ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

DOI: 10.5336/healthsci.2021-85176

Anxiety and Hopelessness Levels of the Infertile Women During COVID-19 Pandemic and the Associated Factors: Cross-Sectional Research

İnfertil Kadınların COVID-19 Pandemisi Sırasında Anksiyete, Umutsuzluk Düzeyleri ve Etkileyen Faktörler: Kesitsel Bir Araştırma

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ABSTRACT Objective: The aim was to identify anxiety and hopelessness levels of infertile women during coronavirus disease-2019 (COVID-19) pandemic and the factors affecting these variables. **Material and Methods:** Designed as a descriptive study, the research was conducted from September 20 to November 15 in 2020 (n=231). Women diagnosed with infertility across Türkiye were included in the study. A questionnaire was created on the website "surveyy.com", and women were asked to respond by sharing the link to the questionnaire via social media groups related to infertility through the researchers' accounts. **Results:** In the study, it was found that the participant women had high levels of state anxiety and medium levels of hopelessness. As per the multiple linear regression analysis, it was identified that there was a positive association between the anxiety and hopelessness levels of the participant women (p<0.001). 'Education level of the participant women's spouses' and 'state of having pregnancy in the past' had statistically significant associations with women's state anxiety level and hopelessness levels (p<0.0001). It is found that 'whether COVID-19 pandemic affected the infertility treatment' had statistically significant associations with women's state anxiety levels and hopelessness levels (p<0.0001). **Conclusion:** Considering the pandemic with which we are currently faced and the similar situations with which we are likely to be confronted in the future, it is necessary to have international guidelines and mobile applications which provide measures for protecting the mental health of the women whose infertility treatment processes are interrupted.

Keywords: COVID-19; infertility; anxiety; hopelessness

ÖZET Amaç: Bu çalışmanın amacı, infertil kadınların koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] pandemisi sırasındaki anksiyete ve umutsuzluk düzeylerini ve bu değişkenleri etkileyen faktörleri belirlemektir. **Gereç ve Yöntemler:** Tanımlayıcı bir araştırma olarak tasarlanan araştırma, 20 Eylül-15 Kasım 2020 (n=231) tarihleri arasında gerçekleştirilmiştir. Araştırmaya Türkiye genelinde infertilite tanısı almış kadınlar dâhil edilmiştir. Anketler "surveyy.com" İnternet adresi üzerinden oluşturulmuş, araştırmacıların hesapları aracılığıyla sosyal medya üzerinden infertilite ile ilgili gruplardan paylaşılarak kadınların cevaplamaları istenmiştir. **Bulgular:** Araştırmaya katılan kadınların durumluk kaygı düzeylerinin yüksek, umutsuzluk düzeylerinin orta düzeyde olduğu bulundu. Çoklu doğrusal regresyon analizine göre katılımcı kadınların kaygı ve umutsuzluk düzeyleri arasında pozitif yönde bir ilişki olduğu belirlendi (p<0,001). "Kadınların eşlerinin eğitim düzeyi" ve "geçmişte gebelik geçirme durumu", kadınların durumluk kaygı düzeyi ve umutsuzluk düzeyleri ile istatistiksel olarak anlamlı ilişkilere sahipti (p<0,0001). "COVID-19 pandemisinin infertilite tedavisini etkileyip etkilememesi" durumu ile kadınların durumluk kaygı düzeyleri ve umutsuzluk düzeyleri arasında istatistiksel olarak anlamlı ilişkiler bulunmuştur (p<0,0001). **Sonuç:** Hâlihazırda karşı karşıya olduğumuz pandemi ve gelecekte karşılaşabileceğimiz benzer durumlar göz önüne alındığında, infertilite tedavisi devam etmekte olan kadınların ruh sağlığının korunmasına yönelik önlemleri içeren uluslararası kılavuzlara ve mobil uygulamalara ihtiyaç duyulmaktadır.

