linsear Write Formula score of 9.4. Celia Maria Ortega-Cejas et al. [23] developed research to explore the assessment of tocophobia using



the W-DEQ-A technique. This study aims to translate the W-DEQ-A into Spanish language and evaluate its sustainability and readability. This work was done in two stages: adjusting the questionnaire to Spanish and extending the work to 273 pregnant women in Health centers in Barcelona Spain. The study's outcomes demonstrated that the W-DEQ-A offers a multi-dimensional assessment of FOC. Lee Roosevelt and Lisa Kane Low [24] presented research to examine FOC using a popular W-DEQ instrument among 22 women from the United States of America (USA). This study also aimed to assess the applicability and readability of the diagnostic tool among pregnant women along with women who have given birth in the last 5 years. The data gathered from the participants were evaluated through content assessment and a Fry readability graph was deployed for assessing the tool's readability. The study's results demonstrated that W-DEQ can be used as a screening tool in clinical centers for women with FOC conditions. However, W-DEQ has not identified many factors that contribute to FOC.

Theodora Hei Tung Lai et al. [25] developed a work to translate and test the Chinese version of W-DEQ-A (C-W-DEQ-A). This work used 301 pregnant women of which 179 completed the questionnaire in online mode. Further, the intraclass correlation coefficient (ICC) and Cronbach's alpha coefficient (α) are utilized for testing the reliability of the diagnostic instrument. The exploratory factor assessment highlighted that the W-DEQ-A instrument offers a multi-dimensional evaluation of FOC and achieved a score of 65 out of 165. Pinelopi Varela et al. [26] designed a study to determine the psychometric properties of the W-DEQ-A tool. This work considered 201 low-risk pregnant women from Greece and the Greek version of W-DEQ-A questionnaires are provided. Also, confirmatory factor assessment (CFA) was done to determine the multi-dimensionality of the diagnostic tool. The results of the study highlighted that this instrument measures anxiety, depression, and stress among pregnant women more efficiently. Agnes F. Massae et al. [27] examined the efficiency of W-DEQ (A and B) in assessing FOC among women. The objective is to determine the validity and robustness of the Tanzanian version of this instrument. Here W-DEQ-A was assessed among 694 pregnant women and W-DEQ-B was evaluated among 625 postnatal women. The tool's effectiveness was determined through exploratory factor assessment (EFA) and CFA. The study's results highlighted that these instruments are readable and efficient in measuring FOC.

Oznur Korukcu et al. [28] proposed a work for evaluating FOC using the W-DEQ-B instrument. In addition, this work aimed to determine the psychometric quality of this diagnostic tool through CFA, EFA, and reliability assessment. A unique six-factor framework was designed to demonstrate the instrument outcomes and it considered factors such as fear of baby and childbirth, loneliness, fear of labor pain, and lack of positive feelings and attitudes. The outcomes highlighted this instrument offers a multi-factorial assessment of FOC after childbirth. Theodora Hei Tung Lai et al. [29] modeled a study to assess the influence of FOC among women after childbirth. This study used the W-DEQ-B tool to determine postnatal FOC among 136 Chinese women. Furthermore, Cronbach's alpha and ICC are employed for measuring the tool's reliability and it achieved 0.910 and 0.741 scores, respectively. Juan Roldán-Merino et al. [30] presented a study to translate W-DEQ-B into Spanish and evaluate its validity and readability. This work includes two stages namely: multicultural adjustment of questionnaire to Spanish and assessing postnatal FOC among 190 women. This study analyzed the psychometric properties using functions like CFA, EFA, and reliability evaluation. The study's results validate that this instrument is multi-dimensional and is reliable and valid for assessing FOC.

Mizuki Takegata et al. [31] presented a work to measure FOC using W-DEQ-B. The primary concern of this work is to model Japanese W-DEQ-B (J-W-DEQ-B) and evaluate its reliability and validity amid Japanese women. This study was done among 231 (pregnant and postnatal women) and considered factors riskiness, loneliness, fear about the baby, and lack of positive attitude. The outcomes of the study demonstrated that it achieved α 0.95. However, no demographical factors are considered in this work. I. den Boer et al. [32] developed a work to examine the potential of FOBS tools in assessing FOC. FOBS is a two-scale questionnaire model and its threshold (cutoff: ≥ 49). The results of the study demonstrated that this instrument achieved 82.1% sensitivity and 81.1% specificity in FOC assessment. However, to obtain better results, the FOBS should be followed by W-DEQ evaluation. Elin Ternström et al. [33] presented a study to assess FOC among mid-pregnancy women using the FOBS tool. This work used a qualitative model developed using semi-structured interviews and subsequently content assessment was done to analyze various dimensions of FOC. The results described that FOBS found factors influencing FOC and also explained intervention strategies for them to overcome fears.



