

ORIGINAL RESEARCH ARTICLE

The effect of stigma on level of infertility-related psychological distress in women with infertility

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Abstract

This study was conducted to examine the effect of stigma on level of infertility-related psychological distress of women with infertility. Descriptive study was conducted in infertility clinics in Turkey. This study was completed with 198 infertile women. Infertility Distress Scale was 42.69 ± 7.79 , the mean total score of the Infertility Stigma Scale was 52.80 ± 23.44 . It was found that the psychological effect of infertility increased among women as the Infertility Stigma Scale total scores and its sub-dimension scores increased. Developing appropriate interventions by considering infertility and the level of being affected by stigma allows women to cope with this process in a healthier way, which is thought to increase the success of women's treatment. (*Afr J Reprod Health* 2022; 26[2]: 13-25).

Keywords: Stigma, midwife, infertility, woman, psychological impact

Résumé

Cette étude a été réalisée pour examiner l'effet de la stigmatisation sur le niveau de détresse psychologique due à l'infertilité chez les femmes infertiles. L'étude descriptive a été menée dans les cliniques d'infertilité en Turquie. Cette étude a été complétée avec 198 femmes infertiles. Le score total de l'échelle d'infertilité affectée est de $42,69 \pm 7,79$. Le score total de l'échelle de stigmatisation de l'infertilité est de $52,80 \pm 23,44$. Il a été déterminé qu'à mesure que les scores totaux de l'échelle de stigmatisation de l'infertilité et de ses sous-dimensions augmentaient, l'effet psychologique de l'infertilité augmentait également. De développer des interventions appropriées en tenant compte le niveau de l'infertilité et de l'affectation à la stigmatisation permet aux femmes de faire face à ce processus d'une manière plus saine, et on pense que cela augmentera le succès du traitement des femmes. (*Afr J Reprod Health* 2022; 26[2]: 13-25).

Mots-clés: Stigmatisation, sage-femme, infertilité, femme, affectation psychologique

Introduction

Infertility is a reproductive system disease defined as the inability to achieve a successful pregnancy despite 12 months or more of unprotected sexual intercourse¹. Infertility affects 15% of couples of reproductive age worldwide². Infertility and the management of infertility cause different types of stigma in the person. The felt stigma involves the perception that the stigmatized individual is labeled, stereotyped, or that others distance themselves from him/her. In turn, people may stigmatize themselves, cause negative beliefs about themselves, lose self-confidence and self-sufficiency and, therefore, tend to isolate themselves from others within the group³.

According to Goffman⁴, the source of stigma lies in the perceived discrepancy between a person's virtual and self-applied identity standards. Regardless of whether the stigma is visible or hidden, the person may be exposed to discrimination. Stigmatization causes depression, anxiety, negative mood, social isolation, low self-confidence, low self-efficacy, and the inability to cope with stress in individuals⁵. Women with fertility problems can be despised, neglected, or abused by their husbands and extended families⁶.

Many studies reveal that stigmatization in infertility may have adverse effects on health, including lower life satisfaction or social isolation^{4, 7, 8}. In previous studies, 69.19% of infertile women felt stigmatized, and the prevalence of those

feeling stigmatized was 53.08%⁹. Donkor and Sandall¹⁰ state that 64% of infertile women in South Ghana feel stigmatized.

Papreen *et al.*¹¹ state that the marital relationships of infertile women often worsen, they are made to work a lot or abused by their spouses and are mocked by other family members, exposed to gossip and humiliation of their friends. The causes of stigma related to infertility are that, according to traditional belief, reproduction means heirs bearing the family name and infertility is seen as only a woman's problem¹². It is also stated that relatives, such as mothers who want grandchildren, treat women very badly¹³. For all these reasons, it causes individuals to perceive themselves as worthless and inadequate due to infertility and leads to stigmatization¹⁴.

Remennick¹⁵ found that stigmatization might reduce self-esteem and self-efficacy in infertile individuals. Furthermore, it is stated that a high perception of stigma is associated with increased worry about infertility, decreased social support and social status^{10,11,14-16}. Moreover, stigma forces infertile patients to hide their conditions and results in their establishing less communication with other family members and people in their environment. To avoid being stigmatized, most women prefer to keep their infertility problems to themselves and stay away from some environments that may remind them of infertility problems¹⁷.