Anahtar Kelimeler: COVID-19; infertilite; kaygı; umutsuzluk

Infertility is defined by the World Health Organization (WHO) as the woman's failure to get pregnant although the couple at reproductive age had regular sexual intercourse for at least one year without using any contraceptive option.[1] The frequency of having infertility ranges between 10-20% in Türkiye.[2] As the infertility is a situation which is particular to each individual and whose consequences

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Peer review under responsibility of Turkiye Klinikleri Journal of Health Sciences.

Received: 25 Jun 2021 ***Received in revised form:*** 17 Aug 2021 ***Accepted:*** 24 Aug 2021 ***Available online:*** 26 Aug 2021

are unclear, it is a life crisis accompanied by medical, psychiatric, psychological and social problems and also acts as a stress factor for the family members.[1]

In early 2020, China announced that the coronavirus disease-2019 (COVID-19) which still expands throughout the world would be a new large-scale pandemic. Notwithstanding the contradictory theories about the origin of this virus, the process of its natural development was recently unveiled.[3] On March 11, 2020, the WHO also announced that COVID-19 turned to be a pandemic.[4] The measures taken for preventing the spread of the infection and ensuring the proper and effective functioning of the health system are meticulously implemented in the area of reproductive health as in the case of all areas of healthcare. The infertility and the assisted reproductive techniques which have a crucial place in sexual health are an area which is likely to be affected by the pandemic. As per the literature review, it was found that there were a limited number of studies which were performed for evaluating the effect of COVID-19 on the treatment of infertility and on the assisted reproductive techniques.[5] The measures taken for preventing the spread of the pandemic address the assisted reproductive techniques as well. The recommendations proposed for this purpose include the postponement of assisted reproductive programs, the supervision of the patients exhibiting COVID-19 symptoms, the arrangement of initiatives targeting to promote fertility, the utilization of initiatives designed for alleviating the likely emotional impacts, the designation of financing problems of the treatment and the issuance of regulations on health professionals' work conditions.[6] Through a circular published by the Ministry of Health of Türkiye on March 17, 2020, all operations and surgical initiatives except the emergency situations were postponed. Following the circular order of the Ministry of Health of Türkiye, the Turkish Society of Reproductive Medicine (TSRM) stated that "the present cycles should be completed and subsequently new cycles should not be undertaken, and moreover, it became obligatory to suspend all transfer processes".[7] Therefore, the treatment processes were not launched for the couples that were recently diagnosed with infertility between March 15 and May 15 in 2020. After this time period, upon taking the necessary measures in conjunction with COVID-19, the treatment processes were continued.[8] As the infertility is a situation which affects the entire family, it is accompanied by certain psychosocial consequences as well. In the relevant literature, there are certain studies which advocate that the infertility treatment raises the depression and hopelessness levels of the women and men.[9]

COVID-19 pandemic which is a serious problem all across the world led up to the disruption also in the infertility treatment, and this disruption negatively affected the mental health of the women even further.[10] As protecting the public health becomes the primary goal, other treatment processes are set aside in the pandemic period. Conducting research on the mental health of the individuals whose treatment processes are postponed and creating guidelines about the topic are of importance to providing support to the individuals in other pandemics which are likely to emerge in the future. In the relevant literature, there are a limited number of studies performed for identifying the effects of COVID-19 pandemic on the infertile couples in different countries.[10] However, to the best of knowledge of the researchers who carried out this study, there was no study which specifically took the Turkish society into account. Considering that it is necessary to address different socio-cultural factors when international guidelines are developed, the studies which take different societies into account with respect to the topic are needed. This research was conducted with a view to identifying infertile women's anxiety and hopelessness levels during COVID-19 pandemic and the factors affecting these variables.

MATERIAL AND METHODS

STUDY DESIGN

Designed as a descriptive regression study, the research was conducted in Türkiye from October 1 to November 15 in 2020.

