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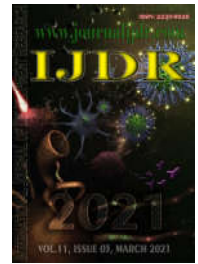
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RESEARCH ARTICLE

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THE IMPACT OF COVID-19 ON WOMEN'S MENTAL HEALTH AND QUALITY OF LIFE: A UNIVERSITY PUBLIC HOSPITAL SURVEY

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ABSTRACT

Objective: A new pandemic was declared by the World Health Organization in January 2020. Since this event, there have been many concerns about pregnant women and those with other health conditions, such as infertility and endometriosis. The aim of the current study was to analyze emotional and psychosocial impacts of the COVID-19 pandemic on female patients exposed to different health conditions. **Study design:** a transversal study was performed in a university hospital among pregnant women undergoing prenatal care and the patients with the diagnosis of endometriosis and infertility, by an online questionnaire. **Results:** For anxiety, no statistically significant difference was found. For depression, we found that women with infertility (CI 95%: -0,7830 - -0,0688, p-value 0,013), high risk pregnancy (CI 95%: -0,9592 - -0,2956 p-value 0,000) and low risk pregnancy (CI 95%: -1,0578 - -0,2755 p-value 0,000) had more symptoms. For stress, we found that women with infertility (CI 95%: -0,7990 - -0,0899) and high-risk pregnancy (CI 95%: -0,6709 - -0,0120, p-value 0,039) had more complaints. **Conclusion:** Our study showed that pandemic may have worsened the mental health of some groups of female patients. To ensure better assistance, psychosocial aspects of these patients must be valued.

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INTRODUCTION

In December 2019, a new disease called COVID-19 caused by the novel coronavirus (SARS-Cov-2) emerged in Wuhan, China. It has spread to other continents, and in March 2020, the World Health Organization (WHO) announced the outbreak of a pandemic, considering it an international public health emergency (Carbone *et al.*, 2020). The COVID-19 pandemic brought psychological distress to populations all around the globe. Aside from the concerns of being infected and physically ill, the social and economic impacts are noteworthy (Brooks *et al.*, 2020; Jiang *et al.*, 2020). People experiencing drastic life-changing periods, as infection outbreaks and social isolation, may have more anxiety, depression, and panic (Cullen *et al.*, 2020; Schmidt *et al.*, 2020). The sequels on mental health can predispose to a reduction in quality of life and even increase suicidal ideation and death. Only long-term studies will be capable of measure the real damage raised by the Covid-19 pandemic on mental health. (Schmidt *et al.*, 2020). Women's health care during the pandemic period is needed since this gender is often the social group more affected by the crisis.

According to the *Instituto Brasileiro de Geografia e Estatística* (IBGE), female individuals occupy more precarious and informal labor positions, as well as are often responsible for the economy and domestic and maternal care (Care International, 2020). They are also the majority among the health professionals, being more susceptible to contagion (Moreira *et al.*, 2020; Sousa Cagliari Hernandes and Vieira, 2020). In this scenario, women that have certain health conditions related to high levels of stress and depression may be more susceptible to the beginning or worsening of mental disorders. Among them, we can cite chronic diseases, like infertility and endometriosis, and the pregnancy-puerperal cycle. Infertility is a world health problem, and WHO recognizes it as a disease (OMS, 2020). Couples often experience infertility as a crisis. Infertile women deal with psychological pressure related to social demands, disease stigma, uncertainties, and restricted access to treatments. It can generate a wide range of feelings, such as frustration, fear, shame, and changes in sexuality and self-esteem (Cousineau and Domar, 2007). Furthermore, postponing the infertility treatments during the pandemic can exacerbate depression and anxiety, especially in women and couples with longer infertility time.

(Esposito *et al.*, 2020). Endometriosis is a chronic inflammatory disease of women in the menacme. Because of its relation to disabling pain and infertility, women with the condition can course with high-stress levels, anxiety, and depression. Some studies show that the intensity of distress is directly related to the severity of the endometriosis, pain gravity, and humor regulation. (Donatti *et al.*, 2017). Moreover, repeated and increased exposure to stress might accelerate the development and progression of this disease. The pregnancy-puerperal cycle is also a particular moment in women's lives. It is a period of significant physical changes, humor disorders, and negative impacts on quality of life, especially in high-risk pregnancies (Arrais *et al.*, 2019; Baptista *et al.*, 2006). The increased stress levels during pregnancy seem to be associated with some complications, including premature labor, lower infant birth weight and lower socio-emotional and cognitive development, some of the main responsible for neonatal morbidity and mortality (Coussons-Read, 2013). Based on this integrated view, we aim to analyze the emotional and psychosocial impacts of the COVID-19 pandemic on female patients exposed to different health conditions.

