ORIGINAL ARTICLE

DOI: 10.4274/eamr.galenos.2021.86158
Eur Arch Med Res 2022;38(1):29-35

Determination of Maternal Anxiety Levels During COVID-19 Pandemic Quarantine Period. A Cross-sectional Study

Başak Cıngıllıoğlu, Erhan Aktürk, Ferhat Yasin Özkaya, Simten Genç, Burak Arslan, H. Turhan Özkan, Aydın Kılınç, Bora Taşpınar, Elif Dilasa Köse, Orhan Şahin, Veli Mihmanlı

University of Health Sciences Turkey, Prof. Dr. Cemil Taşcıoğlu City Hospital, Clinic of Gynecology and Obstetrics, İstanbul, Turkey

Abstract

Objective: The novel coronavirus, named as severe acute respiratory syndrome-coronavirus-2 Coronavirus disease-2019 (COVID-19), spreads primarily through humans to human transmission and for this reason governments across the globe have enforced social isolation rules. Isolation and the fear of getting infected affected the entire population, but it is felt more in pregnant women.The aim of this study is to examine the anxiety and behavioral changes in pregnant women caused by COVID-19 pandemic and antenatal care quality during the quarantine period.

Methods: A cross-sectional study was initiated at outpatient clinic of Obstetrics and Gynecology Department in University of Health Sciences Turkey, Prof. Dr. Cemil Tascioglu City Hospital, Istanbul, Turkey, between 07 May and May 31, 2020 during the COVID-19 outbreak curfew quarantine period. A total of 291 patients (174 pregnant and 102 non-pregnant) were included. The data were obtained from both qualitative and quantitative methods using face-to-face survey, using the state-trait anxiety inventory (STAI) and personal information form with lifestyle change questionnaire. Anxiety levels, behavioral changes were compared and antenatal care quality assessed.

Results: Pregnant participants had higher anxiety STAI state (STAI-S) scores than the non-pregnant participants (43.67±10.77 vs. 39.62±9.45, p=0.02). The STAI trait (STAI-T) anxiety scores were similar between the two groups (43.57±8.07 vs. 43.33±9.56, p=0.82. 60 of pregnant participants were in first trimester, 53 were in second and 61 were in third trimester. The education level of the pregnant participants and whether they received psychosocial support or in which trimester they were, did not make any difference between the STAI-S and STAI-T scores. 67.8% of pregnant participants stated about the fear of going to the hospital and 46.6% canceled their appointments of prenatal care. Appointment canceling was highest in third trimester (p=<0.001).

Conclusion: During the quarantine period, increased maternal anxiety and decreased antenatal care quality determined, that may lead to increase in perinatal morbidity and mortality.

Keywords: Maternal anxiety, antenatal care quality, COVID-19, lifestyle changes, STAI

INTRODUCTION

Coronavirus disease-2019 (COVID-19) which was initially perceived as a regional "epidemic" affecting China and its surroundings, began crossing the Asian borders and then threatened public health globally in the following days (1). Thereafter, the World Health Organization declared COVID-19 as a pandemic, most of the countries closed their borders, and people were quarantined (2). The novel coronavirus, named as severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), spreads primarily through a human being to human transmission when people are in close contact (3,4), for this reason, businesses, schools, places of worship, restaurants closed, and many social events canceled. Isolation and inadequate information about the

Address for Correspondence: Başak Cıngıllıoğlu, University of Health Sciences Turkey, Prof. Dr. Cemil Taşcıoğlu City Hospital, Clinic of Gynecology and Obstetrics, İstanbul, Turkey
Phone: +90 506 380 00 71 **E-mail:** bskcin@gmail.com **ORCID ID:** orcid.org/0000-0002-1666-8588

Cite this article as: Cıngıllıoğlu B, Aktürk E, Özkaya FY, Genç S, Arslan B, Özkan HT, Kılınç A, Taşpınar B, Köse ED, Şahin O, Mihmanlı V. Determination of Maternal Anxiety Levels During COVID-19 Pandemic Quarantine Period. A Cross-sectional Study. Eur Arch Med Res 2022;38(1):29-35

Received: 14.10.2020
Accepted: 12.01.2021

outbreak caused fear. Psychological distress and symptoms of mental disorders have increased during the pandemic such as COVID-19 (5,6). Although the fear of getting infected affected the entire population, it was felt more in pregnant women who are especially sensitive because of the anxiety of contamination of the fetus and due to physiological immunosuppression (7).