SAMPLE

Research population was comprised of all women who were diagnosed with infertility across Türkiye. Within one point deviation from the mean of scores

(5.62±4.2 points) obtained in a previous study from Beck Hopelessness Scale (BHS), the sample size was calculated via G*Power 3.1.7 software as 231 participants to have 95% power.[11]

DATA COLLECTION

"Personal Information Form" which was prepared by the researchers in light of the relevant literature for revealing the participants' descriptive characteristics, "State Anxiety Inventory (SAI) of State-Trait Anxiety Inventory (STAI)" and "BHS" were used in the study. The surveys were created via surveyy.com and shared through researchers' social media accounts with infertility-related groups.

MEASUREMENT TOOLS

Personal Information Form: The form created by the researchers as a result of the literature review consisted of questions on the sociodemographic and infertility-related characteristics of the participants.[9]

State-Trait Anxiety Inventory: Developed as a self-report scale by Spielberger in 1970, it is made up of two inventories, each of which is composed of 20 items, and thus the overall inventory is comprised of 40 items in total.[12] The validation and reliability test for this scale was performed in 1977 by Öner and LeCompte.[13] SAI describes how the individual feels himself/herself at a specific moment and under specific circumstances and leads up to the answers given by the individual by taking into consideration the emotions relevant to the situation which he/she is in.[14] In this study, Cronbach's alpha coefficient as the measure of internal consistency was calculated to be 0.70.

Beck Hopelessness Scale: The scale was developed in 1974 by Beck et al. Its validation and reliability test was carried out in Turkish.[15] According to the answer key which includes 11 true and 9 false answers for BHS, each compatible answer is scored as 1 point and each incompatible answer is scored as 0. As the score obtained from the scale goes up, the individual is considered to have high-level hopelessness.[16] Cronbach's alpha coefficient as the measure of internal consistency was ascertained as 0.84.

ETHICAL CONSIDERATION

For conducting the research, the endorsement of the Selçuk University Faculty of Health Sciences Non-clinical Research Ethics Committee was obtained (2020/1467, 30.09.2020). The aim of the research was explained to the women who agreed to participate in the research, and they were also informed that the confidentiality of their identities would be respected. The study was conducted in accordance with the principles of the Declaration of Helsinki.

STATISTICAL ANALYSIS

SPSS (Statistical Package for Social Science) 20.0 software was employed for analyzing the research data. Whether the research had normal distribution was tested via Kolmogorov-Smirnov test, and non-parametric tests were also utilized. The associations between the participant women's socio-demographic characteristics and infertility-related attributes and their anxiety and hopelessness levels were designated through Mann-Whitney U Test and Kruskal-Wallis Test. The association between the anxiety and hopelessness levels was identified via Pearson correlation test. The factors affecting the participant women's anxiety and hopelessness levels were evaluated via multiple linear regression analysis.

RESULTS

The mean age of the participant women and their spouses were 33.84±5.18 and 36.88±5.31 years, respectively. Table 1 displayed the mean scores obtained by the participant women from SAI and BHS. It was discerned that the participant women had high-level anxiety and medium-level hopelessness.

Table 2 exhibited the associations between certain descriptive characteristics of the participant women and their spouses and the anxiety and hope-

TABLE 1: Mean scores obtained by the participant women from SAI and BHS.

Variable	Mean±SD (Median)	Minimum-Maximum
SAI	46.61±12.25 (49)	23-76
BHS	8.86±5.52 (9)	2-20

SAI: State Anxiety Inventory; BHS: Beck Hopelessness Scale; SD: Standard deviation.

