

Karin Demšar, Matija Svetina, Ivan Verdenik, Natasa Tul, Isaac Blickstein*
and Vislava Globevnik Velikonja

Tokophobia (fear of childbirth): prevalence and risk factors

DOI 10.1515/jpm-2016-0282

Received August 23, 2016. Accepted February 22, 2017. Previously published online April 5, 2017.

Abstract

Objective: To identify the prevalence of and to determine the risk factors for developing a fear of childbirth (tokophobia).

Methods: We evaluated 191 pregnant women during Parenting and Childbirth Classes. Participants were approached when attending Parenting and Childbirth Classes between June 2014 and September 2014 and were asked to complete several questionnaires related to depression (CES-D), anxiety (STAI X1 and X2), satisfaction with life (SWLS), delivery expectation/experience (W-DEQ), and specific fears.

Results: Most (90%) of the responders were nulliparous. As many as 75% of the participants reported low to moderate tokophobia, whereas 25% exhibited high or very high fear of childbirth. Pathological fear occurred in 1.6% of the participants. The most significant was the fear of having an episiotomy followed by fear of having no control on the situation and fear of pain. An association exists between a preferred elective cesarean birth and tokophobia.

Conclusions: The results draw attention to the need for early detection and treatment of fear of childbirth. The data may help identifying women at risk that require pre-natal psychological intervention.

Keywords: Anxiety; depression; fear of childbirth; pregnancy; tokophobia.

Introduction

Fear of childbirth, also known as tokophobia or maietophobia, has been defined as a psychological disorder which ranges from insignificant to extreme fear of childbirth [1, 2], affecting women from childhood to old age [2]. Fear of childbirth interfering with the woman's daily functioning is a severe form of tokophobia and referred to as a pathological fear [2]. The prevalence of tokophobia in Western countries is over 20% [2–5]. An Australian study found that 48% of women reported moderate tokophobia and 26% exhibited strong fear of childbirth [6]. Pathological “disabling” fear of childbirth [7] is felt in about 6%–10% of the pregnant women [4, 5, 8–11]. Studies have shown that fear of childbirth has a significant impact on delivery outcome [12], resulting in a dramatic increase of cesarean births [8, 13–16].

It seems that some women are more susceptible to fear of childbirth than others. The etiology of tokophobia is multifactorial and can be associated with different combinations of predisposing factors such as susceptibility to anxiety or depression [17–19] and other psychiatric disorders [20], well-being in interpersonal relationships [21, 22], experience of sexual abuse and traumatic experience of former birth [9]. Some women described themselves as lonely [10] or with a low self-esteem [18]. In addition, a socio-cultural context exists that influences perception and expression of fear of childbirth suggesting a social and personal background [23].

The purpose of this study was to examine the perinatal psychological construct, to identify the prevalence of and to determine the risk factors for developing fear of childbirth.

Methods

We hypothesize that there are perinatal psychological tools that might help to identify the prevalence of tokophobia and determine the risk factors to develop it. We enrolled pregnant women from the Department of Perinatology, Division of Obstetrics and Gynecology at the University Medical Centre of Ljubljana, Slovenia, between June 2014 and September 2014. Participants were approached and completed the questionnaires when attending Parenting and Childbirth

*Corresponding author: Isaac Blickstein, MD, Department of Obstetrics and Gynecology, Kaplan Medical Center and The Hadassah Hebrew University School of Medicine, Jerusalem, Israel, Tel.: +972-545-201789, E-mail: blick@netvision.net.il

Karin Demšar, Ivan Verdenik, Natasa Tul and Vislava Globevnik Velikonja: Division of Obstetrics and Gynaecology, University Medical Centre Ljubljana, Ljubljana, Slovenia

Matija Svetina: Department of Psychology, Faculty of Arts, University of Ljubljana, Ljubljana, Slovenia

Classes, roughly at the same period around the end of the 2nd trimester. The only inclusion criteria were the ability to speak and read Slovenian. In accordance with the Personal Data Protection Act of the Republic of Slovenia, data were obtained on the principle of privacy, confidentiality, and anonymity (codes were assigned to each participant). The research was approved by The National Medical Ethics Committee in April 2014 (No. 51/04/14).

