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Pelvic Pain and Sexual Function in Primiparous Pregnant Women with and without High/Severe Fear of Childbirth

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Abstract

Introduction This study aimed to determine pelvic pain and sexual dysfunction in primiparous pregnant women with varying levels of fear of childbirth (FOC).

Methods This is a descriptive correlational study. This study was conducted with 400 pregnant women at 24–40 weeks of gestation who applied to the obstetrics polyclinic of a hospital between January 2022 and March 2022. Data were collected through a personal information form, the Wijma Delivery Expectancy Questionnaire (W-DEQ-A), the Pelvic Pain Impact Questionnaire (PPIQ), and Golombok-Rust Inventory of Sexual Satisfaction (GRISS) Female Form.

Results Of the 400 pregnant women, 232 (58%) had high/severe FOC. High/severe FOC was a risk factor that negatively affected pelvic pain and sexual function (frequency of sexual intercourse, communication, sexual satisfaction, avoidance, touching, vaginismus, and anorgasmia) in pregnant women ($p < 0.000$). In addition, pregnant women with high/severe FOC avoided vaginal examination ($p = 0.016$), had higher fear of vaginal examination ($p = 0.004$), experienced more pain or burning during sexual intercourse ($p = 0.017$), and had more fear of pain during sexual intercourse ($p = 0.003$).

Conclusions High/severe FOC during pregnancy is an important risk factor that negatively affects pelvic pain and sexual function.

Policy Implications Identifying pregnant women with high/severe FOC and support programs such as antenatal education programs or cognitive coping strategies to cope with FOC may be useful in preventing pelvic pain and sexual functions that may be negatively affected.

Keywords Pregnancy · Fear of Childbirth · Pelvic pain · Sexual Health · Sexual Function

Introduction

Fear of childbirth (FOC) is a condition that many women have experienced in recent years (Dencker et al., 2019; Molgora et al., 2018). Although FOC is a common clinical problem, it has no precise definition. Every woman who expresses fear during pregnancy defines fear in her own way (Nilsson et al., 2018). Many biological, psychological, and sociological factors contribute to this fear (Dencker et al., 2019; Molgora et al., 2018; Nilsson et al., 2018; O'Connell et al., 2019). The prevalence and severity of FOC vary across studies. Differences in the definition of FOC are associated with various factors such as measurement tools and cultural variables (Nilsson et al., 2018; O'Connell et al., 2019; Deliktas & Kukulu, 2019). In a study conducted in Ireland, the rate of moderate and severe FOC was 36% and 5.3%, respectively (O'Connell et al., 2019), whereas in a meta-analysis study conducted in Turkey, the rate of high FOC was 21% (Deliktas & Kukulu, 2019). Several studies have suggested that many risk factors such as fear of pain, loss of control, and birth-related injury, as well as feelings of insecurity and previous negative birth experiences cause FOC in pregnancy (Poggi et al., 2018; Wigert et al., 2020). Other risk factors for FOC include young or advanced maternal age, low educational level, unemployment, lack

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of social support, nulliparity or multiparity, diagnosis of high-risk pregnancy, and symptoms of anxiety or depression (Storksen et al., 2012; Mortazavi & Agah, 2018). FOC is multifaceted; one of its aspects is the fear of experiencing pain during labor, which is an important risk factor for FOC (Wijma et al., 1998; Poggi et al., 2018).

