



Infertility Management Disruption During the COVID-19 Outbreak in a Middle-Income Country: Patients' Choices, Attitudes, and Concerns

Nadia Muhaidat ¹Mohammad A Alshrouf ²Abdulrahman M Karam ²Mohammed Elfalah²

¹Department of Obstetrics and Gynecology, School of Medicine, The University of Jordan, Amman, 11942, Jordan; ²School of Medicine, The University of Jordan, Amman, 11942, Jordan

Purpose: This study aims to assess the degree of infertility management service disruption during the pandemic from the patient's point of view, as well as patients' attitudes toward seeking investigations and management, and their thoughts on how appropriate it is for health establishments to continue offering these services during this period while assessing their concerns regarding the risk of COVID-19 infection during treatment or pregnancy.

Methods: This study involved a cross-sectional survey of 213 women who were seeking infertility management in January 2021 in Jordan. An electronic questionnaire was designed and validated, which was then distributed on social media platforms.

Results: Over half of the participants had experienced some form of voluntary or involuntary disruption of their infertility management journey. The decision to postpone treatment was significantly associated with fear of infection ($p = 0.009$) and was more likely if they had undergone two or more previous cycles of in vitro fertilization treatment ($p = 0.004$). The majority of participants agreed that infertility services should remain available during the pandemic for those who chose not to delay their treatment journey, as the delay may have negative financial and psychological implications and may affect the chance to achieve a successful pregnancy in the future.

Conclusion: The patients have faced uncertainty regarding the achievability of their long-term fertility goals amidst an atmosphere of general unpredictability for the duration and extent of disruption of their treatment, combined with the fear of infection. Therefore, it is necessary to highlight the need to address how infertility services can be maintained for those who decide to seek treatment during an outbreak while minimizing the risk of contracting COVID-19 in the process.

Keywords: subfertility, assisted reproduction services, pandemic, Jordan, cross-sectional study, contagion anxiety

Plain Language Summary

In Jordan, as all over the world, health care provision has been affected by the COVID-19 pandemic, including infertility management. Although this area of medicine is often not considered a priority, the disruption of infertility care services can cause significant hardship to those seeking parenthood at a time that is already full of stress and uncertainty. This study aims to assess patients' voluntary and involuntary disruption of infertility investigations and treatment during the pandemic, patients' attitudes toward continuing such services during the pandemic, and their fears regarding contracting COVID-19 during their treatment journey. Although over half of the participants had experienced some form of disruption in their treatment, the majority felt that these services should continue to provide for those wishing to

Correspondence: Nadia Muhaidat
Faculty of Medicine, The University of Jordan, Queen Rania Street, Amman, 11942, Jordan
Tel +962798385775
Email nadiadat@hotmail.com

initiate or continue treatment during the pandemic, albeit in a safe environment to minimize the risk of infection. This study highlights the need to address the way in which infertility services can be maintained for those who decide to seek treatment during the outbreak, while minimizing the risk of contracting COVID-19 in the process and adapting to the new “normal” once the pandemic subsides.

Introduction

Novel coronavirus disease 2019 (COVID-19), a respiratory infectious disease caused by a new strain of coronavirus (SARS-CoV-2), was first identified in Wuhan, China, in late 2019.¹ On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic due to its levels of prevalence and global infection.²

On March 2, 2020, the first COVID-19 case was confirmed in Jordan.³ As the number of reported cases increased worldwide, the Jordanian government announced a strict lockdown on March 17, 2020, trying to prevent further spread of the disease.^{3,4} This involved total closure of schools and universities and restricting all forms of movement and suspension of activities in both the public and private health sectors, except for emergency cases.³ Medical service provision priorities were shifted during this time, affecting the availability of essential services. Antenatal care coverage, for example, dropped drastically.⁵ These measures have been somewhat reduced since the end of May 2020; however, partial curfews and some restrictions are still in effect depending on the continuously changing pandemic situation.

As part of reorganizing medical priorities and risk mitigation, the leading reproductive medicine societies, such as the European Society of Human Reproduction and Embryology (ESHRE), American Society for Reproductive Medicine (ASRM), and International Federation of Infertility Societies (IFFS), initially recommended the suspension of all forms of reproductive treatment, except in certain circumstances where the benefits outweigh the risks, such as patients with impaired reproductive capacity and cryopreservation in cancer patients.^{6,7} Although the reallocation of resources in the medical field to limit the burden of the pandemic was crucial, gradual restart had to be considered, and this required the definition of those cases that are time-sensitive and should be prioritized in the staged resumption of fertility services.⁸ More recently, with successful mitigation strategies in some areas and the emergence of additional data, societies

have sanctioned gradual and judicious resumption of delivery of full reproductive care.⁷

In Jordan, fertility services were not completely suspended, as the Jordanian Society for Fertility and Genetics suggested that patients have the right to proceed with or delay their treatment, and in both cases, the patient's decision should be recorded;⁹ however, various degrees of lockdown and medical resource redistribution resulted in restricted access to and availability of such services.

