The Changes in Fear of Childbirth in Pregnancy During and Before the COVID-19 Pandemic

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Research Article

Abstract

Background:

We aimed to compare the changes experienced by pregnant women before and during the pandemic regarding fear of childbirth andhow much they were affected by factors such as age, education level, and planned delivery type.

Materials and Methods:

This cross-sectional study comparedthe pre-pandemic pregnant group (July 2019 and December 2019) and the pandemic group (November 2020 and May 2021) of patients atKütahya Health Sciences University Evliya Çelebi Training and Research Hospital. A total of 696 pregnant womenin their second trimesterwere included in the study. All of them were literate andvoluntarily agreed to participate in the study. Data were collected with the Wijma Delivery Expectancy/Experience Questionnaire (WDEQ-A), and the outpatient doctor asked the questions face-to-face.

Results:

The mean age of the pregnant women participating in the study was 31.6±6.8 years. While the total Wijma score was 62.1±25.1 in the pre-pandemic group, it was 61.3±26.4 in the pandemic group, and there was no significant difference between the two groups (p=0.738).While 25.7% (n=179) of all participants had a normal fear of childbirth, 22% (n=153) had a mild fear of childbirth, 27% (n=188) had a moderate fear of childbirth, and 25.3% (n=176) had a severe fear of childbirth (Wijma score of 85 and above). When the pre-pandemic and the pandemic period were compared, the fear of childbirth wasunchanged in pregnant women at all education levels (p=0.079, p=0.957, p=0.626, p=0.539, p=0.202).

Conclusion:

When the pre-pandemic and pandemic periods are compared, it is seen that the fear of childbirth didnot change within each education level. Informing pregnant women about the effects of COVID-19 during the pandemic period may be effective in reducing fear of childbirth and reducing the numberof cesarean sections due to fear of birth.

Background

Coronaviruses are a family of infectious viruses that cause severe respiratory diseases (MERS-CoV and SARS-CoV). It is known that this new type of coronavirus infection (COVID-19) has a zoonotic origin and is transmitted from person to person. This disease, which first appeared in China (Hubei-Wuhan) and spread worldwide within a short time, has negatively affected the lives of everyone both economically and psychologically(1).

Studies are still ongoing to understand the effects of COVID-19 infection during pregnancy. There is currently no evidence that pregnant women are at higher risk of contracting COVID-19 disease than the general population (2, 3). However, due to the changes in the immune system of pregnant women, they need to take precautions to protect themselves during COVID-19 and to apply to healthcare professionals immediately when possible symptoms (such as fever, cough, or breathing difficulty) occur (4).

In studies to examine the clinical features of COVID-19 infection and the potential for congenital infection, SARS CoV-2 was tested in amniotic fluid, cord blood, newborn throat swab, and breast milk samples, and all samples were found to be negative for the virus (5, 6). However, pregnant women may be concerned about the possibility of transmission of the infection to the fetus and may be more prone to anxiety (7). In the literature, it has been reported that pregnant women evaluated after the declaration of the COVID-19 pandemic showed significantly higher depression symptoms than those evaluated before the pandemic (8).

In this study, we aimed to investigate the effect of the COVID-19 pandemic on the fear of childbirth in terms of the age, education level and parity of the pregnant women who gave birth before and during the pandemic. This study will contribute to the relevant literature and maybe a guide to the importance of mental health assessment of pregnant women in adverse situations like pandemics.

Material And Method

The COVID-19 pandemic group of this cross-sectional study consisted of pregnant women in their second and third trimesters, all of whom were literate and applied to Kütahya Health Sciences University Evliya Çelebi Training and Research Hospital between November 2020 and May 2021. The fear of childbirth group in the pre-pandemic group was formed with the data in our study, which were collected in 2019 (9). Ethical approval was received from the Ethics Committee of Kütahya Health Sciences University on 21.10.2020 with decision number 2020/15 – 04.

During patient selection, those having fetal anomalies, or complications (gestational diabetes, preeclampsia, macrosomic fetus or maternal chronic diseases), as well as those diagnosed with psychiatric illness, a previous history of abortion and divorced or separated from their spouses were excluded from the study. Questionnaires were conducted with the patients by the outpatient clinic doctor face to face.

