










# Prevalence and predictors of fear of childbirth in unselected pregnant women: A cross-sectional study

GEBELERDE DOĞUM KORKUSU PREVALANSI VE RİSK FAKTÖRLERİ: KESİTSEL BİR ÇALIŞMA

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## ABSTRACT

**Objective:** The aim of this study was to determine the prevalence of fear of childbirth (FOC) during pregnancy and to investigate the factors affecting FOC in pregnant women.

**Materials and Methods:** This cross-sectional study included 150 pregnant women who admitted to Kırşehir Ahi Evran University Faculty of Medicine Gynecology and Obstetrics Polyclinic between January-March 2019. It was carried out using W-DEQ Scale and General Information Form prepared by the researchers.

**Results:** Fear of childbirth in the whole group was found to be 50.97±25.773 according to W-DEQ score. The mean age and gestational week of the pregnant women were 27.8±6.072 years and 27.16±10.788 weeks, respectively. FOC was determined in 18.7% of the participants (W-DEQ≥85). Parity (p=0.047) and a concern of disorder in the baby after delivery (p=0.004) were identified to be significant factors for FOC. No association was found between FOC and maternal age, gestational week or delivery mode (p>0.05). The rate of receiving training about pregnancy and the level of trust in healthcare professionals about the birth process were found to be low.

**Conclusion:** The prevalence of training about pregnancy and the level of trust to healthcare staff related with childbirth process may be associated with each other. Thus, it is recommended to provide trainings to reduce the fears that may occur during pregnancy and to elevate the knowledge about pregnancy process by the Polyclinic of Gynecology and Obstetrics.

**Keywords:** tokophobia, prevalence, pregnant, predictor, fear of childbirth

## ÖZ

**Amaç:** Bu çalışmanın amacı, gebelerde doğum korkusu prevalansını belirlemek ve gebelikte doğum korkusuna etki eden faktörleri araştırmaktır.

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**Gereç ve Yöntem:** Bu kesitsel çalışma Ocak ve Mart 2019 arasında Kırşehir Ahi Evran Üniversitesi Tıp Fakültesi Kadın Hastalıkları ve Doğum Polikliniği'ne başvuran ve çalışmaya katılmayı kabul eden 150 gebe ile gerçekleştirilmiştir. Çalışma, W-DEQ Doğum Korkusu Ölçeği ve araştırmacılar tarafından oluşturulan Genel Bilgi Formu ile yürütülmüştür.

**Bulgular:** Tüm grupta, W-DEQ skoruna göre gebelikte doğum korkusu düzeyi  $50,97 \pm 25,773$  olarak elde edilmiştir. Yaş ve gebelik haftası sırasıyla  $27,8 \pm 6,072$  yıl ve  $27,16 \pm 10,788$  hafta olarak bulunmuştur. Çalışmaya katılan gebelerin %18,7'sinde korku varlığı saptanmış (W-DEQ  $\geq 85$ ), gebelik sayısı ( $p=0,047$ ) ve bebekte doğum sonrasında bir rahatsızlık oluşacağı düşüncesi ( $p=0,004$ ) korku düzeyini etkileyen faktörler olarak bulunmuştur. Doğum korkusu ile anne yaşı, gebelik haftası ve doğum tipi arasında anlamlı ilişki saptanmamıştır ( $p>0,05$ ). Gebelik ile ilgili eğitim alma oranı ve doğum süreci ile ilgili sağlık personeline duyulan güven düzeyi düşük bulunmuştur.

**Sonuç:** Gebelik ile ilgili eğitim alma oranı ve doğum süreci ile ilgili sağlık personeline duyulan güven düzeyi birbiri ile ilişkili olabilir, bu nedenle Kadın Hastalıkları ve Doğum Polikliniği tarafından gebelik süresince oluşacak korkunun azaltılabilmesi ve gebelikle ilgili bilgilerin artırılması için gerekli eğitimlerin verilmesi önerilmektedir.

**Anahtar Sözcükler:** tokofobi, prevalans, gebe, risk faktörü, doğum korkusu

Tokophobia has been defined as a psychological phenomenon in the pregnant women who feel intense fear of childbirth (FOC) (1). Even though pregnancy is a milestone in the lives of the women, it is also accompanied with many fears about the pregnancy process, worry about baby death during childbirth, worry about occurrence of potential complications during childbirth, worry about presence of genetic disorder in the baby, feeling unconfident about healthcare staff, worry about physical conditions of the hospital, worry about being alone during childbirth, deficiency of adequate information about childbirth, feeling unprepared for unplanned pregnancy and deficiency of familial or spousal support during childbirth (2 – 4).

