Postpartum Depression in Women Gave Birth in the Shadow of the Pandemic

Pandemi Gölgesinde Doğum Yapan Kadınlarda Postpartum Depresyon

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ABSTRACT

Objective: This study aimed to evaluate the level of postpartum depression and related factors in women who gave birth during the COVID-19 epidemic.

Materials and Methods: This is a descriptive cross-sectional study. The study was carried out between January and April 2021 with 351 participants. Data collection instruments included an information form, Coronavirus Anxiety Scale (CAS), Obsession with COVID-19 Scale (OCS), and Edinburgh Postnatal Depression Scale (EPDS).

Results: The average age of the participants was 28.37±6.74. The number of pregnancies was 2.68±1.48. Primary school graduates were 47.3%, and 92% were not working. 7% of the participants had an EPDS cut-off score of 10 or above. A difference was found between the groups in terms of education level, smoking, COVID-19 experience relative to COVID-19 status and CAS and OCS score average (p<0.05). Additionally, there was a difference between the groups' employment status, spouse's employment status, income status, smoking, unplanned pregnancy, type of birth and the baby's need for intensive care, and the average EPDS score (p<0.05).

Conclusions: Those with a high level of education, smokers, and those whose close relatives have had COVID-19 may be at risk for COVID-19 anxiety and obsession. Starting in pregnancy, anxiety and depressive symptoms should be reduced in at-risk groups.

Keywords: Anxiety, COVID-19, obsessive behavior, pandemics, postpartum depression

ÖZ

Amaç: Bu çalışma, COVID-19 pandemisinde doğum yapan gebelerin postpartum depresyonla ilişkili faktörlerini değerlendirmeyi amaçlamıştır.

Materyal ve Metot: Tanımlayıcı kesitsel tipte olan bu çalışma, Ocak ve Nisan 2021 tarihleri arasında 351 katılımcı ile gerçekleştirildi. Veri toplama araçları olarak Bilgi Formu, Koronavirüs Anksiyete Ölçeği (CAS), COVID-19 Takıntısı Ölçeği (OCS) ve Edinburgh Postnatal Depresyon Ölçeği (EPDS) kullanıldı.

Bulgular: Katılımcıların yaş ortalaması 28,37±6,74 idi. Gebelik sayısı 2,68±1,48 idi. İlkokul mezunlarının oranı %47,3 olup, %92'si çalışmıyordu. Katılımcıların %7'sinin EPDS kesme puanı 10 ve üzerindeydi. Gruplar arasında eğitim düzeyi, sigara kullanımı, COVİD-19 deneyimine göre COVİD-19 durumu ve CAS ve OCS puan ortalamaları açısından farklılık bulundu (p<0,05). Ayrıca grupların çalışma durumu, eşin çalışma durumu, gelir durumu, sigara içme, planlanmamış gebelik, doğum şekli ve bebeğin yoğun bakıma ihtiyaç duyma durumu ve ortalama EPDS puanı arasında da farklılık vardı (p<0,05).

Sonuç: Eğitim düzeyi yüksek olanlar, sigara içenler ve yakın akrabasında COVİD-19 geçirenler, COVİD-19 kaygısı ve takıntısı açısından risk altında olabilir. Risk altındaki gruplarda gebelikten itibaren anksiyete ve depresif belirtilerin azaltılması gerekmektedir.

