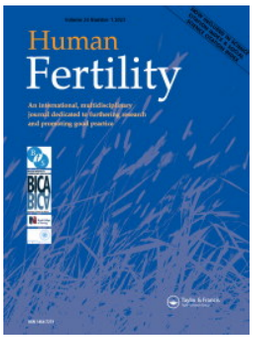

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ORIGINAL ARTICLE

Irish fertility patients' attitudes to pregnancy and risk mitigation strategies during the COVID-19 pandemic

Laurentina Schaler[a,b,c], Louise E. Glover[a,c] and Mary Wingfield[a,b,c]

[a]Merrion Fertility Clinic, Dublin, Ireland; [b]Department of Obstetrics and Gynaecology, National Maternity Hospital, Dublin, Ireland; [c]School of Medicine, University College Dublin, Dublin, Ireland

ABSTRACT

The effects of COVID-19 on fertility services became evident in early 2020. Fertility treatments were initially suspended following advice from international fertility governing bodies. We performed a web-based study to investigate the attitudes of male and female fertility patients in Ireland, for risk mitigation strategies and pregnancy advice during the first wave of COVID-19. Despite international recommendations and uncertainty regarding COVID-19 and pregnancy, over two thirds of patients continued trying to conceive, while awaiting recommencement of fertility services. When services resumed, the majority were keen to continue fertility treatment. They were agreeable to telemedicine in place of face-to-face consultations. They felt that privacy was maintained and were comfortable signing consent forms via video link. Large numbers, however, strongly disagreed with the no-partner policy for embryo transfer and early pregnancy scanning, highlighting the importance of partner support. Patients felt strongly that fertility treatments should be classified as essential services and that every effort should be made to continue treatments in future pandemics. These results highlight the importance of maintaining fertility services, while adapting to new practices that may be required. The primary concern of the infertility population is the desire for pregnancy and parenthood. This innate human need trumps concerns regarding COVID-19 for the majority of those affected.

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Assisted reproduction; COVID-19 pandemic; SARS-CoV-2; coronavirus disease 2019; fertility treatment

Introduction

Since early 2020, the world has experienced immense change due to the necessary but unprecedented measures implemented in a concerted effort to contain COVID-19. International analysis has indicated that the COVID-19 pandemic is likely to have significant ongoing global and economic effects in the months and years ahead, including a significant impact on healthcare (Nicola et al., 2020).

The effects of the global pandemic on the provision of fertility services became evident in early 2020. As initially there was no evidence available on the effects of COVID-19 in early pregnancy, the British Fertility Society (BFS), the European Society of Human Reproduction and Embryology (ESHRE) along with the American Society for Reproductive Medicine (ASRM) advised against the commencement of assisted reproductive treatment (ART) and advised consideration of cryopreservation in ongoing cycles, with the exception of emergency cryopreservation (American Society for Reproductive Medicine (ASRM), 2020a; BFS, 2020a; ESHRE, 2020; ESHRE Covid-19 Working Group, 2020a). It was recommended that fertility clinics remain available for supportive, clinical and psychological care (ESHRE Covid-19 Working Group, 2020a) and that telehealth be introduced to minimise in person interactions (American Society for Reproductive Medicine (ASRM), 2020a).

Following public debate and reanalysis of the global COVID-19 situation, ESHRE, ASRM, and the IFFS (International Federation of Fertility Societies) released a joint statement in May 2020 emphasising that reproduction is a human right and infertility a disease, therefore people suffering with infertility should not be denied treatment (Veiga et al., 2020). This statement was published to encourage clinics to recommence services, using careful risk mitigation measures.

BFS, ESHRE and ASRM each set up a COVID-19 task force in order to provide ongoing support and advice for the management of fertility services during the pandemic. Each body then published guidance on reopening fertility services, recommending a host of measures including reducing patient attendance, restriction of access for accompanying persons,

CONTACT Laurentina Schaler LSchaler@merrionfertility.ie Merrion Fertility Clinic, 60 Lower Mount Street, Dublin 2, Ireland

restructuring of clinical spaces and increased hygiene protocols (American Society for Reproductive Medicine (ASRM), 2020b; BFS, 2020b; ESHRE Covid-19 Working Group, 2020b). These documents assisted clinics in planning the resumption of services of their patients.

Stress and anxiety are common symptoms among fertility patients (Pasch et al., 2016). A US study showed that, even during the pandemic, infertility remained the top stressor for those seeking treatment (Vaughan et al., 2020). A Canadian study focussing on women who experienced disruption in their fertility treatment showed that most respondents described sadness, helplessness and anxiety during this time (Haham et al., 2021). Across Europe, fertility services were paused for approximately 7 weeks and patients reported that they found the cessation of treatment extremely stressful and in some cases, unfair (Boivin et al., 2020). A study by Gordon and Balsom (2020) found a significant decline in quality of life and negative impact on mental health in women whose fertility treatment was cancelled as a result of the pandemic. In addition, people who experienced cancellation of their fertility treatment due to international recommendations around COVID-19 reported that they desired more emotional support from their fertility clinic (Kim et al., 2020). Notably, the majority of studies to date have focussed solely on female fertility patients and their reactions to the COVID-19 pandemic.