Maintaining social relationships positively throughout the fight against infertility is critical in eliminating anxiety and stress caused by infertility. Especially most women want to talk about their infertility status with others but often complain that they do not find enough support¹⁸⁻²⁰. In the study conducted by Johansson and Berg¹² in 2005, they conducted a study on women who had completed infertility treatment and whose treatment was unsuccessful two years after the treatment, and they emphasized in their study that women had difficulties in establishing communication with children and their peers, withdrew from family meetings and felt rejected by their friends. In the study carried out in 2000, Remennick¹⁵ emphasized that infertile women intentionally avoided talking on family or child-related issues and told the truth or lied because they were uncomfortable with talking about and the emergence of well-known issues.

Stigma is a psychological attitude and is always negative and has been associated with a number of negative consequences. For example, there are pieces of evidence that stigma is associated with negative emotions such as depression and anxiety^{9,16,22}. Cook²³ determined that individuals who were stigmatized or those who were afraid of stigma could avoid receiving care that could benefit them. Receiving infertility-related treatment may cause infertility to emerge in women who feel stigmatized in this situation, cause them to stop treatment prematurely or discontinue treatment completely^{23,24}.

In the study conducted by Joachim and Acorn²⁵ to determine the relationship between visible and invisible stigma and explained, revealed, and hidden chronic diseases, the researchers stated that stress is the result of stigma. In the study conducted in 2003, Green²⁶ determined a relationship between stigmatization in disabled people and emotional stress. In a similar study, more than half of women who received infertility treatment stated that infertility treatment was the most stressful experience in their lives¹⁶.

Stigma is as threatening as the disease itself. The stigma associated with infertility is an issue that is often ignored⁵. Therefore, in order to achieve a successful infertility treatment, it is important to objectively evaluate the effect on the level of being affected by infertility and of exposure to stigmatization and to intervene with the required midwifery interventions. Infertile women need psychosocial assessment and intervention as a part of the medical treatment process: Midwives should provide infertile couples with psychosocial support on fertility. Furthermore, midwives working with different cultures should be aware of different needs and intercultural variations²⁷. This study was conducted to examine the effect of stigma on the level of the psychological impact of infertility.

Methods

Study design, sample, and setting

The study was conducted in the descriptive type. The population of the study consisted of primary infertile women receiving treatment at the two IVF centers affiliated to Health Sciences University, Ümraniye Training and Research Hospital and Istanbul University, Cerrahpaşa Medical Faculty,

Scales	Cronbach's Alpha coefficient	Number of items
Infertility Distress Scale	.694	21
Self-Devaluation Dimension	.883	7
Social Withdrawal Dimension	.755	5
Social Stigma Dimension	.869	9
Family Stigma Dimension	.863	6
Infertility Stigma Scale	.938	27

Department of Gynecology, In Vitro Fertilization Center between October 2018 and April 2019.

Population and sample selection

The population of the study consisted of people who applied for infertility treatment to two IVF centers, the IVF center of Istanbul University, Cerrahpaşa Medical Faculty, Department of Gynecology, and the IVF center of Health Sciences University, Ümraniye Training and Research Hospital. In the evaluations made with G-power, it was obtained that the sample size should be at least 190 and above, when the power is 80% and the margin of error is 0.005. In this case, this number was accepted as the sample size since it would increase the power and 198 people could be reached. The selection in the sample was carried out by random volunteering method. The sample of the study consisted of 198 primary infertile women who met the criteria for inclusion in the study and volunteered to participate in the study between October 2018 and April 2019.

Criteria for inclusion in the study: Women, who were diagnosed with infertility, who had no children, had no chronic disease, had no cancer and psychiatric disease, were literate, and agreed to participate in the study, were included in the study.

Data collection

The "Personal Information Form," "Infertility Distress Scale," and "Infertility Stigma Scale" were used to collect the data. The data were collected from primary infertile women, who applied to the IVF centers of Istanbul University, Cerrahpaşa Medical Faculty, Department of Gynecology and Health Sciences University, Ümraniye Training and Research Hospital.

The data were collected by the researcher for two days a week through face-to-face interviews

with primary infertile women receiving treatment at the IVF center. The data collection tools were applied in a separate room where primary infertile women felt good. Before the application, the researcher explained how to fill out the information form, the Infertility Distress Scale, and the Infertility Stigma Scale. After giving information about the study, the scales were applied to the individuals. Each individual filled out the scale information in approximately 30 minutes, including 5 minutes for the Personal Information Form and 25 minutes for the scales.