TABLE 2: Certain descriptive characteristics of the participant women and their spouses, and the associations between these characteristics and the mean scores obtained by the participant women from SAI and BHS.

	n	%	SAI Mean±SD (Median)	BHS Mean±SD (Median)
Age groups of the participant women				
25-29 years	45	19.5	48.20±9.13 (50.0)	8.24±4.22 (9.0)
30-34 years	99	42.9	44.83±13.36 (46.0)	8.16±5.38 (7.0)
35-39 years	38	16.5	50.71±9.26 (52.0)	11.02±5.72 (11.0)
40-44 years	49	21.2	45.59±13.76 (47.0)	9.16±6.36 (86.0)
p value*			**0.006**	**0.057**
Education level of the participant women				
High school or below	78	33.8	46.44±12.42 (49.0)	8.83±5.13 (10.0)
University or above	153	66.2	46.67±12.25 (49.0)	8.90±5.74 (8.0)
p value**			0.547	0.546
Age groups of the spouses				
25-29 years	23	10.0	49.34±12.19 (50.0)	9.60±4.62 (10.0)
30-34 years	55	23.8	44.58±9.53 (44.0)	6.49±4.77 (5.0)
35-39 years	77	33.3	46.71±13.53 (48.0)	9.54±5.31 (10.0)
40-44 years	63	27.3	46.44±13.72 (49.0)	9.53±5.60 (9.0)
45-49 years	13	5.6	50.69±3.83 (48.0)	10.23±8.28 (8.0)
p value*			0.226	**0.006**
Education level of the spouses				
High school or below	24	10.4	53.87±115.76 (52.0)	10.91±6.28 (10.0)
University or above	207	89.6	45.77±111.54 (49.0)	8.62±5.39 (9.0)
p value**			**0.017**	0.068
Employment status of the participant women				
Employed	179	77.5	45.95±12.08 (49.0)	8.88±5.28 (9.0)
Unemployed	52	22.5	48.90±12.68 (49.09	8.78±6.36 (8.0)
p value**			0.118	0.609
Income level				
Income below expenses	16	6.9	43.93±9.36 (44.0)	8.81±4.53 (11.0)
Income equal to expenses	45	19.5	50.02±8.71 (50.0)	10.22±6.07 (10.0)
Income above expenses	170	73.6	45.97±13.14 (48.5)	8.50±5.43 (7.0)
p value*			**0.021**	0.255
Duration of marriage				
1-5 years	116	50.2	45.12±11.88 (49.5)	8.18±5.36 (6.0)
6-10 years	56	56.0	47.58±13.97 (49.0)	9.48±5.76 (10.0)
11-15 years	38	38.0	51.05±11.96 (52.5)	11.50±5.29 11.5)
16-20 years	21	9.2	44.28±7.42 (46.0)	6.19±4.26 (5.0)
p value*			**0.018**	**0.010**
Having pregnancy in the past				
Yes	93	40.3	41.89±12.58 (44.0)	8.95±5.70 (7.0)
No	138	59.7	47.23±13.14 (50.0)	9.27±6.22 (10.09
p value**			**0.000**	**0.034**
Total	231	100		

Values in bold show the statistically significant associations ($p<0.05$); *Kruskal-Wallis Test; **Mann-Whitney U Test; SAI: State Anxiety Inventory; BHS: Beck Hopelessness Scale; SD: Standard deviation.

lessness levels. As per the comparison of age groups, the participant women aged 35-39 years had statistically significant higher mean anxiety scores (p=0.006) and hopelessness scores (p=0.057) than the women in other age groups. The participant women whose spouses were aged 45-49 years had a statistically significant higher mean of hopelessness scores than the women whose spouses were in other age groups (p=0.006). The participant women whose spouses had education at the level of high school or below had a statistically significant higher mean of anxiety scores than the women whose spouses had education at the level of university or above (p=0.017). The participant women who had income equaling their expenses had a statistically significant higher mean of anxiety scores than the women at other income levels (p=0.021). The participant women who were married for 11-15 years had statistically significant higher mean anxiety scores (p=0.018) and hopelessness scores (p=0.010) than other participant women. The participant women who never had pregnancy in the past had statistically significant higher mean anxiety scores (p=0.000) and hopelessness scores (p=0.034) than the women who previously had pregnancy.

In Table 3, the associations between infertility-related characteristics and anxiety and hopelessness levels were indicated. It was found that the participant women who had no child in the past had higher levels of hopelessness than the women who previously had child(ren) (p=0.030). Moreover, it is discerned that the participant women who started to have infertility treatment but later stopped having it due to COVID-19 pandemic had higher levels of anxiety and hopelessness (p:0.000).

