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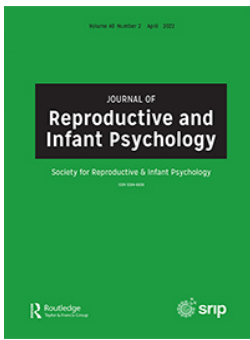


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The prevalence and associated factors of fear of childbirth among Turkish pregnant women

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ABSTRACT

Objective: This study was conducted to determine the prevalence of fear of childbirth and affecting factors in pregnant women in Turkey.

Materials and methods: This was a cross-sectional study and included a total of 2025. Pregnant Women Assessment, some variables related to previous and current perinatal processes and Wijma Delivery Expectancy/Experience Questionnaire (version A) were used for data collection.

Findings: In this sample, 42.4% of the women reported fear of childbirth. What the women were afraid of most was the development of unwanted conditions at childbirth, obscurity/uncertainty, and negative attitudes of health professionals. The factors causing fear of childbirth were the low education level, unemployment status, low financial status, stillbirth, unplanned pregnancy, indecisiveness about the type of delivery, not attending prenatal education programs, negative effects of other people, insufficient social support, confiding in the healthcare centre and health professional, negative, and indecisive birth perceptions, prior negative birth experiences and not feeling ready for childbirth ($p < 0.001$).

Conclusions: The prevalence of fear of childbirth in this Turkish sample, especially in the multipara is higher than in Western countries. Causes of fear of childbirth can vary with countries and even with each region of a country.

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Introduction

During pregnancy and childbirth and after childbirth, many biopsychosocial changes occur. The most frequently experienced fear during these periods is fear of childbirth (FOC), which increases anxiety (Karabulutlu et al., 2016; Molgora et al., 2018). FOC is

defined as moderate anxiety if it does not affect daily life activities and well-being, as strong anxiety if it has a negative effect on them and as 'clinic fear of childbirth' or 'tokophobia' if it additionally prevents life at work and home, social activities, and interpersonal relationships (Saisto & Halmesmaki, 2003). Many studies have revealed that FOC may lead to elective caesarean section although mothers and their babies are healthy (Demšar et al., 2018; El-Aziz et al., 2017; Kabakian-Khasholian, 2013; Serçekuş & Okumuş, 2009). Recently, many women in the world have preferred to have caesarean section due to their FOC. Similarly, there has been a dramatic increase in the rate of caesarean sections in Turkey, which ranked first at the rate of 53.1% among other countries according to data issued by the OECD in 2015 (OECD, 2015). The Turkish Ministry of Health reported that the rate of caesarean sections was 54.4% in Turkey in 2019 (Republic of Turkey Ministry of Health Statistics Yearbook, 2019).

The prevalence of FOC has been reported to range from 3.7% to 41% in several studies from different countries (Lukasse et al., 2014; O'Connell et al., 2017; Toohill et al., 2014). In a meta-analysis including studies throughout the world, the prevalence of FOC was found to be 14% on average and increased in recent years (O'Connell et al., 2017). A study performed by Nilsson et al. in countries from different continents showed that the rate of extreme FOC was 6.3%–14.8% (Nilsson et al., 2018). In a study carried out in six European countries, the mean prevalence of FOC was found to be 11% and varied from country to country (4.5%–15.6%; Lukasse et al., 2014). Demšar et al. (2018) detected mild or moderate FOC, severe FOC and pathological FOC in 75%, 25%, and 1.6% of their sample, respectively. In a comparative study from Turkey, the prevalence of FOC was found to be 76% in Istanbul, a city in the western part of the country, and 24% in Siirt, a city in the eastern part of the country (Okumus & Sahin, 2017). There have not been any studies about the prevalence of FOC and affecting factors throughout Turkey.

FOC can have a unidirectional or bidirectional relation with many factors. It is associated with by demographic features, physical and psychological health, perceptions about pregnancy, personal characteristics, obstetric features, culture, physical, and social environments, and geographical location (Hildingsson et al., 2018; Khwepeya et al., 2018; Lukasse et al., 2014; O'Connell, 2019; O'Connell et al., 2017). The socio-demographic features age (Hildingsson et al., 2018), education, employment status (Khwepeya et al., 2018) and income (Lukasse et al., 2014) have been reported to have an impact on FOC. In addition, it has been stated in the literature that psychological problems (Lukasse et al., 2014), personality traits (Handelzalts et al., 2015) and insufficient social support (Khwepeya et al., 2018; Lukasse et al., 2014) affect FOC. Among obstetric features having an impact on FOC are parity (Egelioğlu Cetişli et al., 2016; O'Connell, 2019; O'Connell et al., 2017), type of previous delivery (Egelioğlu Cetişli et al., 2016) and previous labour experience (Henriksen et al., 2017). FOC is more common in nullipara than in multipara. Nullipara pregnant women experience uncertainty and fear of labour pain and loss of control while multipara pregnant women experience fear due to their previous labours (Størksen et al., 2013; Rouhe et al., 2013; Fenwick et al., 2015a). Although nullipara pregnant women more frequently experience FOC, multipara pregnant women have more severe FOC (Nieminen et al., 2009; Spice et al., 2009).

Studies specifically directed towards FOC associated this fear with labour pain, loss of control during labour (Demšar et al., 2018; Rilby et al., 2012; Serçekuş & Okumuş, 2009; Takegata et al., 2018), procedures/interventions performed during delivery-like

episiotomy (Demšar et al., 2018; Serçekuş & Okumuş, 2009), negative attitudes of health professionals (Rilby et al., 2012; Serçekuş & Okumuş, 2009), being alone during labour or uncertainty (Takegata et al., 2018), complications likely to develop during labour (Rilby et al., 2012; Serçekuş & Okumuş, 2009; Takegata et al., 2018) and fear of something bad which may happen to mothers or their babies (Serçekuş & Okumuş, 2009). Moreover, insufficient trust for health professionals and the health centre where childbirth will occur (Fenwick et al., 2015a; Serçekuş & Okumuş, 2009), negative legends about childbirth (Fenwick et al., 2015a; Rilby et al., 2012; Serçekuş & Okumuş, 2009), negative childbirth experiences (Aktaş & Aydın, 2019), insufficient information (Serçekuş & Okumuş, 2009) and not receiving childbirth education (Beiranvand et al., 2017) have been found to cause FOC.

