

## Research Article

# Sexual Dysfunction and Domestic Violence among Infertile Females: A Cross-Sectional Study

Unsal A<sup>1</sup>, Aydin Y<sup>2\*</sup>, Arslantas D<sup>3</sup> and Hassa H<sup>4</sup><sup>1</sup>Professor in Public Health, Eskisehir Osmangazi University School of Medicine, Department of Public Health, Eskisehir, Turkey<sup>2</sup>Assistant Professor in Obstetrics and Gynecology, Eskisehir Osmangazi University School of Medicine, Department of Obstetrics and Gynecology, Eskisehir, Turkey<sup>3</sup>Professor in Public Health, Eskisehir Osmangazi University School of Medicine, Department of Public Health, Eskisehir, Turkey<sup>4</sup>Professor in Obstetrics and Gynecology, Eskisehir Osmangazi University School of Medicine, Department of Obstetrics and Gynecology, Eskisehir, Turkey

\*Corresponding author: Yunus Aydin, MD, Department of Obstetrics and Gynecology, Eskisehir Osmangazi University School of Medicine, Eskisehir, Turkey

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**Abstract**

**Background:** Sexual dysfunction and interpersonal relationship have been reported as the associated factors with infertility. The association between sexual dysfunction-violence and infertility is complex and reciprocal.

**Objective:** To investigate the sexual dysfunction and associated factors and determine the domestic violence among infertile females.

**Materials and Methods:** This cross-sectional study was conducted in a university infertility clinic. 386 of the 512 females agreed to participate and were given a precisely prepared questionnaire to complete. Questionnaire was including socio-demographic characteristics and habits, infertility associated factors, the history of domestic violence, the history of social pressure and sexual dysfunction. Sexual dysfunction was assessed with Female Sexual Function Index (FSFI).

**Results:** The frequencies of sexual dysfunction and domestic violence were 13.7% (n=53) and 12.7% (n=49), respectively. According to socio-demographic characteristics; the frequency of sexual dysfunction was higher in non-employment (p=0.04) and lower income women (p=0.001), when the menarche age was lower than 12 (p=0.01) and with the existence of domestic violence (p=0.01). The frequency of domestic violence was lower in university graduated infertile females (p=0.02), in couples married with agreement (p=0.01) and higher in couples with lower income (p=0.02). The lower income (odds ratio [OR] 5.73, 95% confidence interval [CI] 1.21-27.08, p=0.02) and the presence of sexual dysfunction (OR 2.91, 95% CI 1.36-6.21, p=0.006) were risk factors for domestic violence.

**Conclusion:** Sexual dysfunction was significantly associated with working status, income levels, menarche age and the domestic violence. Additionally, domestic violence was significantly associated with agreement in marriage, income levels and educational level.

**Keywords:** Domestic violence; Infertility; Sexual dysfunction

## Introduction

Infertility can be defined as not able to achieve a pregnancy after at least 1 year of regular, unprotected sexual intercourse [1]. Of the married couples all over the world, 10-18% (approximately 72.4 million) were estimated to be infertile [2]. The various several factors such as depression, anxiety, disturbing eating behavior, sexual dysfunction and interpersonal relationship have been reported as the associated factors with infertility [3-4].

Infertile females are usually face with their inability to give birth to a child, a trouble that come to light with several condition such as violence, psychological imbalance, interpersonal problems, relationship breakdown, divorced by her husband. These interpersonal problems may be resulted in low relationship satisfaction, with a high proportion of infertile female reporting sexual dysfunction [4].

The association between sexual behavior and infertility is complex and reciprocal. The sexual dysfunction can cause a delay in conception, otherwise infertility can be considered as a consequence of sexual dysfunction [5]. The evaluation of sexual behavior should

already be the main part of infertility examination. The fact remains that, there is successful treatment of infertility through only sexual intercourse in many cases [5].