There are limited studies on psychological wellness in pregnancy during an outbreak. During the 2003 SARS outbreak in Hong Kong, it was reported that pregnant individuals had exaggerated fear of encountering infection and higher anxiety than before SARS (8).

Maternal anxiety is associated with poor perinatal outcomes as preterm birth, low birth weight, small for gestational age (9).

Although it is important to get adequate psychosocial support during pregnancy, pregnant women feel lonely because of the quarantine process in a pandemic. Furthermore, they also avoid visits to their physicians in fear of encountering infection in public transports or at the hospital.

When the COVID-19 pandemic reached Istanbul-Turkey, our research team used the opportunity to research the psychological impact of COVID-19 on pregnant women during their visit to our maternity ward and outpatient clinic with face-to-face surveys.

METHODS

The study was designed as a cross-sectional study at the Outpatient Clinic of Obstetrics and Gynecology Department in University of Health Sciences Turkey, Prof. Dr. Cemil Tascioglu City Hospital, Istanbul, Turkey, between 07 May (after the start of restrictions) and 31 May (the date restrictions eased) during the COVID-19 outbreak curfew. This study was approved by the Medical Ethical Committee of University of Health Sciences Turkey, Prof. Dr. Cemil Tascioglu City Hospital (no: 48670771-514.10; date: 05.05.2020) and informed consent was obtained from all patients. A total of 276 participants were included who applied for routine antenatal control or gynecologic complaints. They had no clinical symptoms of COVID-19 and had no suspicion of disease. One hundred seventy four of the participants were pregnant, and 102 were non-pregnant. The data were obtained from both qualitative and quantitative methods between 05 May (after the start of restrictions) and 31 May (the date restrictions eased) during the COVID-19 outbreak.

Participants were excluded if they had a history of psychiatric disorders, could not read, or write in Turkish, did not agree to participate in the study, had COVID-19 symptoms and COVID-19 PCR positivity.

Survey Method

After descriptive information (age, education, working status) and obstetric history (gravida, parity number, last menstrual period) was recorded, we asked the following questions to determine behavioral changes and concerns about pregnancy follow up during COVID-19 outbreak: “During the COVID-19 pandemic, are you getting adequate psychosocial support?”, “Are you afraid of visiting the hospital for prenatal checks?”, “If you are afraid of visiting the hospital, what is the reason?”, “Are you afraid of you or your baby, or both of you being infected with COVID-19?”, “Have you missed any pregnancy visit?”, “How often do you wash your hands?”, “Are you wearing a mask?”, “Are you wearing gloves?”.

Upon completing the above, the participants were asked to complete the Spielberger state-trait anxiety inventory (STAI) form to determine the level of anxiety. The STAI is a 40-item self-report rating scale. Each statement has four scales of feelings, participants were asked to select the best matching feeling, the state anxiety scales include “not at all, somewhat, moderately so, or very much so”. Whereas the responses to the items related to trait anxiety include “almost never, sometimes, often, and almost always”. The scale has internal consistency coefficients ranged from 0.86 to 0.95 (10). It can vary with changes in support systems, health, and other individual characteristics (11). Validity and reliability study of the Turkish form of the scale was conducted by Öner and LeCompte (12). Since the STAI is used to measure the intensity of anxiety (instead of identifying possible clinical cases), no cut-off score is recommended.

Statistical Analysis

In this study, all information obtained was entered into a statistical package for the social sciences, version 25.0, SPSS Inc, Chicago, Illinois, USA (SPSS). Descriptive statistics were used to calculate the frequency (n), percentage (%), central tendency (mean, median & mode), and dispersion (range, variance, standard deviation, maximum & minimum) for each variable when appropriate. The consistency of the data with the normal dispersion has been evaluated by the Kolmogorov-Smirnov test. Student’s t-test, Mann-Whitney U test, One-Way ANOVA test or chi-square test was used when appropriate.