Pelvic pain is one of the most common disorders in pregnancy. Pelvic pain is a health problem that significantly reduces the patient's quality of life. It is defined as severe pain that persists for more than six months, localizes to the pelvis or anterior abdominal wall below the umbilicus and buttocks, and causes functional discomfort or requires medical treatment (ACOG Practice Bulletin, 2020; Arnold et al., 2021). Pelvic pain in pregnant women is an important clinical condition that should be taken into consideration because it causes problems in their daily activities and sexual life (Kendall et al., 2015). The etiology of pelvic pain is multifactorial and can be caused by biomechanical, hormonal, and vascular changes and multiple organs in the pelvic region. In addition to these changes, age, educational status, economic status, previous pregnancies, women's attitudes, social role, ethnicity, cultural beliefs, negative psychological influences, body mass index (BMI), family history of chronic PA and hypermobility, genital organs, pelvic floor musculature, urinary organs and gastrointestinal organs, as well as the neuropsychiatric system are some of the risk factors that may be associated with this pathology (Robinson et al., 2010; Kovacs et al., 2012; Bakker et al., 2013). Studies show that pelvic pain is reported by more than 50% of pregnant women and the intensity of this pain increases with the progression of pregnancy (Robinson et al., 2010; Verstraete et al., 2013; Ozdemir et al., 2015). Studies have reported that pregnancy stress, depression, and psychological distress are associated with pelvic pain (e Siqueira-Campos et al., 2019; Cagnacci et al., 2019; Brooks et al., 2020). However, there exist no studies in the literature investigating the relationship between FOC and pelvic pain status.

Sexual dysfunctions are any problem that prevents an individual from being satisfied during sexual activity. Problems that occur in one or more stages of the sexual response cycle consisting of desire, plateau, arousal, and resolution lead to sexual dysfunctions (Wright & O'Connor, 2015; Banaei et al., 2019). Female sexual dysfunction is one of the most common problems affecting approximately 40-45% of women (Yeniel & Petri, 2014). Sexual and marital relationships change during pregnancy due to multiple physical and psychological changes (Drozdowskyj et al., 2020). Physiological and anatomical changes occurring in the pregnant woman can affect sexual function during pregnancy. Cessation of sexual activity during pregnancy and feelings of guilt about sexual relations, changing body image, decreased perception of attractiveness, fear of harming the fetus, fear of abortion, premature birth affect the woman's sexual response and ultimately the couple's relationship, leading to anxiety and lack of self-confidence in couples and ultimately disrupting the mental health of the family (Fan et al., 2017; Drozdowskyj et al., 2020). It was reported that 66.3%, 50.7%, and 69.2% of women experienced sexual dysfunction in the first, second, and third trimesters of pregnancy, respectively, and sexual desire disorder was the most frequently reported sexual dysfunction in all three terms of pregnancy (Bayrami et al., 2008). It has been reported that fear of vaginal pain related to sexual dysfunction during pregnancy is often associated with vaginal examination, sexual intercourse, and vaginal delivery (Rabinowitz et al., 2017). Some women experience intense physical and mental discomfort related to vaginal penetration throughout their lives and may show phobic avoidance symptoms during sexual intercourse, vaginal delivery, and gynecological examination (Huber et al., 2009; Rabinowitz et al., 2017). Women with such complaints should be clinically examined for fear of vaginal penetration, related avoidance behaviors, genitopelvic pain, and sexual dysfunctions that occur with fear of pain, dyspareunia, or vaginismus, which are now considered under the genitodiagnostic category (APA, 2013). The prevalence of the association between the quality of sexual intercourse during pregnancy and FOC and the relationship between them have not been sufficiently investigated in the literature. Only in a study like our study, vaginismus, depression, and anxiety were investigated, as related risk factors, and high fear of childbirth in pregnant women (Özçelik et al., 2022). In this respect, we think that this study will make important contributions to sexual health literature. Therefore, this study aimed to determine pelvic pain and sexual dysfunction in primiparous pregnant women with varying levels of FOC.

Research questions:

1. Is there a difference between the pelvic pain of pregnant women with high/severe FOC and those with low FOC?
2. Is there any difference between the sexual functioning of pregnant women with high/severe FOC and those with low FOC?

Method

Study Design

This study was designed as a descriptive and correlational study.