FOC experienced during pregnancy causes more severe perceived pain during labour, longer periods of the first and second stages of labour, dissatisfaction with labour and interventions during labour (Adams et al., 2016; Isbir & Serçekuş, 2017; Sydsjo et al., 2012). It has been reported that FOC especially in the third trimester increases the risk of having caesarean section and that caesarean section is considered as a way to avoid this fear (Alipour et al., 2011).

In conclusion, the prevalence of caesarean section is rapidly increasing throughout the world. Having knowledge about FOC, one of the factors increasing the prevalence of caesarean section, and affecting factors may help to offer effective health care services to the target female population, implement appropriate intervention programs and improve health status of women, babies, and families. There have been studies about the prevalence of FOC in several countries (Lukasse et al., 2014; Nilsson et al., 2018). However, there have been no such studies in Turkey although the prevalence of caesarean section is high, which is an important gap. Therefore, this study was conducted to determine the prevalence of FOC and associated factors in pregnant women in Turkey.

Methods

Research design and data collection

This is a cross-sectional study performed in Turkey between May 2018 and March 2019 to investigate FOC and to examine its associations with a range of demographic and clinical factors. There are seven regions and 81 cities in Turkey. The study population comprised over 1 million (1,309,771) live births in Turkey (Turkish Statistical Institute (TSI), 2016). Two-stage cluster sampling was utilised to determine the sample best representing the population. The regions were considered as clusters in the first step and the cities selected from each region were considered as clusters in the second step. Randomisation was not used in selection of the cities. Instead, the cities having a higher population and birth rate and more cosmopolitan cities (with a high rate of internal migration) were selected to increase the generalisability of the results. In addition, data were collected in the hospitals that had the highest number of births in these cities. The sample size was calculated by using Epi Info Program. The prevalence of FOC has been reported to range from 3.7% to 41% in several studies from different countries (Lukasse et al., 2014; O'Connell et al., 2017; Toohill et al., 2014). In a comparative study from Turkey, the prevalence of FOC was found to be 76% in Istanbul and 24% in Siirt (Okumus & Sahin, 2017). Because the FOC rate in

Turkey greatly differed between the cities, the expected rate was considered as 41%, which was reported from other countries with the highest FOC rates (O'Connell et al., 2017). Since cluster sampling was used, the design effect was determined as 2 and the confidence interval was determined as 99.9%. Accordingly, the sample size was found to be 2100. The cities selected from each region were regarded as clusters and the size of the sample from each city was based on the weights of the clusters (Table 1).

Forty-six women declined to take part in the study. They were not asked to express their reasons since the study was not directed towards revealing reasons for declining the study. Two thousand and fifty-four women accepted to participate in the study. However, 26 of these women were excluded since they did not fill in data collection tools completely or made mistakes in completion of the tools. The response rate was 96.4% (n = 2025; Figure 1).

The research team included the researchers working as clinician/academician mid-wives/nurses and using Wijma Delivery Expectancy/Experience Questionnaire-Version A (W-DEQ A) in their previous studies. Before collecting data, an online education session was conducted with the researchers and detailed information about the methodology of the study and data collection was offered. A common database was created. Each researcher recorded the data they collected in this database and sent it to the first author. Statistical analyses were made by a researcher specialising in statistics. Data was gathered by the researchers at face-to-face interviews with the healthy pregnant women presenting to maternity outpatient clinics of the hospitals for routine follow-up included in the study. The mean duration of data collection was 12–20 minutes for each interview. Inclusion criteria were being followed in maternity outpatient clinics included in the study, at least graduating from primary school, being aged 18 years or older, having 28-week or more than 28-week gestation, not having a high risk of a psychiatric disorder, not experiencing difficulty in communication, not having any mental impairments, not having any complications related to pregnancy or babies and accepting to participate in the study.

Study instruments

Pregnant Women Assessment Form and W-DEQ A were utilised to collect data.

Table 1. The distribution of the sample by cities included in the study.

Cities	Target population-Number of Live Births	Weight of each cluster	The Number of Pregnant Women Included in the Sample	
			n	%
Istanbul (Marmara Region)	239.144	48.35	996	49.2
İzmir (Aegean Region)	68.296	13.80	276	13.6
Ankara (Middle Anatolia)	77.216	15.61	305	15.1
Mersin (Mediterranean Region)	28.040	5.66	121	6.0
Trabzon (Black Sea Region)	10.362	2.09	42	2.1
Van (Eastern Anatolia)	28.667	5.79	115	5.7
Diyarbakır (South-eastern Anatolia)	42.816	8.65	171	8.4
Total	494,541	100	2025	100

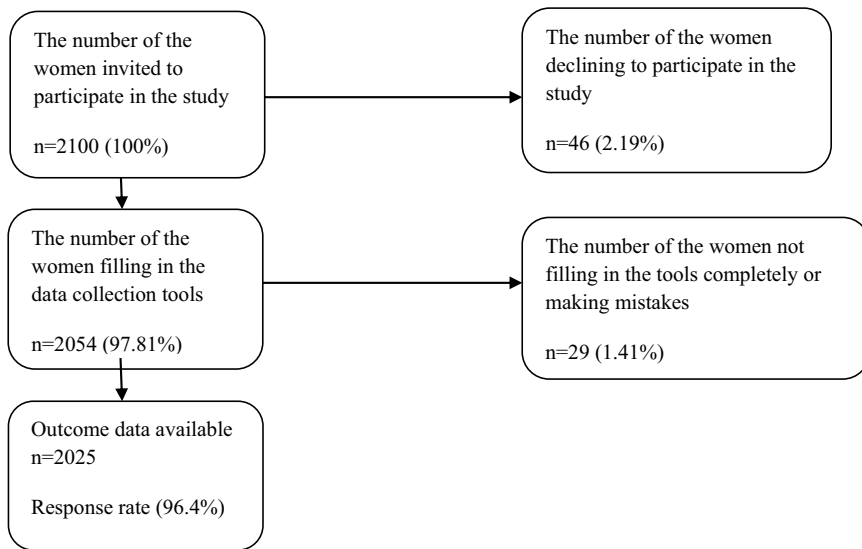


Figure 1. Flowchart of the study recruitment process.