For the purpose of this study, questions regarding age, number of births, gestational week and education level of the participants were asked and recorded. A 33-question Wijma Delivery Expectancy/Experience Questionnaire (WDEQ-A) questionnaire was completed. Questions 2, 3, 6, 7, 8, 11, 12, 15, 19, 20, 24, 25, 27, and 31 in the questionnaire were calculated by inverting them in accordance with the purpose of questionnaire scoring.

Power analysis

The G*Power 3.1 statistical analysis program was used to calculate the sample size. The error probability, effect size f value, power of the study and total sample size were 0.05, 0.10, 0.8 and 429, respectively.

Statistical analysis

All data collected for statistical analysis were analyzed with the Statistical Package for the Social Sciences, version 25, SPSS Inc., Chicago, IL (SPSS). Whether the data showed normal distribution for each group was evaluated with the Kolmogorov Smirnov test. Normally distributed groups were compared with Student's T test, while the Mann Whitney U test was used for data that did not fit the distribution. A one-way analysis of variance (ANOVA test) for multiple comparisons or the Kruskal Wallis test was used for nonparametric multiple analysis. Differences between the groups were evaluated using the Tukey test or Tamhane's T2 test. Values with a statistical significance p value below 0.05 were defined as significant. Reliability analysis was performed, and Cronbach's Alpha value was found to be 0.931.

Results

The age of all the pregnant women in the study ranged between 18 and 43, and the mean age was 31.6 ± 6.8 years. The mean gestational age was 33.9 ± 3.3 weeks, while the mean WDEQ-A score of all participants, both the pre-pandemic and pandemic groups, was 61.8 ± 25.6. The demographic characteristics of the participants according to the groups are shown in Table-1.

Table 1
Demographic characteristics of the groups

	Pre-pandemic	Pandemic	*p* value
Age (year)*	32 ± 7	32 ± 7	0.989
Parity**	2 (0−4)	1 (0−4)	0.241
Gestational age (week)*	35 ± 3	32 ± 4	**p < 0.001**
*mean ± standart deviation; **median (min-max); significant p values are represented in bold			

In the evaluation of fear of childbirth according to age, no significant difference was observed in terms of WDEQ-A scores between the pre-pandemic and pandemic periods (p = 0.951, p = 0.950, p = 0.885, p = 651, respectively). However, for all participants, the fear of childbirth was observed to be significantly increased for those aged 30 and above compared to those below the age of 30 (p < 0.001) (Table-2).

Table 2
Fear of childbirth by age among groups

	Pre-pandemic (n = 444)	Pandemic (n = 252)	*p* value
18−24 years	56 ± 21	55 ± 21	0.951
25−29 years	58 ± 24	58 ± 25	0.950
30−34 years	67 ± 27	67 ± 27	0.885
35 years and older	65 ± 26	64 ± 29	0.651
The values has given mean ± standart deviation			

There was no statistically significant difference in terms of WDEQ-A scores when comparing the education levels of the pregnant women (elementary, middle school, high school, college, master and above) in the pre-pandemic and pandemic groups ($p = 0.079$, $p = 0.957$, $p = 0.626$, $p = 0.539$, $p = 0.202$ respectively). However, it was observed that WDEQ-A scores for fear of childbirth increased significantly as the education level of the groups increased ($p < 0.001$, $p < 0.001$, respectively) (Table-3).

Table 3
Fear of childbirth by education level among groups

	Pre-pandemic	Pandemic	*p* value
Elementery**	29 (22−35)	38 (23−101)	0.079
Middle School**	42 (30−78)	42 (22−79)	0.957
High School**	72 (60−89)	69 (23−107)	0.626
College**	89 (76−109)	91 (24−109)	0.539
Master and above**	91 (71−111)	95 (25−111)	0.202
Total WDEQ Score*	62.1 ± 25.1	61.3 ± 26.4	0.738
*mean ± standart deviation, **median (min-max)			

When severe fear of childbirth according to education levels was examined, it was found that this rate increased from 0.04% in the pre-pandemic period to 17% in the pandemic period for high school graduates ($p = 0.003$). In other education levels, it was observed that the rates of severe fear of childbirth did not change ($p = 0.162$, $p = 0.932$, $p = 1.000$) (Table-4).