The studies have shown that the prevalence of FOC in the pregnant women ranges between the countries. Its prevalence varies between 1.9% and 14.2% in the European countries (5) while that was found to be 31.1% in Australia (6). The global prevalence of tokophobia was detected to be 14% according to the results of a meta-analysis involving 29 studies and 853 988 subjects (7). The results of BIDEN study that comprised Belgium, Iceland, Denmark, Estonia, Norway and Sweden showed that the primiparous pregnant women with the lowest and the highest prevalence of tokophobia were reported respectively in

Belgium (4.5%) and Estonia (15.6%) while the multiparous pregnant women with the lowest and the highest prevalence of tokophobia were reported respectively in Iceland (7.6%) and Sweden (15.2%) (8). Beside this, the prevalence of tokophobia were assessed to be 19.29% (9), 9.1% (10), 42.9% (11), 9.5% (12) and 15.6% (13) in United States of America, Canada, Iran, Italy and Turkey, respectively. The evidence from the mentioned studies demonstrated that pregnant women preferred giving childbirth via cesarean delivery rather than vaginal delivery because of the high prevalences of global FOC.

Numerous studies reported various risk factors related to FOC over the years, including low educational level, unemployment, lack of social support (2), previous negative delivery experience, voluntary infertility, postpartum depression, obstetric complications, low self-esteem (3) and miscarriages (4). Moreover, self-efficacy and trait anxiety level were recorded as psychosocial predictors for Turkish pregnant sample (14) On the other hand, another study that was held in Turkey reported unplanned pregnancies and lack of knowledge as related factors of FOC (15).

The purposes of the present study are primarily to investigate the relationship between FOC with maternal

age, delivery mode, gestational week and to determine the factors affecting FOC and to determine the prevalence of FOC in randomly selected pregnant women. The research questions for this study can be listed as follows:

- What is the prevalence of FOC in unselected pregnant women in Kırşehir Province, Central Anatolia Region, Turkey?
- Is FOC related to maternal age, delivery mode and gestational week in this pregnant group?
- What are the risk factors of FOC in this unselected group?

## MATERIAL and METHODS

This cross-sectional study included 150 pregnant women that accepted to participate the study among those who applied to Kırşehir Ahi Evran University Faculty of Medicine Gynecology and Obstetrics Polyclinic between January-March 2019. Inclusion and exclusion criteria were defined as the pregnant women over and below 18 years of age, respectively. W-DEQ (Wijma Delivery Expectancy Questionnaire) Scale was used to assess FOC in the pregnant women while the factors affecting FOC were determined using the General Information Questionnaire prepared by the researchers based on the review of the current literature. The form includes questions regarding sociodemographic (age, educational level, occupation) as well as obstetric (unplanned pregnancy, fear of bleeding during delivery, concern for disorder in baby after delivery) and social-related (social-media effect, fear of not being able to return to former social life after delivery) questions. The questions /risk factors in the form were prepared as up-to-date as well as different from existing literature. In this way, it is aimed to bring in originality to this research. The W-DEQ is a 6-point Likert scale questionnaire comprising 33 questions whose total score ranges between minimum 0 and maximum 165 points [16]. Some of the questions in the scale (2, 3, 6, 7, 8, 11, 12, 15, 19, 20, 24, 25, 27 and 31) are reverse-scored in calculation of the sum score to make them compatible with other questions. Higher W-DEQ Scores indicate more severe level of FOC. The original W-DEQ scores can be classified as mild, moderate, severe and clinical if the scores are  $\leq 37$ , between '38-64', '65-84' and  $\geq 85$ , respectively. Widely accepted cut-

off value of this scale is 85, and this value is used as a threshold value in the current study. Hence, even though four different category can be formed, the classifications in this current study are based classical cut-off value ( $W-DEQ \geq 85$ ) and two different categories were created in this research. The form and the scale were applied to participants during the polyclinic appointment. Participants were informed about this study via printed Consent Form, which was given with W-DEQ Scale and General Information Form. This study was conducted with the volunteer participants who gave the consent. Some participants did not answer all of the questions in the form, and it yielded missing values as a result. Questions, which have missing values, were indicated below the tables. The validity and reliability studies of the Turkish version of W-DEQ Scale were carried out by Korukcu et al. (17). Cronbach's Alpha coefficient of the present study was found to be 0.884. The present study was approved by The Non-interventional Clinical Research Ethics Committee of Kırşehir Ahi Evran University Faculty of Medicine with Approval Date: 08-01-2019 and Approval Number: 2019-01/11.