Pregnant Women Assessment Form was developed by the researchers in light of the literature. It is composed of six questions about sociodemographic variables (age, marital status, educational level, employment status, financial status, and health insurance), eight questions about obstetric variables (gestational age, parity, abortion, stillbirth, planned pregnancy status, preferred type of delivery, receiving information about childbirth, and attending antenatal education classes) and eight questions about some variables related to previous and current perinatal processes and affecting or likely to affect FOC (effects of narrations heard on perceptions of childbirth, social support for childbirth, opinions about the healthcare centre where childbirth would occur, confiding in healthcare professionals during childbirth, birth perception, prior childbirth experience, feeling ready for childbirth, and most frequently reported childbirth fears). Multipara pregnant women were asked one additional question to classify their prior childbirths as positive, negative, and neutral.

W-DEQ A is the most commonly used tool to measure FOC severity and has been validated in many countries and languages. It was created by Wijma et al. (1998) and measures FOC. It can be administered to women having 28–40 weeks of gestation. The scale is composed of 33 items, responses to the items can be scored from zero to five, and zero and five correspond to completely and never respectively. The lowest and highest scores for the scale were zero and 165 respectively. High scores show severe FOC. Validity and reliability of the scale were tested in the Turkish population by Körükcü and Kukulcu (2012). The scores for the scale are categorised into four; the scores ≤ 37 show mild FOC, 38–65 show moderate FOC, 66–84 show severe FOC and ≥ 85 show clinically important FOC. In the present study, the scores 0–65 showed mild-moderate FOC and the scores 66 and over 66 showed severe-clinically important FOC. Cronbach's alpha for the Turkish version of the scale was reported to be .92 (Körükcü & Kukulcu, 2012). It was found to be .95 in the present study. A pilot study with seven pregnant women fulfilling the inclusion criteria was undertaken to ensure the clarity of the questions. Following the feedback from the pilot study, changes were made in line with the recommendations given.

Data management and analysis

Obtained data were analysed by using Statistical Package Program for Social Sciences 16. Shapiro Wilk test was used to test normality of the data for continuous variables. Student's t test was utilised to determine the difference in the mean ages of the women in terms of their mean scores for FOC. Variance analyses and Student's t test were used to test the differences in FOC between the groups. Homogeneity of the variances was determined via the Levene test. One-way ANOVA was employed for parameters to provide homogeneity of variances and Welch test was used for parameters to provide heterogeneity of variance. Bonferroni test was utilised for multiple comparisons in One-way ANOVA and Games-Howell test for multiple comparisons in Welch test statistics. Descriptive statistics were expressed in mean \pm standard deviation. Fisher's exact chi-squared test was used to determine the differences in categorical variables between the groups. Numbers and percentages were supplied as descriptive statistics. The level of statistical significance was set at $p < 0.05$.

Ethical considerations

Ethical approval was obtained from Ethics Committee of Dicle University Faculty of Medicine (IRB number: 19.04.2018–133). All the participants provided written informed consent. Anonymity and confidentiality were assured. During the study, all the participants were assured that they could withdraw from the study whenever they wanted. To protect participants' privacy, all data was encoded and used only for research purposes.

Findings

Sample characteristics

The mean age of the pregnant women participating in the study was 29.1 ± 5.7 years. Of all the women, 37% were university graduates or had a higher education level, 73% were unemployed, 78.4% had a moderate income and 95.8% had a health insurance.

The mean gestational week of the women was 33.6 ± 3.7 . Concerning obstetric features of the women, 62.4% had a 32–35-week gestation, 54% were multipara, 77.5% received prenatal care at more than eight visits, 72.5% had a planned pregnancy, 79.3% preferred to have spontaneous vaginal birth, 19.6% had abortion and 4.7% had stillbirth.

Of all the women, 71.3% received information about childbirth from different sources. The sources of this information were health professionals (67.9%), the Internet (42.2%), social media (20.8%), books/magazines (20.4%), family/friends (28.7%) and an antenatal education class (23.1%). Regarding the social aspect of FOC, 48% of the women reported the negative effect of childbirth experiences of other women. However, 5.1% of the women found their social support sufficient for childbirth, 84.6% of the women confided in the health centre where they would give birth and 71.1% of the women confided in health professionals. With respect to birth-related attitudes, readiness for birth and prior experiences, 60.2% of all the women had a positive attitude to childbirth, 55.3% of all the women reported feeling ready for childbirth and 54.3% of the multipara women regarded their previous childbirth experience as positive, but 71.5% of the women reported feeling afraid of childbirth. Concerning the most frequent causes of FOC, obscurity/uncertainty

was found in 22.0%, pain in 20.3%, development of an unwanted condition during childbirth in 24.5%, something bad likely to happen to mothers or their babies in 14.5%, interventions performed during childbirth in 11.1% and health professionals dealing with childbirth in 7.1%.

Prevalence of fear of childbirth

In this sample, 42.4% of the women reported fear of childbirth and the women got a score over the cut-off value of 66 for W-DEQ A, which indicated severe FOC. Regarding the distribution of the prevalence of FOC by parity, 38.7% of the nullipara women (n = 360) and 45.5% of the multipara women (n = 498) had severe FOC. There was a significant relation between parity and severity of FOC (p = 0.002). A significant difference was found in the mean scores between the nullipara and multipara women (p = 0.054). The former group had the mean score of 57.0 ± 23.4 and the latter had the mean score of 59.1 ± 24.5 (Table 2).

Risk factors of fear of childbirth

The mean score for W-DQ A was 58.2 ± 24.0. There was not a linear relation between age and FOC (r = 0.035; p = 0.115). The women graduating from a two-year university program or having a higher education level had a lower score for FOC than those with primary education (p = 0.027). In addition, the employed women had a lower score for FOC than the unemployed women (p = 0.004). Besides, the women with low economic status had a higher score for FOC than those with moderate or high economic status (p = 0.031 and p = 0.034 respectively) (Table 3).