Table 2: Overview of the research articles

Authors	Year	Assessment tool	Objective	Key findings	Drawbacks
David Onchonga MPH et al. [22]	2021	W-DEQ-A	To determine the readability of W-DEQ-A amid Kenya women	Women with basic secondary education are easily readable to W-DEQ-A	The sample size is very small and has not considered societal factors
Celia Maria Ortega-Cejas et al. [23]	2021	W-DEQ-A	To determine the reliability and validity of W-DEQ-A by adjusting queries in Spanish	W-DEQ-A offers a multi-dimensional evaluation of FOC among women	The reliability of the tool is not validated across multiple dimensions
Lee Roosevelt and Lisa Kane Low [24]	2016	W-DEQ-A	To evaluate FOC and examine the applicability and readability of the instrument among 22 women in the USA	W-DEQ serves as a screening tool to detect women with FOC	Less generalization and cannot identify many crucial factors related to FOC
Theodora Hei Tung Lai et al. [25]	2022	W-DEQ-A	To decipher and investigate the C-W-DEQ-A	W-DEQ-A offers a multi-dimensional analysis of FOC and it is reliable	The W-DEQ-A score of 65 is not sufficient for FOC assessment in a huge sample
Pinelopi Varela et al. [26]	2024	W-DEQ-A	To examine the psychometric properties of the Greek version of W-DEQA	CFA highlighted the multi-dimensionality of the instrument	This study has not considered high-risk women
Agnes F. Massae et al. [27]	2022	W-DEQ (A and B)	To assess the robustness of W-DEQ (A and B) in measuring FOC among Tanzanian population	EFA and CFA illustrated that these tools are valid and reliable for FOC measurement	The psychometric properties of these instruments are assessed
Oznur Korukcu et al. [28]	2016	W-DEQ-B	Determine the FOC after childbirth using W-DEQ-B	The factor model evaluated the instrument's reliability in assessing FOC	It lacks cross-sectional FOC analysis, where it is measured periodically
Theodora Hei Tung Lai et al. [29]	2022	W-DEQ-B	Validate the Chinese version of W-DEQ-B	Achieved α and ICC scores of 0.910 and 0.741	It considered only 4 factors and other important factors including cultural sensitivity were neglected
Juan Roldán-Merino et al. [30]	2021	W-DEQ-B	To translate W-DEQ-B into Spanish and evaluate its readability in measuring postnatal FOC	The psychometric assessment highlights this tool is multi-dimensional and reliable.	Regional differences and mental stability of the women are not considered for FOC evaluation.
Mizuki Takegata et al. [31]	2017	W-DEQ-B	To design and validate the J-W-DEQ-B instrument	Achieved α t of 0.95	No demographic factors are considered for the FOC assessment
I. den Boer et al. [32]	2021	FOBS	To evaluate the efficiency of FOBS in FOC assessment	Achieved 82.1% sensitivity and 81.1% specificity	To achieve a better score, FOBS should be followed by additional evaluation (W-DEQ-A)
Elin Ternström et al. [33]	2016	FOBS	To determine FOC among mid-pregnancy women using FOBS	Determined factors influencing fear among women	No uniformity was maintained during the assessment
Qianmin Zhang et al. [34]	2024	FOBS	To evaluate the Chinese version of FOBS	Obtained test reliability score of 0.860 for the Chinese version of FOBS	Addition evaluation is required for large-scale population
Pauline Sladea et al. [35]	2020	FCQ	To measure FOC using the FCQ approach among English-speaking individuals	Achieved a greater level of validity and reliability in the English language	Psychometric features are not considered



Qianmin Zhang et al. [34] presented a study to validate the efficiency of the Chinese form of FOBS by integrating translation, content validity index, equivalence index, and cognitive debriefing. The outcomes of the study highlighted that the designed strategy provided a test reliability score of 0.860, demonstrating its efficiency in FOC assessment. Pauline Sladea et al. [35] proposed a study to measure FOC using the FCQ approach among English-speaking individuals. This methodology is a 20-item scale and evaluates the FOC considering multiple factors and the study's outcomes manifested that this approach offers a greater level of validity and reliability in the English language.