The restrictions of lockdown and social distancing have a major impact on the psychosocial well-being of the general population.¹⁰ Infertile couples seeking treatment experienced additional negative psychological effects that made them more vulnerable to depression and anxiety, eliciting the need for robust psychological support for these couples.^{11,12} Esposito et al concluded that this impact was especially severe in females, patients with longer infertility history, or if the couple had a family member infected with COVID-19. In this study, two-thirds of patients were willing to follow through with treatment, despite the lack of information regarding the effect of COVID-19 infection on conception and pregnancy.¹² Tokgoz et al found that infertile women who were subjected to a delay in their treatment cycles due to the restrictions caused by the pandemic suffered significant anxiety. This was more marked in women with diminished ovarian reserve. Higher levels of anxiety resulted from worrying about the inability to conceive than concern about contracting COVID-19.¹³ The disruption of fertility care due to the pandemic caused doubt and concern among infertile couples regarding achieving parenthood goals. Patients naturally employ coping mechanisms in such situations, but this can be enhanced by involving fertility care providers in the process.¹⁴

To date, there is a paucity of studies that investigate the impact of the current conditions that resulted from the global event of the COVID-19 pandemic on the opinions and attitudes of infertility patients in Jordan and the region toward the provision of fertility services as well as their willingness to seek investigations or treatments related to these conditions.

The objective of this study was to explore the views and attitudes of infertility patients in Jordan on several aspects related to their management. In addition, it investigated their concerns regarding themselves or a relative contracting the novel coronavirus disease while attending medical care facilities providing fertility management. This will provide guidance for infertility care providers

in Jordan and other countries that experience similar conditions in relation to planning the care provision for these patients during the pandemic and taking measures to alleviate their concerns.

Materials and Methods

Research Aims

The objective of this study was to assess several aspects related to infertility management in Jordan during the COVID-19 outbreak. These can be summarized in the following points. First, the survey aimed to assess the availability and degree of disruption of infertility management services during the pandemic. The second objective was to examine patients' attitudes toward seeking investigations and management, as well as their thoughts on how appropriate it is for health establishments to continue to offer these services during this period. The final objective was to determine infertility patients' concerns regarding the risk of COVID-19 infection during treatment or pregnancy.

Study Design and Population

This research involved a cross-sectional survey of women residing in Jordan who are currently planning or receiving fertility-related treatment. A link to an electronic survey questionnaire was distributed through several social network platforms, specifically women's health and fertility groups in Jordan, in January 2021. Data collection did not involve direct contact with participants to prevent the spread of COVID-19.

Ethical Approval and Informed Consent

Ethical approval for this study was granted by the Institutional Review Board (IRB) of Jordan University Hospital on 12/01/2021 (reference number 1012021/1530). This study was conducted in accordance with the Declaration of Helsinki.

As the survey was distributed to participants via social media, it contained an introduction explaining the purpose of the study, voluntary participation, anonymity, and freedom to withdraw at any point. It also explained that submission of the response is considered written consent to participate in the study. Therefore, all participants voluntarily consented to take part in this survey.

Study Tool

The survey questionnaire was designed using Google Forms[®] online survey development software. The

questions were formulated in Arabic, Jordan's official language, and covered five main areas: (1) three questions to confirm the inclusion criteria for the study; (2) participants' demographic information; (3) the woman's previous fertility and obstetric history; (4) a section to determine at what stage of infertility management the woman and her partner were during the COVID-19 outbreak and how this was affected; and (5) a group of questions to assess the participants' attitudes toward seeking fertility management and the provision of investigation and treatment services by clinics and hospitals during the pandemic, as well as concerns regarding the risk of COVID-19 infection. Details of the content of the questionnaire are found in the tables in the results section.

The face and content validity of the questionnaire was examined by an expert panel consisting of a group of consultant gynecologists at Jordan University Hospital to ensure that the questions cover the data that are required to assess various aspects of infertility care provision during the pandemic.

Reliability was examined by calculating Cronbach's alpha for the three sections containing Likert scales, and the values were found to be 0.934, 0.910, and 0.934, indicating excellent internal consistency.

Data Collection and Sampling

Survey responses were collected online over a period of 25 days, during which an electronic survey link was distributed via Facebook Ads on several social media women and fertility groups in Jordan. Participants were invited to participate in the survey if they fulfilled the inclusion criteria, namely, females, currently suffering from difficulty or delay in conception, and residing in Jordan. The link introduction clarified that responses were anonymous, and participants would not be identified at any stage. A total of 248 responses were collected; 35 were excluded because they did not fulfill the inclusion criteria or had incomplete responses.

