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Abstract

Background: The COVID-19 pandemic had serious impact on the social, economic, psychological, and physical aspects of a large segment of the society, including women who were married or in stable relationships.

Aim: To evaluate changes in the desire to become mothers among married women in Türkiye during the COVID-19 pandemic.

Methods: This cross-sectional study used data from a self-administered questionnaire that examined the demographics and fertility preferences of 520 married Turkish women. We used the Fear of COVID-19 Scale (FCV-19S), Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) to measure fear, depression and anxiety related to COVID-19. We evaluated fertility preferences before and during the COVID-19 pandemic. Data analysis was conducted using SPSS version 11.5.

Results: Fifty of 112 study participants who planned to get pregnant halted their plans because of the pandemic. In contrast, 21 of 408 study participants who did not plan a pregnancy decided to get pregnant during the pandemic to enhance their positive disposition and overcome loneliness, and because of the increased leisure time and intimacy with their spouses. Mean scores (standard deviation) for all participants for PHQ-9, GAD-7, and FCV-19S were 7.4 (6.02), 4.93 (4.84), and 17.28 (6.16), respectively.

Conclusion: This study highlights the negative impact of the COVID-19 pandemic on women's fertility preferences in Türkiye due to uncertainty and anxiety. To confirm the results of this study, more research is needed to examine the longer-term impact and among a larger population.

Keywords: COVID-19, pandemic, fertility preferences, pregnancy plan, mental health, Türkiye

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Introduction

The COVID-19 pandemic was declared by WHO in March 2020 (1, 2). According to WHO data, by 24 January 2023, 664 million people had been infected and > 6 million had died, and in Türkiye, there were > 17 million confirmed cases and > 101 000 deaths (1).

The COVID-19 pandemic affected economic and social life as well as physical health. Major economic losses occurred in every country; salaries were often lowered and many people lost their jobs. The consequent decrease in income had social costs, such as psychological problems, loss of confidence, and alienation from the environment. During this period, women's fertility preferences began to change and the national fertility rates declined (3, 4). Women's childbearing intentions may change throughout their reproductive life because of the direct and indirect costs of parenting, according to their partner's wishes, and whether their relationship is stable or not (5). A serious health condition can also significantly influence the desire for childbearing (6). Uncertainty about the COVID-19 pandemic further complicated women's attitudes towards future pregnancy. A study from Italy reported that > 30% of people who planned to become parents before the pandemic avoided pregnancy, but 11.5% of participants had an increased desire for pregnancy during quarantine (7). It is unclear whether the COVID-19 pandemic will lead to a decline in births globally (8). In the early stages of the pandemic, short-term changes were observed regarding childbearing in several developed countries but there was a return to normal levels within a short time. The situation in low- and middle-income countries was similar to that in developed countries (9). Temporary fluctuations

in fertility rates have been observed previously in other crises in many countries, such as the global economic recession in 2008, when economic hardship and unpredictability about the future caused short-term declines in fertility (10).

In this study, we aimed to determine the change (or stability) in individual fertility preferences of women of reproductive age in Türkiye during the COVID-19 pandemic. We also aimed to highlight the effects of the pandemic on the mental health of the general public and healthcare workers and to explore how pandemic fear may affect women's childbearing preferences in the future.

Methods

Study design and population

This was a questionnaire-based cross-sectional study conducted among 520 women in Ankara Gülhane Training and Research Hospital who were patients, companions, or employees between 11 March and 11 May 2021, which coincided with the increase and peak of COVID-19 infection, and social restrictions were in effect. At that time, COVID-19 vaccines were not available and none of the participants was vaccinated. The inclusion criteria were: (1) age 18–45 years; (2) married for at least 1 year; (3) a minimum primary school education; and (4) sufficient language proficiency to understand the survey questions. Exclusion criteria were: (1) women who were already pregnant; (2) a history of infertility; and (3) refusal to take the survey. Demographic variables included age, number of children, household income, employment status, current education level, and chronic somatic and mental illnesses (Table 1).