We used a battery of questionnaires which could be completed within approximately 15 min. Questions related to the woman's well-being were examined with the state-trait anxiety inventory (STAI) questionnaire [24], which consists of two subscales that measure two different forms of anxiety: STAI X1 (anxiety as a state), and STAI X2 (anxiety as a trait). Reliability and internal consistency of STAI was $\alpha=0.90$. Validity coefficient ranges from 0.75 to 0.85. In this study, the reliability of STAI was $\alpha=0.95$. We also used the Center for Epidemiologic Studies Depression scale (CES-D) [25], which measures the current level of depressive symptoms (coefficients of internal consistency are $\alpha=0.84$ – 0.90 ; in this study $\alpha=0.88$) and the satisfaction with life scale (SWLS) [26] which measures the quality of life of the individual (test-retest $\alpha=0.82$, the coefficient of internal consistency set at $\alpha=0.87$, with a reliability of $\alpha=0.89$ in the present study). Fear of childbirth was measured using the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ), version A [2]. The W-DEQ is the most widely used tool to measure tokophobia, where a higher score represents a higher degree of tokophobia. Individuals who score 100 points or more have a pathological fear of childbirth. The initial studies found that the internal consistency and split-half reliability are higher than or equal to $\alpha=0.87$ [2]. In this study, the reliability measured using Cronbach's α was 0.92.

We also used a demographic questionnaire (age, educational level, marital status, place of employment, religion), questions about mental and physical health during pregnancies (smoking status, presence of medical complications in the previous and current pregnancy along with the question about sexual violence), questions about woman's current partnership (and sexual interaction and satisfaction) and rankings of specific fears. In this study, the reliability of the scale of fears using Cronbach's alpha was $\alpha=0.85$.

Normality of distribution was tested by the Shapiro-Wilk test for the scales of depression, anxiety, satisfaction with life and expectations of childbirth. The other analyses were based on parametric comparisons. The associations between scores of depression, anxiety, satisfaction with life, fear of childbirth and socio-demographic variables were examined using Pearson's correlation. The internal consistency of CES-D, STAI, SWLS and W-DEQ was assessed using Cronbach's alpha. We also used linear regression to analyze the predictive power of the questionnaires that best predict fear of childbirth. In all statistical tests, a P-value of 0.05 or less was considered as significant. Statistical analysis was performed using SPSS, version 22.0 (Chicago, IL, USA).

Results

We enrolled 191 pregnant women at 32.6 ± 2.6 weeks' gestation (range 21–38). Participants attended Parenting and Childbirth Classes and hence, the majority were nulliparous ($n=172$, 90%). Maternal age was 31.0 ± 4.7 years (range 18–44). In terms of education, eight (4%) had

primary or professional school education, 49 (26%) had high school and 23 (12%) had college education. More than half had university education: 92 (48%) had a Bachelor's degree and 19 (10%) had a Master's or a PhD degree. The response rate was 99.5%.

Table 1 shows the level of fear of childbirth according to the W-DEQ questionnaire. Moderate fear of childbirth was present in more than half of the pregnant women (53.4%), high or very high fear in 23.1% and pathological fear in 1.6% of the participants. Table 2 shows the ranking of attributes of the fear of childbirth. The most significant was fear of having an episiotomy, followed by fear of having no control on the situation and fear of pain.

We examined the relationship between experiencing fear of childbirth and the preferred mode of delivery (Table 3) comparing all rows simultaneously. We found that differences in the preferred delivery methods significantly depend on fear of childbirth ($P<0.01$). Table 3 also shows that more participants would choose vaginal delivery (86%) if they had a choice. Some participants (6%), however, did not have a preferred mode of delivery, whereas others (7%) with the highest level of fear of childbirth wished to have a cesarean birth (Figure 1).