TABLE 3: Associations between infertility-related attributes and the mean scores obtained by the participant women from SAI and BHS.

	n	%	SAI Mean±SD (Median)	BHSMean±SD (Median)
Infertility type				
Primary infertility	209	90.5	50.07±8.37 (53.0)	9.39±5.89 (9.0)
Secondary infertility	22	9.5	47.02±12.77 (49.0)	9.00±4.70 (10.0)
p value**			**0.030**	0.140
Heath facility where infertility treatment is applied				
Public hospital	64	27.7	45.78±12.16 (46.0)	8.33±5.30 (7.5)
Private hospital	55	23.8	47.45±13.04 (49.0)	9.56±5.41 (9.0)
University hospital	92	39.8	46.34±12.54 (47.0)	8.77±5.94 (10.0)
Private IVF center	20	8.7	47.50±8.17 (49.5)	7.85±3.73 (8.0)
p value*			0.456	0.751
Reason for infertility				
Reasons appertaining to the woman	167	72.3	46.68±12.43 (49.0)	8.95±5.69 (9.0)
Reasons appertaining to the man	24	10.4	49.33±12.58 (49.5)	10.56±4.79 (9.0)
Reasons appertaining to both the woman and man	36	15.6	44.05±11.66 (47.5)	8.50±5.49 (7.0)
Unknown reason	4	1.7	53.25±1.73 (50.5)	10.00±3.82 (11.0)
p value*			0.601	0.924
How did COVID-19 pandemic affect your infertility treatment?				
The pandemic did not affect my infertility treatment	58	25.1	41.07±12.18 (42.0)	5.69±4.23 (5.0)
I could not start having my infertility treatment	114	49.4	47.67±8.09 (50.0)	9.94±3.93 (10.0)
I had started having my infertility treatment but could not continue it	55	23.8	56.63±9.38 (54.0)	14.24±4.68 (17.0)
As I tested positive for COVID-19, my infertility treatment was discontinued	4	1.7	51.75±5.50 (49.0)	9.50±6.60 (7.0)
p value*			**0.000**	**0.000**
Total	231	100		

Values in bold show the statistically significant associations (p<0.05);*Kruskal-Wallis Test;**Mann-Whitney U Test; SAI: State Anxiety Inventory; BHS: Beck Hopelessness Scale; SD: Standard deviation; IVF: In vitro fertilization.

Table 4 exhibited the coefficient of correlation between the mean of SAI scores and the mean of BHS scores. It was ascertained that, as the state anxiety level increased, the hopelessness level also went up ($p<0.0001$).

Model 1. The effect of "women's anxiety levels" on their hopelessness levels

Model 2. The effect of "woman's age", "age of the woman's" "spouse", "education level of the woman's spouse", "income perception", "duration of marriage (year)", "state of having pregnancy in the past" on the state anxiety level

Model 3. The effect of "woman's age", "age of the woman's spouse", "education level of the woman's spouse", "income perception", "duration of marriage (year)", "state of having pregnancy in the past" on the hopelessness level

Model 4. The effect of "infertility type" and "whether COVID-19 pandemic affected infertility treatment" on the state anxiety level

Model 5. The effect of "infertility type" and 'whether COVID-19 pandemic affected infertility treatment' on the hopelessness level.

Table 5 displayed the evaluation of the factors, which affected infertile women's state anxiety and hopelessness levels, via multiple linear regression analysis. It was found that there was a statistically significant association which explained 56.7% of the variance between the participant women's anxiety and hopelessness levels ($R^2=0.567$, $p<0.0001$). Model 2 and Model 3 demonstrate that "education level of the participant women's spouses" and 'state of having pregnancy in the past' had statistically significant associations with women's state anxiety level and hopelessness levels ($p<0.0001$). In Model 4 and Model 5, it is found that "whether COVID-19 pandemic affected the infertility treatment" had statistically significant associations with women's state anxiety levels and hopelessness levels ($p<0.0001$).