No linear relation was found between gestational age and FOC (r = -0.005; p = 0.825). There was no significant difference in the mean scores for FOC between the nullipara and multipara women (p = 0.054). The multipara women considering their prior childbirth experiences as positive had a considerably low score for FOC compared to those indecisive about or considering their prior childbirth experiences as negative (all p values <0.001). In addition, the multipara women experiencing stillbirth had a higher score for FOC than those without this experience (p < 0.001). The women with an unplanned pregnancy also had a higher score for FOC than those with a planned pregnancy (p < 0.001). There was a significant difference between the type of delivery selected and the mean scores for FOC (p < 0.001). The women wanting to give a vaginal birth had a lower score for FOC than those wanting to have caesarean section and those indecisive about the type of delivery (p = 0.007 and p < 0.001 respectively). The women indecisive about the type of delivery had a considerably higher score for FOC than those wanting to have caesarean section (p = 0.001) (Table 3).

Table 2. The Prevalence of fear of childbirth by severity and parity.

Parity	Nullipara		Multipara		Total sample		P
	n	%	n	%	n	%	
W-DEQ A Score	931	100	1094	100	2025	100	0.002
W-DEQ A 0–65 Low-Moderate Fear	571	61,3	596	54,5	1167	57,6	
W-DEQ A: 66–165 High-Severe Fear	360	38,7	498	45,5	859	42,4	

Table 3. The relation between scores for W-DEQ A and socio demographic and obstetric features.

Variables		Mean \pm SD	P
Education	Primary education (n = 575)	59.8 \pm 24.3	0.027
	High school or higher level of education (n = 1350)	57.3 \pm 23.8	
Employment status	Yes (n = 547)	55.7 \pm 22.4	0.004
	No (n = 1478)	59.1 \pm 24.6	
Financial status	Low (n = 319)	61.6 \pm 26.0	0.023
	Moderate (n = 1587)	57.7 \pm 23.3*	
	High (n = 119)	55.3 \pm 27.9 [†]	
Health insurance	Yes (n = 1940)	58.3 \pm 24.0	0.274
	No (n = 85)	55.4 \pm 25.0	
Gestational Age	28–31 w (n = 645)	57.3 \pm 23.3	0.220
	32–35 w (n = 619)	59.5 \pm 24.2	
	36 w + (n = 761)	57.8 \pm 24.5	
Parity	Primipara (n = 931)	57.0 \pm 23.4	0.054
	Multipara (n = 1094)	59.1 \pm 24.5	
Abortion	No (n = 1629)	57.8 \pm 24.0	0.201
	Yes (n = 396)	59.5 \pm 24.1	
Stillbirth	No (n = 1929)	57.6 \pm 23.8	<0.001
	Yes (n = 96)	69.2 \pm 26.8	
Planned pregnancy	Yes (n = 1468)	56.1 \pm 23.7	<0.001
	No (n = 557)	63.5 \pm 24.2	
Preferred type of delivery	Normal (n = 1606)	56.6 \pm 23.8	<0.001
	Caesarean section (n = 282)	61.2 \pm 24.4*	
	Indecisive (n = 137)	70.0 \pm 22.0* [‡]	
Receiving information about childbirth	Yes (n = 1444)	57.8 \pm 23.6	0.346
	No (n = 581)	59.0 \pm 25.1	
Attending antenatal education classes	No (n = 1030)	57.9 \pm 23.4	<0.001
	Yes (n = 334)	49.6 \pm 21.9	
Effects of narratives heard on perceptions of childbirth	Positive (n = 1052)	53.3 \pm 23.3	<0.001
	Negative (n = 973)	63.4 \pm 23.7	
Social support for childbirth	Sufficient (n = 1015)	52.8 \pm 24.0	<0.001
	Insufficient (n = 1010)	63.6 \pm 22.9	
Opinions about the healthcare centre where childbirth would occur	Positive (n = 1713)	57.0 \pm 23.8	<0.001
	Negative (n = 148)	68.4 \pm 24.4*	
	Indecisive (n = 164)	60.8 \pm 24.2 [†]	
Confiding in health professionals during childbirth	Yes (n = 1439)	54.6 \pm 23.6	<0.001
	No (n = 58)	71.5 \pm 22.0*	
	Indecisive (n = 528)	66.4 \pm 22.8*	
Birth Perception	Positive (n = 1219)	52.3 \pm 23.5	<0.001
	Negative (n = 101)	76.6 \pm 24.1*	
	Indecisive (n = 705)	65.7 \pm 21.3* [‡]	
Prior childbirth experience	Positive (n = 537)	53.2 \pm 24.4	<0.001
	Negative (n = 261)	64.8 \pm 25.0*	
	Indecisive (n = 182)	65.9 \pm 21.7*	
Feeling ready for childbirth	Yes (n = 1120)	50.4 \pm 23.3	<0.001
	No (n = 329)	68.1 \pm 22.8*	
	Indecisive (n = 576)	67.6 \pm 20.3*	
Most frequently reported childbirth fears	Obscurity/uncertainty (n = 319)	66.5 \pm 20.7	0.004
	Pain (n = 294)	62.9 \pm 23.2	
	Development of an unwanted condition during childbirth (n = 361)	66.6 \pm 21.3	
	Something bad likely to happen to mothers of their babies (n = 210)	62.4 \pm 22.0	
	Interventions performed during childbirth (n = 161)	59.4 \pm 23.4* [‡]	
	Health professionals dealing with childbirth (n = 103)	63.7 \pm 22.7	

*: differences in the first category; †: differences in the second category; ‡: differences in the third category.

The women attending prenatal education programmes had a lower score for FOC than the women not attending these programs ($p < 0.001$). The women hearing about negative childbirth experiences from other women also had a higher score for FOC than those hearing about positive childbirth experiences ($p < 0.001$). In addition, women with perceived insufficient social support for their decisions about childbirth had a higher score for FOC than those with perceived sufficient social support ($p < 0.001$). The women confiding in the health centre where they would give birth had a lower score than those not confiding in the health centre. However, the women not confiding in the centre where they would give birth had a higher score for FOC than the indecisive ones ($p < 0.001$, $p = 0.015$ and $p < 0.001$ respectively). The women confiding in the health professionals they would receive support from during childbirth had a lower score for FOC ($p < 0.001$) (Table 3).