Table 4
Severe fear of childbirth by education level

	Pre-pandemic	Pandemic	*p* value
Elementery	0/87 (%0)	2/59 (%0.03)	0.162
Middle School	0/108 (%0)	0/46 (%0)	*
High School	4/110 (%0.04)	15/88 (%17)	**0.003**
College	50/70 (%71)	26/36 (%72)	0.932
Master and above	54/69 (%78)	18/23 (%78)	1.000
Total	108/444 (%24)	61/252(%24)	1.000
*Statistical analysis cannot be performed due to lack of observations Significant p values are represented in bold			

While 25.7% (n = 179) of all participants had a normal fear of childbirth (WDEQ-A score of 37 or less), 22% (n = 153) had a mild level (WDEQ-A score of 38–65), 27% (n = 188) had a moderate level (WDEQ-A score of 66–85) and 25.3% (n = 176) had a severe level of fear of childbirth (WDEQ-A score of 85 or above).

Discussion

Pregnancy and childbirth are physiological processes that affect women's lives. Although pregnant women may express it in different ways, many of them face anxiety and fear of childbirth (10). Lifestyle changes due to the COVID-19 pandemic place a further psychological burden on pregnant women, so they experience more anxiety and uncertainty during pregnancy than ever before (11). In our study, it was observed that the fear of childbirth in pregnant women did not change with education levels before and during the COVID-19 pandemic. It was found that the fear of childbirth in pregnant whose planned delivery was cesarean section increased during the pandemic period and decreased in pregnant women who planned to have a vaginal delivery. It was observed that fear of childbirth did not change with age groups and parity between the pre-pandemic and the pandemic period.

The restrictions in place during the pandemic and the uncertainty about when they would be able to return to normal living conditions create stress in pregnant women (12). It must be emphasized that stress management is an important issue during pregnancy, as stress factors that cannot be eliminated during pregnancy can cause negative pregnancy outcomes (13). For this reason, health professionals should question the psychological status of patients related to anxieties during pregnancy follow-up and ensure that they receive psychiatric help when necessary. The study we conducted before the pandemic showed that as the education level increases, the fear of childbirth scores, as measured by the WDEQ-A score, also increase (9). In our current study conducted with the same scale, fear of childbirth increased with education level, but according to the study conducted before the pandemic period, it was seen that

the fear of childbirth scores did not increase statistically at all education levels during the pandemic period. In studies conducted before the pandemic in Turkey, the mean fear of childbirth score was lower than during the pandemic period (9, 14, 15).

While the COVID-19 pandemic increases the frequency of anxiety, stress, and depression worldwide, it can cause additional fear and anxiety in pregnant women due to concern for their baby (16). The general reasons for this are inadequate health systems, lockdowns during the pandemic, cancellation of hospital appointments, the possibility of contamination to the newborn during pregnancy, birth or after birth, and the mother's fear of being separated from her baby in this period. Similarly, in the studies conducted during the pandemic period in the literature, the opinion that the fear of childbirth is increasing is dominant (7, 10, 16, 17). A study in Germany, in which 1364 pregnant women participated, found that the Pandemic-Related Pregnancy Scale (PREPS) scores, which they used as a fear of childbirth scale, increased during the pandemic period (18). Saccone et al.'s study, including 100 pregnant women during the COVID-19 pandemic, reported that nearly half of the pregnant women had serious psychological effects and high anxiety scores (19). Considering the discussions in the literature, it is expected that the fear of childbirth and anxiety will increase in pregnant women during the COVID-19 pandemic. Our study contradicts the literature in this aspect. The reason for this may be that the studies could not report an increase compared to the pre-pandemic period since they only cover the pandemic period. In our study, no significant difference was found when the pre-pandemic period and the fear of childbirth during the pandemic period were compared. To the best of our knowledge, our study is the first to compare the pandemic period with the pre-pandemic period regarding fear of childbirth.

In a study conducted in Thailand on uncomplicated singleton pregnancies, while the fear of labor was 51.9 ± 14.3, it was lower than our study (20). The prevalence of a severe fear of childbirth (WDEQ-A score ≥ 85) reported in the publications was 4.5% in the Irish study (21), 21% in the Turkey meta-analysis (22), 19.6% in the Iranian study (23) and 20% in the two Swedish studies (24, 25), whereas it was 24% in our study. An overall look at studies reveals that pregnant women in Turkey have a higher fear of birth than those in other countries. Since studies on fear of childbirth are mostly conducted in Europe and Scandinavian countries, the fear of childbirth may have been found to be higher in our country due to socio-economic differences.