TABLE 4: Coefficient of the correlation between the mean scores obtained by the participant women from SAI and BHS.

	Pearson r value*	p value
	Mean of SAI scores	
Mean of BHS	0.729	**<0.0001**

*Pearson correlation coefficient; Values in bold show the statistically significant associations ($p<0.05$); SAI: State Anxiety Inventory; BHS: Beck Hopelessness Scale.

DISCUSSION

Infertility is a multi-faceted experience. The couples are affected both physically and psychologically during the treatment process.[17] In the study, it was ascertained that the participant women had high-level anxiety and medium-level hopelessness. In the study they conducted on the fear, anxiety, depression, worry, fatigue, helplessness and grief levels of infertile women, Hasanpoor-Azghady et al. reported that the participants experienced hopelessness.[18] The previous studies performed in Türkiye showed that the infertile women had high-level anxiety and medium-level hopelessness.[9] In Turkish society, having child is acknowledged as a key component of being a family.[19] It is supposed that, due to the already existing societal pressure, the women had high levels of anxiety and hopelessness even before the pandemic. Another important finding was that, as the anxiety levels of the women increased, their levels of hopelessness also increased. In Türkiye, the study by Gozuyesil et al. indicated that there was a relationship between anxiety and hopelessness, and also, in the study by Dereli Yılmaz et al., it was identified that there was a relationship between anxiety and depression.[9,20] In general, the infertile women exhibit more negative psychological symptoms than the infertile men do.[21] Particularly in developing countries, the women are more exposed to the societal pressure than the men are.[22] Thus, it is an expected situation that the women have higher levels of anxiety and hopelessness and these two variables affect each other. Uncertainty about the future of the treatment process during the pandemic is expected to have a negative impact on the anxiety and hopelessness levels of women.

In this study, the education levels of the spouses of the women were determined to have a significant effect on the women's state anxiety and hopelessness levels. It was observed that, as the education levels of the spouses of the women increased, the anxiety levels of the women decreased (Table 2). Ab-

TABLE 5: Evaluation of the factors, which affected the state anxiety and hopelessness levels, via multiple linear regression analysis.

	B	t value	p value	95% CI	
Model 1					
Mean of BHS	0.369	0.824	0.411	-0.513	1.250
	R=0.753	R^2=0.567 Durbin-Watson=1.860 (p<0.0001)			
Model 2					
Woman's age	-1.734	-1.251	0.212	-4.465	0.997
Age of the woman's spouse	2.146	1.577	0.116	-0.535	4.828
Education level of the woman's spouse	-9.091	-3.621	**0.000**	-14.039	-4.144
Income perception	0.306	0.232	0.817	-2.294	2.906
Duration of marriage (year)	0.271	0.317	0.751	-1.409	1.950
State of having pregnancy in the past	7.555	4.688	**0.000**	4.379	10.731
	R=0.373	R^2=0.139	Durbin-Watson=1.977 (p<0.0001)		
Model 3					
Woman's age	-0.014	-0.022	0.983	-1.297	1.269
Age of the woman's spouse	0.943	1.476	0.141	-0.316	2,-.203
Education level of the woman's spouse	-2.732	-2.316	**0.021**	-5.057	-0.408
Income perception	-0.582	-0.938	0.349	-1.803	0.640
Duration of marriage (year)	-0.306	-0.763	0.446	-1.095	0.484
State of having pregnancy in the past	1.770	2.337	**0.020**	0.278	3.262
	R=0.257	R^2=0.066	Durbin-Watson=1.541 (p:0.017)		
Model 4					
Infertility type	3.211	1.339	0.182	-1.513	7.935
Whether the infertility treatment is affected by COVID-19 pandemic	6.922	8.529	**0.000**	5.323	8.521
	R=0.506	R^2=0.256 Durbin-Watson=1.897 (p<0.0001)			
Model 5					
Infertility type	0.302	0.301	0.764	-1.675	2.279
Whether the infertility treatment is affected by COVID-19 pandemic	3.798	11.184	**0.000**	3.129	4.467
	R=0.559	R^2=0.359	Durbin-Watson=1.392 (p<0.0001)		