Regarding the relation between perceptions about childbirth and FOC, the women with positive perceptions about childbirth had a considerably lower score for FOC than those with negative perceptions and indecisive about childbirth ($p < 0.001$ for both). However, the women with negative perceptions had a higher score for FOC than the indecisive ones ($p < 0.001$). The women feeling ready for childbirth had a considerably low score for FOC as compared with those not feeling ready for and indecisive about childbirth ($p < 0.001$ for all) (Table 3).

A significant difference was found between the causes of clinically important/severe FOC and the mean score for FOC ($p < 0.001$). The women with fear about uncertainty had a higher score for FOC than those afraid of the interventions performed during childbirth ($p = 0.015$). In addition, the women afraid of the development of an undesirable condition had a higher score for FOC than those afraid of the interventions performed during childbirth ($p = 0.011$) (Table 3).

Discussion

To the best of our knowledge, this is the first Turkish prevalence estimate of FOC. Prevalence studies of FOC have used different data collection tools or different cut-off points for these tools and have shown that the prevalence of FOC ranges from 3.7% to 41% (Lukasse et al., 2014; Nilsson et al., 2018; O'Connell et al., 2017; Toohill et al., 2014). In several studies using W-DEQ A, the cut-off value has been considered as ≥ 85 (severe or pathologic fear) and the prevalence of FOC has been reported to vary from 4.5% to 16% (Lukasse et al., 2014; Toohill et al., 2014).

The rate of caesarean section is 54.4% in Turkey (Republic of Turkey Ministry of Health Statistics Yearbook, 2019). Severe FOC due to obscurity in nullipara women and due to previous negative experiences of childbirth in multipara women is the most important factor of having caesarean section (Ryding et al., 2016). In the present study, severe FOC leading to elective caesarean section in addition to pathologic FOC as an indication for caesarean section was dealt with. Therefore, the cut-off value for W-DEQ A was considered as ≥ 66 (high-severe fear) and the rate of FOC was found to be 42.4% in the study sample, 38.7% in the nullipara women and 45.5% in the multipara women. Consistent with the present study, Demšar et al. (2018) and O'Connell et al. (2017) considered the cut-off value as ≥ 66 (high-severe fear) and reported that the rate of FOC was 26.5% in the nullipara women and 36.7% in the multipara women. The rate of FOC was found to be higher in

Turkey than in studies from other countries and especially higher in the multipara women than in the general population and in the nullipara women. FOC can vary with women. Congruent with the literature, the most frequent fears detected in the current study were the development of an unwanted condition during childbirth, obscurity/uncertainty, negative attitudes of health professionals, pain, something bad likely to happen to the baby or the mother and interventions performed during childbirth (Størksen et al., 2013; Fenwick et al., 2015a; Rouhe et al., 2013). It is important to identify women who have psychological needs earlier in perinatal follow-ups.

FOC can be affected by ethnicity, beliefs, perceptions, social status and norms and social and cultural environment (Phunymmalee et al., 2019). In the present study, including pregnant women from all regions of Turkey, many sociodemographic and obstetric variables likely to cause FOC were addressed and most of them were found to be effective in FOC. Low education level, unemployment, low financial status, stillbirth, unplanned pregnancy, indecisiveness about the type of delivery, attendance at antenatal education classes, negative effects of other people, insufficient social support about childbirth, confiding in the healthcare centre and health professional, negative and indecisive birth perceptions, negative prior childbirth experience, not feeling ready for childbirth were found to be associated with FOC ($p < 0.001$). The women considered vulnerable in terms of sociodemographic features had higher levels of FOC. Therefore, it is important to perform a close perinatal follow-up and make an early diagnosis of psychological needs of the women with predetermined sociodemographic features and to offer appropriate support for them.

While some studies examining the relation between parity and FOC revealed that severe FOC was more frequent in nullipara women (O'Connell, 2019; O'Connell et al., 2017), other studies showed parity was not effective (Hildingsson et al., 2011; Nilsson et al., 2012; O'Connell et al., 2019). Consistent with the present study, one study by Nieminen et al. (2009) showed that multipara women had FOC more frequently (Nieminen et al., 2009). It is known that prior childbirth experiences of multipara women affect FOC (Aktaş & Aydın, 2019; Badaoui et al., 2019). In the present study, a significantly higher rate of the multipara women had severe FOC compared to the nullipara women, but there was not a significant relation between the overall FOC score and parity ($p = 0.002$ and $p = 0.054$ respectively). Prior negative childbirth experiences of the multipara women were found to be effective in FOC and the women with prior stillbirth experiences were found to have significantly high FOC ($p < 0.001$). Therefore, interventions directed towards prior traumatic childbirth experiences should be performed to protect multipara women against FOC in their further pregnancies. It is known that antenatal education classes are effective in reduction and prevention of FOC and childbirth trauma (Gökçe İsbir et al., 2016; Serçekuş & Başkale, 2016). However, most of the participants of antenatal education classes are nullipara women in Turkey. Encouragement of multipara women who more frequently experience FOC to attend antenatal education classes, provision of one-to-one counselling about prior childbirth experiences and encouragement of women with pathologic FOC to receive professional support to relieve their childbirth-related traumas could be effective in reduction of FOC. It has been reported that psychoeducation offered by midwives or obstetric nurses decreases FOC and childbirth-related flashbacks in the postpartum period, increases the rate of vaginal births and is useful in terms of relief of FOC during a current pregnancy and

future pregnancies (Allipour et al., 2011; Fenwick et al., 2015b; Striebich et al., 2018). Therefore, it can be suggested that both nullipara and multipara women should be motivated to receive psychoeducation. Especially women with stillbirth experiences should be able to access perinatal palliative care services and should be offered support so that they can cope with their mourning process. When they want to become pregnant again, they should also be provided with preconception counselling to achieve their readiness for pregnancy. The women becoming pregnant after a stillbirth experience and their families should be closely followed in terms of their psychological needs, offered support, and referred to appropriate health centres in the antenatal period.

Wanting to become pregnant and planning it can contribute to adaptation of the women and their families in the perinatal process. Consistent with the results of the present study, a study by Phunymmalee et al. revealed that unplanned pregnancy increased FOC (Phunymmalee et al., 2019). Therefore, enhancement of mental and psychological readiness for pregnancy and childbirth by increasing access to counselling services before conception could be effective in prevention and reduction of FOC. In addition, attendance at antenatal education classes can increase adaptation to pregnancy and reduce FOC (Serçekus & Mete, 2010). Especially women with unwanted/unplanned pregnancy should be encouraged to attend antenatal education classes.