Another important aspect of our study is that as the level of education increases so does fear of childbirth. WDEQ-A scores increase significantly both in the pre-pandemic and the pandemic period. In the studies conducted in Hungary, Denmark, and Finland, the education level was divided into two groups as primary and post-primary education, and the difference between them was examined. In all three studies, it was found that the level of fear of childbirth increased as the level of education decreased (26–28). The relationship of our research with the level of education contradicts the literature. The reason for this is the effect of social media during the pandemic period in our country. Since the rate of internet access and exposure to visual and written documents is higher in educated pregnant women, they are more knowledgeable about possible birth complications, body deformation and traumatic.

The main limitation of our study is that a comparison of the fear of childbirth cannot be made on the same patients since it is very unlikely that the same woman will give birth in both pre-pandemic and pandemic periods. The strength of the study is that it is the first study in the literature to compare the fear of childbirth before and during the pandemic.

Conclusion

During the pandemic period, the fear of childbirth is affected by educational status, but these conditions can vary according to the society. By predetermining the conditions that increase the fear of childbirth and providing supportive outpatient clinic services to pregnant women during the pandemic period, the fear of childbirth can be reduced. Doctors can explain that, based on our current knowledge, the possibility of the baby being infected by COVID-19 is minimal. This may also be beneficial in reducing the increasing requests for cesarean deliveries, which may also be affected by maternal anxiety.

Abbreviations

WDEQ-A
Wijma Delivery Expectancy/Experience Questionnaire; SARS-CoV:Severe acute respiratory syndrome coronavirus 2; ANOVA:A one-way analysis of variance.

Declarations

Acknowledgments

Authors' Contributions

C.S. conceived and designed the study and, critically revised the manuscript. M.M.I. and Ö.E. did the data analysis, interpreted the results, and draft the manuscript. İ.B. contributed to the data analysis, interpreted the fndings, and critically revised the manuscript. Y.T. and N.K involved in data collection and clinical interpretation, and critically revised the manuscript. All authors reviewed and approved the manuscript as submitted.

Funding

Availability of data and materials

The manuscript is original. Data and materials are available. The datasets usedand analyzed during the current study are available from the correspondingauthor on reasonable request.

Ethics approval and consent to participate

Ethical approval was received from the Ethics Committee of Kütahya Health Sciences University on 21.10.2020 with decision number 2020/15-04.We followed all Helsinki declarationand national ethical standards. Written informed consent was obtained from all participants.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

References

1. Bull FC, Al-Ansari SS, Biddle S, Borodulin K, Buman MP, Cardon G, et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. British journal of sports medicine. 2020;54(24):1451-62.

2. Castro P, Matos AP, Werner H, Lopes FP, Tonni G, Araujo Júnior E. Covid-19 and Pregnancy: An Overview. Revista brasileira de ginecologia e obstetricia : revista da Federacao Brasileira das Sociedades de Ginecologia e Obstetricia. 2020;42(7):420-6.

3. Wastnedge EAN, Reynolds RM, van Boeckel SR, Stock SJ, Denison FC, Maybin JA, et al. Pregnancy and COVID-19. Physiological reviews. 2021;101(1):303-18.

4. Sohrabi C, Alsafi Z, O'Neill N, Khan M, Kerwan A, Al-Jabir A, et al. World Health Organization declares global emergency: A review of the 2019 novel coronavirus (COVID-19). International journal of surgery (London, England). 2020;76:71-6.

5. Chen H, Guo J, Wang C, Luo F, Yu X, Zhang W, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. Lancet (London, England). 2020;395(10226):809-15.

6. Zhu H, Wang L, Fang C, Peng S, Zhang L, Chang G, et al. Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia. Translational pediatrics. 2020;9(1):51-60.

7. Taubman-Ben-Ari O, Chasson M, Abu Sharkia S, Weiss E. Distress and anxiety associated with COVID-19 among Jewish and Arab pregnant women in Israel. Journal of reproductive and infant psychology. 2020;38(3):340-8.

8. Wu Y, Zhang C, Liu H, Duan C, Li C, Fan J, et al. Perinatal depressive and anxiety symptoms of pregnant women during the coronavirus disease 2019 outbreak in China. American journal of obstetrics and

gynecology. 2020;223(2):240.e1-.e9.

9. Soysal C, Işıkalan, M . Determination of risk factors affecting fear of childbirth during pregnancy. Cukurova Medical Journal. 2020;45 (4):5.