Study variables

Independent variables: The questions about the socio-demographic information of primary infertile women, their place of residence, family type, marriage period, and the history of infertility are the independent variables of the study.

Dependent variables: The Infertility Distress Scale and the Infertility Stigma Scale constitute the dependent variables.

Instruments

The Personal Information Form was prepared by the researchers and consists of 17 questions covering the socio-demographic information of primary infertile women (place of residence, family type, years of marriage, and a history of infertility). **The Infertility Distress Scale (IDS)** was developed by Akyüz et al.²⁸ to determine the level of psychological impacts caused by infertility and treatment process in Turkish women. The scale contains statements used to express an emotional state. After reading each statement, these questions determine how women feel about not having children. The IDS consists of 21 items in total, 16 positive and 5 negative statements. Items 3, 10, 13, 14, and 21 are negative statements. Negative statements are scored reversely, and positive statements are scored between 1 (never) and 4 (always). The scale does not have sub-scales. The lowest score that can be obtained from the scale is 21, and the highest score is 84. A high score obtained from the scale also means that the level of being affected by infertility is high. Cronbach's alpha value of the scale was found to be 0.89. In our study, Cronbach's alpha value was calculated to be 0.69.

The Infertility Stigma Scale (ISS) was developed by Fu et al.²⁹ in 2014 to measure the perceptions of stigma in women receiving infertility treatment. Çapık et al.⁵ adapted the scale to Turkish and performed its validity and reliability study. The ISS consists of 27 items. **The self-devaluation dimension** consists of 7 items evaluating the unique beliefs of infertile women. **The social withdrawal dimension** consists of 5 items that evaluate infertile women's fear of social interaction. **The social stigma dimension** consists of 9 items that evaluate a stigma perceived from the people in the environment of infertile women. **The family stigma dimension** consists of 6 items that evaluate a stigma perceived by the family members of infertile women. The lowest score that can be obtained from the overall scale is 27, and the highest score is 135. Cronbach's alpha value of the original scale is 0.94. As a result of the reliability study, Çapık et al.⁵ found Cronbach's alpha value to be 0.93. In our study, Cronbach's alpha value of the Infertility Stigma Scale is 0.94. Cronbach's alpha coefficients of the Infertility Distress Scale and Infertility Stigma Scale

Data analysis

The analyses were conducted on the computer using the SPSS 22.00 statistical package program. The data were evaluated by the t-test, ANOVA, Durbin-Watson test, linear regression analysis, Mann-Whitney U test, Kruskal-Wallis H test, Dunnet's T3 post hoc test, and LSD post hoc test.

Results

Characteristics of the participants

A total of 198 infertile women participated in this study. The table, it is observed that 69.7% of the infertile women included in the study are under the age of 30 years, 30.3% are above 30 years. 6.7% of the women are married for 0-5 years, 17.2% are married for 6-10 years, 6.1% are married for 10 years and above, 85.4% of the women cannot have children for less than 6 years, 14.6% cannot have children for more than 6 years. 80.3% of the women receive infertility treatment for less than 3 years, and 19.7% receive infertility treatment for more than 3 years. Of the women, 42.9% have not received treatment before, 29.3% have received

medical treatment, 25.3% of the women have an infertile individual in their own or husband's family, 74.7% do not have an infertile individual in their own or husband's family. Of the women, 6.6% do not have anybody who supports them in the treatment they receive, everybody supports 38.9% of the women in the treatment they receive, their husbands support 25.8% of the women in the treatment, the family supports 28.8% of the women, 75.8% find this support adequate, and 17.7% find this support inadequate. The distribution of the infertile women included in the study according to their descriptive characteristics is presented in Table 1.

The arithmetic mean and standard deviation values regarding the infertility distress scale and infertility stigma scale score of infertile women

The total mean score of the Infertility Distress Scale was calculated to be 42.69 ± 7.79 . The mean score of the self-devaluation dimension is 12.64 ± 7.33 , the mean score of the social withdrawal dimension is 13.13 ± 5.61 , the mean score of the social stigma dimension is 17.41 ± 8.95 , the mean score of the family stigma dimension is 9.62 ± 5.75 , and the total mean score of the Infertility Stigma Scale is 52.80 ± 23.44 (Table 2).

Correlation between the infertility distress scale and infertility stigma scale scores

It is observed that the correlation coefficients between the Infertility Distress Scale score and the Infertility Stigma Scale total score and the scores of its all subscales are significant, and the relationship is positive. As a result, it can be said that as the infertility stigma total scores, "Self-devaluation Dimension," "Social Withdrawal Dimension," "Social Stigma Dimension," and "Family Stigma Dimension" scores increase, infertility distress scores will also increase (Table 3).

