



## Investigation on Exposure to Violence and Depression Status of Infertile Women

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### Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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### ABSTRACT

**Objective:** The study was carried out to determine exposure to violence and depression status of infertile women.

**Methods:** The study was cross-sectional and descriptive type of study. The universe of the study consisted of 1448 infertile women and the sample of the study consisted 306 infertile women. Data were collected by the researcher using the Infertile Women Information Form, Infertile Women's Exposure to Violence Determination Scale (IWEVDS), and Beck Depression Inventory (BDI). In the analysis of the data, number, percentage distribution, chi square, Kruskal-Wallis test, point averages, Pearson Correlation Test and Simple Linear Regression Analysis were used.

**Results:** It has been determined that the mean age of infertile women was  $30.88 \pm 6.51$  years, 77.3% of women were exposed to violence throughout their lives and 69.4% of them were exposed to violence after being diagnosed with infertility according to their statements and perceptions, IWEVDS point average was  $69.89 \pm 28.59$ , 55.9% of women had a higher point than point average of the scale and 66.3% of them had severe depression symptoms. There was a strong and significant positive correlation between point averages of two scales ( $r=0.629$ ,  $p<0.05$ ) and 40% of the change in Beck Depression Scale total points could be explained by IWEVDS points.

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**Conclusion:** It has been concluded that the majority of infertile women have moderate and severe depression symptoms, more than half of the women were exposed to violence within the family or society, women with moderate/severe depression symptoms were exposed to violence within the family or society more, and that women were exposed to more violence and pressure within the family or by society because of infertility and there is a strong correlation between this situation and frequency of depression incidence.

*Keywords: Infertility; violence; depression; woman health.*

## 1. INTRODUCTION

Infertility is defined as the absence of pregnancy, even if there is at least one year of regular and unprotected sexual intercourse between the couples [1]. Infertility rates in the world vary from country to country and are expected to affect more than 80 million people globally [2]. It has been found that there are two million people with infertility problems in Turkey according to 2009 data of Ministry of Health [3].

Fertility ability is considered as a determinant of sexual power for men and women in society. Women are generally regarded as responsible for the deterioration of this ability [4,5]. Maternity is seen as a primary duty for women in societies; therefore, women face the biggest pressure in the case of infertility. Infertile women are affected by social inequality and injustice more, furthermore they are exposed to violence [4].

Domestic violence can occur in all social, cultural, economic and religious groups in the world and affects the lives of millions of women [6,7]. It was stated that 30% of women around the world experience physical and/or sexual violence throughout their lives and 37% of women in the Eastern Mediterranean region in which our country is included experience lifelong physical and/or sexual violence [8]. According to a survey conducted in Turkey, 44% of women are exposed to emotional violence, 36% of them are exposed to physical violence, 30% of them are exposed to economical violence and 12% of them are exposed to sexual violence; moreover, the percentage of married women who are exposed to physical violence is 36% [9].

In a study conducted with 378 women in 2013 in Pakistan, it has been reported that infertility was a risk factor for violence by 20%, and women were exposed to verbal, emotional and physical violence because they were infertile, in another study conducted in the same country [10]. In a study conducted in Africa, the majority of couples

have indicated that there would not be peace and love if there was no child in the family. In addition, it has been found that the rate of exposure to violence was higher in infertile women in the same study [11]. In the study conducted with infertile women by Ardabili et al., it has been determined that 61.8% of women were exposed to domestic violence [12]. In a study conducted with infertile women in Nigeria, 31.2% of women have reported that they were exposed to violence by their husbands because they were infertile [13]. In a study conducted in our country with infertile and fertile women in 2008, infertile women have been found to be exposed emotional, economical and sexual violence more than fertile women [14]. Furthermore, in a study conducted in Van, it has been determined that approximately one out of three women (33.6%) were exposed to domestic violence. 78% of women exposed to violence were exposed to violence for the first time after being diagnosed with infertility [6]. Violence against women can cause serious health problems in infertile women in terms of physical and mental health [14,15].

Infertility causes depression, anxiety, sexual dysfunction and affects emotional well-being and quality of life in a negative way in women [16]. The relationship between infertility, and mental symptoms and findings has been investigated in many studies. In most of the studies, it is stated that there is a serious relationship between infertility and mental symptoms. In infertile couples, the greatest difficulty is anxiety in psychological aspect and is depression in couples who has failed treatment result/experience [1]. In a study conducted to determine the frequency of psychological stress in infertile women, 40% of women have been found to have a psychiatric disorder. The most common diagnosis has been determined to be anxiety disorder (23%) followed by major depressive disorders (17%) and dysthymic disorders (9.8%) [17]. In a study conducted in America, it has been found that there was a relationship between generalized anxiety

disorder and infertility [18]. Similar results about generalized anxiety disorder were obtained also in studies conducted in Japanese society with different cultural characteristics. In another study conducted in the same culture, infertile individuals have been found to have higher frequency of depression than healthy individuals. In many similar studies, the most common psychiatric disorder in infertile individuals has determined to be anxiety and depression [1,17, 18].

