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The Prevalence and Associated Factors of Fear of Childbirth Among Pregnant Adolescents in Turkey: A Cross-Sectional Study

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ABSTRACT Objective: This study aimed to investigate the prevalence of severe fear of childbirth (FOC) in a sample of nulliparous pregnant adolescents in a tertiary referral hospital in Turkey and compare the severity of FOC with the low-risk nulliparous pregnant women. Also, we aimed to identify potential risk factors that may predict the occurrence of high FOC. **Material and Methods:** In this cross-sectional study, a total of 55 singleton pregnant adolescents aged 13-19 years at the time of pregnancy occurrence were included in the study group and 68 low-risk singleton pregnant women aged between 20-30 years were included in the control group. **Results:** The sum of moderate and severe depression patients were significantly higher in the adolescent pregnancy (AP) group (n=12, 21.8%) than the non-AP group (n=4, 5.8%, p=0.008). In the AP group, 12 young women scored Wijma Delivery Expectancy/Experience Questionnaire version A (WDEQ-A) ≥85, ending in a prevalence of 21.8% with severe FOC, and 13 women in the non-AP group scored WDEQ-A≥85 ending in a prevalence of 18.8% with severe FOC, and there was no statistically significant difference when compared (p=0.681). A positive and statistically significant relationship was observed between the total scores of the WDEQ-A and Beck Depression Inventory (BDI) scales (r=0.286, p=0.001). **Conclusion:** We found a high prevalence of FOC among Turkish nulliparous adolescent and non-adolescent pregnant women, approximately one in every 5 patients had a severe level of FOC. Also, we detected a significant correlation between the WDEQ-A scores and the BDI scores.

Keywords: Pregnancy in adolescence; delivery; obstetric; surveys and questionnaires

Adolescent pregnancy (AP) has notable economic and social effects for the adolescents concerned, their kids, their parents, and society as a whole.[1] In addition to their obstetric and perinatal risks, APs are related to educational, parenting, and mental health problems.[2-6] The dual biological transitions of pregnancy and adolescence might elevate the stress levels and the physical and psychological vulnerability of the person.[7] Also, AP frequently happens within circumstances of risk, which expose adolescent females to various causes of psychosocial trouble and difficulties in reaching support and care.[8] In Turkey, adolescent births constitute about 8.8% of all births.[9] Given these risks and high rates, it is crucial how to prevent mental health challenges in this vulnerable population.[7]

The transition from being pregnant to the labor process is related to elevated levels of anxiety, stress, and emotion. Given the unpredictable level of pain and other uncertainties of this process, it is expected for pregnant patients to experience worries and fear regarding the delivery process.[10] Fear of childbirth

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(FOC) is defined as the negative cognitive appraisal of childbirth when a pregnant patient shows an approach to this process with adverse birth expectations, anxiety, and fear.[11] Joined with subjective belief, personality, and knowledge, feeling of uncertainty and anxiousness regarding the childbirth process usually creates this distressing situation.[12] FOC exists on a spectrum ranging from worries and insignificant fears to severe phobia.[13] Severe FOC influences the patient's pregnancy experience and represents itself in emotional distress, sleep disorders, nightmares, exhaustion, concentration difficulties at work or in daily routine, and a strong request for a cesarean section or pain medication during childbirth.[14,15]

A recent meta-analysis concluded that the overall pooled prevalence of severe FOC was estimated at 14% worldwide and seems to have increased in the last couple of years, which may be attributed to the improved knowledge and growing reports. They also reported that the severe FOC prevalence rates ranged between 3.7-43%. This significant heterogeneity depends on the poor consensus of fear, the use of numerous methods to measure FOC, and variations in the cultural and social features of patients included in these studies.[16] The Wijma Delivery Expectancy/Experience Questionnaire version A (WDEQ-A) is a widely known measurement tool designed to measure the patient's feelings and the construct of FOC regarding the patient's cognitive appraisal of the upcoming childbirth process during pregnancy.[17] WDEQ-A permits clinicians to evaluate the pregnant woman's thoughts, beliefs, and feelings about the childbirth process.[15] This self-scale assessment instrument has been translated and validated in numerous countries and considered as the gold standard method for defining severe FOC.[13,18] The WDEQ was identified to measure 4 subscales, including fear, absence of a positive appraisal, riskiness, and isolation, which may assist the clinicians' evaluation of the nature of FOC, combined with evaluating severity, as a result assisting more individual attention to support suggested to the patient.[19,20]