In the present study, the women negatively affected by childbirth experiences of other women around them were found to have FOC. Also, the women with perceived insufficient social support had a significantly higher rate of FOC. Geographical regions in Turkey have different cultural features and transmission of childbirth experiences/myths from generation to generation is affected by these cultural features. Perceptions about childbirth play an important role in interpreting and narrating childbirth experiences and can be influenced by social structures and norms and social and cultural environments (Phunymmalee et al., 2019). Women commonly share their childbirth memories with each other. Negative childbirth experiences and narratives of other individuals create FOC in women (Aktaş & Aydın, 2019; Fenwick et al., 2015a; Rilby et al., 2012; Serçekuş & Okumuş, 2009; Tsui et al., 2006). Therefore, it can be suggested that women should be encouraged to use appropriate platforms or attend antenatal education classes where positive childbirth experiences are shared.

In the current study, the women not confiding in healthcare centres and health professionals were found experience more severe FOC. It is known that women's low confidence in health professionals is one of the causes of FOC (Fenwick et al., 2015a; Serçekuş & Okumuş, 2009). Several studies have revealed that women have fears about health professionals (Rilby et al., 2012; Serçekuş & Okumuş, 2009), which results from lack of trust for health professionals (Serçekuş & Okumuş, 2009). It is clear that positive attitudes of health professionals during pregnancy and childbirth play an important part in reduction of fears about health professionals. It is known that continuous supportive care offered by midwives during childbirth minimises FOC during and after childbirth, shortens the duration of childbirth, decreases the use of oxytocin (Isbir & Serçekuş, 2017) and increases maternal satisfaction (Aktaş & Pasinlioğlu, 2017). While offering perinatal care services, health professionals should be aware that the feelings of trust and distrust resulting from their interactions with women and their families are effective in prevention

and reduction of FOC. When pregnant women are thought to experience distrust for the healthcare centre and/or health professionals, its causes should be discussed and appropriate plans should be made by protecting privacy of the women.

In the present study, readiness for pregnancy was found to be effective in FOC. Antenatal education classes help women feel ready for childbirth both physiologically and psychologically (Serçekuş & Mete, 2010b). It is known that these classes minimise FOC, increase self-efficacy and reduce childbirth-related psychological traumas (Gökçe İsbir et al., 2016; Serçekuş & Başkale, 2016). As women's awareness about childbirth increases during antenatal education classes, their FOC and rates of selecting caesarean section decrease (Akarsu & Mucuk, 2014). In Turkey, antenatal education classes have been integrated into the healthcare system and access to these classes can be free of charge or paid. In addition, there are health professionals who offer online services. However, the rate of women attending antenatal education classes is still lower than expected. In the present study, the women attending antenatal education classes had a significantly low rate of FOC, but only 15.4% of the women attended antenatal education classes. It can be suggested that encouragement of women to attend antenatal education classes to help them feel ready psychologically could be useful in prevention of FOC.

Strengths and limitations

The strengths of this study are that the rate of responses to the scale was high and that it had a large sample size obtained from every region of Turkey. In addition, FOC was evaluated by utilising a reliable tool most frequently used in the literature.

One limitation of this study is that obtained results cannot be generalised to the whole country because the cities from seven regions included in the study have cultural differences and were not randomly selected. In addition, selection of different cities might have created different results. Another limitation of this study is that psychological, social and cultural factors (ethnicity, beliefs, and norms etc.) were not examined. It can be recommended that researchers wanting to examine factors affecting FOC should focus on these parameters.

Conclusion

The present study showed that the rate of FOC was higher in pregnant women in Turkey than the rates reported from similar studies and was higher especially in the multipara women than in the general population and the nullipara women. In a sample obtained from every region of Turkey, low education levels, unemployment status, low financial status, stillbirth, unplanned pregnancy, indecisiveness about the type of delivery, attendance at antenatal education classes, negative effects of other people, insufficient social support, confiding in the healthcare centre and health professionals, negative, and indecisive birth perceptions, negative prior childbirth experiences, and not feeling ready for childbirth were found to be associated with FOC. The most frequently experienced fears were unexpected conditions arising during childbirth, obscurity/uncertainty, health professionals, pain, something bad likely to happen to mothers and their babies and interventions carried out during childbirth. Many of these fears could be coped with by

offering prenatal counselling, antenatal education classes and psychoeducation. It can be recommended that further studies should include randomly selected cities and examine psychological, social, and cultural variables. In addition, effective interventions minimising FOC should be evaluated.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethical approval

Ethical Approval was sought and granted by Clinical Research Ethics Committee (CREC) at Dicle University

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References

- Adams, S. S., Eberhard-Gran, M., & Eskild, A. (2016). Fear of childbirth and duration of labour: A study of 2206 women with intended vaginal delivery. *BJOG*, *119*, 1238–1246. <https://doi.org/10.1111/j.1471-0528.2012.03433.x>
- Akarsu, R. H., & Mucuk, S. (2014). Turkish women's opinions about caesarean delivery. *Pakistan Journal of Medical Sciences*, *30*(6), 1308–1313. <https://doi.org/10.12669/pjms.306.5748>
- Aktaş, S., & Aydın, R. (2019). The analysis of negative birth experiences of mothers: A qualitative study. *Journal of Reproductive and Infant Psychology*, *37*(2), 176–192. <https://doi.org/10.1080/02646838.2018>
- Aktaş, S., & Pasinlioğlu, T. (2017). The effect of empathy training given to midwives upon meeting mothers' expectations and level of perceiving labour and midwives during postpartum period. *Jogn*, *14*(2), 60–65. <https://dergipark.org.tr/en/pub/jgon/issue/51880/675466>
- 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. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249768/pdf/IJNMR-16-169.pdf>
- Badaoui, A., Kassm, S. A., & Naja, W. (2019). Fear and anxiety disorders related to childbirth: Epidemiological and therapeutic issues. *Current Psychiatry Reports*, *21*(4), 27. <https://doi.org/10.1007/s11920-019-1010-7>
- Beiranvand, S. P., Moghadam, Z. B., Salsali, M., Majd, H. A., Birjandi, M., & Khalesi, Z. B. (2017). Prevalence of fear of childbirth and its associated factors in primigravid women: A cross-sectional study. *Shiraz E Medical Journal*, *18*(11), e61896. <https://doi.org/10.5812/semj.61896>
- Demšar, K., Svetina, M., Verdenik, I., Tul, N., Blickstein, I., & Globevnik Velikonja, V. (2018). Tokophobia (fear of childbirth): Prevalence and risk factors. *Journal of Perinatal Medicine*, *46*(2), 151–154. <https://doi.org/10.1515/jpm-2016-0282>