Power analysis was performed using GPower (v3.1.9.7) to determine the sample size. The power of the tests used in this study, $1-\beta$ (β = type II error probability) was determined as 10%, and the effect size was 0.51 to obtain 90% of the power at the level of $\alpha=0.05$. The GPower test revealed that there should be at least 475 people in the study. Considering the possibility of data loss, 10% more participants were included, which gave a total of 520 participants.

The self-administered questionnaire was designed to evaluate the effects of the COVID-19 pandemic on couples' quality of life and mental health, and women's fertility preferences. The questionnaire consisted of closed and open-ended questions including demographic, factual, and attitude questions by examining the variables in previous studies on the subject (6, 11, 12). The Patient Health Questionnaire (PHQ-9), Generalized Anxiety Disorder Assessment (GAD-7), and Fear of COVID-19 Scale (FCV-19S) were used to assess the participants' mood during the pandemic. In terms of intelligibility of the questionnaire, it was tested in a small number of groups with similar inclusion criteria before the implementation.

Fertility preferences

Fertility preferences before and during the COVID-19 pandemic were evaluated. Participants reported whether the pandemic had changed their fertility preferences. They were asked about what influenced their decisions and various response options were presented. The questions included a range of variables measuring the living conditions of the participants that may have influenced their fertility desires, such as the average time spent at home with a partner during the day. Socioeconomic factors, such as being away from home for work and the differences in monthly household income compared with the prepandemic period, were investigated. The participants stated whether they had chronic diseases that could affect a future pregnancy, such as hypertension or diabetes. They were asked whether they or their spouses had COVID-19 and any consequent losses. The desire for childbearing was also analysed among 2 separate groups, one contained healthcare workers, and one did not.

Mental health

The participants were screened for symptoms of depression and anxiety using FCV-19S, PHQ-9, and GAD-7, which were validated in Turkish and proven to be valid and reliable (14, 16, 18).

FCV-19S

We used FCV-19S to determine participants' fear of COVID-19. FCV-19S is a survey that assesses the fear associated with the global pandemic (13), and comprises 7 statements, including "It makes me uncomfortable to think about COVID-19" and "I am afraid of losing my life because of COVID-19"; each with a 5-point Likert scale of options. Participants were asked to choose the option that best represented them for each statement. The total score ranged from 7 to 35, with higher scores indicating increasing fear of COVID-19.

GAD-7

GAD-7 is a 7-item scale that measures the severity of anxiety experienced in the past 2 weeks. There are 4 options representing the severity of symptoms: never, few days, more than half a day, and almost every day, corresponding to 0, 1, 2, and 3 points, respectively. The total score is 0–21 (15). The cutoff value was determined as 10 in this study.

PHQ-9

PHQ-9 is widely used to diagnose depression symptoms in the general population, and it is a valid and reliable 9-item scale with 4 Likert-type responses covering Diagnostic and Statistical Manual of Mental Disorders, 4th Edition criteria (17). Items examining depression symptoms in

the past 2 weeks can be answered as: not at all, several days, more than half the days, and nearly every day; which have a value of 0, 1, 2, and 3 points, respectively (total score 0–27). The cutoff value was determined as 10 in this study.

Ethical approval

Ethical approval for the study was obtained from the Turkish Ministry of Health and by the Non-Interventional Ethics Committee, University of Sağlık Bilimleri Health Science, Ankara Gülhane Training and Research Hospital (IRB No: 2021/121). The study protocol complied with the Declaration of Helsinki. The study participants were informed that the data obtained from the survey would be used in a scientific study and their consent was obtained. The names and personal data of the respondents were not recorded. Every stage of the study was carried out in accordance with the relevant guidelines and regulations.