RESULTS

Characteristics, Anxiety Level, and Behavioral Changes of All Participants

In this study, we approached 174 pregnant and 102 non-pregnant participants, none of them were healthcare workers and diagnosed with COVID-19. The sociodemographic and clinical

characteristics (age, educational, and employment status) of the participants were similar and summarized in Table 1. Elderly people in non-pregnant participants were excluded from the study because age-related anxiety may change the result.

Pregnant participants had significantly higher anxiety STAI state (STAI-S) scores than the non-pregnant participants (43.67±10.77 vs. 39.62±9.45, p=0.02). The STAI trait (STAI-T) anxiety scores were not different between the two groups (43.57±8.07 vs. 43.33±9.56, p=0.82).

58.7% of all participants and 62.0% of all pregnant participants mentioned that they get enough psychosocial support, but did not affect anxiety scores (p=0.137).

Behavioral changes due to the pandemic (wearing masks, washing hands, and using gloves) in both groups were highly observed. To reduce the risk of infection, 97.9% of total participants wear a mask, 56.1% wear gloves. While all pregnant participants washed their hands more frequently than usual, just 2 non-pregnant participants said they wash their hands as usual. A higher number of pregnant participants responded "never" to the question "Are you going out from your house" than non-pregnant participants (26.8% vs. 9.8%; p=<0.001) (Table 1).

Table 1. Demographics and characteristics of all participants

	Pregnant (n=174)	Non-pregnant (n=102)	p value
Age (years; mean ± 50)	28.48±5.73	29.44±42	0.26
Educational level			
Less than 8 years	20 (7.2%)	22 (8.0%)	0.78
8 years	100 (36.2%)	51 (10.5%)	
More than 13 years	54 (19.6%)	29 (10.5%)	
Employment status			
Employed	43 (15.6%)	36 (13.0%)	0.6
Unemployed	131 (47.5%)	66 (23.9%)	
STAI[a] state (mean)	43.67±10.77	39.62±9.45	
STAI[a] trait (mean)	43.57±8.07	43.33±9.56	
Psychosocial support			
Adequate	108 (39.1%)	54 (19.6%)	0.137
Inadequate	66 (23.9%)	48 (17.4%)	
Going out from home			
Never	74 (26.8%)	27 (9.8%)	<0.001*
If necessary	90 (32.6%)	54 (19.6%)	
Yes	10 (3.6%)	21 (7.6%)	
Washing hand			
More than usual	174 (63.0%)	100 (36.2%)	0.136
As usual	0 (0%)	2 (0.7%)	
Wearing gloves			
Yes	95 (34.4%)	60 (21.7%)	0.495
No	79 (28.6%)	42 (15.2%)	
Wearing mask			
Yes	171 (61.3%)	101 (36.6%)	1
No	3 (1.1%)	1 (0.4%)	

*Statistical significance, [a]STAI: State-trait anxiety inventory

Characteristics, Anxiety Level, and Behavioral Changes in Pregnant Participants

The mean of gravida and parity of 174 pregnant participants were 2.3 (min: 1, max: 7) and 0.97 (min: 0, max: 5). Sixty (34.48%) of pregnant participants were in the first trimester, 53 (30.45%) were in the second and 61 (35.05%) were in the third trimester. STAI-S and STAI-T scores were not statistically different amongst the trimester groups. Furthermore, the education level of the pregnant participants and whether they received psychosocial support or in which trimester they were, did not make any difference between the STAI-S scores. STAI-S scores were significantly different in the different age groups (p=0.031) (Table 2). Post-hoc comparisons revealed that STAI-S scores for pregnant participants in age groups "over 20 years" were similar, whereas STAI-S scores of pregnant participants "under 20 years" showed a significant difference compared to pregnant participants in the older age groups of "20-30-year-old" (p=0.02) and "30-40-year-old" (p=0.03).

67.8% of total pregnant participants stated that they were afraid of going to the hospital, because of this 46.6% of total pregnant participants canceled or missed their appointments of prenatal care. Fear of going to the hospital and appointment canceling was high in the third trimester (p=0.002, p=<0.001) (Table 3). Pregnant participants, who did not go to antenatal visits, stated that they were afraid of contracting COVID-19 in the hospital themselves or their unborn baby or both, there was no difference between the trimester groups (Table 3).