## Statistical Analysis

The quantitative variables were expressed as mean and standard deviation while categorical variables were presented in terms of frequency and percentage (%) values. The normality assumption was tested by Kolmogorov-Smirnov Test. For normally-distributed variables (variables with normality test result have  $p > 0.05$ ), Independent Samples t-test and the one-way analysis of variance (ANOVA) were used for the comparison between the independent groups while Chi-Square test was used for analysis of the categorical variables. Multiple binary logistic regression analysis was used to determine factors affecting FOC, Odds Ratios (OR) and their 95% Confidence Intervals (CI) were reported. Variables with a p value less than 0.20 in the univariate regression analysis was used in the final regression analysis. Backward Wald method was implemented as the variable selection method. The discrimination power of the regression model was determined via Area Under Curve (AUC) statistic and its 95% Confidence Interval (CI). Cronbach's alpha coefficient was calculated to determine the internal consistency

coefficient.  $p < 0.05$  value was accepted as statistically significant in all the statistical analyses. All analyses were performed using the R software (3.6.1).

## RESULTS

The study included 150 pregnant women that accepted to participate and completed the scales/questionnaire. The overall FOC was found to be  $50.97 \pm 25.773$  while mean age and gestational week of the

pregnant women were  $27.8 \pm 6.072$  years and  $27.16 \pm 10.788$  weeks, respectively. Prevalence of FOC was determined as 18.7% of the participants ( $W-DEQ \geq 85$ ). Most of the pregnant women (82%) were found to be below 35 years of age, in the 3rd trimester (59%) as gestational week, nulliparous (40%) and receiving no training about pregnancy (91.3%). The basic descriptive statistics of the participants were presented in Table 1

**Table 1.** Socidemographic and clinical characteristics of the study sample

Variable	n	%	
Education*	Primary	23	15.4
	Secondary	26	17.5
	High School	60	40.3
	University / College	40	26.8
Occupation	Housewife	109	72.6
	Employee	7	4.7
	Officer	28	18.7
	Self-employment	6	4.0
Planned Pregnancy	Yes	89	59.3
	No	61	40.7
Parity	1	59	39.3
	2	43	28.7
	3	31	20.7
	4+	17	11.3
Number of Alive Children	0	60	40.0
	1	52	34.7
	2	27	18.0
	3+	11	7.3
Having any problem during this current pregnancy	Yes	27	18.0
	No	123	82.0
Receiving training programs about pregnancy process for this current pregnancy	Yes, I did	10	6.7
	Yes, I'm taking	3	2.0
	No	137	91.3
Fear of unqualified healthcare staff	Yes	89	59.3
	No	61	40.7
Fear of inability to return to previous social life after childbirth*	Yes	46	31.7
	No	99	68.3

Fear of not being able to provide the optimal life standard for your baby*	Yes	70	48.6
	No	74	51.4
Fear of abundant bleeding during delivery*	Yes	69	48.3
	No	74	51.7
Fear of any disorder (Down syndrome, mental retardation etc.) after the delivery in your baby*	Yes	92	63.4
	No	53	36.6
Fear of chemicals that you have had before the pregnancy or during the pregnancy to cause damage on your baby*	Yes	44	30.3
	No	101	69.7
Having any problems on former pregnancies**	Yes	26	28.9
	No	64	71.1
Does social media effect increase your fear?*	Yes	66	44.0
	No	84	56.0

\*: Questions were not answered by all pregnant women. Hence, they have missing values.

\*\* : Sample size in this question indicates number of pregnant women who have former pregnancies.

According to the results of the group comparisons, higher FOC Scores were encountered in the pregnant women below 35 years of age (early pregnancy), 3rd trimester and those with a previous childbirth via cesarean delivery in the history whereas similar tokophobia levels were identified regarding maternal age ( $\chi^2=0.293$ ; p value= 0.74), gestational week ( $\chi^2=0.908$ ; p value= 0.635) and delivery type ( $\chi^2= 3.334$ ; p value= 0.189)

The group comparisons demonstrated that FOC scores were statistically significantly higher in the pregnant women with fear of inability to return to previous social life after childbirth (p=0.038), fear of abundant bleeding during

childbirth (p=0.004), those who reported the impact of the information about childbirth process obtained from social media (p=0.002) and worried about any disorder in baby after delivery (p<0.001). Besides, high FOC scores were identified in the university-graduate pregnant women, working pregnant women and those with no experience of complication in her previous pregnancy and unplanned pregnancy. Although no statistically significant difference was detected between the groups regarding these mentioned variables, it would be possible to evaluate the differences between the groups with respect to clinical aspects (Table 2).