Linear regression analysis of infertility stigma scores and infertility distress scores

The stigma scale total score and all of its subscales give a significant relationship with the variable of infertility distress in infertile women ($R = .649$, $R^2 = .421$, $p < 0.05$). The infertility scale total score

Table 1: Distribution of the descriptive characteristics of infertile women (n=198)

		S	%
Age	Under 30 years of age	138	69.7
	Above 30 years of age	60	30.3
Husband's age	Under 30 of age	95	48.0
	Above 30 years of age	103	52.0
Educational status	Primary school	42	21.2
	Middle school	33	16.6
	High school	53	26.8
	University and above	70	35.4
Husband's educational status	Primary school	42	21.2
	Middle school	34	17.2
	High school	61	30.8
	University and above	61	30.8
Employment status	Employed	80	40.4
	Unemployed	118	59.6
Husband's employment status	Employed	193	97.5
	Unemployed	5	2.5
Occupation	Employee	46	23.2
	Civil servant	18	9.1
	Self-employed	16	8.1
	Housewife	118	59.6
Social security	Available	182	91.9
	Not available	16	8.1
Income status	Income less than expenses	39	19.6
	Income equal to expenses	129	65.2
	Income higher than expenses	30	15.2
Place of residence	Province	147	74.2
	District	51	25.8
Family type	Nuclear family	156	78.8
	Extended family	42	21.2
Marriage period	0-5 years	152	76.7
	6-10 years	34	17.2
	10 years and above	12	6.1
The duration of not having children	Less than 6 years	169	85.4
	More than 6 years	29	14.6
The duration of infertility treatment	Less than 3 years	159	80.3
	More than 3 years	39	19.7
Type of the previous treatment	None	85	42.9
	Medical treatment	58	29.3
	Vaccination (IUI)	26	13.1
	IVF	8	4.1
	Medication and vaccination	21	10.6
Infertility status in the family	Available	50	25.3
	Not available	148	74.7
Those providing support in treatment	Nobody	13	6.6
	Everybody	77	38.9
	My husband	51	25.8
	My family	57	28.8
Adequacy status of support	None	13	6.6
	Adequate	150	75.7
	Inadequate	35	17.7
Age (Female)	$\bar{X} \pm S.D$	28.42 $\pm$ 5.17	Range 19-40 years
Age (Male)	$\bar{X} \pm S.D$	31.73 $\pm$ 5.17	Range 19-48 years
Marriage period	$\bar{X} \pm S.D$	22.00 $\pm$ 4.08	Range 0.6-22 years
The duration of not having children	$\bar{X} \pm S.D$	3.15 $\pm$ 2.86	Range 0.1-17 years
The duration of infertility treatment	$\bar{X} \pm S.D$	1.70 $\pm$ 2.50	Range 0-17 years

Table 2: The arithmetic mean and standard deviation values regarding the infertility distress scale and infertility stigma scale score of infertile women

	Minimum	Maximum	Arithmetic mean	.d.
Infertility Distress Scale Total	21	84	42.69	.79
Self-devaluation Dimension	7	35	12.64	.33
Social Withdrawal Dimension	5	25	13.13	.61
Social Stigma Dimension	9	45	17.41	.95
Family Stigma Dimension	6	30	9.62	.75
Infertility Stigma Scale Total	27	135	52.80	3.44

Table 3: Correlation values related to the relationship between the infertility distress scale and infertility stigma scale scores

	Infertility Distress Scale
Self-devaluation Dimension	r .540 p .000
Social Withdrawal Dimension	r .567 p .000
Social Stigma Dimension	r .564 p .000
Family Stigma Dimension	r .412 p .000
Infertility Stigma Scale total	r .621 p .000

In addition, all of its subscales explain 42% of the total variance of the infertility distress scores of infertile women. According to the standardized regression coefficient (β), the stigma scale total score and the total scores of its subscales have an effect on the infertility distress variable. Upon examining the statistical tests to understand whether the regression coefficients were significant, the “Self-devaluation Dimension,” “Social Withdrawal Dimension,” “Social Stigma Dimension,” and “Infertility Stigma Scale total” variables were found to have an effect on the infertility distress variable (Table 4).