DISCUSSION

After COVID-19 outbreak spread worldwide from Wuhan, China, it has resulted as an ongoing pandemic (13). The increasing number of death tolls caused global fear and panic. After the first case of COVID-19, detected in Turkey, the Turkish government rapidly carried out interventions and restrictions to prevent the spread of the virus (14). 05 May, the date of the beginning of our study, the Turkish Ministry of Health announced that total coronavirus cases in Turkey were 129,491 and total death tolls were 3,520. Our study was conducted after the start of restrictions in Turkey when the psychological and behavioral changes of the

Table 2. The factors affect STAI scores of pregnant women				
	STAI[a] state Mean ± SD	p value	STAI[a] trait Mean ± SD	p value
Age group (years)				
<20 years old	35.86±2.13	0.031*	38.80±2.04	0.077
20-30 years old	44.36±1.09		43.63±0.84	
30-40 years old	44.33±1.37		44.84±0.91	
>40 years old	46.40±6.47		42.20±5.85	
Educational level				
Less than 8 years	44.07±1.08	0.715	44.22±0.83	0.40
8 years	43.61±1.54		43.03±1.04	
more than 13 years	41.90±1.96		41.8±1.68	
Psychosocial support				
Adequate	42.66±0.94	0.096	42.77±0.77	0.114
Inadequate	45.33±1.48		44.87±0.98	
Employment status				
Employed	43.86±1.75	0.839	44.32±1.21	0.469
Unemployed	43.47±0.91		43.29±0.71	
Trimester				
First	43.46±1.41	0.366	43.63±0.89	0.638
Second	42.26±1.42		42.77±1.14	
Third	45.11±1.40		44.21±1.13	

*Statistical significance, [a]STAI: State-trait anxiety inventory, SD: Standard deviation

Table 3. COVID-19-specific factors that affect prenatal care according to trimester group				
	Trimester			
	First	Second	Third	p value
Fear of going to antenatal visit in the hospital				
Have fear	34 (28.8%)	35 (29.7%)	49 (41.5%)	0.002*
Do not have fear	26 (46.4%)	18 (32.1%)	12 (21.4%)	
Worried about contracting COVID-19 in the hospital				
To herself	4 (40%)	7 (20%)	14 (40%)	0.396
To unborn baby	17 (27.9%)	20 (32.8%)	24 (39.3%)	
Both	29 (37.2%)	26 (33.3%)	23 (29.5%)	
Canceling or missing prenatal care appointments				
Canceled or missed	16 (19.8%)	27 (33.3%)	38 (46.9%)	<0.001*
Not canceled or missed	44 (47.3%)	26 (28%)	23 (24.7%)	

*Statistical significance, COVID-19: Coronavirus disease-2019

subjects were fully settled. It is not an initial phase study, thus it was planned that psychosocial changes to pandemics could be followed up more clearly. A similar situation had been shown in a study, conducted in the 2003 SARS outbreak in Hong Kong; with the rising in the number of cases, the level of anxiety scores also increased. The anxiety scores were highest approximately 1 month after the first SARS case was announced. Participants between the 30-49 ages and less educated were more concerned. Anxiety scores of those who perceived that they were more likely to contract or die due to SARS were significantly higher (15).

Perinatal anxiety is quite common and deserves clinical attention. According to a meta-analyze published in 2017, which included 102 studies with a total of 221,974 participants, the overall prevalence for any anxiety disorder was 15.2% (16). Antenatal anxiety was associated increased risks for preterm birth, low birth

weight, earlier gestational age, and being small for gestational age, smaller head circumference. Also, the development of brain structure in children is associated with prenatal anxiety and depression (9,17). While we know widely about perinatal anxiety, there is limited knowledge about psychological responses caused by a pandemic. Wu et al. (18) initiated a multi-center cross-sectional study in China to compare the mental status of pregnant women before and after the announcement of the COVID-19 epidemic. A total of 4,124 pregnant women during their third trimester were examined in this cross-sectional study, using the Edinburgh postnatal depression scale (EPDS). They found that awareness of the COVID-19 epidemic significantly increased the prevalence of depressive symptoms (EPDS ≥10) ($p=0.01$) and the risk of self-harm thoughts ($p=0.005$) (18). Wu et al. (18) did not evaluate anxiety status, but Corbett et al. (19) questioned 71 patients in the second and third trimester of pregnancy and found that half of the women without anxiety before, worried about their health during the delay phase of the outbreak. This anxiety was related to the health of their older relatives, other children they had, and then their unborn baby (19).