To the best of our knowledge, no study to date has evaluated the level of FOC among Turkish pregnant adolescents. This study aimed to investigate the prevalence of severe FOC in a sample of nulliparous pregnant adolescents in a tertiary referral hospital in Turkey and compare the severity of FOC with the low-risk nulliparous pregnant women. Also, we aimed to identify potential risk factors that may predict the occurrence of high FOC.

MATERIAL AND METHODS

SAMPLE

We conducted this cross-sectional study in İstanbul Kanuni Sultan Süleyman Training and Research Hospital. Ethical approval for the study was provided by the Kanuni Sultan Süleyman Training and Research Hospital's institutional review board (approval date and number: 2021.09.245). We conducted this study consistent with the Declaration of Helsinki Ethical Principles. We recruited the participants from January 2021 to April 2021. A total of 55 singleton pregnant adolescents aged 13-19 years at the time of pregnancy occurrence were included in the study group and 68 low-risk singleton pregnant women aged between 20-30 years were included in the control group. In our study, AP was defined as a pregnancy in a female under 20 years of age.[7]

The inclusion criteria were as follows: aged under 20 years, being able to complete a questionnaire in Turkish, being nulliparous with a singleton pregnancy, being in the third trimester (between 24-30 weeks of pregnancy) at the time of recruitment, and having consent to participate in this study. The exclusion criteria were having any obstetric or medical complications during pregnancy (preeclampsia, major fetal anomalies, etc.), having a history of medical or psychiatric diseases (depression, anxiety, etc.), addiction to opioids, drinking alcohol, who self-determined they had inadequate Turkish literature to independently fulfill the questionnaire, and hearing or speech disorders. The medical health records were used to confirm the eligibility of participants.

During the study period, 137 pregnant patients were invited to participate in this study. Of these, 129 patients consented and were given the questionnaires. The response rate was 94.1%. After excluding 5 patients owing to incomplete questionnaires, the responses of 124 pregnant patients were analyzed.

PROCEDURES

A researcher screened pregnant individuals receiving prenatal care in their third trimester at the antenatal care unit for their eligibility and recruiting. A written consent form and a written study invitation to participate in the study were given to the pregnant women who met the inclusion criteria. The individuals were briefed on the study objectives and design. The participants who were agreed and signed the consent forms were asked to complete a self-administered questionnaire in a separate room before leaving the antenatal care unit. The invitation consent form and the questionnaire were written in Turkish. The questionnaire comprised 3 parts, including baseline demographic characteristics, WDEQ-A, and Beck Depression Inventory (BDI). The questionnaires took about 30 minutes to complete. Data on participants who answered all of the questions were included and the incomplete questionnaires were excluded.

MEASURES

FOC was measured using the Turkish version of WDEQ-A, a self-assessment rating scale.[18] The WDEQ-A is a measurement tool validated to assess the FOC, contains 33 items measured on a 6-point Likert-type scale.[17] Questions are represented in positive and negative formats and each scoring from 0 to 5. Items with positively formulated questions were reverse scored and a total score was calculated. The total score ranges from 0 to 165 and a higher score indicates a higher level of childbirth fear. We categorized the level of FOC based on the WDEQ scores. The cut-off point is 85 and a total score of ≥85 was defined as severe FOC, while scores of ≤37 refer to low FOC, 38-65 show moderate FOC, and 66-84 refer to high FOC.[17,21]