Study Setting

The study was conducted in the obstetrics outpatient clinic of a hospital in Konya province in the Central Anatolia Region of Turkey. The hospital provides health services to approximately 4000 people per month. Another reason for choosing this hospital is the high monthly number of pregnant women visiting the obstetrics outpatient clinic (approximately 1000 pregnant women/month). Also, we selected this hospital because of the high number of doctors, midwives, and nurses working there.

Participants

Pregnant women presented to the obstetrics outpatient clinic of the hospital for control and volunteered to participate in the study were recruited. Inclusion criteria: Being over 18 years of age; having a spouse/partner; being heterosexual; being sexually active; being primiparous; having a singleton pregnancy of 24–40 weeks; having a good general health status; being at least primary school graduate; and being able to communicate in Turkish. Exclusion criteria: Having maternal and fetal complications (oligohydramnios, polyhydramnios, placenta previa, pre-eclampsia, premature rupture of membranes, anomalies of presentation, intrauterine growth retardation, fetal anomaly, intrauterine death, macrosomic baby, etc.), being multiparous, having serious systemic diseases (cardiac, respiratory, gastrointestinal, neurological, endocrine, etc.), or having psychiatric diseases such as psychotic disorder and mental retardation that may prevent clinical interview.

Study Population, Sample Size, and Sampling Strategy

Pregnant women presented to the obstetrics outpatient clinic of the hospital and met the research criteria constituted the population of the study. The sample size of the study was calculated based on the GRISS mean total score (Mean: 31.30 SD: 12.28) in the study conducted by Gürbüz et al. (2021), using the G*Power-3.1.9.2 program, considering a difference of 2 units, 90% power, a margin of error of 0.05, and an effect size of 0.16. It was determined that 400 pregnant women should be included in the sample (Faul et al., 2007). Pregnant women who met the inclusion criteria were included in the study using means of convenience sampling method.

Data Collection

Data were collected between January 2022 and March 2022 via self-report interviews using a personal information form, the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ-A), the Pelvic Pain Impact Questionnaire (PPIQ), and the Golombok Rust Inventory of Sexual Satisfaction (GRISS) Female Form. Interviews with pregnant women were conducted in a private room in the obstetrics outpatient clinic. In the first interview, the purpose of the study was explained to the pregnant women and a written consent form was obtained. Participation in the study was voluntary and no incentive was paid to the participants.

Personal Information Form

It is a 16-item form prepared by the researchers by reviewing the relevant literature (Banaei et al., 2019; Yeniel & Petri, 2014; Fan et al., 2017; Deliktas & Kukulu, 2019; Wigert et al., 2020; Mortazavi & Agah, 2018). The form includes items on the socio-demographic and obstetric characteristics of pregnant women regarding age, education level, place of residence, employment status, income perception status, year of marriage, marriage type, gestational week, number of visits to pregnancy control, vaginal examination and fear of vaginal examination, pain, burning or contraction during sexual intercourse and fear of pain, receiving childbirth preparation training, and the type of birth.

Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ-A)

The W-DEQ Version A was developed by Wijma et al. (1998) to measure women's FOC during pregnancy. The scale is a six-point Likert-type scale and consists of 33 items. Responses to the items in the scale are scored between 0 and 5, with 0 being 'very much' and 5 being 'not at all'. The minimum and maximum scores that can be obtained from the scale are 0 and 165, respectively. As the score increases, FOC experienced by women increases (Wijma et al., 1998). The negatively loaded questions in the scale (2, 3, 6, 7, 8, 11, 12, 15, 19, 20, 24, 25, 27, 31) are calculated by in reverse. W-DEQ scores are evaluated in four subgroups. If the score obtained from the scale is less than 37, it indicates mild FOC; any score between 38 and 65 indicates moderate FOC; any score between 66 and 84 indicates high level FOC; and any score of 85 and above indicates severe (clinical level) FOC. The Turkish validity and reliability of the scale was performed and Cronbach's alpha was 0.89 (Korukcu et al., 2012). In this study, the internal consistency coefficient of the W-DEQ was 0.91.