Diagnosis and treatment process of infertile couples give rise to living in fear and anxiety [6,7]. This situation may cause decreasing in self-esteem and frequency of sexual intercourse, and increasing the feeling of insufficiency [3]. The marriages that are under such psychological pressure may arrive at the conclusion of marital inharmoniousness, domestic violence and also divorce. According to the nationwide survey of violence against women in Turkey, 35% of women have experienced physical violence from their husbands at least once in their lives [8]. Additionally, the study that conducted in Turkish setting reported that women experienced domestic violence due to infertility are generally twice when to compare with women with children [9].

Many studies have been reported association between female infertility and sexual dysfunction [10]. However Sexual Dysfunction and Domestic Violence among infertile females, especially in Turkish population, are debatable associated factors that still need explanation.

Overall following research questions were determined; (i) What is the frequency of sexual dysfunction among infertile woman applying to a reproductive health center? (ii) Which characteristic factors related to sexual dysfunction? (iii) What is the frequency of domestic violence among infertile woman applying to a reproductive health center? (iiii) Is there any association between sexual dysfunction and domestic violence among infertile female?

The objective of the study was to investigate the sexual dysfunction, domestic violence and associated factors in Turkish infertile females.

## Materials and Methods

This cross-sectional study was carried out infertile females in the Eskisehir Osmangazi University, Faculty of Medicine Reproductive Health Center between 01 July 2015 and 30 September 2015. 386 (75.3%) infertile women consisted of study group. There were 512 infertile women' applications in the study period. The ethical permissions were received from the hospital management and the Eskisehir Osmangazi University Ethical Committee (80558721-G-97).

The questionnaire prepared according to literature. Questionnaire was including socio-demographic characteristics and habits (age, educational level, job status, family income status, physician-diagnosed chronic disease, gynecologic operation history, height and weight), infertility associated factors (marriage process, is it first marrying, married age, menarche age, menstrual period, having dysmenorrhea, type of infertility, infertility duration and cause of infertility), the history of domestic violence, the history of social pressure and Female Sexual Function Index (FSFI).

Sexual dysfunction was assessed with FSFI developed by Rosen et al. [11]. The validation study in Turkish setting was conducted by Aygin et al. [12]. The questionnaire consisted of 19 questions and the total score ranged between 2 and 36. The higher score indicates better sexual function. The cutoff score of the questionnaire is 26.5. Females who have lower scores than 26.5 were considered as have the sexual dysfunction.

Females who have the inability to become pregnant despite regular sexual intercourse during the last year were considered to be "infertile". Couples who have not ever become pregnant were evaluated as primary infertile and those who have been pregnant at least once but never again were evaluated as secondary infertile [13]. Females who faced with one of the physical, verbal, economic, emotional and sexual violence types at least once determined as undergoing domestic violence [13].

Females who smoke at least one cigarette daily were defined as smokers, those consume at least 30 grams of ethyl alcohol weekly were defined as alcohol consumers [14]. Females who diagnosed by the physician, at least, one of the chronic diseases was determined as 'have a chronic disease'. Females who works in salaried employment determined as 'working'.

If a female had pain in the abdominal, groin, and lumbar region on the day before the menstrual period and/or the first day of the menstrual period, it was considered to be dysmenorrhea. The participants' body mass indices (BMIs) were calculated by measuring their heights and weight. BMI values that corresponded to BMI of

≥30.0 kg/m<sup>2</sup> were classified as obese.

## Study implementation

All subjects were told that participation in the investigation was strictly voluntary and that the data collected would not be used for anything except for this research study. Females who agreed to participate were given the questionnaire to complete. The duration for completing the questionnaire was between 15 and 20 minutes for per subject. The process of data collection was conducted according to Helsinki Declaration.

## Statistical analysis

Statistical analysis was made with IBM SPSS Statistics software (version 20.0). The statistical analysis was carried out using Chi-square tests ( $\chi^2$ ) and Logistic Regression Analysis (Stepwise Backward Wald). A value of  $p < 0.05$  was considered statistically significant.