We assessed the depressive symptoms of the participants by the Turkish version of the BDI.[22] The BDI is a 21-item self-rated scale that measures the symptoms and attitudes of depression.[23] Each item scored from 0 to 3, with the total score ranging from 0 to 63, where 0-9 refer no signs of depression, 10-16 mild, 17-29 moderate, and ≥30 severe depression. A higher score represents a higher level of depressive symptoms.[22,23]

STATISTICAL ANALYSIS

Sample size calculation: WDEQ-A score was taken as the primary outcome variable in our study. The sample size, which can find the difference of approximately 5 units between the non-adolescent group average of 75 and the non-adolescent group to be significant, was found to be 110, with a minimum power of 80% for the double-sided hypothesis test (Student's t-test) and an alpha-error level of 0.05. In this case, 55 individuals were considered appropriate for each group to participate in the study.

Statistical analysis was performed using the Statistical Package for the Social Sciences, version 22 (SPSS Inc., Chicago, IL, USA). Data were presented as mean±standard deviation or median (minimum-maximum) values and as numbers or percentages where appropriate. The homogeneity of variances between the groups was evaluated with the Levene test. The distribution of continuous variables was evaluated by using Shapiro-Wilk and Kolmogorov-Smirnov tests. According to the results of normality tests, differences between independent groups were analyzed by using the Mann-Whitney U test or Student's t-test. Also, for scale scores, non-parametric tests were chosen without testing the assumption of normal distribution. The chi-square and/or Fisher's exact test were used to compare groups among the categories of variables. Correlations between variables were obtained by using the Spearman correlation coefficient and summarized with rho and relevant p values. To define risk factors of outcome variable (WDEQ-A score ≥85), univariate logistic regression analysis and adjusted odds ratios with their confidence intervals were calculated. The goodness of model fit was assessed by Hosmer-Lemeshow Test. A p value of less than 0.05 was considered statistically significant for all statistical processes.

RESULTS

We presented the sociodemographic characteristics, the mean WDEQ-A and BDI scores, the prevalence of FOC according to the WDEQ-A scores, and the final delivery mode of the participants in Table 1. In our study cohort, 44.7% (n=55) of the pregnants were

TABLE 1: The sociodemographic characteristics, the mean WDEQ-A and BDI scores, the prevalence of FOC according to the WDEQ-A scores, and the final delivery mode of the participants.

		Adolescent pregnancy group (n-%)	Non-adolescent pregnancy group (n-%)	p value
Gestational week at questionnaire		26.69±1.58	26.34±1.46	0.214
Educational level	Primary school	9-16.4	15-21.7	0.652*
	Secondary school	28-50.9	30-43.5	
	High school	18-32.7	24-34.8	
Occupation	Unemployed	53-96.4	67-97.1	1.000*
	Employed	2-3.6	2-2.9	
Income	Less than expenses	34-61.1	20-29.0	**<0.001***
	Equals with expenses	21-38.9	41-59.4	
	More than expenses	0-0.0	8-11.6	
Planned pregnancy		52-94.5	65-94.2	1.000*
Family support		48-87.3	60-87.0	0.958
Spousal support		38-69.1	46-66.7	0.774
Information regarding the delivery process		49-89.1	62-89.9	0.890
BDI	No depression (0-9 point)	30-54.6	45-65.2	**0.011***
	Mild (10-16 point)	13-23.6	20-29.0	
	Moderate (17-29 point)	9-16.4	2-2.9	
	Severe (≥30 point)	3-5.4	2-2.9	
BDI score	<17 point	43-78.2	65-94.2	**0.008**
	≥17 point	12-21.8	4-5.8	
BDI score		10.76±8.18	7.3±5.12	**0.030****
Level of FOC (WDEQ-A score)	Moderate (38-65 point)	24-43.6	18-26.1	0.057*
	High (66-84 point)	19-34.5	38-55.1	
	Severe (≥85 point)	12-21.8	13-18.8	
WDEQ-A score	<85 point	43-78.2	56-81.2	0.681
	≥85 point	12-21.8	13-18.8	
WDEQ-A score		72.93±17.72	75.49±16.69	0.254**
Delivery mode	Cesarean section (C/S)	39-70.9	49-72.1	0.888
Emergency C/S		5-31.3	8-42.1	0.508

