

The Impact of COVID-19 Pandemic on Postpartum Anxiety and Difficulties in Emotion Regulation

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ABSTRACT

This study aimed to assess the impact of COVID-19 pandemic on postpartum anxiety and emotion dysregulation among mothers. In this descriptive and correlational study, 222 women in the first 6-8th week after delivery participated. Data collection involved the use of a Personal information form (which were developed by the researchers) , Beck Anxiety Scale, and the Difficulty in Emotion Regulation Scale Short Form. The study found that women who gave birth during the COVID-19 pandemic had an average Beck Anxiety Scale score of 31.2 ± 10.36 and an average Difficulty in Emotion Regulation Scale score of 29.45 ± 12.98 . Significant relationships were identified between the participants age and educational levels and their anxiety levels. Furthermore, it was observed that a significant association existed between maternal sleep problems, the fear of contracting COVID-19, and both anxiety levels and difficulties in emotion regulation among women. When examining the relationship between difficulty in emotion regulation scale and beck anxiety scale, a positive, moderate, and significant relationship was evident between the difficulties in emotion regulation and anxiety levels of the participating women ($r = 0.619$; $p = 0.001$). The study revealed that women who gave birth during the COVID-19 pandemic experienced severe anxiety, and this period had a significant impact on their anxiety levels and difficulties in emotion regulation. So, it is recommended that health professionals incorporate strategies for coping with anxiety and improving emotional regulation in their training and counseling services.

COVID-19 Salgınının Doğum Sonrası Anksiyete ve Duygu Düzenleme Güçlükleri Üzerine Etkisi

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ÖZET

Bu çalışmanın amacı COVID-19 salgınının annelerin postpartum anksiyete ve duygu düzenleme güçlüğü yaşama durumları üzerine etkisini belirlemektir. Tanımlayıcı ve ilişki arayıcı türde planlanan çalışmaya doğum sonu ilk 6-8.hafta içerisinde olan 222 kadın katılmıştır. Çalışmanın veri toplama aşamasında; araştırmacılar tarafından hazırlanan Kişisel bilgi formu, Beck Anksiyete Ölçeği ve Duygu Düzenleme Güçlüğü Ölçeği Kısa Formu kullanılmıştır. Çalışma sonucunda COVID-19 salgını sürecinde doğum yapan kadınların Beck Anksiyete Ölçeği puan ortalaması 31.2 ± 10.36 , Duygu Düzenleme Güçlüğü Ölçeği puan ortalaması 29.45 ± 12.98 olarak bulunmuştur. Katılımcıların yaşları ve eğitim düzeyleri ile anksiyete düzeyleri arasında anlamlı bir ilişki olduğu belirlenmiştir. Annenin uyku sorunu yaşama durumu ve COVID-19 hastalığına yakalanma korkusu ile kadınların anksiyete düzeyleri ve duygu düzenleme güçlüğü durumları arasında anlamlı bir ilişki olduğu tespit edilmiştir. Duygu düzenleme güçlüğü ölçeği ve beck anksiyete ölçeği ilişki durumu incelendiğinde çalışmaya katılan kadınların duygu durum güçlüğü ve anksiyete düzeyleri arasında pozitif yönlü, orta düzeyde ve anlamlı bir ilişki olduğu görülmüştür ($r = 0.619$; $p=0.001$). COVID-19 pandemisi sürecinde doğum yapan kadınların, şiddetli düzeyde anksiyetesi olduğu ve sürecin anksiyete ve duygu düzenleme güçlüğü yaşama durumları üzerinde etkisi olduğu tespit edilmiştir. Sağlık profesyonellerinin anksiyete ve duygu durumu düzenleme güçlüğü ile başa çıkma yöntemlerine eğitim ve danışmanlık hizmetleri sırasında yer vermesi önerilmektedir.

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INTRODUCTION

SARS-Cov-2 is responsible for the onset of COVID-19 (Buruk & Özlü, 2020). As this pathogen was previously unknown in humans, the disease it causes was officially designated as COVID-19 (Akpınar & Üstün, 2020). The World Health Organization (WHO) has classified the COVID-19 outbreak as a global pandemic, an emergency, and a significant public health concern. Across the globe, various efforts have been undertaken to safeguard people's health and mitigate the development of this worldwide epidemic. Professionals are diligently working to address this issue through scientific research and the dissemination of new information about this novel virus (WHO, 2021).

The social environment plays a crucial role in creating a sense of companionship, where individuals have the opportunity to express themselves, learn from others' experiences, share their own, and receive the necessary social support. Difficulty in maintaining social connection, feeling like one in navigating life alone, hesitating to seek social support, and reluctance to discuss personal challenges with others can all lead to feelings of isolation and helplessness. Humans are inherently social beings who interact with the environment. It is essential to recognize the COVID-19 pandemic as a catastrophe affecting both physical and emotional well-being. Research has established that people experience greater levels of fear, anxiety, and distress, especially during the initial outbreak and when the number of cases increases (Rajkumar, 2020). The COVID-19 pandemic, responsible for numerous global fatalities, serves as a significant source of stress with adverse social and psychological effects on individuals (Brooks et al., 2020).

While COVID-19 can affect individuals of all ages, women are particularly vulnerable to issues stemming from their unique life processes, such as reproductive health, the preconception period, pregnancy, labor, and the postpartum period. Pregnancy and childbirth mark a special time for many women, accompanied by physical, biochemical, hormonal changes, and a psychological transition post-delivery. This also renders women susceptible to psychological challenges (Fallon et al., 2016). Anxiety is a common aspect of motherhood with many women experiencing varying degrees of anxiety during pregnancy, labor and the postpartum phase (Nakano et al., 2019). The physiologically and psychosocially demanding postpartum period becomes even more complex with the pandemic. It is crucial to provide psychosocial support and clinical monitoring throughout the postpartum phase, addressing heightened concerns about the potential transmission of COVID-19 transfer (Khan et al., 2020).