## Results

The mean age of the females was  $29.87 \pm 5.26$  years and ranged between 19 and 50. Of the females, 32.9% was in 25-29 age group, 30.6% was working, 74.6% was evaluated herself in moderate income status, 22.3% was smoking, 4.7% consumed alcohol and 11.7% was obese. The frequency of sexual dysfunction was 13.7% ( $n=53$ ). The socio-demographic characteristics of the females with and without sexual dysfunction are summarized in (Table 1).

Of the females, 63.2% married in agreement, 94.3% reported that this is the first marriage, 42% was in 5-9 years' marriage period. 52.3% ( $n=203$ ) of females had unexplained infertility. The marriage and infertility characteristics of the females with and without sexual dysfunction are summarized in (Table 2).

12.7% ( $n=49$ ) of females was undergone domestic violence and 17.9% of them were undergone social pressure. The distribution of domestic violence and social pressure according to having sexual dysfunction summarized in (Table 3).

12.7% of infertile females had a history of domestic violence. The following types of domestic violence were reported; physical violence (6%), physiologic violence (24.1%), economic violence (36.1%), emotional violence (36.1%) and sexual violence (14.5%). The distribution of sociodemographic and marriage characteristics according to having the history of domestic violence are summarized in (Table 4). The dependent variable of the model was domestic violence. The independent variables were educational level, marriage type, income status, first marriage age, sexual dysfunction. The results of logistic regression analysis are summarized in (Table 5).

## Discussion

It is presented that infertile couples are at higher risk of sexual dysfunction than fertile couples in several studies [5,10,15]. In this study, the frequency of sexual dysfunction found to be 13.7%. In many studies conducted among infertile females in several cultures, such as in the USA [15] (40%), in the Iran [16] (56%), in the Turkey [17] (43.3%) have been demonstrated higher frequencies. The frequency of sexual dysfunction is varied in the studies due to different cultural characteristics and awareness and perceptions of their sexual functioning. Moreover another factor for the differences in the literature on the frequency of sexual dysfunction is the fact that

**Table 1:** The socio-demographic characteristics of the females with and without sexual dysfunction.

Sociodemographic characteristics	Sexual dysfunction			Statistical analyses
	No	Yes	Total	X <sup>2</sup> ; p
	n (%) <sup>a</sup>	n (%) <sup>a</sup>	n (%) <sup>b</sup>	
<b>Age group</b>				
≤24	57 (87.7)	8 (12.3)	65 (16.8)	0.345; 0.951
25-29	108 (85.0)	19 (15.0)	127 (32.9)	
30-34	101 (87.1)	15 (12.9)	116 (30.1)	
≥35	67 (85.9)	11 (14.1)	78 (20.2)	
<b>Educational level</b>				
Primary school and below	94 (84.7)	17 (15.3)	111 (28.8)	0.600; 0.741
Elementary and high school	169 (86.2)	27 (13.8)	196 (50.8)	
University	70 (88.6)	9 (11.4)	79 (20.5)	
<b>Working status</b>				
Non-employment	225 (84.0)	43 (16.0)	268 (69.4)	<b>3.964, 0.046</b>
Employment	108 (91.5)	10 (8.5)	118 (30.6)	
<b>Income status</b>				
Low	13 (59.1)	9 (40.9)	22 (5.7)	<b>17.801; 0.001</b>
Moderate	258 (89.6)	30 (10.4)	288 (74.6)	
High	62 (81.6)	14 (18.4)	76 (19.7)	
<b>Smoking</b>				
No	258 (86.0)	42 (14.0)	300 (77.7)	0.012; 0.913
Yes	75 (87.2)	11 (12.8)	86 (22.3)	
<b>Alcohol consumption</b>				
No	316 (85.9)	52 (14.1)	368 (95.3)	Fisher; 0.487
Yes	17 (94.4)	1 (5.6)	18 (4.7)	
<b>Having a chronic disease</b>				
No	279 (87.2)	41 (12.8)	320 (82.9)	0.917; 0.338
Yes	54 (81.8)	12 (18.2)	66 (17.1)	
<b>History of gynecological operation</b>				
No	264 (86.6)	41 (13.4)	305 (79.0)	0.019; 0.891
Yes	69 (85.2)	12 (14.8)	81 (21.0)	
<b>Obesity</b>				
No	294 (86.2)	47 (13.8)	341 (88.3)	0.000; 1.000
Yes	39 (86.7)	6 (13.3)	45 (11.7)	
<b>Total</b>	333 (86.3)	53 (13.7)	386 (100.0)	

<sup>a</sup> Percent for the row.<sup>b</sup> Percent for the column.

there is no standard for the scales used for the diagnosis of sexual dysfunction.