Differences in terms of the infertility distress scale and infertility stigma scale scores according to the descriptive characteristics of infertile women

According to the educational status of infertile women, the differences between the Self-

devaluation Dimension and Infertility Stigma Scale total scores were found to be statistically significant ($p < 0.05$).

According to the occupation of infertile women, the differences between the Infertility Distress Scale and Social Withdrawal Dimension scores were found to be statistically significant ($p < 0.05$).

According to the status of having social security of infertile women, the Infertility Distress Scale, Self-devaluation Dimension, Social Withdrawal Dimension, and Infertility Stigma Scale total scores were found to be statistically significant ($p < 0.05$). According to the income status of infertile women, the Self-devaluation Dimension, Social Stigma Dimension, Family Stigma Dimension, and Infertility Stigma Scale total scores were found to be statistically significant ($p < 0.05$).

According to the infertile women’s status of having an infertile individual in their own or their husband’s family, the Self-devaluation Dimension, Social Withdrawal Dimension, and Infertility Stigma Scale total scores were found to be statistically significant ($p < 0.05$).

According to the status of having individuals supporting infertile women in the treatment they receive, the scores of the Social Stigma Dimension were found to be statistically significant ($p < 0.05$).

According to the infertile women’s status of finding the support received for the treatment adequate, the differences between the Infertility Distress Scale, Self-devaluation Dimension, Social Withdrawal Dimension, Social Stigma Dimension, Family Stigma Dimension, and Infertility Stigma Scale scores were found to be statistically significant ($p < 0.05$).

According to the ages of infertile women, the age of their husbands, educational level of their husbands, the employment status of women, and the employment status of their husbands, the statistical values of the differences between the Infertility Distress Scale, Self-devaluation Dimension, Social Withdrawal Dimension, Social Stigma Dimension, Family Stigma Dimension, and Infertility Stigma Scale scores were found to be insignificant ($p > 0.05$) (Table 5).

Discussion

In the study, it was found that the total mean score of the Infertility Stigma Scale of primary infertile women was 52.80 ± 23.44 .

Table 4: Results of linear regression analysis for predicting the infertility distress scores of infertility stigma scores

Variable (infertility distress)	B	Standard Error	Beta	t	p
Constant (stigma)	30.868	1.131		27.297	.000
Self-devaluation Dimension	.212	.086	.199	2.460	.015
Social Withdrawal Dimension	.407	.103	.293	3.946	.000
Social Stigma Dimension	.275	.075	.316	3.663	.000
Family Stigma Dimension	-.103	.109	-.076	-.946	.345
Infertility Stigma Scale total	.275	.075	.828	3.663	.000
R=.649	R ² =.421				
F(4.193)=35.056	p=.000				

Considering the ISS score, this result indicates that infertile women experience stigma close to medium level. In the study carried out by Tabong and Adongo¹⁴, it was stated that women were held responsible for childlessness between spouses and that they were treated badly by their mothers-in-law who wanted grandchildren. Infertility-related reactions are usually gossip, verbal attacks in the form of mocking and insulting^{11,30}.

In the study, the ISS subscale that women were most affected by was “social stigma” and its mean value was calculated as 17.41 ± 8.95 . In the study conducted by Yılmaz and Kavlak²⁷, the mean score of the social stigma dimension was found to be 19.07 ± 0.87 . In the studies, women said that they would be able to cope with infertility if they were not stigmatized by the wide society³¹⁻³³. Anokye *et al.*³⁴ reported that they believed that infertility caused social exclusion. Other studies have reported that social pressure and stigma are very common in infertile women³⁵⁻³⁷.

In the study, as stigmatization increases due to infertility, it was found that infertile people are also affected psychologically at an increasing rate. The total variance of the Infertility Stigma Scale and its sub-dimensions and infertility distress scores was found to be 42%. In the study conducted, Remennick¹⁵ found that stigma might reduce the self-esteem of an infertile woman and cause social distancing. The high infertility-related stigma is associated with increased psychological impact related to infertility and decreased social support and social status^{10,16,38}. The woman who feels more stigma also experiences more stress^{10,37}.

In the study, it was found that infertile women with a high educational level felt less stigmatized than women with a low educational level. In studies, revealed that women with a high educational level felt less stigmatization than women with a low educational level^{10,39}. In the study, infertile women who were civil servants,

self-employed, and housewives were found to have higher Social Withdrawal Subscale scores than infertile women who were workers. In another study, it was found that perceived stigma was lower in infertile women with a higher occupational category, such as executive expert religious officials, compared to women in other categories¹⁰. Different results of the study, according to the literature, may have resulted from reasons such as the different characteristics of the place where the study was conducted, the different support systems perceived by the person, and the work environment and social pressure.