*Fisher's exact test p value; **Mann-Whitney U test (mean±standard deviation); WDEQ-A: Wijma Delivery Expectancy/Experience Questionnaire version A; BDI: Beck Depression Inventory; FOC: Fear of childbirth.

adolescent, and 55.3% (n=68) were non-adolescent. All participants in both of the groups were married. In the AP group, concerning educational level, 16.4% of the patients completed primary school, 50.9% completed secondary school, and 32.7% completed high school. The majority of the participants were unemployed (96.4%), and most of the patients' family income was less than expenses (61.1%). In the non-AP group, 97.1% of pregnant women were unemployed, 43.5% had attained an educational level of secondary school, and 59.4% of the pregnant women's income were equaled their expenses.

The mean BDI score was significantly higher in the AP group (10.76±8.18) than in the non-AP group (7.3±5.12, p=0.030). Among the pregnant adolescents, 23.6% of patients reported mild depression, 16.4% reported moderate depression, and 5.4% reported severe depression. In the non-AP group, 29.0% of the pregnant women reported mild depression, 2.9% reported moderate depression, and 2.9% reported severe depression. The sum of moderate and severe depression patients was significantly higher in the AP group (n=12, 21.8%) than the non-AP group (n=4, 5.8%, p=0.008).

Of the 55 study participants in the AP group, 12 young women scored WDEQ-A≥85, ending in a prevalence of 21.8% with severe FOC, and 13 women in the non-AP group scored WDEQ-A≥85 ending in a prevalence of 18.8% with severe FOC, and there was no statistically significant difference when compared (p=0.681).

The mean score of FOC was calculated as 72.93±17.72 in the AP group, and 75.49±16.69 in the non-AP group, and no statistically significant difference was found between the groups regarding the mean scores of FOC (p=0.254).

The relationship between BDI and WDEQ-A scores was examined by Spearman's correlation coefficient. According to the results, a positive and statistically significant relationship was observed between the total scores of the 2 scales (r=0.286, p=0.001, Table 2, Figure 1).

In Table 3, the relationship between Wijma and BDI scores was calculated by adjusting for the variables of occupation, education, and income level. When Spearman's correlation coefficient was obtained by adjusting for the effects of these 3 factors and its p-value were examined, there was a very small change in correlation. Therefore, it can be said that the effect of these 3 factors is not effective on the relationship between these 2 scale scores (r=0.278, p=0.002).

Univariate logistic regression results for the parameters which we think may be a risk factor for high WDEQ-A scores (≥85) have also been given in Table 4. When we evaluated the results, it was observed that none of the mentioned variables was a significant risk factor according to the logistic regression results which ran by using enter model. In summary, after this stage, a multiple logistic regression model was not established, and univariate results were shared.

TABLE 2: The relationship between BDI and WDEQ-A scores.

		BDI score
WDEQ-A score	Spearman's rho (r)	0.286
	p value	**0.001**

BDI: Beck Depression Inventory; WDEQ-A: Wijma Delivery Expectancy/Experience Questionnaire version A.

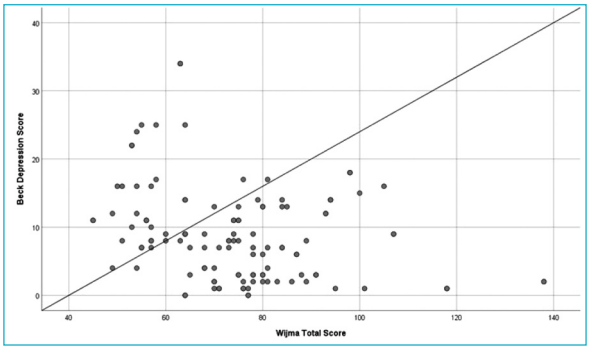

FIGURE 1: The relationship between Beck Depression Inventory and Wijma Delivery Expectancy/Experience Questionnaire version A scores according to the Spearman's correlation coefficient.