**Table 2.** Results of W-DEQ score comparisons across groups

Variable	Mean $\pm$ SD		p-value
Education	Primary	50.7 $\pm$ 23.511	0.920
	Secondary	49.58 $\pm$ 23.82	
	High School	49.42 $\pm$ 26.048	
	University / College	52.9 $\pm$ 27.158	
Occupation	Housewife	49.08 $\pm$ 24.742	0.538
	Employee	57.43 $\pm$ 35.123	
	Officer	55.43 $\pm$ 27.208	
	Self-employment	57 $\pm$ 28.341	
Planned Pregnancy	Yes	47.84 $\pm$ 25.267	0.072
	No	55.54 $\pm$ 26.028	
Parity	1	50.41 $\pm$ 27.732	0.073

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	2	56.51 ± 25.347	
	3	41.48 ± 25.309	
	4+	56.24 ± 28.166	
Number of Alive Children	0	50.08 ± 24.65	0.588
	1	53.6 ± 27.393	
	2	46.04 ± 25.901	
	3+	55.55 ± 24.736	
Having any problem during this current pregnancy	Yes	48.37 ± 26.101	0.564
	No	51.54 ± 25.773	
Having training programs about pregnancy process for this current pregnancy	Yes, I did	47.1 ± 27.791	0.866
	Yes, I'm taking	48 ± 29.513	
	No	51.32 ± 25.737	
Fear of unqualified healthcare staff	Yes	51.9 ± 25.849	0.597
	No	49.62 ± 25.815	
Fear of inability to return to previous social life after childbirth	Yes	57.76 ± 25.167	0.038*
	No	48.19 ± 25.827	
Fear of not being able to provide the optimal life standard for your baby	Yes	49.76 ± 26.613	0.485
	No	52.8 ± 25.473	
Fear of abundant bleeding during delivery	Yes	57.97 ± 26.18	0.004*
	No	45.68 ± 24.332	
Fear of any disorder (Down syndrome, mental retardation etc.) after the delivery in your baby	Yes	58.33 ± 26.062	<0.001**
	No	38.91 ± 20.687	
Fear of chemicals that you'd had before the pregnancy or during the pregnancy to cause damage on your baby	Yes	51.3 ± 32.53	0.986
	No	51.2 ± 22.637	
Maternal Age	Early Pregnancy (Age < 35)	51.23 ± 25.742	0.448
	Late Pregnancy (Age ≥ 35)	46.83 ± 26.455	
Gestational Week	First Trimester	49.90 ± 18.558	0.679
	Second Trimester	48.05 ± 27.012	
	Third Trimester	52.36 ± 26.694	
Delivery Mode	Formerly cesarean – current mode will be cesarean	53.04 ± 29.052	0.786
	Nulliparous	50.08 ± 24.65	
	Formerly vaginal	49.73 ± 23.448	
Does social media effect increase your fear?	Yes	58.29 ± 26.726	0.002*
	No	45.23 ± 23.602	
Having any problems on former pregnancies	Yes	44.65 ± 29.463	0.117
	No	54.38 ± 25.07	

\*:p<0.05; \*\*:p<0.001

Multiple binary logistic regression analysis model was developed to assess the factors related to FOC. Parity (parity: 3 vs parity: 2) ( $p$ -value=0.047) and fear for development of a postnatal disorder in baby ( $p$ -value=0.004) were reported as the factors affecting FOC in

the pregnant women. The discriminative ability of the model was determined to be AUC = 0.753 (95% CI= 0.651–0.855). The results of the regression analysis were presented in the Table 3.

**Table 3.** Results of multiple logistic regression analysis

Variable	$\beta$	Standard Error ( $\beta$ )	Odds Ratio	p-value	95% Confidence Interval for Odds Ratio	
					Lower	Upper
Parity: 2 (Reference Category)	-	-	1.00	-	-	-
Parity: 3	-1.299	0.655	0.273	0.047	0.076	0.985
Parity: 4+	0.774	0.724	2.169	0.285	0.525	8.965
Fear of Disorder in Baby	2.076	0.725	7.971	0.004	1.924	33.023
Constant	-2.253	0.717	0.105	0.002	-	-

## DISCUSSION

The prevalence of FOC ( $W$ -DEQ  $\geq$  85) was obtained to be 18.7% in our study. This prevalence was lower than those of FOC identified in the studies performed in USA (9), Iran(11), Australia (6) and Malawi(18) whereas it was higher than prevalences ranging between 4.5% and 15.6% reported in the other studies (8, 12, 13).