In the study, the Infertility Stigma Scale total scores of women without social security were found to be higher than those of women with social security. The Infertility Stigma Scale total scores of infertile women with income less than expenses were found to be higher than those of infertile women with income equal to expenses and income higher than expenses. In the study conducted by Yılmaz and Kavak²⁷, they found that stigmatization was higher among infertile women with low economic levels and without social security.

In the study, it was found that women with an infertile individual in their own or in their husband's family had higher Infertility Stigma Scale total scores than women who did not have such an individual. This indicates that women who have an infertile individual in their families experience more social pressure.

In the study, infertile women with spouse support for treatment were found to have higher Social Stigma Dimension scores compared to infertile women with family support. This result suggests that the main factor in the fact that infertile women feel social stigma at a high rate despite being supported by their spouse is social pressure. The dominant culture in Turkey can be defined as a pronatalist culture. Childlessness is regarded as a deficiency, and social pressure to have children is

Table 5. Differences in terms of the Infertility distress scale and infertility stigma scale scores according to the descriptive characteristics of infertile women

		Infertility Distress Scale	Self-devaluation Dimension	Social Withdrawal Dimension	Social Dimension	Stigma	Family Stigma Dimension	Infertility Stigma Scale
		X±S.d	X±S.d	X±S.d	X±S.d		X±S.d	X±S.d
Educational status	1-Primary school	43.00±7.061	15.10±8.459	14.71±6.154	20.10±10.427		10.76±6.717	60.67±26.752
	2-Secondary school	43.30±8.480	13.67±7.720	13.70±5.570	18.06±9.300		11.27±7.221	56.70±25.651
	3-High school	42.06±8.686	12.21±6.979	12.74±5.599	16.21±7.945		8.98±4.684	50.13±21.116
	4-University and above	42.69±7.270	11.01±6.287	12.21±5.150	16.40±8.341		8.64±4.849	48.27±20.757
	LSD post hoc test	F=.205 p=.893	F=3.092 p=.028	F=1.970 p=.120	F=1.964 p=.121		F=2.403 p=.069	F=3.075 p=.029
Employment status	Difference	-	1>4	-	-		-	1>3-4
	Employed	43.32±8.893	12.01±6.669	12.60±5.815	17.55±8.927		9.49±5.488	51.65±22.484
	Unemployed	42.30±7.043	13.02±7.706	13.46±5.472	17.33±8.997		9.70±5.926	53.50±24.066
Husband's employment status	t-test	t=.844 p=.400	t=-.941 p=.348	t=-1.042 p=.299	t=.169 p=.866		t=-.244 p=.808	t=-.538 p=.591
	Employed	42.69±7.871	12.65±7.377	13.24±5.610	17.37±8.943		9.62±5.752	52.88±23.599
	Unemployed	42.40±3.782	12.20±5.805	9.00±3.808	19.00±10.075		9.80±6.380	50.00±17.706
Occupation	Mann-Whitney U test	U=.133 p=.716	U=.005 p=.945	U=3.066 p=.080	U=.134 p=.715		U=.093 p=.761	U=.001 p=.978
	1-Worker	40.83±8.147	11.13±5.628	10.87±4.897	16.20±7.985		9.04±4.695	47.24±18.768
	2-Civil servant	45.44±7.254	11.94±6.539	14.50±5.193	19.39±9.865		10.67±6.800	56.50±25.238
	3-Self-employed	46.88±10.776	14.44±8.989	14.63±7.347	18.50±10.289		9.81±6.145	57.38±27.527
	4-Housewife	42.42±7.007	13.09±7.751	13.60±5.477	17.43±9.013		9.66±5.945	53.79±24.119
Social Security	LSD post hoc test	KW=9.111 p=.028	KW=1.735 p=.629	KW=10.548 p=.014	KW=1.358 p=.715		KW=.798 p=.850	KW=3.334 p=.343
	Difference	3>1-4	-	2-3-4>1	-		-	-
	Available	42.31±7.588	12.14±7.021	12.79±5.508	17.19±9.019		9.48±5.583	51.59±23.221
	Not available	47.00±8.974	18.38±8.523	17.00±5.391	19.94±7.920		11.25±7.425	66.56±22.112