The previous studies mostly compared pregnant women's anxiety levels before and after the pandemic, not with non-pregnant participants. From former studies (5,6) we know that the entire community had higher anxiety so we researched if there is a difference in pregnant individuals. Our cohort demonstrates that pregnant participants had significantly higher anxiety STAI-S scores than the non-pregnant participants, which means pregnant individuals are vulnerable, and they feel fear deeper. Interaction with their relatives (mother, father, friends), provides psychological support, but the necessity of social distancing did not allow this. However, Mirzadeh and Khedmat (20) also highlighted the need for psychological support for pregnant women during this pandemic, in our study 62% of pregnant participants reported that they get adequate support, but it did not make difference on their anxiety levels.

From an online survey, 92.9% of individuals reported feeling loneliness more than usual due to the COVID-19 pandemic in Calgary, Canada. 56.6% of participants had clinically elevated anxiety and 37.0% elevated symptoms of depression. Most of the participants expressed worries about their own life and their unborn baby due to the possibility of infection. Researchers recorded that depression and anxiety symptoms were reduced if participants could complete enough sleep time and had better social support (21). Furthermore, educational level and employment status are other factors that affect depression and anxiety levels. Despite previous literature (22), our cohort did not show any difference in educational level and employment status, it might be because of the increased basal anxiety level in the whole community due to the outbreak.

Due to the pandemic, there have been many lifestyle changes; for protection from the virus wearing masks, gloves, and washing hands have become daily life necessities. All our pregnant participants specified that they washed their hands more than usual, almost all claimed to wear a mask and half of them claimed to wear gloves when they were outside to mitigate the risk of contracting the virus. These attitudes were experienced before, in 2003, during the SARS outbreak, about 70% of women wore a mask all or most of the time, and 40% washed their hands much more frequently than before (8).

Self-isolation and "not leaving home" is another reaction to the COVID-19 pandemic in pregnant women. Furthermore, domestic transportation registrations and the intensity of COVID-19 patients in hospitals, caused pregnant women to avoid going to their prenatal visits. It was reported formerly in the SARS outbreak, the rate of canceling or post-ponement of antenatal visits was high and about half of the women decided to deliver in hospitals with fewer SARS cases (8). However meta-analyses revealed that visiting antenatal care clinics during pregnancy was significantly associated with lower rates of neonatal and maternal death (23,24), during pandemic time, it has been reported that canceling appointments, difficulties in accessing health units, or going to physicians without a supporter caused the poor quality of prenatal care (21). The fear of going to the hospital was high also in our study and half of the pregnant women stated that they canceled or missed their prenatal visits.

Maternal anxiety varies during the pregnancy, Haddad et al. (25), Teixeira et al. (26), and Bhagwanani et al. (27) reported that STAI-S levels were increased in the first and third trimester. Other studies have reported that STAI-S scores elevated significantly in the third trimester (28,29). The anxiety-level differences between trimesters had not been evaluated in an outbreak period, we found that there was no difference in STAI-S and STAI-T levels between trimesters.

Spielberger defined trait anxiety as, the propensity of individuals to respond and state anxiety as a temporary feeling of fear and tension (30). In our study, pregnant women showed a psychosocial reaction to a pandemic with a feeling of fear and anxiety

The Strength of the Study

There are limited studies about maternal anxiety in a pandemic and much less in the quarantine period. Previous surveys were mostly conducted using an online panel, but we conducted

face-to-face survey that enables more accurate information. Furthermore, as far as we know this is the first study that compares anxiety scores trimester groups in the COVID-19 pandemic.

Study Limitations

Questionnaire limitations: Gunning et al. (28) reported that the STAI state scale reflects situation-specific anxiety, but the location of the antenatal clinic in which it was completed, could change anxiety levels.