Pelvic Pain Impact Questionnaire (PPIQ)

The PPIQ was developed in 2016 to determine the degree of functional limitation of pelvic pain on the person (Chalmers

et al., 2016). The Turkish validity and reliability study of the questionnaire was conducted and the Cronbach alpha internal consistency coefficient was reported to be 0.92 (Kurt & Taşpınar, 2020). The questionnaire consists of 10 items. However, only the first 8 items are scored. The score range of the questionnaire is 0–32. As the score increases, the degree of functional restriction of pelvic pain increases. In this study, the PPIQ Cronbach alpha internal consistency coefficient value was calculated as 0.80.

Golombok Rust Inventory of Sexual Satisfaction (GRISS) Female Form

The GRISS was developed to assess sexual function quality and sexual dysfunctions (Rust & Golombok, 1985). The female form of the scale, which has two separate forms for men and women, each consisting of 28 questions, was used. Both total and sub-dimensional scores can be used in the evaluation of the scale. The sub-dimensions of the female form consist of questions related to frequency of sexual intercourse, communication, satisfaction, avoidance, touching, vaginismus, and anorgasmia. High scores indicate deterioration in sexual functioning and the quality of the relationship. The scale is a 5-point Likert-type scale and items are scored between 0 and 4. A Turkish validity and reliability study was conducted and Cronbach's alpha internal consistency coefficient for the total score was calculated as 0.94 in women (Tuğrul et al., 1993). According to the data obtained in this study, Cronbach's alpha internal consistency coefficient was 0.89 in the female form.

Ethical Considerations

Prior to the study, institutional approval was obtained from the research ethics committee of the local ethics committee. All procedures were carried out in accordance with the principles of the Helsinki Declaration.

Data Analysis

A statistical package program of SPSS 20.0 for Windows (SPSS Inc., Chicago, IL, USA) was used to analyze the data obtained from the study. Since the Skewness and Kurtosis values of all scales were between -1.50 and $+1.50$ in the normality analysis, independent samples t tests were performed (Tabachnick & Fidell, 2013). Number, percentage, arithmetic mean, and Standard Deviation (SD) were used for descriptive statistics. Pearson Chi-square test (expected number >25), Yates corrected Chi-square test (continuity correction) (observed value $5<$ expected number <25), and Fisher Exact test (expected number <5) were used for categorical variables and independent-sample t test was used for mean differences of numerical variables. Analysis of variance (further analysis Tukey HSD) was used in multiple groups that were significant according to independent variables. Linear Regression Analysis was used to evaluate the effects of high FOC on pelvic pain and sexual intercourse function. Significance level was taken as $p<0.05$ in statistical evaluation.

Results

Participants' Characteristics

The comparison of primiparous pregnant women with and without high/severe FOC according to sociodemographic and obstetric characteristics is shown in Table 1. The pregnant women had a mean age of 28.2 years (SD 5), 29.9 (SD 6) gestational weeks, and all were married. Women who had university education or higher ($p<0.000$), good income perception status ($p<0.000$), and arranged marriage ($p<0.000$) had high/severe FOC (Table 1). Pregnant women with high/severe FOC avoided vaginal examination ($p=0.016$), had higher fear of vaginal examination ($p=0.004$), experienced more pain or burning during sexual intercourse ($p=0.017$), and had more fear of pain during sexual intercourse ($p=0.03$) (Table 1). In addition, it was found that pregnant women who had less antenatal checkups ($p<0.000$), who did not receive birth preparation education ($p<0.000$), and who considered cesarean section as the mode of delivery ($p<0.000$) had more high/severe FOC (Table 1). In the assessment of high/severe FOC, 232 pregnant women scored above the W-DEQ-A ≥ 66 cut-off score and 58% had high/severe FOC.