Statistical Analysis

SPSS version 25.0 (Chicago, USA) was used for statistical analysis. Variability analysis in the form of the mean (\pm standard deviation) was used to describe age. Standard descriptive statistical parameters were calculated for socio-demographic characteristics, and responses to questions answered along an ordinal five-point Likert scale were reported as counts (frequencies). Percentage values were calculated on the study level. The reliability of the questionnaires

was computed via Cronbach's alpha. The chi-square test was used to analyze the relationship between all study parameters. A p value of <0.05 was considered statistically significant. Participants' anxiety level was marked on a five-point Likert scale. The final score was calculated by averaging the patient responses to all five questions, with higher scores indicating greater anxiety (Cronbach's alpha was 0.934).

Results

Sample Characteristics

A total of 248 responses were collected through Facebook Ads distributed to the relevant population. Of these, 35 participants were excluded because eight responses were male, eight had at least one individual answer missing, and 19 participants were removed because they were not experiencing difficulty or delay in conceiving at the time of the COVID-19 pandemic. Therefore, 213 responses were included in the analysis.

The age of the participants ranged from 21 to 49 years, with a mean of 33.8 (SD = 5.66). Table 1 shows that over half (59.7%) of the participants were aged 30–39 years, and nearly two-thirds (64.3%) lived in the city.

More than half (58.7%) had been married for more than five years, and two-thirds (66.75) had no children. Over one-third (36.6%) had tried to conceive for more than five years, with nearly two-thirds (64.3%) seeking IVF (in vitro fertilization) treatment. The most common cause for infertility was decreased sperm quality or count (33.8%), taking into consideration that 8.5% had not yet completed all required investigations (Table 1).

The Impact of the Pandemic on Patients' Decisions

The closure of clinics resulted in the disruption of the investigation or treatment process of more than half (50.7% and 52.1%, respectively) of the participants; however, 55.9% and 56.3% decided to postpone their investigation process or their treatment due to the spread of COVID-19 virus, respectively (Table 2).

Fear of contracting the virus during the treatment process was significantly associated with postponement of fertility treatment ($p = 0.009$); however, a similar association was not found between fear of infection and postponement of fertility investigations ($p = 0.089$). Moreover, the decision to postpone the treatment during the COVID-19 pandemic was not influenced by the impact of the COVID-19 pandemic on family income ($p = 0.918$),

although almost half (47.4%) of the participants were very negatively affected financially (Figure 1).

Among the participant group that had two or more children, 51.2% decided to postpone their fertility treatment, whereas only 41.8% of those with one or no children decided to postpone. However, this correlation did not reach statistical significance ($p = 0.838$) (Table 3).

The study did not show any statistically significant relationship between the decisions of participants who had previous attempts at IUI (intrauterine insemination) and the decision to postpone treatment ($p = 0.149$). In contrast to the participants with previous attempts at IVF, there was a strong correlation with their decision to postpone treatment ($p = 0.004$). While only 50% of those who had one or no previous IVF trial decided to postpone the treatment, a higher percentage (70.8%) of those who had two or more prior IVF trials decided to postpone the treatment (Table 3).

Patient Attitudes Toward Receiving Subfertility and Assisted Reproductive Management During the COVID-19 Outbreak

Approximately 70%, 74%, and 71% believe it is appropriate (agree or strongly agree) to start planning for pregnancy, begin the investigation, and receive treatment for IVF or IUI during the COVID-19 outbreak, respectively (Table 4). However, only 46% of the participants showed their willingness to receive IVF or IUI treatment in a medical facility that supplies care for COVID-19-positive patients.

Less than a quarter of participants considered it appropriate (agree or strongly agree) to start or continue IVF or IUI treatment if one of the spouses was diagnosed positive for COVID-19. A higher percentage of participants (39%) thought it appropriate for treatment to be started or continued in COVID-19 infection among other household members (Table 4).

Patients' Attitudes Toward the Provision of Assisted Reproduction Services During the COVID-19 Outbreak

Table 5 shows that the majority of participants preferred (agree or strongly agree to) the continuation of service provision by infertility clinics during the COVID-19 pandemic. The results revealed that approximately 84%, 81%, and 83% considered it necessary to continue the infertility investigation, IUI treatment, and IVF treatment,