Early diagnosis and evaluation of the dimensions of depression and violence that may occur in infertility and treatment process are important both for the success of the treatment and for woman health. The study was carried out to determine exposure to violence and depression status of infertile women. Also the determined that the relationship between exposure to violence and depression status of infertile women.

## **2. MATERIALS AND METHODS**

### **2.1 Design and Participants**

This study is a cross-sectional and descriptive study. The study was conducted in a university hospital between 25 March 2016 and 17 June 2016. The study's target population included 1448 infertile women. A population-based algorithm was used to calculate the 95 percent confidence interval, and it was found that 306 women should be included in the sample. The study were used that simple random sampling method. The following were the sample selection criteria:: (1) women who were diagnosed with primary infertility, (2) attended the selected hospital for treatment, (3) were 18 years and older, (4) could communicate in Turkish language, and (5) accepted to participate in the study. In the study male-caused infertility is an exclusion criteria.

### **2.2 Questionnaire**

For the collection of research data, we used an Infertile Women Information Form, which consisted of 29 questions, the Infertile Women's Exposure to Violence Determination Scale (IWEVDS) and Beck Depression Inventory (BDI).

### **2.3 Infertile Women Information form**

The Form consisted of questions about their socio-demographic and marital features, income

status, residence, family type (nuclear, extended etc.) and educational background.

### **2.4 Infertile Women's Exposure to Violence Determination Scale (IWEVDS)**

Onat (2014) created this scale to assess violence against infertile women. It comprised of 31 questions with five likert-type possible answers (scores ranging from 31 to 155). Higher scores indicate a higher and more frequent exposure to violence. The scale has no cut-off point. The scale had five domains: "domestic violence [3,4, 7,8,9,10,11,12,14,22,30]," "social pressure [1,2, 6,15,19,20,21]," "punishment [13,17,27,28,29, 31]," "exposure to traditional practices [23,24, 25,26]," and "exclusion [18]". The scale is a Likert assessment instrument from 1 to 5, namely, "never, rarely, sometime, generally, all the time". In the scale, the participants received scores from each statement as follows: "never (1), rarely (2), sometime (3), generally (4), all the time (5). Cronbach's alpha coefficient of the scale was 0.96. In the present study, the Cronbach's alpha coefficient was 0.99 and was considerably higher [19].

### **2.5 Beck Depression Inventory (BDI)**

The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item self-report inventory which measures the presence and severity of affective, cognitive, motivational, psychomotor, and vegetative manifestations of dysphoria and depression during the past week. The range of scores is 0 to 63. The BDI has been shown to be valid as a measure of depressed symptomatology, while there has been some concern regarding the BDI scores' stability. The Turkish version of the BDI, according to Hisli (1989), is a reliable and valid instrument for measuring dysphoria and depression symptoms in clinical and student groups. The split-half reliability was .74 and the Cronbach's alpha was .80. The validity of the Turkish BDI was assessed by computing its correlation with the Turkish version of the MMPI-D scale ( $r = .50$ ). The mean BDI score obtained for the Turkish sample in this study was  $29.67 \pm 13.88$ . The scale; 0-9 scores= No Depression or Minimal Depression, 10-16 scores= Mild to Moderate Depression, 17-29 scores= Moderate Depression, 30-63= Severe depression [20].

## 2.6 Application Procedure and Material

In the study, the research was applied that Infertile Women Information Form, IWEVDS and BDI by using the face-to-face interview technique after the necessary explanations were made by the researcher. The data were collected within 30-45 minutes in total (Infertile Women Information Form 10-15 minutes on average, IWEVDS 10-15 minutes on average and BDI 10-15 minutes on average).

## 2.7 Statistical Analysis

Descriptive data are presented as number, percentage and mean. The data gathered from the groups were compared with the Kruskal-Wallis Test, Chi - square test, Pearson Correlation Test and Simple Linear Regression Analysis. All analyses were carried out using the SPSS for Windows, release 15 .0 (SPSS, Inc., Chicago, IL, USA). A p value of <0.05 was thought to be crucial for all analyses.