The comparison of pelvic pain and sexual function characteristics of primiparous pregnant women with and without high/severe FOC is shown in Table 2. Primiparous pregnant women with high/severe FOC had higher pelvic pain than non-primiparous pregnant women (($p<0.000$). Primiparous pregnant women with high/severe FOC had impaired sexual intercourse function with higher scores in both the total score and the sub-scales of the GRISS (namely, frequency of sexual intercourse, communication, sexual satisfaction, avoidance, touching, vaginismus, and anorgasmia) ($p<0.000$).

Linear regression analysis according to the factor of high/severe FOC that negatively affects pelvic pain and sexual function is shown in Table 3. The regression model for the risk factor of high/severe FOC that may affect pelvic pain was significant ($F=134.865$, ($p<0.000$) and explained 25% of the variance (Table 3). In the light of the findings of our regression analysis, high/severe FOC ($\beta=0.503$, ($p<0.000$) was an important risk factor negatively affecting pelvic pain

Table 1 Comparison of primiparous pregnant women with and without high/severe fear of childbirth according to sociodemographic and obstetric characteristics ($n = 400$)

Characteristics	Pregnant women with high/severe fear of childbirth (W-DEQ-A ≥ 66) $n = 232$	Pregnant women without high/severe fear of childbirth (W-DEQ-A < 65) $n = 168$		
	Mean (SD)	Mean (SD)	t	*p* value
Age (years), Mean (SD)	28 (5.2)	28.5 (4.7)	1.046	0.296
Gestational Week	29.9 (6)	29.9 (6)	-0.124	0.901
Frequency of antenatal check-ups	5.1 (3.2)	6.5 (3.3)	4.039	< 0.001
Duration of Marriage	5.9 (5.2)	5.8 (4.6)	-0.194	0.847
	n (%)	n (%)	χ2	*p* value
Education				
Primary School	85 (70.8)	35 (29.2)	25.442 [Y]	< 0.001
High School	86 (77.5)	25 (22.5)		
Bachelor's/Master's	39 (62.9)	23 (37.1)		
Employment status				
Full-time housewife	198 (64.3)	110 (35.7)	21.720	< 0.001
Employed	34 (37)	58 (63)		
Perceived Income Level				
Good	27 (28.4)	68 (71.6)	42.269 [F]	< 0.001
Moderate	199 (67)	98 (33)		
Poor	6 (75)	2 (25)		
Place of Residence				
City	160 (55.4)	129 (44.6)	2.972	0.085
Town/Village	72 (64.9)	39 (35.1)		
Mode of Marriage				
Love Marriage	114 (49.1)	118 (50.9)	17.809	< 0.001
Arranged Marriage	118 (70.2)	50 (29.8)		
Vaginal examination during pregnancy				
Yes	88 (51.2)	84 (48.8)	5.791	0.016
No	144 (63.2)	84 (36.8)		
Fear of vaginal examination				
Yes	147 (64.2)	82 (35.8)	8.431	0.004
No	85 (49.7)	86 (50.3)		
Experiencing pain or burning during sexual intercourse				
Yes	87 (66.4)	44 (33.6)	5.659	0.017
No	145 (53.9)	124 (46.1)		
Fear of pain during sexual intercourse				
Yes	107 (66.9)	53 (33.1)	78.622	0.003
No	125 (52.1)	115 (47.9)		
Status of receiving childbirth preparation training				
Yes	57 (41.6)	80 (58.4)	22.989	< 0.001
No	175 (66.5)	88 (33.5)		
Birth mode				
Caesarean section	116 (58)	84 (42)	35.775	< 0.001
Vaginal delivery	170 (85)	30 (15)		

t: Independent sample t test, χ2: Pearson chi-square test, SD: Standard Deviation

[Y]Yates corrected Chi-square test, SD: 1 (5 < observed value < 25),

[F]Fisher Exact test (expected number < 5),

Table 2 Comparison of pelvic pain and sexual function in primiparous pregnant women with and without high/severe fear of childbirth