Table 1 Sociodemographic and Reproductive Characteristics of Participants

Participant Characteristic	n (%)	
Age (years)		
20–24	9 (4.2)	Mean 33.8 SD 5.66
25–29	41 (19.2)	
30–34	60 (28.2)	
35–39	67 (31.5)	
40–50	36 (16.9)	
Area of residence		
Amman	67 (31.5)	
Irbid	40 (18.8)	
Zarqa	34 (16.0)	
Balqa	23 (10.8)	
Madaba	14 (6.6)	
Jerash	13 (6.1)	
Karak	8 (3.8)	
Ma'raq	5 (2.3)	
Tafilah	3 (1.4)	
Aqaba	2 (0.9)	
Ajloun	2 (0.9)	
Ma'an	2 (0.9)	
Type of residence		
City	137 (64.3)	
Village	65 (30.5)	
Camp	11 (5.2)	
Level of education		
Primary school	7 (3.3)	
Bachelor degree	101 (47.4)	
Secondary school	49 (23.0)	
Community college diploma	34 (16.0)	
Master's or Doctorate	22 (10.3)	
Illiterate	0 (0.0)	
Years married		
< 1 year	8 (3.8)	
1–2 years	18 (8.5)	
2–3 years	31 (14.6)	
4–5 years	31 (14.6)	
> 5 years	125 (58.7)	
Number of children		
0	142 (66.7)	
1	28 (13.1)	
2	24 (11.3)	
3	12 (5.6)	
> 3	7 (3.3)	
Years trying to conceive		
< 1 year	25 (11.7)	
1–2 years	39 (18.3)	
2–3 years	41 (19.2)	
4–5 years	30 (14.1)	
> 5 years	78 (36.6)	

(Continued)

Table 1 (Continued).

Participant Characteristic	n (%)
Prior IUI trials	
0	120 (56.3)
1	41 (19.2)
2	26 (12.2)
3	7 (3.3)
> 3	19 (8.9)
Prior IVF trials	
0	97 (45.5)
1	51 (23.9)
2	22 (10.3)
3	13 (6.1)
> 3	30 (14.1)
Cause of infertility	
Sperm count or quality	72 (33.8)
Unexplained	37 (17.4)
Poor ovarian reserve	27 (12.7)
More than one of the mentioned factors	20 (9.4)
I have not completed all of the tests yet	18 (8.5)
Other	16 (7.5)
Polycystic Ovary Syndrome	14 (6.6)
Blocked fallopian tubes or previous salpingectomy	7 (3.3)
Endometriosis	2 (0.9)
Planned intervention	
IVF/ICSI	137 (64.3)
IUI	12 (5.6)
Did not decide yet	64 (30)

Abbreviations: IVF, in vitro fertilization; IUI, intrauterine insemination.

respectively. In addition, the majority agree or strongly agree that postponing their treatment will have a negative impact on them from a psychological or financial perspective (79% and 80%, respectively) and may affect their chances of a successful pregnancy in the future (77%).

Contagion Anxiety

In the treatment process, there was a sense of anxiety about contracting the COVID-19 virus by the participant, their partner, or another family member in 62%, 62%, and 53% of participants, respectively. The results also showed that 69% of participants worried about getting infected with the COVID-19 virus during pregnancy or spreading the infection to the fetus if the infertility treatment was successful. After calculating the mean of each participant's responses to the anxiety scale, the infection anxiety scale indicated a high (Mean = 3.77, SD = 0.92) level of anxiety among the participants (Table 6).

Table 2 Interruption to Infertility Management During the COVID-19 Pandemic

Type of Interruption	Yes	No
The investigation process that my partner and I were undergoing has been interrupted by the closure of infertility services.	108(50.7)	105(49.3)
The treatment process that my partner and I were undergoing has been interrupted by the closure of infertility services.	111(52.1)	102(47.9)
My partner and I decided to postpone investigations due to the COVID-19 outbreak.	119(55.9)	94(44.1)
My partner and I decided to postpone treatment due to the COVID-19 outbreak.	120(56.3)	93(43.7)

Note: Data are represented in n (%).

Discussion

This study demonstrates that fertility service clients in Jordan have been facing several dilemmas with regard to the continuation of their investigation and treatment processes during the COVID-19 pandemic. Over half of the participants in this survey witnessed an involuntary postponement of their management as a result of the outbreak-related closure of their caregiving facility. This was due to the enforcement of local and international health policies aiming to redistribute resources of the medical sectors to face the emerging burden of the COVID-19 outbreak.^{3,6,7}

Regardless of their personal choice to pursue or postpone infertility management during the pandemic, almost

three-quarters of participants thought that it was appropriate for couples to plan a pregnancy and seek investigations or treatment to achieve this, and even more felt that fertility care facilities should remain open and operating during the pandemic. Many participants felt that delaying such services due to the pandemic would have negative psychological and financial impacts on patients and may affect their chances of future pregnancy. This agrees with previous research by Boiven et al, where patients felt that fertility clinic closures could have a potentially negative impact on their lives and threaten the ability to achieve parenthood,¹⁴ Togkoz et al, who found that concerns regarding delayed treatment caused more anxiety than