## 3. RESULTS

It's determined that 32.4% of them were primary school graduates, 60.5% lived most of their lives in village/small town, 47.4% were not working and the average age was  $30.88 \pm 6.51$ . It's determined that 53.9% of women to be married for 1-4 years, the average marriage of duration was  $5.916 \pm 4.804$  years and the average age of first marriage was  $24.797 \pm 5.407$ .

Considering the distribution of women according to their infertility characteristics, it was ascertained that 70.6% of women had a diagnosis period of 1-3 years and the average duration of diagnosis was  $1.44 \pm 0.736$  years; 70.9% of women had 1-3 years of infertility treatment and average duration of treatment was  $3.480 \pm 3.41$  years; 27.5% were female-caused, 28.6% of them are receiving inoculation treatment and 62.8% were receiving in vitro fertilization treatment at the moment.

It's determined that 77.3% of women were exposed to violence throughout their lives, 37.4% of women were exposed to physical violence, 68.1% of them were exposed to violence for 1-5 times, and 41.7% were exposed to violence by their father.

When the exposure to violence status of women after receiving infertility diagnosis was examined, 69.4% were exposed to violence, 34.0% were

exposed to physical violence, 30.2% were exposed to sexual violence, 80.2% were exposed to violence for 1-4 times, 40.1% were exposed to violence by their husbands, and 90.1% thought that infertility diagnosis increased the severity of violence exposed.

When the distribution of Beck Depression Scale point averages of women was examined, it was found that 14.7% of them did not have depressive symptoms, 3.3% had mild depressive symptoms, 15.7% had moderate depressive symptoms, 66.3% had severe depressive symptoms and point average of the scale was  $29.67 \pm 13.88$ .

When distribution of point averages of Infertile Women Violence Determination Scale and Sub-groups was examined, point average of domestic violence was  $26.17 \pm 11.0$ , social pressure point average was  $16.51 \pm 6.72$ , punishment point average was  $14.81 \pm 6.32$ , exposure to traditional applications point average was  $9.96 \pm 4.21$ , exclusion point average was  $2.43 \pm 1.12$  and the total point average of IWEVDS was  $69.89 \pm 28.59$ .

A statistically significant difference was found in the Kruskal-Wallis variance analysis between the depression levels of women and point averages of IWEVDS ( $X^2=113.38$ ,  $p<0.05$ ) [Table 1]. As a result of advanced analysis using the Mann-Witney U test, it was found that there was a significant difference between IWEVDS point averages of women with no/mild depressive symptoms and women with moderate and severe depressive symptoms [Table 1].

There was a strong and significant positive correlation between infertile women's total point averages of Beck Depression Scale and total point averages of IWEVDS found in the correlation analysis conducted ( $r=0.629$ ,  $p<0.05$ ) [Table 2].

Considering the correlation analysis between Beck Depression Scale total point averages of infertile women and IWEVDS and sub-dimensions, a strong and significant positive correlation ( $r = 0.594$ ) in correlation analysis between Domestic Violence Subscale total point averages, a strong and significant positive correlation ( $r=0.629$ ) in correlation analysis between Social Pressure Subscale total point averages, a strong and significant positive correlation ( $r=0.606$ ) in correlation analysis between Punishment Subscale total point averages, a strong and significant positive

correlation ( $r=0.640$ ) in correlation analysis between Traditional Application Subscale total point averages and a strong and significant positive correlation ( $r=0.598$ ) in correlation analysis between Exclusion Subscale total point averages were determined ( $p<0.05$ ) [Table 2].

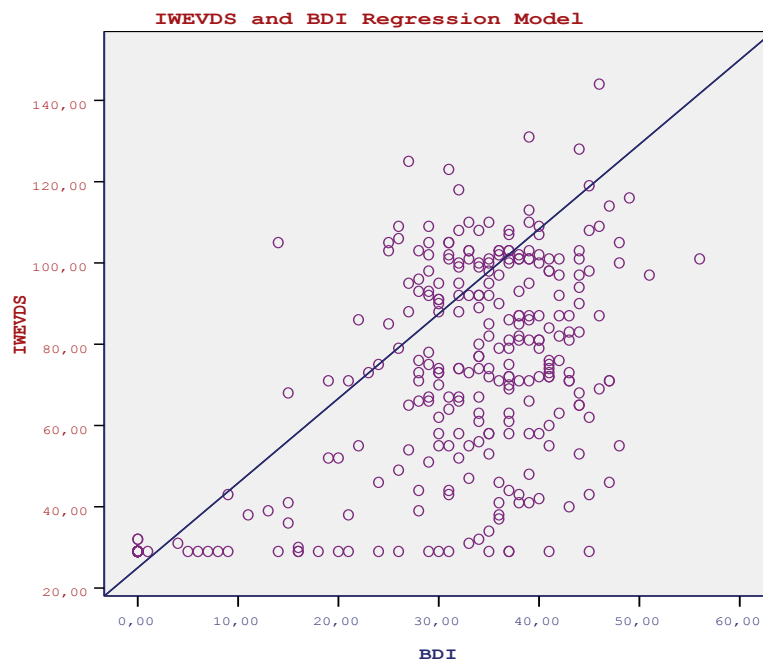
It was determined that 40% of the change in Beck Depression Scale total points of infertile women in the study group can be explained by the IWEVDS point and other variables should be taken into consideration for the remaining 60% [Table 3,  $r=0.629$ ,  $R^2=0.396$ ,  $p=0.000$ ].