In this study, there was no significant relationship between sexual dysfunction and age group among infertile female. There were several studies reported that increasing age found to be an associated factor with sexual dysfunction [15-17]. Contrary, Cayan et al reported that there is no relationship between age and sexual dysfunction [18]. The frequency of sexual dysfunction was found similar in terms of smoking and alcohol consumption among infertile females, and the females those were not working had the greater frequency of

sexual dysfunction than those were working. Cayan et al. reported that there was an association between smoking history and sexual dysfunction and between employment status and sexual dysfunction [18]. Keskin et al. reported that depression, age group, income level and educational level were found to be the best predictors of sexual dysfunction [19].

Obesity can be considered as a reason of the sexual hormones imbalance. The reproduction of females may be affected by the sexual hormones imbalance [20]. In the current study, there was no significant relationship between the status of obesity and sexual

**Table 2:** The distribution of marriage and infertility characteristics of the females with and without sexual dysfunction.

Marriage and infertility characteristics	Sexual dysfunction			Statistical analyses
	No	Yes	Total	X <sup>2</sup> ; p
	n (%) <sup>a</sup>	n (%) <sup>a</sup>	n (%) <sup>b</sup>	
<b>Marriage type</b>				
Prearranged	104 (83.2)	21 (16.8)	125 (32.4)	3.420; 0.181
With Agreement	216 (88.5)	28 (11.5)	244 (63.2)	
Antisocially	13 (76.5)	4 (23.5)	17 (4.4)	
<b>Is it first marriage?</b>				
Yes	312 (85.7)	52 (14.3)	364 (94.3)	Fisher; 0.336
No	21 (95.5)	1 (4.5)	22 (5.7)	
<b>First marriage age(years)</b>				
≤19	90 (92.8)	7 (7.2)	97 (25.1)	6.102; 0.107
20-24	148 (82.2)	32 (17.8)	180 (46.6)	
25-29	71 (87.7)	10 (12.3)	81 (21.0)	
≥30	24 (85.7)	4 (14.3)	28 (7.3)	
<b>Marriage duration(years)</b>				
≤4	121 (88.3)	16 (11.7)	137 (35.8)	1.314; 0.518
9-May	135 (83.9)	26 (16.1)	161 (42.0)	
≥10	74 (87.1)	11 (12.9)	85 (22.2)	
<b>Menarche age</b>				
≤12	95 (89.6)	11 (10.4)	106 (27.5)	10.333; 0.016
13	111 (87.4)	16 (12.6)	127 (32.9)	
14	74 (90.2)	8 (9.8)	82 (21.2)	
≥15	53 (74.6)	18 (25.4)	71 (18.4)	
<b>Menstrual period</b>				
Irregular	107 (84.3)	20 (15.7)	127 (32.9)	0.421; 0.516
Regular	226 (87.3)	33 (12.7)	259 (67.1)	
<b>Dysmenorrhea</b>				
No	171 (87.2)	25 (12.8)	196 (50.8)	0.320; 0.572
Yes	162 (85.3)	28 (14.7)	190 (49.2)	
<b>Infertility type</b>				
Primer	296 (86.5)	46 (13.5)	342 (88.6)	0.046; 0.831
Secunder	37 (84.1)	7 (15.9)	44 (11.4)	
<b>Infertility period(years)</b>				
≤2	88 (26.4)	9 (17.0)	97 (25.1)	2.552; 0.466
4-Mar	83 (85.6)	14 (14.4)	97 (25.1)	
9-May	111 (83.5)	22 (16.5)	133 (34.5)	
≥10	51 (86.4)	8 (13.6)	59 (15.3)	
<b>Cause of infertility</b>				
Female	99 (84.6)	18 (15.4)	117 (30.3)	0.735; 0.865
Male	40 (85.1)	7 (14.9)	47 (12.2)	
Both	16 (84.2)	3 (15.8)	19 (4.9)	
Unexplained	178 (87.7)	25 (12.3)	203 (52.6)	
<b>Total</b>	333 (86.3)	53 (13.7)	386 (100.0)	