Anahtar Kelimeler: Anksiyete, COVİD-19, pandemi, postpartum depresyon,takıntı

INTRODUCTION

The coronavirus (COVID-19), first identified in the city of Wuhan in China, has spread worldwide and has been declared a global pandemic by the World Health Organization (WHO).[1] The COVID-19 pandemic has profound implications for all aspects of society, including mental and physical health.[2] The COVID-19 pandemic has been associated with an increase in mental health problems, including anxiety, depression, and stress, particularly exacerbating mental health problems such as anxiety disorders, depression, and generalized anxiety disorder.[3-6] Some studies have found that the constantly changing and evolving information following the emergence of COVID-19 has led to psychosocial effects such as fear of being unable to access healthcare facilities, food shortages, the constant risk of infection, boredom, financial loss, disappointment, and the like. The pandemic measures implemented have significantly exacerbated these concerns.[7,8] In April 2020, two weeks after the declaration of COVID-19 as a pandemic, the United Nations Regional Office for Women in Asia and the Pacific (ROAP) conducted a study to examine the gendered impact of the pandemic in the region. The study found that women and men experienced the impact of the pandemic differently, with women being more affected by the psychosocial impact of the pandemic than men.[9] Prolonged experience of psychosocial problems can, over time, lead to not only neurochemical and cellular immune changes but also endocrine and metabolic disturbances in individuals.[10] The postnatal period, also known as the puerperium, is the period following childbirth during which the physiological changes in the mother associated with pregnancy return to their pre-pregnancy state. In addition to the potential physiological changes and medical concerns that may arise during this period, midwives should be aware of the physical and psychological changes experienced by the postpartum mother and be sensitive to her needs in this context.[11] Many factors can affect the postpartum period and lead to depression.

Global pandemics and potential outbreaks of infectious diseases due to climate change pose a threat to various health issues, including the potential to affect postpartum depression. This study aims to assess levels of postpartum depression in women who have given birth in the context of the pandemic.

MATERIALS AND METHODS

Ethical Considerations: Ethics committee approval Kocaeli University Non-Interventional Clinical Research Ethics Committee (GOKAEK) (Date: 01/04/2021, decision no: 2020/371) and institutional approval for the study were obtained. In addition, participants were informed about the research, the aim of the study was explained, and informed consent was obtained from all participants included in the study. This study was conducted by the principles of the Declaration of Helsinki. Data were collected by protocols for wearing masks, social distancing, and hygiene due to the pandemic conditions. Participants with a risky score on the postnatal depression assessment were referred to the psychiatric clinic.

Study Design and Sample: This is a descriptive cross-sectional study. The study population consisted of women who gave birth in a public teaching and research hospital. Data was collected face-to-face and by phone between January 11, 2021 and April 30, 2021. However, as it was not possible to reach all postpartum women, sampling was considered appropriate. Using the known population sampling formula, it was determined that 351 women who had given birth would need to be interviewed, with a 95% confidence level and 5% margin of error. The hospital has an annual birth rate of approximately 4000.

$$n = \frac{Nt^2pq}{d^2(N-1) + t^2pq}$$

Postpartum data were collected on the first day at the hospital, while data on postpartum depression were collected by telephone from the fifth day after delivery. A researcher-designed information form, the CAS, the OCS, and the EPDS were used to collect data.

Data Collection Tools

Information Form: This form was designed by the researchers. It consists of a total of 14 questions on socio-demographic and obstetric characteristics.[12-15]

Coronavirus Anxiety Scale (CAS): Developed by Lee et al., it consists of 5 items, each scored on a scale of 0 to 4. A response of '0' means 'not at all', while '4' means 'almost every day', and assesses COVID-19 anxiety over the past 2 weeks.[16] The Turkish validity of the scale was established by Evren et al.[17] Lee et al. found Cronbach's alpha coefficient to be 0.92, while Evren et al. reported it to be 0.80. In this study, it was calculated to be 0.77.

Obsession with COVID-19 Scale (OCS): Persistent and intrusive thinking about COVID-19 is a self-report measure of mental health. It was developed by Lee et al. and consists of 4 items. Each item of the OCS is rated on a 5-point Likert scale ranging from 0 (not at all) to 4 (almost every day) based on experiences over the past two weeks.[16] The Turkish validity of the scale was established by Evren et al.[17] The Cronbach's alpha coefficient was calculated as 0.83 by Lee et al., 0.80 by Evren et al., and 0.75 in our study.

Edinburgh Postnatal Depression Scale (EPDS): It was developed by Cox et al. to determine the risk of postpartum depression.[18] Aydın et al. conducted the Turkish validity and reliability of the scale, and Cronbach's alpha coefficient was found to be 0.72. The scale, which uses a 4-point Likert scale ranging from 0 to 3, consists of 10 questions. Scores of 12 or less are considered non-risky for postpartum depression, while scores of 13 or more are considered risky.[19] In this study, the Cronbach's alpha coefficient of the scale is 0.87.