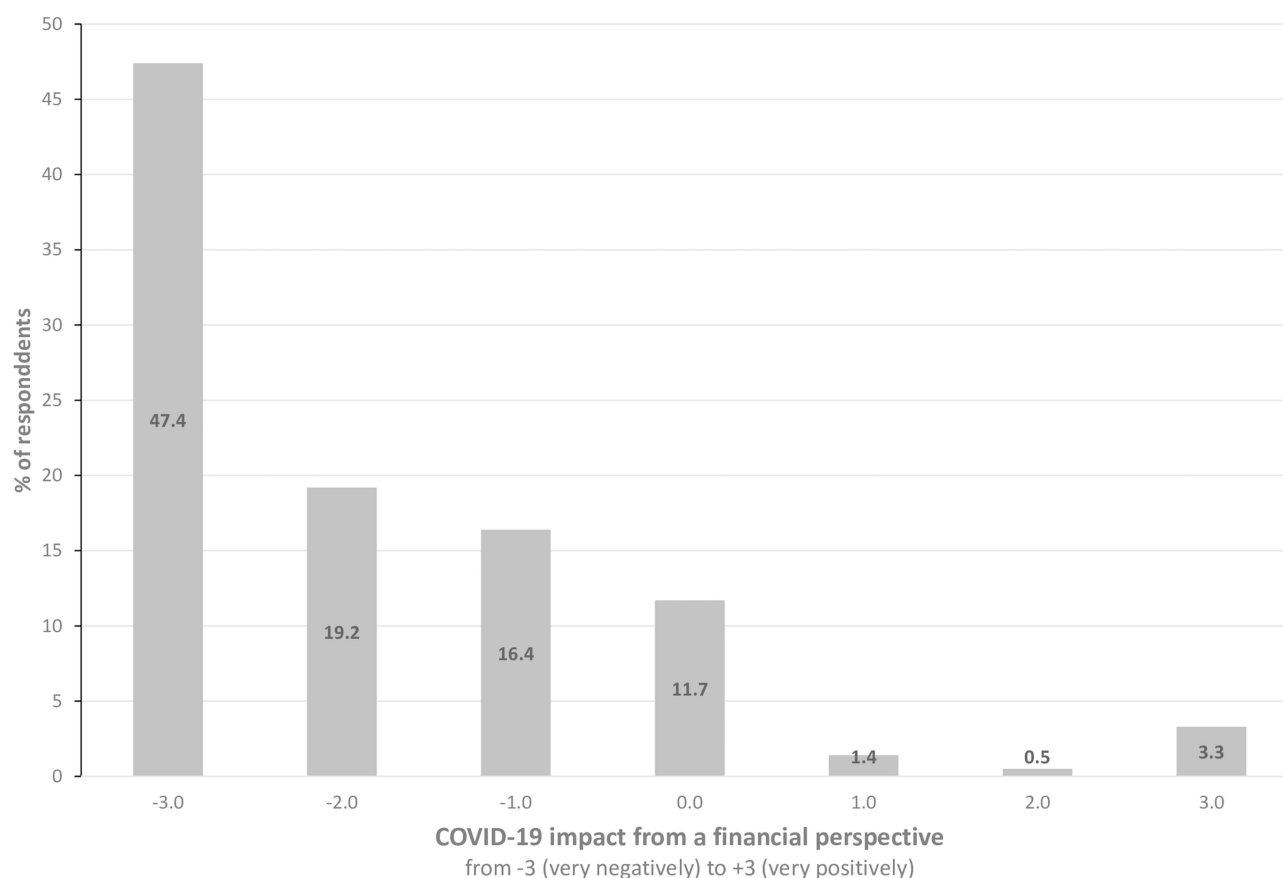


Figure 1 COVID-19 pandemic impact from a financial perspective.

Table 3 Participants' Decision to Postpone Treatment Due to the COVID-19 Outbreak in Relation to Income, Prior IUI and IVF Trials, and Contagion Anxiety

	Postpone Treatment		P value
	Yes	No	
Family income per month (Jordanian Dinar)			0.918
< 100	7 (3.3)	6 (2.8)	
100–200	10 (4.7)	5 (2.3)	
200–300	32 (15.0)	28 (13.1)	
300–500	39 (18.3)	29 (13.6)	
> 500	32 (15.0)	25 (11.7)	
Number of children			0.838
0	82 (38.5)	60 (28.2)	
1	17 (8.0)	11 (5.2)	
2	12 (5.6)	12 (5.6)	
3	6 (2.8)	6 (2.8)	
> 3	3 (1.4)	4 (1.9)	
Prior IUI trials			0.149
0	66 (31)	54 (25.4)	
1	18 (8.5)	23 (10.8)	
2	18 (8.5)	8 (3.8)	
3	4 (1.9)	3 (1.4)	
> 3	14 (6.6)	5 (2.3)	
Prior IVF trials			0.004
0	56 (26.3)	41 (19.2)	
1	18 (8.5)	33 (15.5)	
2	16 (7.5)	6 (2.8)	
3	8 (3.8)	5 (2.3)	
> 3	22 (10.3)	8 (3.8)	
Participants' concern about COVID-19 infection during clinic visits			0.089
Strongly disagree	2 (0.9)	2 (0.9)	
Disagree	12 (5.6)	12 (5.6)	
Neutral	23 (10.8)	21 (9.9)	
Agree	40 (18.8)	41 (19.2)	
Strongly agree	43 (20.2)	17 (8.0)	
Participants worried about contracting COVID-19 during IUI or IVF treatment			0.009
Strongly disagree	4 (1.9)	1 (0.5)	
Disagree	12 (5.6)	12 (5.6)	
Neutral	22 (10.3)	28 (13.1)	
Agree	38 (17.8)	37 (17.4)	
Strongly agree	44 (20.7)	15 (7)	