**Table 1. Comparison of depression levels of the women with the total IWEVDS score**

Beck Depression Inventory	IWEVDS scores			X <sup>2</sup>	p
	N	M	SD		
No Depression or Minimal Depression	45	29.48	2.17	113.38	0.000
Mild to Moderate Depression	10	44.40	24.26		
Moderate Depression	48	71.93	26.43		
Severe Depression	203	79.62	23.51		
Total	306	69.89	28.59		

**Table 2. Determination of the relationship between the mean scores of IWEVDS and BDI (n=306)**

IWEVDS and Subscale	Beck Depression Inventory
Domestic Violence Domain	$r=0.594$ $p=0.000$
Social Pressure Domain	$r=0.629$ $p=0.000$
Punishment Domain	$r=0.606$ $p=0.000$
Exposure to Traditional Practices Domain	$r=0.640$ $p=0.000$
Exclusion Domain	$r=0.598$ $p=0.000$
IWEVDS	$r=0.629$ $p=0.000$



**Fig. 1. IWEVDS and BDI regression model**

**Table 3. IWEVDS and BDI Regression Model**

IWVDS	Standardized Coefficients	Std. Error	t	p
	<b>0.629</b>	<b>0.092</b>	<b>14.105</b>	<b>0.000</b>
Variation Source	Sum of Squares	df	Mean Square	
Regression	98654.196	1	98654.196	
Residual	150738.5	304	495.850	
Total	249392.7	305		
			F=198.960	P=0.000

#### 4. DISCUSSION

Violence against women is a social problem that prevents women from participating in social life and most basically threatens their lives. It continues to be relevant in our country as in many countries.

In study conducted, it was determined that 77.3% of women were exposed to violence in any part of their lives, exposure to violence status after being diagnosed with infertility was 69.4%. In addition, the majority of women (90.1%) thought that infertility increased the violence exposed. Point averages of Infertile Women Violence Determination Scale administered in the study were high and corroborative with women's statements (69.89±28.59). More than half of women (55.9%) were found to score above the point average of Infertile Women Violence Determination Scale. It is possible to say that more than half of women are under pressure among family or by society.

It is observed that women are exposed to violence by their husbands no matter what their level of education, social status, economic situation are and geographical region they live in [21]. It is reported that 30% of women worldwide and 37% of women in the Eastern Mediterranean region, including our country, are exposed to physical and/or sexual violence by their husbands or partners in any part of their lives [8]. According to the report of the European Union Fundamental Rights Agency (2014), violence against women in the European Union countries is between 13% and 36% [22]. According to a survey conducted across our country, 36% of married women are reported to be exposed to physical violence. In other words, about 4 out of every 10 women are exposed to physical violence by their husbands or partners [9].

In the study conducted by Ardabili et al. (2011), it has been determined that 61.8% of infertile women were exposed to violence, 33.8% of them

have been determined to be exposed psychological violence, 14% to physical violence and 8% to sexual violence [12]. In the study conducted in our country by Yıldızhan et al. (2009), it has been found that 34.7% of infertile women have been exposed to violence and this ratio has increased to 78% after being diagnosed with infertility. 5.3% of them have been determined to be exposed to physical, 74.3% to emotional and 47.3% to sexual violence [6].

It is possible to say that infertile women in general are exposed to different types of violence at different rates, as can be understood from the researches made. Although the study is similar to the studies carried out in Turkey, different aspects and different results draw attention. Violence against women in our country continues acutely as it does in some other countries.

It is possible to say that women are more likely to feel guilty and take more responsibility because of infertility, whether the infertility caused by woman or man, and that women continue to be suspicious about their fertility, and therefore exposure to violence status increases even if it turns out that the infertile one is man.