From the analysis, it was found that most of the research utilized W-DEQ as their screening instrument. In the case of primary tocophobia, the studies utilized W-DEQ-A, while for evaluating postnatal depression the studies used the W-DEQ-B tool. Only a few studies used FOBS and it was suggested that the combination of FOBS and W-DEQ-A provides improved results in FOC assessment. FOBS have shown prominent results in evaluating FOC condition/level among mid-pregnancy women. Furthermore, it was found that most of the studies were done after 2020, which shows a prominent interest in FOC analysis and intervention.

5. Management and treatment

Tocophobia condition can be mitigated through proper and effective treatment strategies. The most common treatment options for this condition include CBT, interpersonal therapy, brief dynamic psychotherapy (BDT), counseling, psychotherapy, etc.

5.1 Cognitive Behaviour Therapy

CBT is a kind of psychotherapy, which allows the patients to recognize their thoughts and emotions adversely influencing their character. In CBT intervention, the patients learn how to detect negative thoughts and try to change [36]. Here, the tocophobia condition was assessed through interviews or self-oriented questionnaires. The biggest advantage of this treatment strategy is that it assists the patients in gaining confrontation skills, which will help them overcome negative feelings and thoughts. The studies related to CBT demonstrated that this strategy has reduced tocophobia by 83% and also minimized the number of cesarean sections.

5.2 Interpersonal therapy (IPT)

IPT is a psychotherapy, that enables the patients to improve and develop interpersonal relationships for resolving their mental problems. This approach is a time-limited one and reduces the FOC by making the patients share their fear with healthcare providers or

partners [37]. This methodology is effective in treating mild to moderate levels of FOC and it is usually offered as sessions.

5.3 Brief Dynamic Psychotherapy

BDP is a time-effective method for treating FOC. In BDP, the medical experts maintain their concentration on the specific problems of clients [38]. This therapeutic technique typically involves analyzing the patient's unconscious emotions and feelings that contributed to FOC. This is more effective in treating the patient who is intensively affected by past traumas.

5.4 Other treatment techniques

Other treatment methods include psychotherapy, stress reduction, counseling, antidepressants, birth center tours, hypnotherapy, conducting prenatal classes, etc. These treatment processes provide emotional and psychological support to the patients and reduce their stress and fear by allowing them to practice meditation, yoga, etc., [39]. Also, in some cases, the therapists suggest anti-depression pills to make them relax and calm.

5.5 Overview of treatment strategies

Table 3 presents the analysis of the treatment strategies used for controlling FOC among women. This analysis enables us to find the most optimal strategy for treating FOC among women.

Sharon Ben-Rafael et al. [40] outlined a tocophobia invention framework using ultrashort exposure-assisted CBT. This study focused on assisting women who are in the third trimester through two sessions of CBT. Here, FOC diagnosis was done using the FOBS tool and Structured Clinical Interview for DSM Disorders and the study's outcomes demonstrated that it reduced 70% fear and stress. Also, the participating women showed no sign of depression in their postpartum. Zahra Alivand et al. [41] developed a study to measure the robustness of CBT on women with FOC condition. This study considered 99 women living in Tabriz, Iran and they were divided into three groups. Each group received eight CBT sessions and the FOC was assessed using the W-DEQ tool. The results of the assessment highlighted that the FOC score was reduced from 74.09 to 46.50 among the women. Elisabet Rondung et al. [42] presented a randomized controlled trial to validate the effectiveness of therapist-guided and guided CBT in treating pregnant women reported with FOC. The FOC was assessed using the FOBS scale and this treatment process was done for 17-20 weeks in 8 sessions. The outcomes highlighted that therapist-guided CBT decreased the FOC faster compared to simply guided CBT. Birgitta Larsson et al. [43] developed a study to measure the effectiveness of improving birth experience and reducing FOC among women using Internet-assisted CBT (ICBT) and



counseling. This study was conducted on 258 pregnant women and FOC was assessed using the W-DEQ approach. This group was randomly split into two in 1:1 for ICBT and counseling sections. After 5 sessions, the obtained results illustrated that the women who favored cesarean section were reduced from 34% to 12% using ICBT, while counseling reduced their preference from 24% to 20%.