Notes: Data are represented in n (%); Indicates associations between the participants' decision to postpone treatment due to the COVID-19 outbreak in relation to income, prior IUI and IVF trial, and contagion anxiety.

Abbreviations: IVF, in vitro fertilization; IUI, intrauterine insemination.

concerns regarding contracting COVID-19,¹³ and Vaughan et al, who found that the stress of infertility is comparable to that of the pandemic.¹⁵ However, it is worth noting that more than half of the participants did not agree that such services should be provided in health care facilities that care for COVID-19 patients at the same time, possibly due to contagion anxiety.

Despite being concerned about delaying investigations and treatment, over half of participants were concerned about themselves, their partners or family members being infected during their treatment, and worried about contracting the infection during pregnancy if the treatment was successful. The fear of COVID-19 infection contributed significantly to the fact that over half of participants decided to postpone treatment or investigations regardless of the availability or closure of such services. Contagion anxiety seemed to play a more significant role than previously identified in earlier studies, such as that by Ben-Kimhy et al, where the majority of patients stated that they would pursue treatment if infertility services were resumed.¹⁶

Most participants thought that the investigation or treatment process should be interrupted if they, their spouse, or a household member was diagnosed with COVID-19. On the other hand, for just under a quarter, the desire to conceive was so strong that they would still proceed with their management plan in the presence of infection of one of the partners. Furthermore, over a third would proceed if another household member were infected at the time.

There was a significant association between the participant's concern about contracting COVID-19 and their decision to postpone treatment, but it did not seem to have a significant impact on delaying investigations. Participants were less likely to postpone seeking treatment or investigations if they had fewer children, but this finding did not reach statistical significance. The number of previous attempts of IVF was significantly related to the decision to postpone, whereas the number of previous IUI attempts was not, which agrees with previous research where patients with a shorter duration of treatment were less likely to postpone treatment.¹⁶

The authors acknowledge that this study is not without limitations. The survey was distributed via social media, therefore assuming access to such platforms and the internet. Infertility patients who do not have access may

Table 4 Participant Attitude Toward Receiving Subfertility and Assisted Reproduction Management During the COVID-19 Outbreak

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think it is appropriate to plan a pregnancy during the COVID-19 outbreak	5 (2.3)	16 (7.5)	43 (20.2)	75 (35.2)	74 (34.7)
I think it is appropriate to initiate investigations in preparation for IUI or IVF treatment during the COVID-19 outbreak.	6 (2.8)	21 (9.9)	28 (13.1)	80 (37.6)	78 (36.6)
I think it is appropriate to have IVF or IUI treatment during the COVID-19 outbreak.	9 (4.2)	23 (10.8)	29 (13.6)	81 (38)	71 (33.3)
I think it is appropriate to have IVF or IUI treatment in a medical facility that also provides care for COVID-19 positive patients.	23 (10.8)	47 (22.1)	45 (21.1)	55 (25.8)	43 (20.2)
I think it is appropriate to initiate IVF or IUI treatment if I have been diagnosed to be COVID-19 positive.	37 (17.4)	71 (33.3)	50 (23.5)	27 (12.7)	28 (13.1)
I think it is appropriate to continue IVF or IUI treatment if I have been diagnosed to be COVID-19 positive.	38 (17.8)	75 (35.2)	47 (22.1)	29 (13.6)	24 (11.3)
I think it is appropriate to initiate IVF or IUI treatment if my partner has been diagnosed to be COVID-19 positive.	41 (19.2)	69 (32.4)	53 (24.9)	23 (10.8)	27 (12.7)
I think it is appropriate to continue IVF or IUI treatment if my partner has been diagnosed to be COVID-19 positive.	36 (16.9)	72 (33.8)	54 (25.4)	25 (11.7)	26 (12.2)
I think it is appropriate to initiate IVF or IUI treatment if one of my household members has been diagnosed to be COVID-19 positive.	24 (11.3)	51 (23.9)	55 (25.8)	50 (23.5)	33 (15.5)
I think it is appropriate to continue IVF or IUI treatment if one of my household members has been diagnosed to be COVID-19 positive.	25 (11.7)	50 (23.5)	55 (25.8)	46 (21.6)	37 (17.4)

Note: Data are represented in n (%).