Statistical analysis

Statistical analysis of the data was done with SPSS version 11.5. The $\chi 2$ test was used to compare groups for categorical data and 2-group comparison of quantitative variables. The independent samples t test was used to compare 2 sample means from unrelated groups. The Bonferroni test was used post hoc to detect different groups when significant differences were found after one-way analysis of variance. P

Results

Participant characteristics

There were 520 women in the study and 245 (61.1%) were working in the healthcare sector. Basic demographic and socioeconomic characteristics of the study population are summarized in Table 1 . Approximately 25% (n = 127) of the participants tested positive for COVID-19, and 36 (6.9%) were asymptomatic, 88 (16.9%) had mild symptoms, and 3 (0.6%) had moderate/severe symptoms. The spouses of 114 (22.0%) participants tested positive for COVID-19 and 220 (42.3%) participants experienced the death of an acquaintance from the disease.

Pregnancy during the pandemic

We found substantial evidence of a reduction in the mean fertility trend during, compared with before, the pandemic (P Table 2). Of the 112 (21.5%) participants who planned pregnancy before the pandemic, 50 (44.6%) cancelled their plan. The main reasons for cancelling included concerns about: the possible adverse effects of SARS-CoV-2 on pregnancy or the baby (n = 28; 56.0%); the economic well-being of the household (n = 14; 28.0%); and their own health (n = 8; 16.0%). Of the 408 (78.5%) participants who did not plan to become pregnant, 21 (5.14%) stated that they had a desire for pregnancy during quarantine. In 12 (57.14%) participants, the main reason was to add positivity to life. Other common reasons were feelings of loneliness, more leisure time, and more intimacy with their partners.

COVID-19 positivity among participants or their spouses did not affect their fertility preferences (Table 3). However, a significant number of participants who planned pregnancy before the pandemic and whose relatives died from COVID-19 decided not to become pregnant during the pandemic (P = 0.013).

Mental health

We used PHQ-9, FCV-19S, and GAD-7 to evaluate various indicators of mental health and well-being during the COVID-19 pandemic and their effect on women's desire to plan a pregnancy. Mean scores and standard deviations of all participants were: PHQ-9, 7.4 (6.02); GAD-7, 4.93 (4.84); and FCV-19S, 17.28 (6.16). Mean scores in healthcare workers were: PHQ-9, 7.72 (6.06); GAD-7, 5.19 (4.93); and FCV-19S, 17.05 (6.20). The mean scores of the PHQ-9, GAD-7 and FCV-19S did not differ between healthcare professionals and the other participants.

There was no significant association between fertility preferences and PHQ-9, FCV-19S, and GAD-7 scores (Table 4).

The conditions examined by PHQ-9, FCV-19S, and GAD-7 were more severe among participants with low income, chronic illness, and a history of psychiatric illness (all P Table 5). Participants who spent more time at home with their spouses (≥ 18 hours) had significantly lower scores (P = 0.001). FCV-19S was significantly higher among participants who had a friend or relative who died from COVID-19 (P = 0.005).

Discussion

Pregnancy and becoming a mother are important life events that affect women psychologically, socially, physically, and existentially. From the perspective of existential psychology, making sense of life and living conditions are essential and create a strong motivation to live (19). Over the past 50 years, there has been a steep decline in fertility rates in almost every country. This universal decline in fertility has been driven largely by increased welfare brought about by social factors, including women's education and the accompanying detachment from reproduction as the purpose of life (20). The trend to give up childbearing is affected by many other factors, such as age and parity, divorce or child death, health conditions, economic situation, and personal health perceptions (6).

The COVID-19 pandemic has led to contradictory changes in couples' fertility preferences (4, 21). In this study, approximately half (45.5%) of the participants reported behavioural changes and a decision to postpone pregnancy because of the pandemic. A study conducted in the United States of America reported that > 30% of participants delayed pregnancy or had a decreased desire to have children because of the pandemic (22). In contrast, the study also reported that 10–20% of participants who had not thought of having children before, now wanted to have children, or to have them earlier. A study conducted in the United Kingdom of Great Britain and Northern Ireland reported that the COVID-19 pandemic affected pregnancy plans and 72% of the participants delayed pregnancy for pandemic-related reasons (23). Concerns were mostly about changes in prenatal care, but also fears about the negative effects of the virus on pregnancy and infants. In contrast, 27% of respondents reported prioritizing their pregnancy plans by readjusting their priorities during this period. A study conducted in Australia found that there was a significantly greater decrease in reported intentions to have another child among women who experienced prolonged curfew (21). However, most of these studies were cross-sectional with small convenience samples.