- Egelioğlu Cetişli, N., Denizci Zirek, Z. Y., & Bakılan Abalı, F. (2016). Childbirth and postpartum period fear in pregnant women and the affecting factors. *Aquichan*, 16(1), 32–42. <https://doi.org/10.5294/aqui.2016.16.1.5>
- El-Aziz, S. N. A., Mansour, S. E. S., & Hassan, N. F. (2017). Factors associated with fear of childbirth: It's effect on women's preference for elective cesarean section. *Journal of Nursing Education and Practice*, 7(1), 133–145. <https://doi.org/10.5430/jnep.v7n1p133>
- Fenwick, J., Toohill, J., Creedy, D. K., Smith, J., & Gamble, J. (2015a). Sources, responses and moderators of childbirth fear in Australian women: A qualitative investigation. *Midwifery*, 31(1), 239–246. <https://doi.org/10.1016/j.midw.2014.09.003>
- Fenwick, J., Toohill, J., Gamble, J., Creedy, D. K., Buist, A., Turkstra, E., Sneddon, A., Scuffham, P. A., & Ryding, E. L. (2015b). Effects of a midwife psycho-education intervention to reduce childbirth fear on women's birth outcomes and postpartum psychological wellbeing. *BMC Pregnancy Childbirth*, 30(15), 284. <https://doi.org/10.1186/s12884-015-0721-y>
- Gökçe İsbir, G., İnci, F., Önal, H., & Yıldız, P. D. (2016). The effects of antenatal education on fear of childbirth, maternal self-efficacy and post-traumatic stress disorder (PTSD) symptoms following childbirth: An experimental study. *Applied Nursing Research*, 32, 227–232. <https://doi.org/10.1016/j.apnr.2016.07.013>
- Handelzalts, J. E., Becker, G., Ahren, M. P., Lurie, S., Raz, N., Tamir, Z., & Sadan, O. (2015). Personality, fear of childbirth and birth outcomes in nulliparous women. *Archives of Gynecology and Obstetrics*, 291(5), 1055–1062. <https://doi.org/10.1007/s00404-014-3532-x>
- Henriksen, L., Grimsrud, E., Schei, B., & Lukasse, M., & Group Bidens Study. (2017). Factors related to a negative birth experience - a mixed methods study. *Midwifery*, 51, 33–39. <https://doi.org/10.1016/j.midw.2017.05.004>
- Hildingsson, I., Nilsson, C., Karlstrom, A., & Lundgren, I. (2011). A longitudinal survey of childbirth-related fear and associated factors. *Journal of Obstetric Gynecologic and Neonatal Nursing*, 40(5), 532–543. doi:10.1111/j.1552-6909.2011.01274.x.
- Hildingsson, I., Rubertsson, C., Karlstrom, A., & Haines, H. (2018). Exploring the fear of birth scale in a mixed population of women of childbearing age-a Swedish pilot study. *Women and Birth: Journal of the Australian College of Midwives*, 31(5), 407–413. <https://doi.org/10.1016/j.wombi.2017.12.005>
- İsbir, G. G., & Serçekeş, P. (2017). The effects of intrapartum supportive care on fear of delivery and labour outcomes: A single-blind randomized controlled trial. *The Journal of Nursing Research: JNR*, 25(2), 112–119. <https://doi.org/10.1097/JNR.0000000000000129>
- Kabakian-Khasholian, T. (2013). My pain was stronger than my happiness: Experiences of caesarean births from Lebanon. *Midwifery*, 29(11), 1251–1256. <https://doi.org/10.1016/j.midw.2012.09.001>
- Karabulutlu, O., Çalık, K. Y., & Akar, N. (2016). Fear of childbirth and related obstetric variables. *Nursing Practice Today*, 3(4), 161–170. <https://npt.tums.ac.ir/index.php/npt/article/view/171>
- Khwepeya, M., Lee, G. T., Chen, S. R., & Kuo, S. Y. (2018). Childbirth fear and related factors among pregnant and postpartum women in Malawi. *BMC Pregnancy and Childbirth*, 18(1), 391. <https://doi.org/10.1186/s12884-018-2023-7>
- Körükcü, Ö., & Kukulcu, K. (2012). The reliability and validity of the Turkish version of the Wijma delivery expectancy/experience questionnaire (W-DEQ) with pregnant women. *Journal of Psychiatric and Mental Health Nursing*, 19(3), 193–202. doi:10.1111/j.1365-2850.2011.01694.x.
- Lukasse, M., Schei, B., & Ryding, E. L., Bidens Study Group. (2014). Prevalence and associated factors of fear of childbirth in six European countries. *Sexual and Reproductive Healthcare*, 5(3), 99–106. doi:10.1016/j.srhc.2014.06.007
- Molgora, S., Fenaroli, V., Prino, L. E., Rollè, L., Sechi, C., Trovato, A., Vismara, L., Volpi, B., Brustia, P., Lucarelli, L., Tambelli, R., & Saita, E. (2018). Fear of childbirth in primiparous Italian pregnant women: The role of anxiety, depression, and couple adjustment. *Women and Birth: Journal of the Australian College of Midwives*, 31(2), 117–123. <https://doi.org/10.1016/j.wombi.2017.06.022>
- Nieminen, K., Stephansson, O., & Ryding, E. L. (2009). Women's fear of childbirth and preference for caesarean section - a cross sectional study at various stages of pregnancy in Sweden. *Acta Obstetrica et Gynecologica Scandinavica*, 88(7), 807–813. <https://doi.org/10.1080/00016340902998436>