Abbreviations: IVF, in vitro fertilization; IUI, intrauterine insemination.

Table 5 Participants' Attitudes Toward the Provision of Assisted Reproduction Services During the COVID-19 Outbreak

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think that infertility clinics should continue to offer infertility investigations to patients during the COVID-19 outbreak.	1 (0.5)	9 (4.2)	22 (10.3)	81 (38)	100 (46.9)
I think that IUI treatment should continue to be available to patients during the COVID-19 outbreak.	2 (0.9)	11 (5.2)	26 (12.2)	85 (39.9)	89 (41.8)
I think that IVF treatment should continue to be available to patients during the COVID-19 outbreak.	3 (1.4)	8 (3.8)	24 (11.3)	88 (41.3)	90 (42.3)
I think that postponing my infertility treatment until after the COVID-19 outbreak will negatively affect my chances of achieving a successful pregnancy.	4 (1.9)	11 (5.2)	35 (16.4)	67 (31.5)	96 (45.1)
I think that postponing my infertility treatment until after the COVID-19 outbreak will add to the stress that my partner and I are experiencing due to our fertility problems.	3 (1.4)	7 (3.3)	32 (15)	63 (29.6)	108 (50.7)
I think that postponing my infertility treatment until after the COVID-19 outbreak will add to the financial burden my partner and I are experiencing due to our fertility treatment.	2 (0.9)	9 (4.2)	34 (16)	68 (31.9)	100 (46.9)

Note: Data are represented in n (%).

Abbreviations: IVF, in vitro fertilization; IUI, intrauterine insemination.

Table 6 Contagion Anxiety

Statements	S D	D	N	A	S A
I worry about the risk I might get COVID-19 during clinic visits for investigations or follicular tracking.	4 (1.9)	24 (11.3)	44 (20.7)	81 (38)	60 (28.2)
I worry about the risk I might get COVID-19 during IUI or IVF treatment.	5 (2.3)	24 (11.3)	50 (23.5)	75 (35.2)	59 (27.7)
I worry about the risk my partner might get COVID-19 during the treatment process.	6 (2.8)	23 (10.8)	50 (23.5)	78 (36.6)	56 (26.3)
I worry about the risk someone in my household might get COVID-19 during the treatment process.	9 (4.2)	29 (13.6)	61 (28.6)	66 (31)	48 (22.5)
I worry about the risk of becoming infected with COVID-19 during pregnancy if my treatment is successful.	4 (1.9)	18 (8.5)	43 (20.2)	78 (36.6)	70 (32.9)
I worry about the risk of my fetus being affected by COVID-19 if I become infected during pregnancy.	3 (1.4)	19 (8.9)	43 (20.2)	73 (34.3)	75 (35.2)

Notes: Data are represented in n (%); contagion anxiety was scored as follows: S A – 5, A – 4, N – 3, D – 2, and S D – 1; a score scale of 5 represented the greatest anxiety level, and a score of 1 represented a low anxiety level.

Abbreviations: S A, strongly agree; A, agree; N, neutral; D, disagree; S D, strongly disagree; IVF, in vitro fertilization; IUI, intrauterine insemination.

therefore be underrepresented. Furthermore, the sample represents a local community at one point in time. However, the fact that the study represents infertility patients from all geographical districts, medical sectors, and socioeconomic groups of the population supports its generalizability. Further similar studies in the region are required to further elaborate on these issues.

Conclusion

The global event of the COVID-19 pandemic has affected all aspects of medical care provision, including infertility services. In addition, there is an apparent disruption of the investigation and treatment process of infertile couples due to the closure of facilities and restrictions on service provision as a result of the national health provision policies during the pandemic and the couple's personal choice. This led to a conflict between the fear of pursuing management during an outbreak and risking exposure to infection and the concerns about delaying treatment, its impact on the chances of achieving a successful pregnancy, and the negative psychological and financial consequences of delaying treatment. Consequently, there is a clear discrepancy between the personal choices of the participants versus their general attitudes toward the provision of infertility services during the pandemic. In addition, more than half of the participants decided to postpone treatment due to concern about infection risk, although there was consensus that infertility services should still operate during this time for those who chose to continue their pursuit of parenthood during the pandemic.

The provision of infertility care is largely considered an elective service and is sometimes viewed as nonessential. Nevertheless, the uncertainty that patients face with regards to the achievability of their long-term fertility goals amidst an atmosphere of general unpredictability of the duration and extent of disruption of their treatment highlights the need to address the way in which these services can continue to provide for the patients safely and in a timely manner to support their choice if they decide to seek treatment during the outbreak while alleviating their concerns about contracting COVID-19 in the process. Concerns that COVID-19 infection threat will remain part of the new “normal” even after the pandemic subsides require adaptation of service provision to maintain efficiency while ensuring safety.