Measure	Pregnant women with high/severe fear of Childbirth (W-DEQ-A ≥ 66) $n = 232$	Pregnant women without high/severe fear of Childbirth (W-DEQ-A < 65) $n = 168$		
	Mean (SD)	Mean (SD)	t	*p* value
PPIQ	16.9 (4.1)	11.9 (4.5)	-11.613	< 0.001
GRISS Total	45.7 (14.2)	31.4 (13.2)	-10.333	< 0.001
Frequency of sexual intercourse	4 (1.3)	3.2 (1.7)	-5.138	< 0.001
Contact	3.7 (1.5)	3 (2.1)	-3.683	< 0.001
Sexual satisfaction	6 (2.7)	3.6 (2.3)	-9.511	< 0.001
Avoidance	5.5 (3.2)	3 (2.6)	-8.247	< 0.001
Touching	6 (2.9)	3.9 (2.8)	-7.470	< 0.001
Vaginismus	7.5 (2.2)	6 (2.5)	-6.117	< 0.001
Anorgasmia	6.4 (2.8)	4.2 (2.8)	-7.392	< 0.001

t: Independent sample t test, SD: Standard Deviation

Table 3 Linear regression analysis for high/severe fear of childbirth factor negatively affecting pelvic pain and sexual function

Variable	*B*	*SE*	*β*	*t*	*p*	*95% Cl*	
						Low Value	*High Value*
Pelvic Pain (PPIQ)							
High/severe fear of childbirth	5.069	0.436	0.503	11.613	< 0.001	4.211	5.927
$n = 400$; $R^2 = 0.253$; Adjusted $R^2 = 0.251$, Durbin-Watson = 1.742							
Sexual Functions (GRISS Total)							
High/severe fear of childbirth	14.342	1.404	0.456	10.216	< 0.001	11.582	17.102
$n = 400$; $R^2 = 0.208$; Adjusted $R^2 = 0.206$, Durbin-Watson = 1.392							

*Performed with the Linear Regression Analysis

(Table 3). The regression model for the risk factor of high/severe FOC that may affect sexual function (GRISS Total) was significant (F = 104.367, ($p < 0.000$) and explained 20% of the variance (Table 3). As a result of the regression analysis, high/severe FOC (β = 0.456, ($p < 0.000$) was an important risk factor negatively affecting sexual function (Table 3).

Discussion

This study aimed to investigate the relationship between pelvic pain and sexual function in primiparous pregnant women with and without high/severe FOC. 58% of the pregnant women had high/severe FOC. The prevalence of FOC varies among different populations, and scores of ≥ 66 (high) or ≥ 85 (severe) on the W-DEQ-A scale are considered as cut-off points (Lukasse et al., 2014; O'Connell et al., 2019). In a recent study, 46% of pregnant women were reported to have high/severe FOC (Özçelik Eroğlu et al., 2022). In another study, the prevalence of high and severe FOC was reported to be 36.7% and 5.3%, respectively (O'Connell et al., 2019), while in another study covering six European countries, the prevalence of FOC was reported to be 15.6% high and 4.5% severe (Lukasse et al., 2014). Mortazavi and Agah (2018) conducted a study in 525 pregnant women in Iran and found that 26% had a W-DEQ-A scale score 85 points or more (Mortazavi & Agah, 2018). Compared to the results reported in the literature, the prevalence of FOC was higher in this study. Many factors contribute to FOC. Its prevalence varies between different populations and studies due to social and cultural characteristics and methodological differences.