TABLE 3: The relationship between BDI and WDEQ-A scores.

		BDI score
WDEQ-A score	Spearman's rho (r)	0.278
	p value	**0.002**

BDI: Beck Depression Inventory; WDEQ-A: Wijma Delivery Expectancy/Experience Questionnaire version A.

DISCUSSION

The current study intended to assess the prevalence of nulliparous pregnant adolescents who experience severe FOC and identify potential risk factors that may predict the occurrence of severe FOC. We found that 21.8% of the nulliparous adolescent pregnant women and 18.8% of the nulliparous non-adolescent pregnant women reported FOC. Previous studies using WDEQ-A≥85 reported a prevalence ranging from 7.6% to 20.8% worldwide and this cut-off score ended in a pooled prevalence of 12%.[16,24,25] A study conducted in Turkey demonstrated that 20.8% of Turkish pregnant women experienced severe FOC.[10] Moreover, in a recent meta-analysis, Deliktas et al. reported that 21% of Turkish pregnant women suffered from FOC at clinical levels. They stated that FOC among Turkish pregnant women has severe levels with an overall mean WDEQ-A score of 67.26±4.08 and this finding presented a high level of heterogeneity, ranging from 44.0±0.44 to 87.21±1.13.[26-28] Comparable with these studies, in our study, the mean WDEQ-A score was estimated as 72.93±17.72 in the AP group, and 75.49±16.69 in the non-AP group.

TABLE 4: Univariate logistic regression results for the parameters which we think may be a risk factor for high WDEQ-A scores.

						95% Confidence intervals	
		B	Standard error	p value	Odds	Lower	Upper
Education	Primary school						
	Secondary school	-0.234	0.611	0.702	0.792	0.239	2.623
	High school	0.172	0.620	0.781	1.187	0.353	4.000
Income	Less than expenses						
	Equals with expenses	-0.087	0.467	0.852	0.916	0.367	2.228
	More than expenses	0.241	0.884	0.785	1.273	0.225	7.197
Family support		-1.990	1.085	0.058	0.324	0.148	1.517
Spousal support		-0.850	0.450	0.064	0.427	0.174	1.094
Planned pregnancy		-1.175	0.800	0.142	0.309	0.064	1.480
Information regarding the delivery process		-0.644	0.648	0.320	0.525	0.147	1.869

WDEQ-A: Wijma Delivery Expectancy/Experience Questionnaire version A.

Pregnancy and childbirth are many-sided experiences and it is an expected situation for FOC to vary across countries and cultures. Also, women across various cultural environments share several general variables of FOC despite the provision of maternal care changing in various countries.[18] Even though women's FOC appears to have crucial results, there is limited data with conflicting reports regarding the variables associated with this fear.[21,25,26] Studies indicated that patients' fear associated with childbirth is multidimensional and complicated, concerned with patient's own incapability in labor, obstetric injuries, pain, being left inadequate support, or loss of the infant's or their own life during the labor process.[21,29] In traditional societies, the majority of pregnant women are expected to stay relaxed during the childbirth process and continue throughout the labor. Also, physicians in Turkey mainly focus on physical assessment during antenatal care and disregard the psychosocial features of gestation and labor.[10,26] Therefore, it is usual for FOC to be found at a high prevalence rate in Turkey.