Table 1: Results of the W-DEQ questionnaire measuring fear of childbirth.

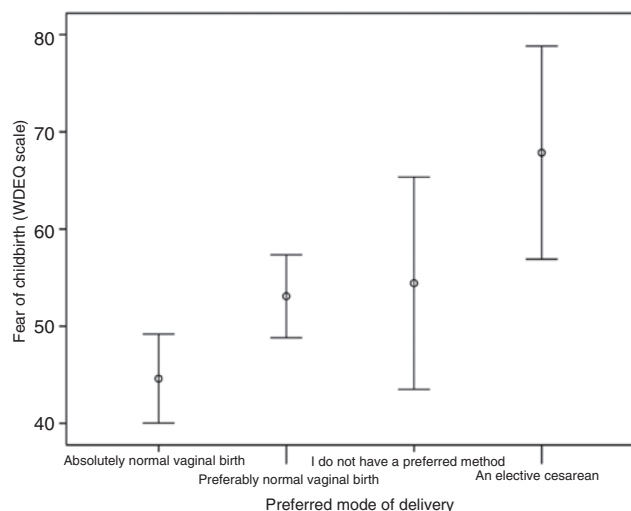
Score (points)	Level of fear	n (%)
0–37	Low	42 (22)
38–66	Moderate	102 (53.4)
66–85	High	33 (17.3)
85–99	Very high	11 (5.8)
≥ 100	Pathological	3 (1.6)
	Total	191

Table 2: Ranking the attribute of fear of childbirth.

Attribute	Mean rank
Fear of episiotomy	11.10
Fear of having no control on the situation	10.60
Fear of pain	9.47
Future sexual life	7.75
Fear of unprofessional medical staff	7.64
Fear of having a cesarean birth	7.62
Fear from unkind medical staff	7.62
Fear from losing control during birth	7.59
Fear of being injured	6.67
Fear of hospitals	6.53
Fear of needles	6.49
Fear of having a vacuum extraction	5.72
Fear of blood	5.68
Fear of dying during labor	4.51

Table 3: Fear of childbirth and the preferred mode of delivery.

Preferred mode of delivery	n	Mean (W-DEQ \pm SD)
Absolutely normal vaginal birth	70	44.60 \pm 19.20
Preferably normal vaginal birth	95	53.08 \pm 21.02
I do not have a preferred method	12	54.42 \pm 17.21
An elective cesarean, if it was legal	14	67.86 \pm 19.02

**Figure 1:** Fear of childbirth and the preferred mode of delivery.

Using linear regression analysis we studied the predictive power and statistical significance of the questionnaires that best predict the fear of childbirth. The predictive power and statistical significance of the questionnaires that best predict fear of childbirth was the CES-D ($\beta = 0.27$, $P < 0.01$).

Discussion

Fear of childbirth is, to some extent, a normal phenomenon, because childbirth is indeed a painful and unpredictable experience. The results of our study, apparently the first from Slovenia, are similar to those of the Australian study [6], where 48% of the women reported moderate and 26% strong fear of childbirth. Several studies found a 6% incidence of pathological tokophobia that requires clinical treatment [5, 12], a much higher incidence than the 1.6% found in our study. The possible explanation is that the questionnaire battery was distributed at the Parenting and Childbirth Classes following the lecture on the progress of labor, which is usually attended by most nulliparous women. However, women with pathologic

tokophobia might have missed this lesson due to their *a priori* fear and were not included in the sample. This explanation is supported by four cases that sought psychological help because of severe tokophobia but missed the Parenting and Childbirth Classes (and hence did not participate in our study).

Important risk factors for tokophobia are anxiety and depression [17, 18], which were also confirmed by our study. Storksens et al. [19] found that depression is a better predictor than anxiety, which was also observed in our analysis. Thus, it was not surprising that the CES-D questionnaire had the highest predictive power for tokophobia. The construct of this study was not aimed to identify generalized anxiety and depression existing before conception because we evaluated the participants during an ongoing pregnancy.