When studies on infertility and literature are examined, it is reported that many couples describe infertility as the biggest crisis of their lives and that women experience more stress, depression and anxiety than men in infertility duration [2,4,23]. At the same time, the fact that the rate of depression in women with life-threatening diseases such as cancer, HIV positivity, hypertension and postoperative bypass is similar to that of infertile women, strikingly reveals the negative effect of infertility on mental health of women [24,25].

In our study, it was determined that more than half of women (66.3%) had severe depressive symptoms and their scale point average was 29.67±13.88. In a study conducted on infertile patients who have been tried to be treated with

assisted reproductive techniques and have failed, anxiety and depression rates have been found to increase after treatment failure [26]. In a study evaluating the relationship between treatment duration and emotional symptoms, 370 infertile women have been included in the study, 40.8% of these patients had depression and 86.8% of them had anxiety [2]. There are publications in the literature which show that psychiatric symptoms increase in infertile patients [27,28,29], however, there are also publications that support the opposite [30,31]. Due to the fact that our study was performed in a clinic where infertility treatment was applied, it was an expected result that the depression levels of women were high.

According to studies conducted, depression is more common in women exposed to violence than in other women [32,33]. The risk of experiencing depression among women who are exposed to domestic violence is 4-5 times higher than women who are not exposed violence [33]. In women who are diagnosed with depression, the prevalence of lifetime domestic violence reaches 60% [32]. In our study, a statistically significant difference was found between the depression levels of infertile women and the point average of IWEVDS in line with the literature. It was determined that there was a significant difference between IWEVDS point averages of women with no/mild depressive symptoms and women with moderate/severe depressive symptoms. It is possible to say that women experience more pressure and violence within the family or society because of infertility and this situation increases the frequency of depression.

When the literature is examined, Karakoç et al. (2015) have found that 64% of the women with depression have been exposed to physical violence by their husbands [33]. Scholle et al. (1998) have found that 55.2% of women in the study conducted with 303 women with depression diagnosis have been exposed to domestic physical violence [34]. Dienemann et al. (2000) have found that prevalence of lifetime domestic violence (mental and/or physical and/or sexual) has reached to 60% in women with depression [32]. Jedrzejczak et al. (2004) have found that infertility was a major problem in marriages of 25% of women and that Beck Depression Scale points were 2 times higher than control group's points [35].

In our study, it was determined that there was a strong and significant positive correlation between BDI points, and IWEVDS total point and points of Domestic Violence, Social Pressure, Punishment, Traditional Application, Exclusion sub-dimensions. It is possible to say that women are exposed to more violence and pressure within the family or by society, and this situation is strongly related to the frequency of depression.

It was determined that 40% of the change in Beck Depression Scale total points of infertile women in study group can be explained by IWEVDS point and other variables should be taken into consideration for the remaining 60% ( $r=0.629$ ,  $R^2=0.396$ ,  $p=0.000$ ).

Social and familial pressures create psychological pressure on infertile couples. In this regard, infertility has many negative effects on public, social and mental "well-being" rather than physical and bodily health. In other words, as traditional property of social structure preponderates, the problem grows even more [36]. Lau et al. (2008) have found that more than 60% of infertile couples felt themselves under pressure due to infertility [37]. In study of Taşçı et al. (2008), it has been determined that 77.8% of women did not experience environmental pressure and 22.2% were exposed to environmental pressure [36]. Considering the social and family pressures seen on infertile couples in our society, it is possible to say that women are exposed to pressure and violence within the family or by society and this is the variable explaining 40% of the change in depression points.

## 5. CONCLUSION

A statistically significant difference was found between the depression levels of women and IWEVDS point averages and it was determined that the significant difference was between women with no/mild depressive symptoms and women with moderate and severe depressive symptoms.

It was determined that there was a strong and significant correlation between infertile women's Beck Depression Scale total point averages, and IWEVDS total point, point averages of "domestic violence", "social pressure", "punishment", "exposure to traditional applications", "exclusion" subscales.

The majority of infertile women have moderate and severe depressive symptoms, more than half of women are exposed to violence within the family or by society in terms of domestic violence, societal pressure, punishment, exposure to traditional applications, or exclusion; women with moderate/severe depressive symptoms are exposed more violence within the family or society. Moreover it was concluded that women are exposed to more violence and pressure within the family or by society because of infertility and that there is a strong relationship between this situation and frequency of depression.

### ETHICAL APPROVAL AND CONSENT

The Ethics Committee of Medical School approved the study protocol. The necessary written permissions for using the Scales were obtained from authors. By a university hospital have permitted to carry out for the research. Before the meetings were held, the researchers informed the participants about the purpose, duration, and practical benefits of the study and the written consent of the participant was obtained accordingly.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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