Statistical Analysis: The data obtained in the study were analyzed using statistical software (SPSS 21.0) after being entered into the computer. Frequencies and percentages were used for descriptive analyses. The normal distribution of the data obtained was assessed using the Kolmogorov-Smirnov test; since the data did not meet the assumptions of normality, relationships in comparisons were assessed using the Spearman correlation test, and comparisons of categorical data were assessed using the Mann-Whitney U and Kruskal-Wallis H tests. The P level of significance was accepted as 0.05.

RESULTS
The mean age of the participants in the study group was 28.37±6.74 years, and the mean number of pregnancies was 2.68±1.48. In addition, 47.3% had completed primary school, and 92% were unemployed. Data on other descriptive characteristics are shown in Table 1.

Table 2 shows the mean scores of the participants on the CAS, the OCS, and the EPDS. It was found that 23 individuals (6.55%) scored 10 or higher on the EPDS, and 8 individuals (2.27%) scored 13 or higher, which serves as the cut-off point.

Table 1. Descriptive Characteristics of Participants (n:351).

Characteristics		Min-Max.	Mean±SD
Age		18-47	28.37±6.74
Gravidity		1–8	2.68±1.48
Parity		1–6	2.32±0.27
			n (%)
Education level	Primary school		166 (47.3)
	High school		162 (46.2)
	Associate's degree and higher		23 (6.6)
Employment status	Employed		28 (8.0)
	Unemployed		323 (92.0)
Partner's working status	Employed		344 (98.0)
	Unemployed		7 (2.0)
Income status	Income more than expenditure		14 (4.0)
	Income equal to expenditure		324 (92.3)
	Income less than expenditure		13 (3.7)
Cigarettte or tobacco usage	Uses		38 (10.8)
	Not using		313 (89.2)
COVID-19 infection history	Yes		90 (25.6)
	No		261 (74.4)
History of COVID-19 infection in a close relative	Yes		228 (65.0)
	No		123 (35.0)
Pregnancy planned	Planned		260 (74.1)
	Unplanned		91 (25.9)
Type of birth	Normal delivery		317 (90.3)
	Cesarean section		34 (9.7)
Need for neonatal intensive care	Yes		38 (10.8)
	No		313 (89.2)

Table 2. Participants' mean scores on the CAS, the OCS, and the EPDS (n:351).

Scales	Mean±SD	Min-Max.
CAS Total Score (n:351)	0.80±1.45	0-8
OCS Total Score (n:351)	1.75±1.93	0-11
EPDS Total Score (n:351)	3.07±3.79	0-24
EPDS ≥10 (n:23)	12.47±3.31	10-24
EPDS ≥13 (n:8)	15.87±3.60	13-24

SD: Standard deviation; CAS: Coronavirus Anxiety Scale; OCS: COVID-19 Obsession Scale; EPDS: Edinburgh Postnatal Depression Scale.

In Table 3, when examining the relationships between the total mean scores of the scales using the Spearman correlation test, a high level of positive correlation was found between the CAS and the OCS ($p<0.001$). However, no significant relationship was found between the EPDS and either the CAS or the OCS ($p>0.05$).

Table 4 compares the scale scores with specific participant characteristics. In the study, statistically significant differences were found between some descriptive characteristics (level of education, smoking, history of COVID-19 infection, and history of COVID-19 infection in close relatives) and the mean scores of CAS and OCS ($p<0.05$). Participants who were university graduates, smokers, had a history of COVID-19 infection, or had a close relative with COVID-19 infection had higher mean scores for CAS and OCS compared to other groups, and this difference was statistically significant ($p<0.05$). The study also found statistically significant differences between some descriptive characteristics, such as employment status, partner's working status, income status, smoking, planned or unplanned pregnancy, type of birth, and need for neonatal intensive care, and mean EPDS scores ($p<0.05$). Among the participants, mean EPDS scores were higher among those who were employed, those whose partner was unemployed, those whose income was less than their expenses, smokers, those with unplanned pregnancies, those who had a cesarean section, and those whose newborns required intensive care ($p<0.05$).

Table 3. Relationship between mean scores on the CAS, the OCS, and the EPDS (n:351).

Scales	CAS Total Score (n:351)	OCS Total Score (n:351)	EPDS Total Score (n:351)
CAS Total Score (n:351)	-	r: 0.572 **p<0.001**	r: -0.024 p: 0.655
OCS Total Score (n:351)		-	r: -0.038 p: 0.483

CAS: COVID-19 Anxiety Scale; OCS: COVID-19 Obsession Scale; EPDS: Edinburgh Postnatal Depression Scale.