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	Mann-Whitney U test	U=956.500 p=.023	U=795.500 p=.002	U=836.500 p=.005	U=1072.500 p=.079	U=1270.500 p=.360	U=853.000 p=.006
Income Status	1-Income less than expenses	45.13±8.298	15.77±9.187	14.69±6.096	21.23±10.462	12.79±7.811	64.49±27.304
	2-Income equal to expenses	42.07±7.330	11.72±6.459	12.44±5.155	16.57±8.381	8.64±4.250	49.38±20.370
	3-Income higher than expenses	42.17±8.651	12.53±7.300	14.07±6.411	16.03±8.109	9.70±6.869	52.33±26.224
	LSD post hoc test Difference	F=2.422 p=.091 -	F=4.745 p=.010 1>2	F=2.964 p=.054 -	F=4.639 p=.011 1>2-3	F=8.393 p=.000 1>2-3	F=6.580 p=.002 1>2-3
Place of residence	Province	42.44±7.727	12.63±7.380	12.96±5.603	17.33±9.052	9.59±5.869	52.51±23.478
	District	43.41±8.000	12.67±7.254	13.63±5.635	17.65±8.724	9.71±5.449	53.65±23.536
Infertility status in the family	t-test	t=-.771 p=.442	t=-.028 p=.977	t=-.733 p=.465	t=-.220 p=.826	t=-.122 p=-.298	t=.903 p=.766
	Available	42.84±7.124	14.44±7.614	14.54±5.779	19.12±9.193	11.12±6.948	59.22±24.894
	Not available	42.64±8.024	12.03±7.156	12.66±5.483	16.83±8.820	9.11±5.216	50.64±22.603
	t-test	t=.160 p=.873	t=2.023 p=.044	t=2.073 p=.040	t=1.570 p=.118	t=1.870 p=.066	t=2.262 p=.025
Those providing support in treatment	1-Nobody	43.54±7.067	15.38±10.712	14.15±6.309	20.38±10.284	12.15±7.301	62.08±31.272
	2-Everybody	43.30±8.253	12.52±7.227	12.95±5.776	17.38±9.401	8.83±4.805	51.68±23.630
	3-My husband	41.78±6.989	12.94±7.165	13.18±5.256	19.18±8.883	10.69±6.392	55.98±21.746
	4-My family	42.47±8.076	11.91±6.730	13.11±5.634	15.19±7.664	9.16±5.787	49.37±22.363
	Kruskal-Wallis H test Difference	KW=.615 p=.735 -	KW=.839 p=.657 -	KW=.226 p=.893 --	KW=6.376 p=.041 3>4	KW=2.309 p=.315 -	KW=4.220 p=.121 -
Adequacy status of support	Adequate	41.70±7.446	11.37±6.294	12.53±5.345	16.17±8.094	8.67±4.807	48.75±20.013
	Inadequate	46.58±8.320	17.18±8.216	15.26±6.012	21.71±10.516	13.16±7.554	67.32±28.086
	t-test	t=-3.522 p=.001	t=-4.068 p=.000	t=-2.741 p=.007	t=-3.027 p=.004	t=-3.485 p=.001	t=-3.835 p=.000

common⁴⁰. Whenever a woman gives birth to a child or has a grandchild, she is respected among other family members⁴¹. In the study conducted by Papreen *et al.*¹¹, it was determined that family members often applied pressure to infertile women or did not support them. In their study, Slade *et al.*¹⁶ found that high stigma was associated with low social support. The results obtained from our study show that infertile women, who found the support they received for treatment inadequate, felt more stigma than infertile women who found the support they received for the treatment adequate. This result was interpreted in the sense that infertile women receiving adequate support for treatment will feel less stigma.

In the study, the mean IDS score of women was found to be 42.69 ± 7.79 . According to the results of the scale validity study carried out by Akyüz *et al.*²⁸ the mean IDS score of women was found to be 45.94 ± 10.9 . Among other previous studies, Ünal *et al.*⁴² found the mean infertility distress score of infertile women to be 39.01 ± 9.6 , Tural and Sis⁴³ found it to be 37.83 ± 8.31 , and Akyüz *et al.*⁴⁴ found it to be 37.76 ± 10.53 . The moderate scale scores of women in these studies show that women are moderately affected by their inability to have children in emotional terms.