<sup>a</sup> Percent for the row.<sup>b</sup> Percent for the column.**Table 3:** The distribution of domestic violence and social pressure according to having sexual dysfunction.

	Sexual dysfunction			Statistical analyses
	No	Yes	Total	X <sup>2</sup> ; p
	n (%) <sup>a</sup>	n (%) <sup>a</sup>	n (%) <sup>b</sup>	
<b>Domestic violence</b>				
No	297 (88.1)	40 (11.9)	337 (87.3)	6.575; 0.010
Yes	36 (73.5)	13 (26.5)	49 (12.7)	
<b>Social pressure</b>				
No	273 (86.1)	44 (13.9)	317 (82.1)	0.000; 1.000
Yes	60 (87.0)	9 (13.0)	69 (17.9)	
<b>Total</b>	333 (86.3)	53 (13.7)	386 (100.0)	

<sup>a</sup> Percent for the row.<sup>b</sup> Percent for the column.

dysfunction. Contrary, the study conducted in infertile females reported that higher BMI was associated with lower sexual function [21]. Many studies have been also reported such association between BMI and sexual function [22]. Self-reported height and weight measures in the current study might be the cause of these result differences. Because individuals could have reported lower weight and higher heights than the values that they really have.

The frequency of domestic violence among infertile female found to be 12.9%, a rate much lower than the study conducted in Iran setting (61.8%) [23] and in Turkey (33.6%) [9]. Contrary, in the study conducted in Hong Kong reported 1.8% rate much lower than our finding [24].

Some types of domestic violence such as physical, sexual and psychological, are known to influence physiological status of females [25]. The females who undergone to domestic violence are having a more tendency to influence perceived stress, anxiety and depression rates [26]. Increased stress may also influence sexual dysfunction or infertility rates [27]. In the current study, the females who had a history of domestic violence reported 2.91 times higher sexual dysfunction than females who did not have a history of domestic violence. Many studies have been shown similar results [23-25, 28].

It was expected that the frequency of domestic violence is higher in couples those are in lower income levels [24, 25]. Similarly, according to logistic regression analysis, the infertile females who were in low-income level reported 5.73 times the higher history of domestic violence than females who were in high-level income status. Income status and domestic violence among females found to be the associated factors.

If the females work in revenue generating business, they are able to have the ability of move more independently. The autonomy, especially the money-based autonomy, allowed to bring respectability from their husbands. There are a few studies that have been reported there was a significant relationship between employment status and domestic violence [29]. Contrary, in this study there was no significant relationship between employment status and domestic violence.

In the study, it was found that the frequency of domestic violence was lower in university graduated infertile females. There were several studies that found no association between experience of domestic violence and educational level [23,29]. Contrary, Nojomi et al.,

**Table 4:** The distribution of sociodemographic and marriage characteristics according to having history of domestic violence.