Previous studies that have analyzed FOC risk factors reported conflicting results. Studies have indicated various sociodemographic, obstetric, and psychosocial factors associated with FOC, including maternal age, parity, the gestational week at the time of the questionnaire, low educational or socioeconomic status, negative past pregnancy experiences, low self-esteem, lack of family or father support, and psychiatric disorders.[12,20] As the labor process gets closer, pregnant woman's FOC increases.[30] Therefore research that examined the FOC in different trimesters may report different results.[13] Many studies have reported nulliparous women to have a higher level of FOC than multiparous women, but conflicting results have also been shown.[16,20] However, a recent meta-analysis in Turkey found that multipara pregnant women had a higher FOC than nulliparous women. This result was due to the previous negative birth experiences and the perception of childbirth in the culture they are in.[26] In this study, we included only the nulliparous pregnant women in their third trimester.

The majority of the studies demonstrated that obstetric and demographic variables, including age, family income, educational status, and planned pregnancy did not significantly affect FOC.[10,31] Størksen et al. found that birth experiences were individual and about 80% of women who experienced obstetric complications did not develop a FOC.[32] Similarly, in this study, we found no significant association between educational level, occupation, income, and planned pregnancy and WDEQ-A scores.

Concerning the association with family/spousal support, causality has to be interpreted cautiously, as there are differences in study cohort characteristics, including social structures, beliefs, religions, and perceptions.[32] Molgora et al. reported that social support did not predict FOC.[31] Similarly, our results failed to

show a significant association between family support, spousal support, and information regarding the delivery process and FOC. Health-related problems at childbirth are frequently noticed as a female's obligation in Turkey. As a result, the anticipation of getting spousal support is low.[33]

Previous studies reported that women with greater levels of depression tend to have a high level of FOC and perceive their pregnancy course negatively.[15,18,20] Also, AP is associated with high rates of depressive symptoms, and depression is demonstrated to persist in the early years of AP parenting.[2,34] In our study, the mean BDI score was significantly higher in the AP group than in the non-AP group. Also, we found that the WDEQ-A score had a significant correlation with the BDI score. We suggest that the psychological status of all adolescent pregnant women should be assessed and if required, mental health support should be provided. The prevalence of postpartum depression in adolescent mothers is high, about 25% compared to 10% in adult mothers.[35] Further studies are needed to analyze whether such a correlation between FOC and BDI exists in the postpartum period. Also, it is reasonable to hypothesize that reducing the negative feelings about childbirth might reduce the prevalence of postpartum depression.

The main strength of this study is that to the best of our knowledge, this is the first study to date that has assessed the level of FOC among Turkish pregnant adolescents. We used the Turkish version of the WDEQ questionnaire, which has been validated and tested for reliability, for identifying FOC. We evaluated the FOC of the groups with similar mean gestational ages. We enrolled nulliparous pregnant women as a control group, and all patients in both of the groups were similar regarding lack of experience of the childbirth process since having an experience could affect the FOC scores. The main limitation of this study is that we carried out this study in a tertiary hospital and the outcomes may not provide general information about the level of FOC nationwide due to the probability of FOC varying according to the diverse social and cultural features of pregnant women in various regions. Also, we enrolled low-risk pregnant women as the control group, and therefore the outcomes may not refer to patients with high-risk pregnancies.

CONCLUSION

We found a high prevalence of FOC among Turkish nulliparous adolescent and non-adolescent pregnant women, approximately one in every 5 patients had a severe level of FOC. Also, we detected a significant correlation between the WDEQ-A scores and the BDI scores. Further studies are needed to analyze whether such a correlation exists in the postpartum period.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Fatma Ölmez, Süleyman Cemil Oğlak;* ***Design:*** *Fatma Ölmez, Süleyman Cemil Oğlak;* ***Control/Supervision:*** *Fatma Ölmez;* ***Data Collection and/or Processing:*** *Fatma Ölmez;* ***Analysis and/or Interpretation:*** *Fatma Ölmez, Süleyman Cemil Oğlak;* ***Literature Review:*** *Süleyman Cemil Oğlak;* ***Writing the Article:*** *Fatma Ölmez, Süleyman Cemil Oğlak;* ***Critical Review:*** *Süleyman Cemil Oğlak;* ***References and Fundings:*** *Fatma Ölmez;* ***Materials:*** *Fatma Ölmez.*

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