Although fertility services have largely resumed since the second half of 2020 and are, at the time of writing, running at close to full capacity, it is vital that providers and patients plan for the months and years ahead and produce a framework specific to fertility services in times of crisis.

In line with international guidance, during the first wave of the pandemic, patients at our clinic were informed of the paucity of data concerning the possible effects of COVID-19 on gametes, embryos and early pregnancies and all ongoing routine cycles of assisted reproduction were converted to elective oocyte or embryo freezing. Nevertheless, our clinic remained open for telemedicine consultations and continued to provide virtual psychological and clinical support to patients. Adjustments were made to clinic procedures to enhance social distancing, to reduce staff and patient footfall, to increase the use of PPE and to upgrade hygiene procedures. The purpose of this study was to determine the attitudes of both male and female patients attending an Irish fertility clinic, during this first wave of the pandemic, to pregnancy at this time, and to the risk mitigation strategies taken.

Materials and methods

Recruitment of study participants

This study was conducted at a private not-for-profit fertility clinic associated with the National Maternity Hospital in Dublin, Ireland. At present in Ireland, there is no public funding for ART and the clinic, although privately run, does not make profit beyond operational costs on a yearly basis. The clinic receives 700 referrals and performs approximately 500 IVF/ICSI cycles per year.

Both men and women with scheduled appointments at the clinic over the 7-week period during the initial lockdown (March–May 2020) were recruited using a secure online clinical database. Eligibility criteria included all patients with appointments for doctor or nurse consultations, ultrasound visits, semen analysis, oocyte retrieval, embryo transfer and phlebotomy services. An anonymous 25-item questionnaire was distributed via secure email link to patients. They were invited to complete the questionnaire and assured that all data would remain anonymous. The questionnaire was sent to a total of 828 individual patients and a reminder was circulated seven days later. If registered as part of a couple, each individual received their own link and invitation to the survey. The questionnaire remained open for 28 days.

Study questionnaire

The questionnaire focussed on three factors. Firstly, attitudes of fertility patients to conceiving during a pandemic. Secondly, disruption to services and attitudes towards risk mitigation strategies and thirdly, how participants felt fertility services should be treated in the event of a future large scale global pandemic. The survey questionnaire is available on request to the study authors.

Ethical approval

This study was approved by the Research Ethics Committee at the National Maternity Hospital (reference EC33.2020).

Statistical analysis

Data collected from the survey questionnaires was analysed using GraphPad Prism to explore descriptive

statistics and frequencies relating to the participants' knowledge, attitudes and behaviour towards the study questions. Categorical variables were analysed using χ^2 test or a Fisher's exact test where appropriate; a p-value of <0.05 was considered significant.

Results

Overall, 135 responses were received, giving a response rate of 16%. Of respondents who disclosed their gender, 79% ($n = 105$) were female and 21% ($n = 28$) male. A total of 98% of participants were in a relationship and 87% were nulliparous. Most participants (96%) had completed university/college and 89% were fully employed.

Attitudes to conceiving during a pandemic

During the period of initial lockdown, 75% ($n = 101$) of participants overall experienced no change in their desire to try to conceive naturally. 69% ($n = 92$) of all participants continued trying to conceive despite international concerns regarding COVID-19 and pregnancy. Of these 92 respondents, 45% ($n = 41$) expressed concerns regarding safety of pregnancy, wellbeing of the foetus in pregnancy and contracting COVID-19 in a healthcare setting. However, the level of concern was not sufficient to deter them from trying to conceive.

Disruption to services and attitudes towards risk mitigation strategies

Over 85% of participants experienced a disruption to their fertility journey during the period under investigation (Figure 1). As fertility services were initially classified as non-essential, treatments were deferred. When asked if they agreed with this classification, the majority surveyed (93%) stated that fertility treatment should be considered essential. To further explore patient perceptions and understanding of the decision to stop fertility treatments, respondents were asked to elaborate on the factors they felt justified that decision. A total of 18% felt that the decision was justified in order to minimise additional stress on the healthcare system and 23% in order to adhere with international guidance. Surprisingly, only 17% felt that the decision to stop fertility treatments was justified because of concerns regarding the safety of pregnancy during the pandemic and only 4% due to concerns regarding the unknown impact of the virus on a developing foetus. There was no significant difference between male and female responses to these questions regarding cancellation of services.