M. Ghazaei et al. [44] presented a study to examine the robustness of CBT and psychoeducation for reducing FOC among women. This study measured FOC using W-DEQ and Zar's Delivery Expectancy Questionnaire tools. After the assessment, the candidates were grouped into two, and nine sessions of 90 minutes were provided to them. The results found that CBT reduced FOC more efficiently than psychological training. Jocelyn Toohill RM et al. [45] examined to validate the psycho-education intervention for

decreasing FOC among women. This study was conducted among 1410 participants and FOC was initially assessed using the W-DEQ-A approach. This analysis also considered postpartum, depressive symptoms, and psychometric features. The study's outcomes demonstrated that the post-intervention score was less than 0.001, which highlights that it had reduced FOC significantly. Riikka Toivanen et al. [46] examined the efficiency of psycho-education with relaxation exercises among women with FOC. Initially, 36 women were chosen and the FOC condition was evaluated using the W-DEQ tool. Then, five sessions are arranged for participants to convert the negative thoughts regarding childbirth to positive feelings by providing them with education along with some relaxation exercises. The study found that after five sessions, the W-DEQ score was significantly reduced among the participants.

Table 3: Overview of research works related to FOC treatment

Authors	Year	Treatment technique	No: of sessions & Questionnaire	Objective	Findings
Sharon Ben-Rafael et al. [40]	2023	CBT	2/ FOBS and Structured Clinical Interview for DSM Disorders	To assist the women on 3 rd trimester to overcome FOC	70% reduction in stress and no postpartum depression
Zahra Alivand et al. [41]	2023	CBT	8/W-DEQ	To evaluate the effectiveness of CBT in treating women with FOC	Reduced FOC score from 74.09 to 46.50
Elisabet Rondung et al. [42]	2018	Therapist guided and simply guided CBT	8/FOBS	To compare and validate therapist-guided and simply guided CBT	The therapist quickly decreased FOC than simply guided CBT
Birgitta Larsson et al. [43]	2017	ICBT and counseling	5/W-DEQ	To compare and validate ICBT and counseling in reducing FOC	ICBT reduced cesarean section preference from 34% to 12%, while counseling reduced their preference from 24 to 20%
M. Ghazaei et al. [44]	2018	CBT and psychoeducation	9/W-DEQ and Zar's Delivery Expectancy Questionnaire	To compare and validate the effectiveness of CBT and psycho-education	CBT significantly reduced FOC than psycho-education
Jocelyn Toohill RM et al. [45]	2014	Psycho-education intervention	4/ W-DEQ-A	To measure the FOC among women who already have delivery experience	Achieved post-intervention score of (p < 0.001)
Riikka Toivanen et al. [46]	2018	Psycho-education with relaxation exercises	5/W-DEQ	To validate the efficiency of psycho-education with relaxation exercises to reduce FOC	W-DEQ score was significantly reduced
Andaroon et al. [47]	2017	Individual counseling by midwives	4/W-DEQ	To determine the influence of individual counseling mediation on FOC reduction	The mean FOC score was reduced after the intervention.



Anderson et al. [47] modeled a study to evaluate the impact of individual counseling by midwives in minimizing FOC in primiparous women. The data was gathered from women who were at 34-36 weeks of pregnancy using the W-DEQ tool. Consequently, 4 counseling sessions were provided to all women, and the mean FOC score was estimated and it concluded that individual counseling has significantly reduced FOC.

From the detailed assessment of various interventions, it was found that CBT worked more efficiently for both primary and secondary tocophobia. In specific, therapist-guided CBT significantly reduced FOC in women. Notably, no postpartum depression was observed in individuals who participated in CBT intervention programs during their pregnancy, which highlights its potential to educate people and reduce fears. In addition to this, psycho-education and counseling reduced fears related to pregnancy and childbirth among women.

6. Conclusion

Tocophobia is a disorder significantly affecting maternal and infant health and needs timely diagnosis and effective intervention. This review provided valuable insights about the types, causes, and impacts of tocophobia, and analyzed different tools used for measuring FOC. The key findings of the study demonstrated that the W-DEQ tool evaluated FOC among both pregnant and postnatal women more effectively than other tools. Also, the presented work examined various treatment strategies used for resolving tocophobia and determined that the CBT technique provided improved results in reducing fear and stress among women. The study emphasized that addressing FOC helps improve pregnancy outcomes and promotes positive childbirth experiences for women.

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