Acknowledgments

The authors would like to thank all the women who took the time and effort to respond to our questionnaire and shared with us their thoughts and anxieties.

Disclosure

The authors report no conflicts of interest in this work.

References

- Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020;395 (10223):497–506. doi:10.1016/S0140-6736(20)30183-5
- Sohrabi C, Alsafi Z, O'Neill N, et al. World Health Organization declares global emergency: a review of the 2019 novel coronavirus (COVID-19). *Int J Surg*. 2020;76:71–76. doi:10.1016/j.ijsu.2020.02.034

3. Ayadi R. COVID-19 in the Mediterranean and Africa: diagnosis, policy responses, preliminary assessment and way forward. *EMNES Studies*; 2020.
4. Hartnett AS, al-Natour E, al-Ajlouni L. Drastic measures: coercive enforcement and economic effects of pandemic suppression in Jordan. *The COVID-19 pandemic in the Middle East and North Africa*; 2020.
5. Muhaidat N, Fram K, Thekrallah F, Qatawneh A, Al-Btoush AA. Pregnancy during COVID-19 outbreak: the impact of lockdown in a middle-income country on antenatal health care and wellbeing. *Int J Womens Health*. 2020;12:1065. doi:10.2147/IJWH.S280342
6. De Souza MD, Nakagawa H, Taitson PF, Cordts EB, Antunes RA. Management of ART and COVID-19: infertility in times of pandemic. What now? *JBRA Assist Reprod*. 2020;24(3):231.
7. Veiga A, Gianaroli L, Ory S, Horton M, Feinberg E, Penzias A. Assisted reproduction and COVID-19: a joint statement of ASRM, ESHRE and IFFS*. *Fertil Steril*. 2020;114(3):484–485. doi:10.1016/j.fertnstert.2020.06.044
8. Alviggi C, Esteves SC, Orvieto R, et al. COVID-19 and assisted reproductive technology services: repercussions for patients and proposal for individualized clinical management. *Reprod Biol Endocrinol*. 2020;18(1):1–7. doi:10.1186/s12958-020-00605-z
9. The Jordanian Society for Fertility And Genetics. JFSG guidance on recommencing ART and infertility treatments during COVID-19 outbreak; May 15, 2020. Available from: <http://www.fertigen.com.jo>. Accessed March 30, 2021.
10. Serafini G, Parmigiani B, Amerio A, Aguglia A, Sher L, Amore M. The psychological impact of COVID-19 on the mental health in the general population. *QJM: Int J Med*. 2020;113(8):531–537. doi:10.1093/qjmed/hcaa201
11. Gordon JL, Balsom AA. The psychological impact of fertility treatment suspensions during the COVID-19 pandemic. *PLoS One*. 2020;15(9):e0239253. doi:10.1371/journal.pone.0239253
12. Esposito V, Rania E, Lico D, et al. Influence of COVID-19 pandemic on the psychological status of infertile couples. *Eur J Obstet Gynecol Reprod Biol*. 2020;253:148–153. doi:10.1016/j.ejogrb.2020.08.025
13. Tokgoz VY, Kaya Y, Tekin AB. The level of anxiety in infertile women whose ART cycles are postponed due to the COVID-19 outbreak. *J Psychosom Obstet Gynaecol*. 2020;18:1–8. doi:10.1080/0167482X.2020.1806819
14. Boivin J, Harrison C, Mathur R, Burns G, Pericleous-Smith A, Gameiro S. Patient experiences of fertility clinic closure during the COVID-19 pandemic: appraisals, coping and emotions. *Hum Reprod*. 2020;35(11):2556–2566. doi:10.1093/humrep/deaa218
15. Vaughan DA, Shah JS, Penzias AS, Domar AD, Toth TL. Infertility remains a top stressor despite the COVID-19 pandemic. *Reprod Biomed Online*. 2020;41(3):425–427. doi:10.1016/j.rbmo.2020.05.015
16. Ben-Kimhy R, Youngster M, Medina-Artom TR, et al. Fertility patients under COVID-19: attitudes, perceptions and psychological reactions. *Hum Reprod*. 2020;35(12):2774–2783. doi:10.1093/humrep/deaa248

Patient Preference and Adherence

Dovepress

Publish your work in this journal

Patient Preference and Adherence is an international, peer-reviewed, open access journal that focusing on the growing importance of patient preference and adherence throughout the therapeutic continuum. Patient satisfaction, acceptability, quality of life, compliance, persistence and their role in developing new therapeutic modalities and compounds to optimize clinical outcomes for existing disease

states are major areas of interest for the journal. This journal has been accepted for indexing on PubMed Central. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/patient-preference-and-adherence-journal>