Single-center study: Our data may not be entirely representative of all pregnant individuals. Although our hospital is a training and research hospital with high patient capacity, the study is a single-center study.

CONCLUSION

Although there are many studies on the physiological effects of SARS-CoV-2 (COVID-19) so far, the psychosomatic effects of the quarantine period of a pandemic have not been emphasized extensively. With this study, we revealed that during COVID-19 pandemic, state anxiety levels were similar between pregnant and non-pregnant women but trait anxiety levels, which define a temporary sense of fear and tension were higher in pregnant women. These high levels of anxiety have more impact on pregnant participants and caused an interruption of antenatal care especially in the quarantine period. Future researches needed to examine the psychosocial and perinatal effects of the COVID-19 pandemic.

ACKNOWLEDGMENTS

We wish to thank the nurses and clinical staff who provided significant contributions to this study.

Ethics

Ethics Committee Approval: This study was approved by the Medical Ethical Committee of University of Health Sciences Turkey, Prof. Dr. Cemil Tascioglu City Hospital (no: 48670771-514.10; date: 05.05.2020).

Informed Consent: Written informed consent was obtained from the patients who participated in this study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: B.C., E.A., F.Y.Ö., S.G., B.A., H.T.Ö., A.K., B.T., E.D.K., O.Ş., V.M., Concept: B.C., E.A., F.Y.Ö., S.G., H.T.Ö., A.K., B.T., E.D.K., O.Ş., V.M., Design: B.C., E.A., F.Y.Ö., S.G., B.A., H.T.Ö., A.K., B.T., O.Ş., V.M., Data Collection or Processing: B.C., E.A., F.Y.Ö., S.G., B.A., A.K., B.T., E.D.K., O.Ş., V.M., Analysis or Interpretation: B.C., E.A., F.Y.Ö., S.G., B.A., H.T.Ö., A.K., B.T., O.Ş., V.M., Literature Search: B.C., E.A., F.Y.Ö., B.A., H.T.Ö., B.T., E.D.K., O.Ş., V.M., Writing: B.C., E.A., F.Y.Ö., S.G., B.A., H.T.Ö., A.K., B.T., E.D.K., V.M.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

REFERENCES

1. Wang C, Horby PW, Hayden FG, Gao GF. A novel coronavirus outbreak of global health concern. Lancet 2020;395:470-3.
2. WHO. Clinical management of severe acute respiratory infection when Novel coronavirus (nCoV) infection is suspected: interim guidance. Accessed date: Jan 20, 2020. Available from: URL: https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected
3. Chan JFW, Yuan S, Kok KH, To KKW, Chu H, Yang J, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. Lancet 2020;395:514-23.
4. "Symptoms of Coronavirus"CDC - National Center for Health Statistics - Homepage. Accessed date: May 13, 2020. Available from: URL: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html
5. Bao Y, Sun Y, Meng S, Shi J, Lu L. 2019-nCoV epidemic: address mental health care to empower society. Lancet 2020;395:e37-8.
6. Rajkumar RP. COVID-19 and mental health: a review of the existing literature. Asian J Psychiatr 2020;52:102066.
7. Armenti VT, Moritz MJ, Cardonick EH, Davison JM. Immunosuppression in pregnancy: choices for infant and maternal health. Drugs 2002;62:2361-75.
8. Lee DT, Sahota D, Leung TN, Yip AS, Lee FF, Chung TK. Psychological responses of pregnant women to an infectious outbreak: a case-control study of the 2003 SARS outbreak in Hong Kong. J Psychosom Res 2006;61:707-13.
9. Grigoriadis S, Graves L, Peer M, Mamisashvili L, Tomlinson G, Vigod SN, et al. Maternal anxiety during pregnancy and the association with adverse perinatal outcomes: systematic review and meta-analysis. J Clin Psychiatry 2018;79:17r12011.
10. Spielberger CD, Gorsuch RL, Lushene R, Vagg PR, Jacobs GA. Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press;1983.
11. Elliott TR, Shewchuk RM, Richards JS. Family caregiver problem solving abilities and adjustment during the initial year of the caregiving role. J Couns Psychol 2001;48:223-32.
12. Öner N, LeCompte WA. State-Trait Anxiety Inventory Handbook. Boğaziçi Üniversitesi Yayınları, İstanbul;1985.
13. Hui DS, I Azhar E, Madani TA, Ntoumi F, Kock R, Dar O, et al. The continuing 2019-nCoV epidemic threat of novel coronaviruses to global

health - the latest 2019 novel coronavirus outbreak in Wuhan, China. Int J Infect Dis 2020;91:264-6.