Giving birth is one of the most important events in a woman's life, but it naturally brings some level of anxiety. In our study, the most frequent reasons for women giving up or delaying childbearing were the possible adverse effects of SARS-CoV-2 on pregnancy or their infants, and concerns about their own health. Factors such as the possibility of vertical transmission of SARS-CoV-2 or barriers to accessing the needed professional medical help may affect the desire to become a parent. Also, women may have felt anxious about the risk of exposure to COVID-19 during hospital visits while pregnant (24, 25). A large-scale study conducted in Sweden reported that pregnant women's concerns about their own and their infant's health were at higher-than-normal levels during the pandemic (26). A cross-sectional study conducted in the Islamic Republic of Iran showed that fear of infection among pregnant women worsened mental health (27). We found that although participants cited financial and health concerns caused by the pandemic as reasons for abandoning or delaying pregnancy, there was no significant association between fertility preferences and FCV-19S, PHQ-9, and GAD-7 measurements.

Past economic hardship can strongly influence the dynamics of marriage, divorce, fertility, death, and migration. During times of economic hardship, couples' fertility decisions often differ by gender, age, number of children, and ethnicity (28). Unemployment during economic crises affects women and men of reproductive age in many ways. In 22 countries of the Organisation for Economic Co-operation and Development, the increase in both male and female unemployment during 1976–2008 had a negative impact on total fertility rates, which was greater over time, especially for women (29).

We found that financial concern was among the main reasons affecting fertility preferences. The household income of 23.4% of the participants decreased during the COVID-19 pandemic,

4.6% quit their jobs, and 4.8% of their spouses quit their jobs. However, these factors did not significantly delay pregnancy. In a cross-sectional study of 1179 women in New York, USA, between 30% and 80% of respondents who had intended to become pregnant within the year before the COVID-19 pandemic had delayed or cancelled their plans because of increased stress and financial insecurity (30).

The COVID-19 pandemic and measures to contain it caused additional health problems, including anxiety, depression, and fear worldwide (31). However, it is still unclear to what extent the pandemic affected mental health among the general population. In our study, mean scores for FCV-19S, PHQ-9, and GAD-7 were high among patients with previous psychiatric illness or concomitant chronic diseases.

A study in Türkiye suggested that the groups most affected by the pandemic were women, people living in urban areas, and those with previous psychiatric illness or concomitant chronic diseases (32). In a systematic review, increases in depression and mood disorder symptoms were more pronounced than measures of anxiety and general mental health, and these increases were greatest among people with physical health problems (33). No evidence of any change in symptoms was detected among people with a pre-existing mental health condition.

COVID-19 has undoubtedly had some impact on the mental health of healthcare providers. In Singapore, 27% of healthcare workers experienced psychiatric symptoms during the pandemic (34). Similarly, during the Ebola outbreaks that emerged in Africa in 2014 and 2018, high levels of anxiety were reported among people who had direct contact with infected patients, partly due to stigma (35). In our study, however, no significant difference was found in FCV-19S, GAD-7, and PHQ-9 scores between health and other workers. Also, no significant difference was found in fertility preferences between these groups.

Our study had some limitations. First, the study was limited to a small part of the Turkish population, therefore, generalization of the findings to other pandemic settings should be done with caution. Second, our research on pregnancy intention relied on retrospective assessment, so it may have been affected by recall bias. However, predictions that pandemics will become more frequent in the future make this study an important contribution to the literature by analysing the links between pandemic-related restrictions and fears and fertility behaviour.