In our study, no statistically significant association was found between the scores of FOC and gestational week, maternal age and delivery mode. Similarly, some other studies in the literature have determined insignificant associations between the scores of FOC and gestational week (19, 20), mode of delivery (2, 3), and maternal age (2, 18, 20, 21) with the outcomes of the present study. On the other hand, there are also some studies in the literature that have found the scores of FOC related with gestational week (22) and mode of delivery (18, 22). The multiparous women were ascertained to have a higher level of FOC compared with the nulliparous women. Similar (20, 23) and different (3, 21, 24, 25) findings have been reported in literature in this regard.

In the present study, high level of FOC was found to be associated with impact of social media, fear of inability to return to previous social life after childbirth, concerns

about abundant bleeding during childbirth, consideration about development of a postnatal disorder in baby. In addition to these, several factors such as prolonged childbirth process, use of forceps and vacuum extractor (19), reduction in social and familial support (8, 26, 27) were also recorded to be associated with higher FOC scores.

According to the regression analysis model developed in the study; parity and consideration about development of a postnatal disorder in baby were determined to be factors affecting FOC in rural area of Turkey. Differently from this result, no significant correlation was monitored between FOC and parity whereas tokophobia was identified to be significantly related with presence of health problem and training status about childbirth in the prenatal period in a study conducted in Turkey (28). The previous studies have specified the factors affecting FOC such as number of the previous births and the factors associated with the previous labor pains(19), CES-D (Center for Epidemiological Studies Depression Scale) scores (1), preferred delivery mode, adequate financial income, nonparticipation to preparation training courses for childcare (2), unplanned pregnancy, the first painful sexual intercourse, physical activity shorter than 30 minutes per week and low health level (20).

Additionally, there are also some studies in the literature that evaluated the moods experienced by the pregnant women during pregnancy in Turkey. One study in Turkey has stated that the pregnant women have high levels of anxiety (29), while the other study has investigated the impact of the preparation training courses for childbirth on tokophobia and reported that no significant difference was encountered between the degrees of FOC in the pregnant women before and after the preparation-training course (30).

The results of the present study has shown that approximately 1 out of 5 (18.7%) pregnant women had clinical level of FOC. The highest level of FOC were documented in pregnant women with a consideration of a disorder after delivery in the baby. Nonetheless, lowest level of FOC were encountered in the pregnant women without such consideration.

The present study has some limitations. The primary limitations of the study are its single-center and questionnaire - based study design. Therefore, possible bias due to those types of study designs should be beard in mind. Nevertheless, more reliable evidence can be obtained by larger sampling sizes. Moreover, the design of this study is cross-sectional therefore; casual relationships could not be analyzed. Hence, the associations found in this study cannot be assessed as in the form of casual nature. Further researches should be performed in order to examine that kind of relationship. On the other hand, to the best of our knowledge, it is the first study to determine the FOC prevalence of unselected pregnant women in Kirsehir, Turkey. This current study could also be considered as unique in identifying the related factors of FOC in Kirsehir province. Furthermore, for the first time, relationships between FOC and different risk factors from the existing literature were investigated in the present study. In this aspect, this research could also be thought as unique.

In conclusion, a comprehensive study was conducted on the factors affecting FOC and the prevalence of participation to the trainings related with pregnancy process was found very low while the level of the confidence to the healthcare staff related with childbirth process was determined to be lower than expected. Since it

may be estimated that those with low level of knowledge about pregnancy and childbirth processes feel less confidence to the healthcare staff, it can be supposed that these two circumstances may be associated with each other. Thus, various training courses can be organized in order to reduce the potential tokophobia that may develop during pregnancy and to elevate the knowledge level about childbirth and pregnancy process in the pregnant women. In the current study, neither the relationship between FOC and quality life of pregnant women nor their anxiety levels of unselected pregnant women and their possible effects on FOC were investigated. Therefore, such relationships along with the determination of the risk factors of FOC should be included into the further studies for the better evaluation of the topic. Moreover, it is recommended to carry out multi-centered research studies to assess the prevalence of tokophobia in the pregnant women more precisely.

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