In the study, no significant relationship was found between the status of being affected by infertility and the ages and educational levels of infertile women. The results of the study conducted by Akyüz *et al.*⁴⁴ are similar to the results of our study. Ünal *et al.*⁴² indicate that the infertility distress level increases with age and the infertility distress levels of women decrease with the increase in their educational level. This difference is thought to result from other factors contributing to the infertility distress level.

In the study, it was detected that self-employed infertile women were more affected by infertility than infertile women who were workers and housewives. In the study conducted by Ünal *et al.*⁴², it was determined that infertility distress was higher in unemployed women. This result was interpreted in the sense that work creates a social environment that facilitates coping with infertility and supports women.

In the study, it was determined that infertile women without social security and infertile women with income less than expenses were affected more by infertility. In the study carried out by Ünal *et*

*al.*⁴², it was found that women without social security were more affected by infertility than women with social security. In the study conducted by Tural and Çelik⁴³, it was observed that infertile women whose income was less than their expenses were psychologically more affected by infertility. In other studies, it was determined that the monetary burden of treatment impairs the mental health of infertile women, and loneliness, depression, and psychological distress decrease as income status increases⁴⁵⁻⁴⁷.

In our study, it was found that infertile women who found the support they received for the treatment inadequate were more affected by infertility. In the study conducted by Tural and Çelik⁴³, it was revealed that as the social support received by infertile women increased, their levels of being adversely affected by infertility decreased significantly. Erdem and Apay⁴⁸ stated in their study that as the social support perceived by infertile women increased, the symptoms of depression decreased. Bodur *et al.*⁴⁹ found that increased marital adjustment in infertile couples reduced depression and anxiety levels, and perceived social support from the family had a positive effect on marital adjustment. Studies conducted on infertile women indicate that inadequate social support impairs mental health in women, and anxiety and depression symptoms are observed at a higher rate^{12,45,50,51}.

Ethical approval

The study protocol was designed in compliance with the principles of the Declaration of Helsinki. Before data collection, ethics committee approval was obtained from Atatürk University Faculty of Health Sciences (Decision date and no. 2018/02/04). Written permission was obtained from the Dean of University Cerrahpaşa Faculty of Medicine and Istanbul Governorship Provincial Health Directorate Umraniye Training and Research Hospital for the study. Furthermore, verbal consent was received from the women who agreed to take part in the research.

Limitations

Women with secondary infertility, chronic disease, cancer, psychiatric disease were not included in the study. It is another limitation of the study that only

women receiving infertility treatment are employed. In addition, the absence of a control group is among the limitations of the research. We also could not distinguish the consequences of being infertile from the results of the treatment experience for infertility. Research results, due to the small size of the sample, it can only be generalized to women in the study.

Conclusion

It is observed that infertile women experience the problem of infertility distress and stigmatization due to their inability to have children. Furthermore, it was found that as stigma increases, infertility distress also increases. In infertility clinics, psychiatry and reproductive health clinical experts should cooperate. Since all stages of infertility treatment occur on the female body, it can be said that addressing infertility and stigma levels and developing appropriate interventions will help women to get through this process in a healthier way and increase their treatment success. It is thought that determining primary infertile women with a high stigma level coming to the IVF center for treatment purposes and reducing the stigma levels with necessary midwifery interventions will contribute to the reduction of stigma at every stage of the treatment. Considering these characteristics (age, education level, occupation, social security and support received during treatment) that determine the psychological effect of infertility when evaluating women who apply to an infertility treatment center may increase the success of the treatment. Infertile women with a high educational level seem to feel less stigma than infertile women with a lower educational level. The high level of education in Turkish women can be a social and economic power increasing their status in society. Therefore, it is recommended to increase the educational level of women and to employ them in high-status jobs.

Implications for midwifery/nursing practice

In order to achieve a successful infertility treatment, it is important to objectively evaluate the effect on the level of being affected by infertility and of exposure to stigmatization and to intervene with the required midwifery/nursing interventions. Infertile

women need psychosocial assessment and intervention as a part of the medical treatment process: Midwives/Nurses should provide infertile couples with psychosocial support on fertility. Furthermore, Midwives/Nurses working with different cultures should be aware of different needs and intercultural variations.

Competing of interest

The authors declare that there are no conflicts of interest.

Authors' contributions

Conception and design: MK and MK. Acquisition of data: MK and MK. Analysis and interpretation of data: MK and MK. Drafting the article: MK and MK. Revising article for intellectual content: MK and MK. Final approval of the completed article: MK and MK.

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