METHODOLOGY

This was a transversal study performed in a University Hospital, after the local Ethics Committee's approval. The study population included pregnant women undergoing prenatal care from March 2020, and all the patients followed up in the Endometriosis and Infertility specific outpatient clinics. From June to September 2020, an online questionnaire was sent for all the above-cited patients, that had a valid cell phone number or email registered in the medical records. Patients who have not answered up to three attempts of contact or who have incompletely filled out the questionnaire were excluded. One hundred and twenty three women (123) completed the online survey, after accepting the informed consent form. The survey intended to assess symptoms related to depression, anxiety and stress, and the patient's perception of quality of life. It was composed of two validated questionnaires: 1) Depression, Anxiety and Stress Scale (DASS-21)- short form; and 2) The World Health Organization Quality of Life, brief – (WHOQOL-bref). (Silva *et al.*, 2016; Fleck, 2000). In the final part of the survey, patients also answered specific questions regarding the impact of the COVID-19 pandemic on their quality of life and mental health. The patients were divided into 4 groups, namely: endometriosis; infertility due to causes other than endometriosis; high-risk pregnancy; low-risk pregnancy. After that, they answered the questionnaires as mentioned above. The responses to the DASS-21 questionnaire is subdivided into three main parameters: depression, anxiety, and those related to stress. The WHOQOL-bref, on the other hand, analyzes the patient's quality of life by asking questions that can be divided into some subgroups, such as: general; physical; psychological; social relationships; environment. All the questions have a grade in which the patient answer how much the quality of life was affected in the past few days. The ANOVA test was performed to calculate whether there was a difference in the responses given by the four groups studied.

RESULTS

Among the 123 patients included in the study, 20 had endometriosis (16.3%), 44 had infertility (35.8%), and 59 were pregnant women, of which 41 was classified as having a high-risk pregnancy (33.3%), and 18 as a low-risk pregnancy (14.6%). Among the reasons for a high-risk pregnancy, the most prevalent were gestational diabetes (10 patients) and maternal hypertensive disorder (6 patients). The DASS-21 questionnaire has 7 questions for each of the variables: anxiety, stress and depression. In each question the patients could answer: 0 which corresponds "nothing was applied to me"; 1 which corresponds to "applied to me a few times"; 2 which corresponds to "applied to me many times"; and 3 which corresponds to "applied to me most of the time". We added up all the responses and found the percentage of patients in each group, who had answered that such variable had applied to her often or most of the time (Table 1).

Table 1. Answers to DASS-21: mental health analysis among the four groups of patients

Area	Endometriosis	Infertility	High-risk Pregnancy	Low-risk Pregnancy
Depression	46,3%	51,7%	31,7%	29,2%
Anxiety	30,0%	39,2%	42,1%	34,7%
Stress	62,5%	63,6%	67,1%	65,3%
Total of women	20	44	41	18

In Table 1, only the patients who had significant symptoms were considered. Those who claimed to have partially or mild symptoms were not included in this first analysis. After that, all responses of each group were taken in account for calculating the difference between the groups. The ANOVA test was performed to check if there was a statistically significant difference between the groups regarding the presence of depression, anxiety, or stress. In cases of statistically significant difference, post hoc tests were performed to found between what groups the differences existed. For anxiety, no statistically significant difference was found. For depression, we found that women with endometriosis had fewer depressive symptoms than women with infertility (CI 95%: -0,7830 - -0,0688, p-value 0,013), women with high risk pregnancy (CI 95%: -0,9592 - -0,2956 p-value 0,000) and women with low risk pregnancy (CI 95%: -1,0578 - -0,2755 p-value 0,000). When the other groups were analyzed, no statistically significant difference was found. For stress, we found that women with endometriosis had fewer stress symptoms than women with infertility (CI 95%: -0,7990 - -0,0899) and women with high-risk pregnancies (CI 95%: -0,6709 - -0,0120, p-value 0,039). When the other groups were analyzed, no statistically significant difference was found.

Table 2. Answers to the WHOQOL-bref: quality of life analysis among the four groups of patients

Area	Endometriosis	Infertility	High-Risk Pregnant	Low-Risk Pregnant
General	25,0%	20,5%	3,67%	5,50%
Physical	26,4%	22,4%	27,5%	23,8%
Psychological	36,0%	32,3%	29,8%	20,0%
Social	37,5%	31,8%	20,1%	20,8%
Environmental	31,25%	36,6%	26,5%	25,7%
Total of women	20	44	41	18

Data obtained from WHOQOL-bref was used for accessing patients' quality of life. At the first moment, we considered only the patients who had significant complaints. As shown in Table 2, pregnant women reported better quality of life than patients with infertility and endometriosis. The ANOVA test was performed to check if there was a statistically significant difference between the groups (patients with endometriosis, infertility, low and high-risk pregnancies) regarding the presence of problems in the quality of life in the general, physical, psychological, social, and environmental areas. In cases of statistically significant differences, post hoc tests were performed to found between what groups the differences existed. For physical, psychological, and social areas, no statistically significant differences were found between any groups. For the quality of life in general, pregnant patients, whether at high risk or not, had an average response compatible with a better quality of life than the average response of infertile patients (95% CI: -0,5598 - -0,115 p-value 0,001 when comparing infertile patients and high-risk pregnant women, and 95% CI: -0,5775 - -0,0314 p-value 0,023 when comparing infertile patients and low-risk pregnant women). For the quality of life regarding the environment, the only statistically significant difference was found between women with infertility and high-risk pregnant women (95% CI: -0,6800 - -0,0634 p-value 0,011), which means that women with high-risk pregnancy have fewer problems about environmental and quality of life than those with infertility. When calculated ANOVA factor to analyze if some found was different between any groups, the only one that had statistic relevance was 'fear of losing a loved one' with a p-value of 0,015 at 95% CI.