Table 4. Results of the comparison of scale scores with specific participant characteristics (n:351).

Characteristics		n	CAS ORT	OCS ORT	EPDS
Education level	Primary school	166	0.73±1.38	1.73±1.88	2.89±3.63
	High school	162	0.86±1.48	1.71±1.89	2.90±3.57
	Associate's degree and higher	23	0.91±1.80	2.21±2.50	5.65±5.43
	X^2		-140.46	7.69	0.012
	p		**0.001**	**0.006**	0.912
Employment status	Employee	28	0.96±1.66	1.96±2.36	5.53±6.08
	Unemployed	323	0.79±1.43	1.73±1.89	2.86±3.46
	Z		-1.073	-0.394	-2.284
	p		0.283	0.694	**0.022**
Partner's working status	Employee	344	0.81±1.46	1.77±1.94	3.00±3.73
	Unemployed	7	0.57±0.78	0.71± .95	6.85±5.08
	Z		-0.068	-1.489	-2.116
	p		0.946	0.136	**0.034**
Income status	Income more than expenditure	13	0.69±1.18	2.07±1.80	4.69±4.04
	Income equal to expenditure	324	0.82±1.48	1.76±1.95	2.79±3.54
	Income less than expenditure	14	0.50±0.75	1.21±1.62	8.14±5.34
	X^2		0.116	2.113	18.555
	p		0.943	0.348	**0.001**
Smoking	Uses	38	1.97±2.33	2.76±2.34	4.65±4.13
	Not using	313	0.66±1.24	1.63±1.84	2.88±3.71
	Z		-3.43	-3.10	-2.60
	p		**0.001**	**0.002**	**0.009**
COVID-19 infection history	Yes	90	1.75±2.04	3.03±2.31	3.13±3.95
	No	261	0.47±1.00	1.31±1.56	3.05±3.74
	Z		-6.73	-6.58	-0.26
	p		**0.001**	**0.001**	0.788
History of COVID-19 infection in a close relative	Yes	228	0.99±1.62	2.17±2.08	2.92±3.91
	No	123	0.46± 0.98	0.98±1.31	3.34±3.56
	Z		-3.30	-5.69	-1.54
	p		**0.001**	**0.001**	0.122

P-values <0.05 and <0.001 are highlighted in bold; Kruskal-Wallis H Test; Mann-Whitney U Test. CAS: Coronavirus Anxiety Scale; OCS: COVID-19 Obsession Scale; EPDS: Edinburgh Postnatal Depression Scale.

Table 4. Continue.

Pregnancy planned	Yes	260	0.80±1.46	1.75±1.93	2.39±3.41
	No	91	0.81±1.43	1.75±1.95	5.02±4.17
	Z		-0.153	-0.187	-5.773
	p		0.878	0.852	**0.001**
Type of birth	Normal delivery	317	0.80±1.42	1.71±1.83	2.67±3.46
	Cesarean section	34	0.82±1.74	2.14±2.69	6.82±4.69
	Z		-0.462	-0.406	-5.822
	p		0.644	0.685	**0.001**
Need for neonatal intensive care	Yes	38	0.57±1.17	1.65±1.92	5.31±4.09
	No	313	0.83±1.48	1.77±1.94	2.80±3.67
	Z		-1.047	-0.305	-4.085
	p		0.295	0.760	**0.001**

P-values <0.05 and <0.001 are highlighted in bold; Kruskal-Wallis H Test; Mann-Whitney U Test. CAS: Coronavirus Anxiety Scale; OCS: COVID-19 Obsession Scale; EPDS: Edinburgh Postnatal Depression Scale.