Based on the present regression analysis results, women with high/severe FOC experienced more pelvic pain during examination. There exist no data on the relationship between FOC and pelvic pain level in the literature. However, it is reported that women with chronic pelvic pain have much higher rates of psychological discomfort than their peers without pain (Brooks et al., 2020). More than 50% of women with pelvic pain in a tertiary outpatient clinic reported moderate to severe anxiety and more than 25% reported moderate to severe depression (Bryant et al., 2016). The increased prevalence of depression and anxiety is not unique to pelvic pain and can occur in many other chronic pain conditions (Campbell et al., 2003; McKernan et al., 2018). Mood-related psychological factors are a complicating factor in the treatment of pelvic pain. Furthermore, women with pelvic pain experience distress, hopelessness, depression, and anxiety, which have a significant negative impact on their psychological well-being (Facchin et al., 2015; Pope et al., 2015). In addition, women have higher

rates of mental health problems, which may lead to difficulties in coping with pelvic pain (Carvalho et al., 2015). The co-occurrence of pain and psychological distress is an important factor in both assessment and treatment. A comprehensive treatment strategy that addresses both physical and psychological symptoms appears to yield good results (Campbell et al., 2003; Goesling et al., 2013; Till et al., 2019). This is because pain and emotion are inextricably linked. A better understanding of the relationship between psychological distress and pain in pelvic pain can help clinicians provide a more comprehensive treatment strategy for their patients. According to the biopsychosocial approach, psychosocial aspects can mediate all aspects of chronic pain conditions, such as pain, disability, and mental health. These psychological aspects may include emotional distress, beliefs, expectations, and severity and type of pain (Adams et al., 2006). Therefore, psychological interventions with the potential to address psychological and social aspects are recognized as an important part of treatment in other chronic pain conditions such as pelvic pain according to the biopsychosocial model (Brooks et al., 2020, 2021). Therefore, we think that therapeutic interventions such as cognitive behavioral therapy will be useful for pregnant women with pelvic pain and negative psychological emotions such as FOC.

It has been reported that fear of vaginal pain is frequently associated with vaginal examination, sexual intercourse, and vaginal delivery (Rabinowitz et al., 2017). In this study, pregnant women with high/severe FOC avoided vaginal examination, had higher fear of vaginal examination, experienced more pain or burning during sexual intercourse, and had more fear of pain during sexual intercourse, and had higher GRISS total and subscale scores. In parallel with this, there was a positive correlation between GRISS total score and subscale scores and W-DEQ-A scale scores. In studies conducted in parallel with our study, it has been reported that pregnant women who complain of painful sexual intercourse have more FOC (Mortazavi & Agah, 2018; Özçelik Eroğlu et al., 2022). In the present study, pregnant women with high levels of fear of birth had painful sexual intercourse. According to our regression analysis, high/severe FOC was another important risk factor negatively affecting sexual function. In a previous study in which sexual functions of pregnant women were evaluated with the GRISS, the following results were found: infrequency (47.3%), non-communication (57.4%), dissatisfaction (15.4%), avoidance (6.4%), non-sensuality (19.1%), vaginismus (28.9%), anorgasmia (29.9%), and sexual dysfunction (17.4%) (Yanıkkerem et al., 2016). In a recent study, it was reported that the fear of pain during sexual intercourse and vaginismus sub-dimension scores of the GRISS scale were significantly higher in pregnant women with high FOC compared to the group with low FOC (Özçelik Eroğlu et al., 2022), but in this study, only the vaginismus sub-dimension was evaluated for sexual intercourse functions, and other parameters were not evaluated.