Table 3. The influence of COVID-19 pandemic on mental health and quality of life

	Endometriosis	Infertility	High Risk Pregnant	Low Risk Pregnant
Felt stressed by social distance	45% (9)	56,8% (25)	73,2% (30)	77,8% (14)
Felt stressed by fear of getting sick	35% (7)	61,4% (27)	73,2% (30)	77,8% (14)
Felt stressed by fear of losing a loved one	40% (8)	63,6% (28)	75,6% (31)	77,8% (14)
Felt stressed by fear of economic crisis generated by pandemic	65% (13)	63,6% (28)	48,8% (20)	61,1% (11)
The pandemic influenced the answers	55% (11)	65,9% (29)	61,0% (25)	61,1% (11)
Total of women	20	44	41	18

Despite that, when the post hoc tests were analyzed, we found out that infertile women have been less stressed by social distance than pregnant women (0,005 – 0,3739 95% CI). Considering the fear of losing a loved one, the group of women with endometriosis had less fear than women with infertility and pregnant women (0,339 – 1,2994 95% CI and 0,1360 – 1,3894 95% CI). However, it is not possible to compare pregnant and infertile women at the 95% confidence level. No differences were found in the ‘felt stressed by fear of getting sick’ or ‘felt stressed by the economic crisis’.

DISCUSSION

Women with high-quality assistance have better therapeutic adherence, improvement of symptoms, and improvement of unfavorable outcomes than those with worse health care. (Peixoto et al., 2011). The patient's psychosocial approach is essential for ideal quality assistance. Mental disease can limit daily activities, worsening quality of life (Kazemi et al., 2017). Moreover, the simple fact of receiving the confirmation of pregnancy, or a diagnosis of a disease, such as endometriosis and infertility, can become a stress factor for daily life (Kazemi et al., 2017). The literature makes it clear that patients with infertility have a higher prevalence of psychiatric problems, with higher rates of depressive and anxious symptoms, in addition to greater somatization (Vitale et al., 2017). Among our study population, we observed increased levels of depression symptoms in women with infertility. A possible explanation for this finding relies on the fact that some women had to postpone their infertility treatment during the COVID-19 pandemic, not knowing when they could return or when their problem would be solved (De Souza et al., 2020). Furthermore, almost 66% of these patients answered that the COVID-19 pandemic had influenced their answers to the questionnaires. As for stress, we found that women with a diagnosis of infertility and those high-risk pregnant women showed more symptoms of stress than those with the diagnosis of endometriosis and those women who had a low-risk pregnancy. Reproduction is a very important parameter in women's mental health (Jung & Kim, 2017). Many people believe that their reproductive capacity is directly linked to their value as a human (Jung & Kim, 2017). Therefore, situations that hinder such capacity, such as infertility, or that threaten to hinder, such as high-risk pregnancies, are sources of stress and can explain the findings of our study.

Despite the aforementioned questions concerning pregnancy, a European study in 2018 showed that, in general, during the gestational period the woman has a good to an excellent quality of life, whether the pregnancy is high or low risk (Mazuchova et al., 2018). This finding is compatible with our study, which showed that pregnant women had a better quality of life when compared to infertile women and those diagnosed with endometriosis. Pregnant women also had fewer complaints and better quality of life than the others, regarding the environment and fewer complaints about social isolation, which may be explained by the fact that they continued to leave home for their medical appointments, which were not suspended, unlike the endometriosis and infertility clinics. Finally, regarding the fears of the pandemic, the fear of losing a loved one stood out among pregnant patients and patients diagnosed with infertility. Such a finding can be understood when analyzing the social pressure imposed by society for women to be a mother and that she is responsible for the children. Despite all this, we cannot fail to state that the low number of patients was an important limitation of the study, which may have had an

the study, which may have an impact on statistical analysis. It would with other pathologies for enlarging the knowledge about the real impact on the statistical analysis. It would be interesting to evaluate women with other pathologies for enlarging the knowledge about the real impact of the COVID-19 pandemic on the mental health and quality of life of our female patients.

Conclusion

The psychosocial changes that come with the diagnosis of a change in the woman's reproductive health may affect their quality of life as much as the organic symptoms imposed by such pathologies. Moreover, our study showed that the pandemic might have worsened the mental health of some groups of female patients. To ensure better assistance, the psychosocial aspects of these patients must be valued.

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