It has also been established that sexual activity before and during the current pregnancy is a good predictor of fear for childbirth. There are significant differences in experiencing tokophobia between women with and without a satisfactory sexual activity. We found that sexual satisfaction deteriorated for some women during the current pregnancy compared to the pre-gravid period. Compared with the period before conception, women have intercourse less frequently, are less satisfied, and have more sexual problems during the 2nd and 3rd trimester.

Fear of loss of control was a significant predictor of fear of childbirth, right after fear of experiencing intolerable pain. Fear is also significantly associated with having a preferred mode of delivery [16] and as shown in our study, women who would definitely opt for a vaginal delivery were the least afraid in comparison to those that would definitely choose a cesarean section. Higher the fear, the more they tend to have cesarean section. It is also interesting that in our population, despite advances in medicine and modernization, fear of death during parturition does still exist.

It would be interesting to see if fear of childbirth is associated with personality issues, complications during childbirth, problems in partnership, or experience of sexual abuse. It is expected that the sample size of our study would not be enough to explore such experiences and therefore the sample needs to be expanded and include participants from peripheral parts of the country, which might change the age and education characteristics of the participants. Also, for sample size considerations, we could not go deeper into the data in order to better characterize, at least at a statistical level, the differences among the four groups shown in Table 3. Finally, it would be interesting to correlate the views during pregnancy with the actual obstetrical outcome and postpartum feeling.

The importance of fear of childbirth as an argument for cesarean section on demand has been recognized and studied repeatedly. The current international position is that there is no proof for any advantage of an elective cesarean without indication. However, the plethora of data, including our study, demonstrates that for some expecting mothers, the option of vaginal birth is inconceivable. It is possible that identification of this group of pregnant women may either need professional psychological treatment to overcome the fear of childbirth or to increase the awareness of the attending personnel that such a problem exists in order to avoid unnecessary confrontations. A multi-disciplinary approach and interdisciplinary cooperation of all healthcare providers involved in the process is required to create a preventive and supportive environment.

Author's statement

Conflict of interest: Authors state no conflict of interest.

Informed consent has been obtained from all individuals included in this study.

Ethical approval: The research related to human subject use has complied with all the relevant national regulations, and institutional policies, and is in accordance with the tenets of the Helsinki Declaration, and has been approved by the authors' institutional review board or equivalent committee.