In this study, it was determined that women with mild/moderate FOC received more antenatal education and attended antenatal check-ups during pregnancy than those with high/severe FOC. Lack of antenatal education and not attending antenatal check-ups were found to be associated factors for FOC. Antenatal education can be effective in reducing fears because it provides information about birth and changes previous misinformation and perceptions about birth in a positive way (Deliktaş & Kukulu 2019; Çankaya & Şimşek, 2021). In addition, demographic characteristics such as the woman's education level, marital status, employment status, and perceived income are other associated factors of FOC. In order to help women cope with FOC, it is important for midwives to evaluate pregnant women in terms of these sociodemographic characteristics for care and interventions. In our study, the mode of delivery preferences of pregnant women with high/severe FOC were cesarean section compared to pregnant women with low FOC. In similar studies, it was reported that the rate of cesarean delivery was higher in pregnant women with high FOC (Demšar et al., 2018, Deliktaş & Kukulu 2019; Çankaya & Şimşek, 2021). The World Health Organization (WHO) reports that the ideal cesarean section rate in developed/developing countries should be between 5% and 15% (World Health Statistics, 2015). However, the caesarean section rate in Türkiye is significantly higher (52%) and fear of vaginal delivery is the main reason for choosing caesarean section (Deliktas & Kukulu, 2019; TDHS, 2018). Choosing elective caesarean section to reduce high/severe FOC is not a solution (Hildingsson et al., 2011). Although there are many reasons for this dramatic increase today, it is thought that the most common reasons are factors such as women not being sufficiently informed about labor, fear of the delivery room, not knowing how to cope with labor pain, not being sufficiently supported during labor, and not being offered alternatives to alleviate labor pain (Duran & Atan, 2011; Güleç et al., 2014). Therefore, to reduce the cesarean section rates, questioning and grading FOC may be important in Türkiye and other countries with high cesarean section rates.

Strengths and Limitations

Since the study was conducted in only one hospital and the sample group consisted of primiparous pregnant women, the findings cannot be generalized to the general population. The results of this study should only be used to inform the practices in this province and may not be relevant to

the general population of pregnant women in the country. This is the first study to evaluate high/severe FOC and pelvic pain in pregnant women, so we think that it will make important contributions to the literature.

Policy Implications

Considering the results obtained in this study, early identification of FOC, which is thought to be effective in the development of pelvic pain and sexual dysfunction in pregnant women, is of great importance. Early identification of FOC facilitates women to cope with fear. The best approach that can be used to reduce FOC is counseling as part of midwifery care (ICM, 2017). In the literature, it has been observed that supportive midwifery care and individual counseling, supportive care, and psychoeducational group therapy offered by midwives have a great effect on reducing FOC in pregnant women (Çankaya & Şimşek, 2021; Webb et al., 2021). Midwives working in health institutions should recognize FOC, provide counseling, support the pregnant woman, and integrate the subject of FOC into routine pregnancy care. Thus, pelvic pain and sexual dysfunctions that may occur in pregnant women with FOC can be prevented. In addition, pregnant women with high/severe FOC, pelvic pain, or sexual dysfunction should be evaluated, cared, and treated holistically, not only with treatment specific for each disease accompanied with supportive care for FOC.

Conclusion

Among the pregnant women included in the study, 58% had high/severe FOC. High/severe FOC was found to be an important risk factor negatively affecting pelvic pain and sexual function (frequency of sexual intercourse, communication, sexual satisfaction, avoidance, touching, vaginismus, and anorgasmia) of pregnant women. It was determined that pregnant women with high/severe FOC avoided vaginal examination, had higher fear of vaginal examination, experienced more pain or burning during sexual intercourse, and had more fear of pain during sexual intercourse. Moreover, pregnant women with university or higher education, good income perception status, arranged marriages, fewer antenatal visits, no birth preparation education, and cesarean section as the mode of delivery had high/severe FOC. Fear of childbirth in pregnant women can negatively affect the sexual function of the male partner, leading to sexual dysfunction, decreased sexual sensation or discomfort during intercourse. In addition, pregnant women may have difficulty tolerating a vaginal examination. This can lead to an inability to deliver vaginally and an increased likelihood of needing a caesarean section. Identifying pregnant women with high/severe FOC and support programs such as antenatal education programs or cognitive coping strategies to cope with FOC may be useful in preventing pelvic pain and sexual functions that may be negatively affected.

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Data Availability The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions. Research data are not shared.

Declarations

Conflict of Interest The authors declare no conflicts of interest.

Ethical Approval An approval was obtained from both the local ethical board (Registration number: (#2022/384).

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