Was your fertility journey disrupted during March - May 2020?	n	%
Not disrupted	14	10
Appointment cancelled	10	7
Appointment changed to virtual consultation	28	21
Treatment start date delayed	40	30
Treatment cycle cancelled	29	21
Treatment cycle completed up to egg collection but embryo transfer deferred	5	4
Other	9	7

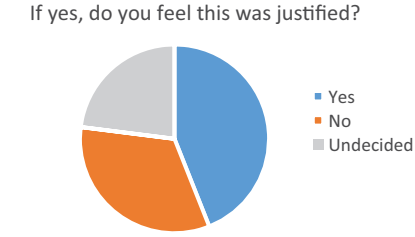

Figure 1. Patient experiences and attitudes towards disruptions in fertility treatments.

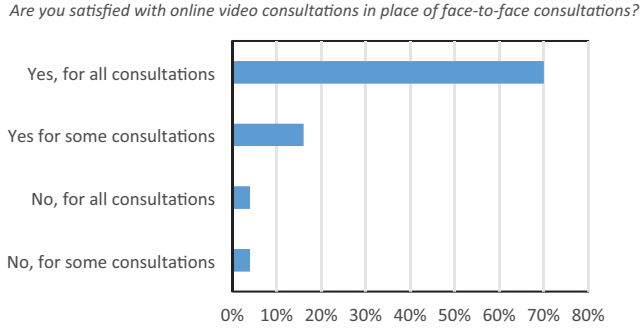

Figure 2. Satisfaction with online video consultations in place of face-to-face consultations.

When fertility treatments were suspended, consultations from our clinic continued remotely, requiring both patients and doctors to adjust to a new remote consultation environment. 70% of respondents were satisfied with online video consultations (Figure 2). The majority of participants (92%) felt that privacy was maintained. A total of 95% of patients agreed that they would be happy signing consent forms via video link. There was no difference between male and female attitudes to remote consultations.

A no partner policy was introduced when fertility treatments recommenced, to protect the health and safety of patients and staff. Many disagreed with the no partner policy at early pregnancy scans (57%) and embryo transfer (44%); however, they agreed with it for phlebotomy and treatment scans. When sub-analysis was performed by gender, more women disagreed with this policy and this was significantly different for pregnancy scans (64 vs 36%, Table 1).

Table 1. Patient dissatisfaction with the 'no partner policy' at the fertility clinic.

I really disagree with the no partner policy in the following situations:	Total (%)	Females (%)	Males (%)	*p*-value
Blood tests	1 (0.7%)	0 (0%)	1 (4%)	0.1858
Baseline/Treatment scans	15 (11%)	10 (10%)	5 (18%)	0.1458
Egg collection	44 (33%)	35 (33%)	9 (32%)	1.0000
Embryo transfer	59 (44%)	49 (47%)	10 (36%)	0.0384
IUI	43 (32%)	35 (33%)	8 (29%)	0.7759
Pregnancy scans	77 (57%)	67 (64%)	10 (36%)	0.0023

Patient perspective on fertility services in case of a future pandemic

In the event of a future pandemic, 63% of participants stated that every effort should be made to continue with fertility services and 16% felt they should probably be continued (Figure 3). However, approximately 50% would agree with cancellation in the following scenarios: (i) if hospitals cannot cope (50%); (ii) only for at-risk individuals (50%); (iii) until it is known if there is an impact on the developing foetus (45%); and (iv) until it is known if there is an impact on the mother (46%).

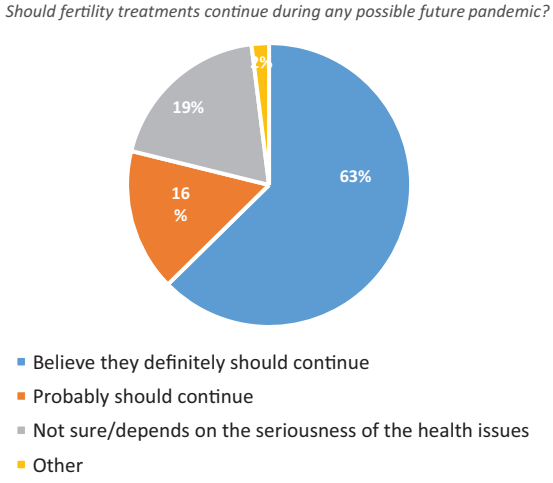

Figure 3. Perspective on fertility services during a future pandemic.

Discussion

2020 saw COVID-19 lead to major disruption across healthcare services worldwide. In Spring 2020, fertility services were scaled back in line with international guidelines published by BFS, ESHRE and ASRM. This led to an abrupt cessation of fertility treatments. We describe the attitudes of male and female fertility patients attending a not for profit fertility service for pregnancy advice and risk mitigation strategies during the first wave of the COVID-19 pandemic.