- Nilsson, C., Hessman, E., Sjöblom, H., Dencker, A., Jangsten, E., Mollberg, M., Patel, H., Sparud-Lundin, C., Wigert, H., & Begley, C. (2018). Definitions, measurements and prevalence of fear of childbirth: A systematic review. *BMC Pregnancy and Childbirth*, 18(1), 28. <https://doi.org/10.1186/s12884-018-1659-7>
- Nilsson, C., Lumdgren, I., Karlstrom, 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. <https://doi.org/10.1016/j.wombi.2011.06.001>
- O'Connell, M. A. (2019). Preventing, recognising, and responding to fear of childbirth and birth trauma. *BMJ*, 365(24), l2279. <https://doi.org/10.1136/bmj.l2279>
- O'Connell, M. A., Leahy-Warren, P., Kenny, L. C., O'Neill, S. M., & Khashan, A. S. (2019). The prevalence and risk factors of fear of childbirth among pregnant women: A cross-sectional study in Ireland. *Acta Obstetrica et Gynecologica Scandinavica*, 98(8), 1014–1023. <https://doi.org/10.1111/aogs.13599>
- O'Connell, M. A., Leahy-Warren, P., Khashan, A. S., Kenny, L. C., & O'Neill, S. M. (2017). Worldwide prevalence of tocophobia in pregnant women: Systematic review and meta-analysis. *Acta Obstetrica et Gynecologica Scandinavica*, 96(8), 907–920. <https://doi.org/10.1111/aogs.13138>
- OECD. (2015). *Caesarean sections*. Retrieved January 16, 2018, from <https://data.oecd.org/health-care/caesareansections.htm>
- Okumus, F., & Sahin, N. (2017). Fear of childbirth in urban and rural regions of Turkey: Comparison of two resident populations. *Northern Clinics of Istanbul*, 4(3), 247–256. <https://doi.org/10.14744/nci.2017>
- Phunyammalee, M., Buayaem, T., & Boriboonthirunsarn, D. (2019). Fear of childbirth and associated factors among low-risk pregnant women. *Journal of Obstetrics and Gynaecology*, 39(6), 763–767. <https://doi.org/10.1080/01443615.2019.1584885>
- Republic of Turkey Ministry of Health Statistics Yearbook, 2019. Available from: <https://sbsgm.saglik.gov.tr/TR,73329/saglik-istatistikleri-yilligi-2019-haber-bulteni-yayimlanmistir.html>
- Rilby, L., Jansson, S., Lindblom, B., & Martensson, L. B. (2012). A qualitative study of women's feelings about future childbirth: Dread and delight. *Journal of Midwifery & Women's Health*, 57(2), 120–125. <https://doi.org/10.1111/j.1542-2011.2011.00113.x>
- Rouhe, H., Salmela-Aro, K., Toivanen, R., Tokola, M., Halmesmaki, E., & Saisto, T. (2013). Obstetric outcome after intervention for severe fear of childbirth in nulliparous women – Randomised trial. *BJOG*, 120(1), 75–84. <https://doi.org/10.1111/1471-0528.12011>
- Ryding, E. L., Lukasse, M., Kristjansdottir, H., Steingrimsdottir, T., & Schei, B., & Bidens study group. (2016). Pregnant women's preference for caesarean section and subsequent mode of birth - a six-country cohort study. *Journal of Psychosomatic Obstetrics & Gynecology*, 37(3), 75–83. doi:10.1080/0167482X.2016.1181055.
- Saisto, T., & Halmesmaki, E. (2003). Fear of childbirth: A neglected dilemma. *Acta obstetrica et gynecologica Scandinavica*, 82(3), 201–208. doi:10.1080/j.1600-0412.2003.00114.x
- Serçekuş, P., & Başkale, H. (2016). Effects of antenatal education on fear of childbirth, maternal self-efficacy and parental attachment. *Midwifery*, 34, 166–172. <https://doi.org/10.1016/j.midw.2015.11.016>
- Serçekuş, P., & Mete, S. (2010). Effects of antenatal education on maternal prenatal and postpartum adaptation. *Journal of Advanced Nursing*, 66(5), 999–1010. <https://doi.org/10.1111/j.1365-2648.2009.05253.x>
- Serçekuş, P., & Okumuş, H. (2009). Fears associated with childbirth among nulliparous women in Turkey. *Midwifery*, 25(2), 155–162. <https://doi.org/10.1016/j.midw.2007.02.005>
- 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. <https://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. <https://doi.org/10.1111/aogs.12072>

- Striebich, S., Mattern, E., & Ayerle, G. M. (2018). Support for pregnant women identified with fear of childbirth (FOC)/tokophobia - A systematic review of approaches and interventions. *Midwifery*, *61*, 97–115. <https://doi.org/10.1016/j.midw.2018.02.013>
- Sydsjo, G., Sydsjo, A., Gunnervik, C., Bladh, M., & Josefsson, A. (2012). Obstetric outcome for women who received individualized treatment for fear of childbirth during pregnancy. *Acta obstetrica et gynecologica Scandinavica*, *91*(1), 44–49. <https://doi.org/10.1111/j.1600-0412.2011.01242.x>
- Takegata, M., Haruna, M., Morikawa, M., Yonezawa, K., Komada, M., & Severinsson, E. (2018). Qualitative exploration of fear of childbirth and preferences for mode of birth among Japanese primiparas. *Nursing & Health Sciences*, *20*(3), 338–345. <https://doi.org/10.1111/nhs.12571>
- 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. <https://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. (2006). Maternal fear associated with pregnancy and childbirth in Hong Kong Chinese women. *Women & Health*, *44*(4), 79–92. doi:10.1300/J013v44n04_05.
- Turkish Statistical Institute (TSI), 2016. *Births by statistical regions*. Retrieved February 05, 2018, from <http://www.tuik.gov.tr/UstMenu.do?metod=kategorist>
- Wijma, K., Wijma, B., & Zar, M. (1998). Psychosomatic aspects of W-DEQ: A new questionnaire for measurement of fear of childbirth. *Journal of Psychosomatic Obstetrics & Gynecology*, *19*(4), 84–97. doi:10.3109/01674829809048501.