Conclusion

This study supports the previously reported preference of women for delaying or preventing

pregnancy during the COVID-19 pandemic. We showed that uncertainty and anxiety brought about by the pandemic had a negative impact on the fertility intentions of the participants. Research on economic recession and fertility has shown that situations that affect living conditions often lead to delays in pregnancy, especially for first births, but there is an increase in fertility once the uncertainty created by the pandemic ends or economic concerns subside (36). Our study examined the pre-COVID-19 vaccine period, and the findings may be different in the post-vaccine period. Investigations among larger populations are needed to confirm our results, so that estimates of fertility preferences can be interpreted accordingly. The possible impact of the COVID-19 pandemic on stress, sexual activity, and concerns about health during pregnancy and infant health should be investigated.

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Conflict of interest: None declared.

Préférences des femmes turques mariées en matière de fertilité pendant la pandémie de COVID-19

Résumé

Contexte : La pandémie de COVID-19 a eu de graves répercussions sur les aspects sociaux, économiques, psychologiques et physiques d'une grande partie de la société, notamment sur les femmes mariées ou celles ayant une relation stable.

Objectifs : Évaluer l'évolution du désir de maternité chez les femmes mariées en Türkiye pendant la pandémie de COVID-19.

Méthodes : La présente étude transversale est fondée sur l'analyse des données obtenues à l'aide d'un questionnaire auto-administré portant sur les caractéristiques démographiques et les préférences en matière de fertilité de 520 femmes turques mariées. Nous avons utilisé l'échelle de la peur de la COVID-19 (Fear of COVID-19 Scale : FCV-19S, en anglais), le questionnaire sur la santé du patient (Patient Health Questionnaire : PHQ-9, en anglais) et l'outil de dépistage de l'anxiété généralisé (Generalized Anxiety Disorder-7 : GAD-7, en anglais) pour mesurer la peur, la dépression et l'anxiété liées à la COVID-19. Nous avons évalué les préférences en matière de fertilité avant et pendant la pandémie de COVID-19. L'analyse des données a été réalisée à l'aide du logiciel SPSS version 11.5.

Résultats : Cinquante participantes à l'étude sur 112 qui prévoyaient une grossesse ont interrompu leur projet en raison de la pandémie. En revanche, 21 participantes sur les 408 de l'étude qui n'avaient pas planifié de grossesse ont décidé de tomber enceinte pendant la pandémie pour renforcer leur état d'esprit positif, surmonter leur solitude, et parce qu'elles disposaient de plus de temps libre et d'intimité avec leur conjoint. Les scores moyens (écart-type) de toutes les participantes pour le PHQ-9, le GAD-7 et la FCV-19S étaient de 7,4 (6,02), 4,93 (4,84) et 17,28 (6,16), respectivement.

Conclusion : La présente étude souligne l'impact négatif de la pandémie de COVID-19 sur les préférences des femmes turques en matière de fertilité du fait de l'incertitude et de l'anxiété. Pour confirmer les résultats de cette étude, des recherches supplémentaires sont nécessaires afin d'examiner l'impact à plus long terme et au sein d'une population plus large.

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WHO EMRO | Fertility preferences of Turkish married women during the COVID-19 pandemic

: أوقفت 50 مشارِكة من أصل 112 مشارِكة في الدراسة خططن للحمل خُططهن بسببالنتائج الجائحة . وفي المقابل، قررت 21 من أصل 408 مشارِكات في الدراسة لم يخططن للحمل الحملَ أثناء الجائحة، وذلك لتعزيز نظرتهن الإيجابية للحياة، والتغلب على الوحدة، وبسبب زيادة وقت الفراغ ومعدل ممارسة العلاقة الحميمية مع أزواجهن . وبلغ متوسط الدرجات (الانحراف المعياري) لجميع المشارِكات في اختبارات مقياس الخوف من كوفيد -19 واستبيان صحة المرضى واضطراب القلق العام 7.4 (6.02) و4.93 (4.84) و17.28 (6.16) على التوالي .

: تُسلط هذه الدراسة الضوء على التأثير السلبي لجائحة كوفيد -19 علىالاستنتاجات تفضيلات الخصوبة لدى النساء في تركيا بسبب عدم اليقين والقلق . وتأكيدًا لنتائج هذه الدراسة، يلزم إجراء المزيد من البحوث لدراسة الأثر الأطول أجلًا على فئة أكبر من السكان .

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