10. Souto S, Albuquerque RS, Prata AP. Fear of childbirth in time of the new coronavirus pandemic. Revista brasileira de enfermagem. 2020;73(Suppl 2):e20200551.

11. Aksoy Derya Y, Altiparmak S, AkÇa E, GÖkbulut N, Yilmaz AN. Pregnancy and birth planning during COVID-19: The effects of tele-education offered to pregnant women on prenatal distress and pregnancy-related anxiety. Midwifery. 2021;92:102877.

12. Durankuş F, Aksu E. Effects of the COVID-19 pandemic on anxiety and depressive symptoms in pregnant women: a preliminary study. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstet. 2020:1-7.

13. Abdi F, Navidpour F, Dolatian MJIJoP, Sciences B. A Literature Review of Pregnancy Worries and Stress Scales. 2018;12(3).

14. Karabulut Ö, Coşkuner Potur D, Doğan Merih Y, Cebeci Mutlu S, Demirci N. Does antenatal education reduce fear of childbirth? International nursing review. 2016;63(1):60-7.

15. Kızılırmak A, Başer M. The effect of education given to primigravida women on fear of childbirth. Applied nursing research : ANR. 2016;29:19-24.

16. Shah SMA, Mohammad D, Qureshi MFH, Abbas MZ, Aleem S. Prevalence, Psychological Responses and Associated Correlates of Depression, Anxiety and Stress in a Global Population, During the Coronavirus Disease (COVID-19) Pandemic. Community mental health journal. 2021;57(1):101-10.

17. Ilska M, Kołodziej-Zaleska A, Brandt-Salmeri A, Preis H, Lobel M. Pandemic-related pregnancy stress assessment-Psychometric properties of the Polish PREPS and its relationship with childbirth fear. Midwifery. 2021;96:102940.

18. Schaal NK, Marca-Ghaemmaghami P, Preis H, Mahaffey B, Lobel M, Amiel Castro R. The German version of the pandemic-related pregnancy stress scale: A validation study. European journal of obstetrics, gynecology, and reproductive biology. 2021;256:40-5.

19. Saccone G, Florio A, Aiello F, Venturella R, De Angelis MC, Locci M, et al. Psychological impact of coronavirus disease 2019 in pregnant women. American journal of obstetrics and gynecology. 2020;223(2):293-5.

20. Phunyammalee M, Buayaem T, Boriboonhirunsarn D. Fear of childbirth and associated factors among low-risk pregnant women. J Obstet Gynaecol. 2019;39(6):763-7.

21. O'Connell MA, Leahy-Warren P, Kenny LC, O'Neill SM, Khashan AS. The prevalence and risk factors of fear of childbirth among pregnant women: A cross-sectional study in Ireland. Acta Obstet Gynecol Scand. 2019;98(8):1014-23.

22. Deliktas A, Kukulu K. Pregnant Women in Turkey Experience Severe Fear of Childbirth: A Systematic Review and Meta-Analysis. J Transcult Nurs. 2019;30(5):501-11.

23. Mortazavi F, Agah J. Childbirth Fear and Associated Factors in a Sample of Pregnant Iranian Women. Oman Med J. 2018;33(6):497-505.

24. Nieminen K, Stephansson O, Ryding EL. Women's fear of childbirth and preference for cesarean section—a cross-sectional study at various stages of pregnancy in Sweden. Acta Obstet Gynecol Scand. 2009;88(7):807-13.

25. Salomonsson B, Bertero C, Alehagen S. Self-efficacy in pregnant women with severe fear of childbirth. J Obstet Gynecol Neonatal Nurs. 2013;42(2):191-202.

26. Saisto T, Salmela-Aro K, Nurmi JE, Halmesmaki E. Psychosocial characteristics of women and their partners fearing vaginal childbirth. Bjog. 2001;108(5):492-8.

27. MoghaddamHosseini V, Makai A, Varga K, Acs P, Premusz V, Varnagy A. Assessing fear of childbirth and its predictors among Hungarian pregnant women using Wijma Delivery Expectancy/Experience Questionnaire subscales. Psychol Health Med. 2019;24(7):879-89.

28. Laursen M, Hedegaard M, Johansen C, Danish National Birth C. Fear of childbirth: predictors and temporal changes among nulliparous women in the Danish National Birth Cohort. BJOG. 2008;115(3):354-60.