References

- [1] Hofberg K, Ward MR. Fear of pregnancy and childbirth. *Postgrad Med J*. 2003;79:505–10.
- [2] Wijma K, Wijma B, Zar M. Psychometric aspects of the W-DEQ: a new questionnaire for the measurement of fear of childbirth. *J Psychosom Obstet Gynaecol*. 1998;19:84–97.
- [3] Areskog B, Uddenberg N, Kjessler B. Fear of childbirth in late pregnancy. *Gynecol Obstet Invest*. 1981;12:262–6.
- [4] Kjærgaard H, Wijma K, Dykes A, Alehagen S. Fear of childbirth in obstetrically low-risk nulliparous women in Sweden and Denmark. *J Reprod Infant Psych*. 2008;26:340–50.
- [5] Searle J. Fearing the worst – why do pregnant women feel “at risk”? *Aust N Z J Obstet Gynaecol*. 1996;36:279–86.
- [6] Fenwick J, Gamble J, Nathan E, Bayes S, Hauck Y. Pre- and postpartum levels of childbirth fear and the relationship to birth outcomes in a cohort of Australian women. *J Clin Nurs*. 2009;18:667–77.
- [7] Bhatia MS. Tokophobia: a dread of pregnancy. *Ind Psychiatry J*. 2012;21:158–9.
- [8] Alipour Z, Lamyian M, Hajizadeh E, Agular Vafaei, M. The association between antenatal anxiety and fear of childbirth in nulliparous women: a prospective study. *Iran J Nurs Midwifery Res*. 2011;16:169–73.
- [9] Nieminen K, Stephansson O, Ryding EL. Women's fear of childbirth and preference for cesarean section—a cross-sectional study at various stages of pregnancy in Sweden. *Acta Obstet Gynecol Scand*. 2009;88:807–13.
- [10] Saisto T, Halmesmäki E. Fear of childbirth: a neglected dilemma. *Acta Obstet Gynecol Scand*. 2003;82:201–8.
- [11] Spice K, Jones SL, Hadjistavropoulos HD, Kowalyk K, Stewart SH. Prenatal fear of childbirth and anxiety sensitivity. *J Psychosom Obstet Gynaecol*. 2009;30:168–74.
- [12] Wijma K. Why focus on “fear of childbirth”? *J Psychosom Obstet Gynaecol*. 2003;24:14–44.
- [13] Lumbiganon P, Laopaiboon M, Gulmefoglu AM, Souza JP, Tanee-panichskul S, Ruyan P, et al. Method of delivery and pregnancy outcomes in Asia: the WHO global survey on maternal and perinatal health in 2007–08. *Lancet*. 2010;375:490–9.
- [14] Mancuso A, De Vivo A, Fanara G, Settineri S, Triolo O, Giacobbe A. Women's preference on mode of delivery in southern Italy. *Acta Obstet Gynecol Scand*. 2006;85:694–9.
- [15] Lukasse M, Vangen S, Oian P, Schei B. Fear of childbirth, women's preference for cesarean section and childhood abuse: longitudinal study. *Acta Obstet Gynecol Scand*. 2010;90:33–40.
- [16] Handelzalts JE, Becker G, Ahren MP, Lurie S, Raz N, Tamir Z, et al. Personality, fear of childbirth and birth outcomes in nulliparous women. *Arch Gynaecol Obstet*. 2015;291:1055–62.
- [17] Hall WA, Hauck YL, Carty EM, Hutton EK, Fenwick J, Stoll K. Childbirth fear, anxiety, fatigue and sleep deprivation in pregnant women. *J Obstet Gynecol Neonatal Nurs*. 2009;38:567–76.
- [18] Ryding EL, Wirfelt E, Wängborg IB, Sjögren B, Edman G. Personality and fear of childbirth. *Acta Obstet Gynecol Scand*. 2007;86:814–20.
- [19] Storksen HT, Eberhard-Gran M, Garhus-Niegel S, Eskild A. Fear of childbirth; the relation to anxiety and depression. *Acta Obstet Gynecol Scand*. 2012;91:237–42.
- [20] Andersson L, Sundström-Poromaa I, Bixo M, Wulff M, Bondestam K, Åström M. Point prevalence of psychiatric disorders during the second trimester of pregnancy: a population-based study. *Am J Obstet Gynecol*. 2003;189:148–54.
- [21] Hodnett ED, Gates S, Hofmeyr GJ, Sakala C. Continuous support for women during childbirth. *Cochrane Database Syst Rev*. 2011;16:1–117.
- [22] Saisto T, Salmela-Aro K, Nurmi JE, Halmesmäki E. Psychosocial characteristics of women and their partners fearing vaginal childbirth. *Br J Obstet Gynaecol*. 2001;108:492–8.
- [23] Fisher C, Hauck Y, Fenwick J. How social context impacts on women's fears of childbirth: a Western Australian example. *Soc Sci Med*. 2006;63:64–75.
- [24] Spielberger CD, Gorsuch RL, Lushene RE. Manual for the state trait anxiety inventory. Palo Alto, CA: Consulting Psychologist's Press; 1970. p. 20–21.
- [25] Radloff LS. The CES-D Scale: a self-report depression scale for research in the general population. *Center for epidemiologic studies. Nat Instit Ment Health*. 1977;1:385–401.
- [26] Diener E, Emmons RA, Larsen RJ, Griffin S. The satisfaction with life scale. *J Pers Assess*. 1985;49:1–5.