14. Demirbilek Y, Pehlivantürk G, Özgüler ZÖ, Alp Meşe E. COVID-19 outbreak control, example of ministry of health of Turkey. Turk J Med Sci 2020;50(Suppl 1):489-94.
15. Leung GM, Ho LM, Chan SK, Ho SY, Bacon-Shone J, Choy RY, et al. Longitudinal assessment of community psychobehavioral responses during and after the 2003 outbreak of severe acute respiratory syndrome in Hong Kong. Clin Infect Dis 2005;40:1713-20.
16. Dennis CL, Falah-Hassani K, Shiri R. Prevalence of antenatal and postnatal anxiety: systematic review and meta-analysis. Br J Psychiatry 2017;210:315-23.
17. Adamson B, Letourneau N, Lebel C. Prenatal maternal anxiety and children's brain structure and function: a systematic review of neuroimaging studies. J Affect Disord 2018;241:117-26. Erratum in: J Affect Disord 2019;253.
18. 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. Am J Obstet Gynecol 2020;223:240.e1-240.e9.
19. Corbett GA, Milne SJ, Hehir MP, Lindow SW, O'connell MP. Health anxiety and behavioural changes of pregnant women during the COVID-19 pandemic. Eur J Obstet Gynecol Reprod Biol 2020;249:96-7.
20. Mirzadeh M, Khedmat L. Pregnant women in the exposure to COVID-19 infection outbreak: the unseen risk factors and preventive healthcare patterns. J Matern Fetal Neonatal Med 2020:1-2.
21. Lebel C, MacKinnon A, Bagshawe M, Tomfohr-Madsen L, Giesbrecht G. Elevated depression and anxiety symptoms among pregnant individuals during the COVID-19 pandemic. J Affect Disord 2020;277:5-13. Erratum in: J Affect Disord 2021;279:377-9.
22. Santric-Milicevic M, Jankovic J, Trajkovic G, Terzic-Supic Z, Babic U, Petrovic M. Socioeconomic Inequalities in Mental Health of Adult Population: Serbian National Health Survey. Balkan Med J 2016;33:36-44.
23. Wong PC, Kitsantas P. A review of maternal mortality and quality of care in the USA. J Matern Fetal Neonatal Med 2020;33:3355-67.
24. Wondemagegn AT, Alebel A, Tesema C, Abie W. The effect of antenatal care follow-up on neonatal health outcomes: a systematic review and meta-analysis. Public Health Rev 2018;39:33.
25. Haddad PF, Morris NF, Spielberger CD. Anxiety in pregnancy and its relation to use of oxytocin and analgesia in labor. J Obstet Gynaecol 1985;6:77-81.
26. Teixeira C, Figueiredo B, Conde A, Pacheco A, Costa R. Anxiety and depression during pregnancy in women and men. J Affect Disord 2009;119:142-8.
27. Bhagwanani SG, Seagraves K, Dierker LJ, Lax M. Relationship between prenatal anxiety and perinatal outcome in nulliparous women: a prospective study. J Natl Med Assoc 1997;89:93-8.
28. Gunning MD, Denison FC, Stockley CJ, Ho SP, Sandhu HK, Reynolds RM. Assessing maternal anxiety in pregnancy with the state-trait anxiety inventory (STAI): issues of validity, location and participation. J Reprod Infant Psychol 2010;28:266-73.
29. Da Costa D, Larouche J, Dritsa M, Brender W. Variations in stress levels over the course of pregnancy: factors associated with elevated hassles, state anxiety and pregnancy-specific stress. J Psychosom Res 1999;47:609-21.
30. Endler NS, Kocovski NL. State and trait anxiety revisited. J Anxiety Disord 2001;15:231-45.