Values in bold show the statistically significant associations (p<0.05); B: Regression coefficient; t: Degree of freedom; p: Probability value; CI: Confidence interval.

dishahshahani et al. found that stress, anxiety and depression scores in both men and women were inversely proportional to their educational levels.[23] Accordingly, it is thought that, as the education level of the spouse increases, there is more social support for the woman, which reduces her anxiety levels. It was seen that the participating women's previous pregnancy was also a factor affecting their state anxiety and hopelessness levels. The anxiety levels of the women who previously had no pregnancy or were confronted with failure in infertility treatment go up, and also the quality of their lives falls down.[24] The failure to have pregnancy can sometimes be equated with the loss of a child and consequently, this situation affects the women's mental health adversely.[25] Unsuccessful treatments may cause women to have increased levels of hopelessness and not continue treatment.[26] Even the treatment has resulted in miscarriage, it is thought that their status of having been pregnant before increases the belief of women that they can get pregnant and reduces their levels of hopelessness and anxiety.

With the COVID-19 pandemic, the Reproductive Health and Infertility Association of Türkiye (TSRM) made a statement that "completion of existing cycles and not receiving subsequent, new cycles, as well as suspension of all transfer procedures, has become a necessity."[8] In the study, 23.8% of the participant women said that they started having infertility treatment but discontinued it due to the pandemic.

It was found that this group of the participant women had higher levels of anxiety and hopelessness than the women in other groups. In a study performed in New York, half of the participant women stated that their treatment processes were discontinued owing to COVID-19 pandemic. Of these women, 85% said that this situation was moderately or extremely upsetting whilst 22% asserted that it was equal to the loss of a child. Moreover, a study carried out in the UK demonstrated that the infertility-related examination or treatment processes of a large majority of the women (81.6%) were postponed. This situation induced the women to have disappointment, to feel anger and to have increased levels of hopelessness.[10] Disruption in the treatment process on account of the pandemic is an undesired situation for the women. In the study by Vaughan et al., only 6% of the people who had infertility treatment reported that they believed that the infertility treatment must be postponed during the pandemic.[27] The use of assisted reproductive techniques, that is, intrauterine insemination and *in vitro* fertilization, and the follow-up of the patient until getting positive pregnancy test and subsequently going to the health facility throughout the entire pregnancy period will raise the risk for couples to get infected with COVID-19.[28] Therefore, international organizations recommend that treatment programs be postponed.[6,29] In line with the findings obtained in this study, it is seen that women who are already under great pressure and stress are affected more negatively from the psychosocial aspect of the pandemic as a result of the postponement of their treatment. Considering the current conditions and possible pandemics in the future, it may be stated that there is a need for mobile applications that allow women to obtain necessary explanations and gain psychosocial support in such situations.

CONCLUSION

Psychosocial treatment initiatives which are designed for the couples having infertility treatment become effective in both the alleviation of psychological problems and the improvement of the clinical pregnancy rates.[30] Infertile couples are in need of psychosocial support; however, they are mostly unable to have adequate support.[31] The pandemic inhibits the individuals from going to the health facilities for the purpose of having psychosocial support besides having infertility treatment. There are certain mobile applications designed to support the infertile individuals to whom the assisted reproductive techniques are applied. Considering the limited number and the changing comprehensiveness of the existing applications, there is a need for developing more mobile resources in relation to infertility.[32] In the context of the social distance rules during the pandemic, it became obligatory to transform the face-to-face education into online education.[33] Online education programs and mobile applications should be developed with a view to supporting the psychosocial health of the infertile couples.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

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

Authorship Contributions

All authors contributed equally while this study preparing.

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