DISCUSSION AND CONCLUSION

The COVID-19 pandemic continues to threaten the health and lives of people worldwide as new variants of the disease continue to emerge. The sense of individual vulnerability and mortality caused by the pandemic can lead to psychological problems for many people.[15,20,21] In addition, the COVID-19 pandemic has created a global crisis requiring significant changes in living conditions, social interactions, personal freedoms, and economic activities.[22,23] Studies of the impact of the pandemic on maternal health have focused mainly on pregnancy and pregnancy outcomes. However, disease outbreaks and pandemics that may result from climate change may pose various health challenges and lead to the emergence of long-term maternal and neonatal problems, such as postpartum depression. In this study, we aimed to assess levels of postpartum depression in women who gave birth in the shadow of the pandemic. About 7% of the participants in this study were found to be at risk of postpartum depression. In a study of women in Qatar at the start of the pandemic, 34% reported anxiety, and 39% reported depressive symptoms. However, the distinction between pre-existing mental health symptoms was not addressed in this study.[13] Data from studies carried out on pregnant women in Canada, China, and Turkey also reported that 35 percent of the participants showed symptoms of depression.[12,14,24] The reason for the lower rate in this study could be because the EPDS was administered to participants after 5 days postpartum. This also suggests that pregnant women may indeed need more relaxing and anxiety-reducing care during their pregnancy. In this study, there was no relationship between participants' COVID-19 anxiety and obsession scores and their EPDS scores. When the scale scores were compared with other sociodemographic and obstetric characteristics, college graduates, smokers, participants who had experienced COVID-19 themselves, and those with close relatives who had experienced COVID-19 had higher mean CAS and OCS scores.

A study of pregnant women in Italy reported that one of the most important factors in participants' anxiety was related to the health status of family members and people around them during the pandemic.[25] Furthermore, in our study, people with higher levels of education also reported higher levels of anxiety. Similarly, a study conducted in China reported that individuals experienced high levels of anxiety due to their heightened awareness of their health status.[5] This could be related to having more knowledge about this pandemic and following pandemic-related news. During the pandemic, daily pandemic data were shared in Turkey. Sharing pandemic information with the community is crucial, but healthcare workers should be supported to reduce individuals' anxiety and stress when providing services.

In this study, mean EPDS scores were higher among participants who were employed, whose partner was unemployed, whose income was lower than their expenses, who smoked, who had unplanned pregnancies, who had cesarean sections, and whose babies required intensive care. Several studies have shown that economic factors influence postpartum depression.[26,27] Therefore, women with limited financial resources are more susceptible to postpartum depression.[28] Furthermore, in our study, women who had to work or whose spouses were unemployed had higher EPDS scores. This could be due to financial issues and also the inability to maintain social distancing while working. Similarly, participants with unplanned pregnancies and those whose babies required intensive care also had higher EPDS scores. This may be related to women's concerns about the future of their babies.

While this study focused on the levels of anxiety and depression in women who gave birth during the COVID-19 pandemic, the data collected were self-reported, which limits the findings. Cultural factors may also play a role. Secondly, the rapid development of the pandemic and the emergence of acute problems may have affected the data. Thirdly, the

closure of many workplaces due to the data being collected during the pandemic period may have changed the demographic structure of that period, significantly the increase in the number of unemployed women. Finally, the cross-sectional nature of the study, its limited geographical scope and the collection of data from a single institution limit its generalisability.

In conclusion, this study looked at postpartum depression in women who gave birth in the shadow of the pandemic. About 7% of the participants were at risk of postpartum depression and were referred to clinical psychiatry. Participants' COVID-19 anxiety and obsession scores were not significantly correlated with their EPDS scores. Those with a higher level of education, smokers, participants who had personally experienced COVID-19, and those whose close relatives had experienced COVID-19 had higher COVID-19 anxiety and obsession scores. In addition, participants who were employed, had an unemployed spouse, had a lower income, smoked, had an unplanned pregnancy, had a cesarean section, or had a baby requiring intensive care had higher EPDS scores.

With the potential for new pandemics due to climate change, it is recommended that pregnant women receive care to reduce anxiety and depressive symptoms during pregnancy.

Ethics Committee Approval: Our study was approved by the Kocaeli University Non-Interventional Clinical Research Ethics Committee (GOKAEK) (Date: 01/04/2021, Decision no: 2020/371). This study was conducted by the principles of the Declaration of Helsinki.

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

Author Contributions: Concept – SDA, RO; Supervision – SDA, RO; Materials – SDA, RO, BK; Data Collection and/or Processing – BK, SDA; Analysis and/or Interpretation – RO, SDA; Writing –SDA, RO.

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