Despite international recommendations, uncertainty regarding the safety of pregnancy for the mother and foetus or indeed fears of contracting COVID-19 in a healthcare setting, over two thirds of patients attending our fertility service continued trying to conceive naturally while awaiting the recommencement of fertility treatments. A large majority of respondents felt that the international COVID-19 pandemic had no effect on their focus on trying to conceive. This suggests that, although there was some reluctance to engage with medical services, the desire to conceive outweighed concerns regarding COVID-19. Fertility for many can be a time sensitive issue, especially for those with low ovarian reserve or in the later stage of their reproductive years so postponement of attempts at conception is often not an option.

The initial closure of fertility clinics was perceived by the fertility population as being discriminatory and not well founded (Boivin et al., 2020). Following analysis of responses in our study, it appears that those availing of fertility services in our clinic similarly felt strongly that fertility treatments should be classified as essential services and that therefore, if a future pandemic were to occur every effort should be made to continue with these treatments.

Telemedicine, as we have experienced during the pandemic, is an invaluable tool. This study is the first, to our knowledge, to investigate Irish fertility patient reactions to telemedicine. A pre-pandemic Telemedicine and Digital Health Survey described telemedicine as an accessible approach to medical consultations and a financially viable option for organisations (Foley & Lardner LLP, 2017). Nevertheless, Telemedicine can also be challenging, and for patients, a consultation requires access to a device, reliable internet connection, ability to navigate the system and an understanding of communication etiquette. It also poses challenges for professionals conducting consultations, as a physical examination is not possible (Calton et al., 2020). When the level of widespread disruption became evident, individual medical organisations worked tirelessly to release guidelines and recommendations for conducting online patient consultations. Telemedicine in fertility services rapidly gained momentum with many clinics shifting to virtual consultations. BFS, ESHRE and ASRM

in their guidance on recommencing ART treatments recommended the use of telemedicine for all consultations where no direct patient contact is necessary (BFS, 2020b; American Society for Reproductive Medicine (ASRM), 2020b; ESHRE Covid-19 Working Group, 2020b). Our results, in keeping with other published data (Kim et al., 2020), demonstrate that the majority of fertility patients were keen to continue availing of fertility services and were satisfied with telemedicine in place of face-to-face consultations where possible. Our respondents felt that during telemedicine consultations, privacy was maintained and that they would be comfortable signing consent forms via video link with a member of the team.

Although enforced changes implemented within the clinical setting, such as telemedicine, were perceived by a large majority to be acceptable, the implementation of a no partner policy to protect against the spread of infection was difficult for many. In situations such as oocyte retrieval, embryo transfer and early pregnancy scanning, large numbers of participants in our study stated that they strongly disagreed with the non-partner policy. This highlights the importance of partner support and resonates with research showing that infertility and its associated treatments can increase the strength of relationships (Schmidt et al., 2005) and that there is a link between stress caused by infertility and perceived partner support (Martins et al., 2014).

Others studies have also examined how COVID-19 related disruptions were perceived by fertility patients, with a strong focus by most on women. A strength of our study is that both genders were included. Unfortunately, due to the anonymous nature of the study, we do not know if males and females were partners or not. While the number of male respondents in our study is relatively small ($n = 28$), we do contend that inclusion of this male perspective is an important and to date largely overlooked aspect of the fertility population's perspective. This is also the first study to analyse the reactions of an Irish fertility population during the global pandemic. As Ireland does not currently provide state funding for ART, it is particularly interesting to reflect on this population's support of ART as an essential service during a pandemic, even in the context of considerable personal financial burden.

A weakness of this study is the low response rate and that almost all participants were in a relationship, had completed higher education and were fully employed. Attitudes to risk mitigation factors such as telemedicine may differ for those of lower socioeconomic groups who may have less access to adequate and confidential internet services. A further limitation of this study is that it focuses on the first wave of COVID-19. The long term, ongoing nature of the pandemic may influence participants' perspectives on the areas investigated over time.

It is estimated that approximately once in a generation the world will face a global pandemic. Fertility stakeholders must learn from the events of the COVID-19 pandemic and the numerous cross sectional studies reviewing the effects of the pandemic on those availing of fertility services and their attitudes to service provision. Results from this study highlight the importance of continuing to provide fertility services, while also adapting to new practices that may be required. Some of these new practices such as e-consents and telemedicine may also be beneficial in non-pandemic times. We must also be aware that the primary concern of the infertility population is the desire for pregnancy and parenthood. This innate human need trumps concerns regarding COVID-19 for the majority of those affected.

Disclosure statement

The authors report no conflict of interest.

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