Characteristics	Domestic violence			Statistical analyses
	No	Yes	Total	
	n (%) <sup>a</sup>	n (%) <sup>a</sup>	n (%) <sup>b</sup>	
<b>Age group</b>				
≤24	55 (84.6)	10 (15.4)	65 (16.8)	4.454; 0.216
25-29	106 (83.5)	21 (16.5)	127 (32.9)	
30-34	104 (89.7)	12 (10.3)	116 (30.1)	
≥35	72 (92.3)	6 (7.7)	78 (20.2)	
<b>Educational level</b>				
Primary school and below	93 (83.8)	18 (16.2)	111 (28.8)	7.332; 0.026
Elementary and high school	168 (85.7)	28 (14.3)	196 (50.7)	
University	76 (96.2)	3 (3.8)	79 (20.5)	
<b>Working status</b>				
Non-employment	234 (87.3)	34 (12.7)	268 (69.4)	0.000, 1.000
Employment	103 (87.3)	15 (12.7)	118 (30.6)	
<b>Income status</b>				
Low	17 (77.3)	5 (22.7)	22 (5.7)	7.862; 0.020
Moderate	247 (85.8)	41 (14.2)	288 (74.6)	
High	73 (96.1)	3 (3.9)	76 (19.7)	
<b>Marriage type</b>				
Prearranged	102 (81.6)	23 (18.4)	125 (32.4)	8.451; 0.015
With Agreement	222 (91.0)	22 (9.0)	244 (63.2)	
Antisocially	13 (76.5)	4 (23.5)	17 (4.4)	
<b>Is it first marriage</b>				
Yes	318 (87.4)	46 (12.6)	364 (94.3)	Fisher; 0.750
No	19 (86.4)	3 (13.6)	22 (5.7)	
<b>First marriage age</b>				
≤19	80 (82.5)	17 (17.5)	97 (25.1)	6.761; 0.080
20-24	156 (86.7)	24 (13.3)	180 (46.6)	
25-29	73 (90.1)	8 (9.9)	81 (21.0)	
≥30	28 (100.0)	0 (0.0)	28 (7.3)	
<b>Marriage duration(years)</b>				
≤4	129 (92.1)	11 (7.9)	140 (36.3)	5.374; 0.068
9-May	134 (83.2)	27 (16.8)	161 (41.7)	
≥10	74 (87.1)	11 (12.9)	85 (22.0)	
<b>Cause of infertility</b>				
Female	102 (87.2)	15 (12.8)	117 (30.3)	0.192; 0.979
Male	41 (87.2)	6 (12.8)	47 (12.2)	
Both	16 (84.2)	3 (15.8)	19 (4.9)	
Unexplained	178 (87.7)	25 (12.3)	203 (52.6)	
<b>Total</b>	337 (87.3)	49 (12.7)	386 (100.0)	

<sup>a</sup> Percent for the row.<sup>b</sup> Percent for the column.

reported that low level of education was associated with an increased risk of domestic violence [30].

**Table 5:** The results of logistic regression analysis (step 2).

Variables	β	SE <sup>a</sup>	p	OR <sup>b</sup>
<b>Income Status (ref: high)</b>				
Moderate	1.534	0.621	0.013	4.637
Low	1.746	0.792	0.028	5.732
<b>Sexual dysfunction (ref: No)</b>				
Yes	1.068	0.387	0.006	2.91
<b>Constant</b>	-3.482	0.609	0	-

SE<sup>a</sup>: Standard error, OR<sup>b</sup>: Odd's ratio, CI<sup>c</sup>: Confidence interval.

The following limitations can be sorted (i) the current study is a descriptive study, (ii) study conducted in one reproductive health center, (iii) the questionnaires that used to determine domestic violence and sexual dysfunction were not the precise diagnostic tools.

As a conclusion; sexual dysfunction and domestic violence are important health issues among infertile females. Sexual dysfunction found to be higher in females those non-working, those in low-income level, those were menarches aged at 12 and below and those have domestic violence. Additionally, domestic violence was significantly associated with non-agreement in marriage, low-income levels and lower educational level. There is the need for further studies investigating the causal link between sexual dysfunction and domestic violence.

## Acknowledgments

**Ethical approval:** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent:** Informed consent was obtained from all individual participants included in the study.

## Authors' Contribution to the Manuscript

**Unsal:** Protocol/project development, Data collection or management.

**Aydin:** Data analysis, Manuscript writing/editing.

**Arslantas:** Protocol/project development, Data collection or management, Data analysis.

**Hassa:** Data analysis, Manuscript writing/editing.

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