During the postpartum phase, women can experience psychological challenges such as sadness, depression, and even psychosis. These conditions can persist from the initial week after childbirth to as long as two years. The social support that the mothers receive during the pandemic, from healthcare professionals, their family, and supportive individuals within their close circle, has a positive impact on the health of both the mother and newborn during the early discharge period. In one study, it was found that an increase in the overall scores of social support correlated with a decrease in depression scores (Aytaç & Yazıcı, 2020). The experience of motherhood is linked to a range of positive and negative emotions, and the strategies women employ to regulate these emotions can significantly influence their well-being during this period (Haga et al., 2012). This includes being aware of, comprehending, and accepting one's emotional states, as outlined in the concept of emotion regulation (Gratz & Roemer, 2004). It involves behaving in a goal-oriented manner and avoiding impulsive actions when facing negative emotions, along with the capacity to cope through the utilization of flexible and context-appropriate strategies. Emotion regulation skills are important in the postpartum period but also in a person's life in general. Recent studies have increasingly integrated assessments of parenting skills with the Difficulties in Emotion Regulation

experienced by individuals (Rutherford et al., 2015).

Given that the postpartum period is a critical phase for effective parenting, it is essential not to overlook the relationship between postpartum depression and emotional regulation issues. General population studies (Kashdan et al., 2008) have shown a positive association between emotional control problems and anxiety, as well as depressive symptoms (Pickard et al., 2016). Early identification of psychiatric issues during the postpartum period is crucial for enhancing mental health. It not only prevents the disruption of the bond between mother and child but is also cost-effective and safeguards the mental well-being of both mother and the child. So, the purpose of this study was to assess the impact of the COVID-19 epidemic on mothers' postpartum anxiety and their ability to regulate their emotions, while also providing recommendations for improvement.

METHOD

Research Design

This study utilized both descriptive and correlational research approaches to investigate.

Research Sample

The population under study comprises women who have recently given birth and are in the 6 to 8 weeks postpartum phase. The sample size was calculated using the G*Power 3.1 software package. Considering the results of the reference study, (Işıl et al., 2006), the sample size was determined to be 222 individuals, based on an effect size of 0.16, a power of 80%, and a margin of error of 5%

Inclusion Criteria

- Age between 18 and 49 years,
- Not currently undergoing psychiatric treatment (self-reported),
- Being in the 6-8th weeks of postpartum period.

Research Instruments and Processes

Data collection involves the utilization of the Personal Information Form, Beck Anxiety Inventory (BAI), and Difficulties in Emotion Regulation Scale Short Form (DERS-16-SF). The data collection process was conducted online, with participants meeting the inclusion criteria and engaging through social media groups on platforms such as Facebook, WhatsApp, and Instagram from July 13, 2021, to August 10, 2021.

Personal information form

The survey comprised 16 questions covering various aspects of participants' sociodemographic characteristics (including age, education level, employment status, income status, and years of marriage), pregnancy and delivery experiences (such as number of pregnancies, mode of delivery, and the number of children), infant-related characteristics (such as diet, sleep problems, and health issues, etc.), and information related to COVID-19, as informed by previous studies (Bayri Bingöl & Demirgöz Bal, 2021; Işıl et al., 2006).

Beck anxiety inventory (BAI)

Beck et al. introduces the BAI self-report scale in 1988 to assess the frequently of anxiety symptoms experienced by individuals. The original 23-item Likert-type scale demonstrated a robust Cronbach alpha coefficient of 0.93 (Beck et al., 1988). Its Turkish validity and reliability were assessed by Ulusoy et al. (1998). The inventory is employed to assess the impact of stress experiences by individuals over the last week with questions rated on a scale from 0 to 3. The scale yields scores ranging

from a minimum of 0 points to a maximum of 63 points. The overall score is used for evaluation, with a higher score indicating a greater level of anxiety: 8–15 points signify mild anxiety, 16–25 points indicate moderate anxiety, and 26–63 points represent severe anxiety. The Cronbach's alpha coefficient for the scale, as determined in the Turkish validity and reliability assessment conducted by Ulusoy et al. in 1998, was 0.93 (Ulusoy et al., 1998). In the current study, where the scale was used to assess the anxiety levels of postpartum mothers, the Cronbach's alpha coefficient was found to be 0.92.

Difficulties in emotion regulation scale short form (DERS-16)

Bjureberg et al. (2016) introduced a 16-item self-report measure as a simplified version of the DERS (Gratz & Roemer, 2004), known as the DERS-16. This self-report scale is designed to evaluate various challenges related to emotional regulation. The DERS-16 comprises five subscale, labeled as “openness”, “goals”, “impulse”, “strategy”, and “rejection”. The scale consists 16 items, with responses graded on a likert scale ranging from 1 (seldom) to 5 (almost always). No specific cut-off values are applied during the assessment of scale scores. The DERS-16 was developed by Bjureberg et al. (2016) as a condensed version of the DERS (Gratz & Roemer, 2004) and is employed to assess a broad range of emotional regulation difficulties. Yiğit and Guzey Yiğit (2017) adapted the DERS-16 for Turkish context. In the current study, the DERS-16 demonstrated a high level of internal consistency with a Cronbach's Alpha of 0.92, while the Cronbach's Alpha values for the sub-scales ranged from 0.78 to 0.87 (Yiğit & Guzey Yiğit, 2017). This study used the DERS-16 to gauge participants' abilities to regulate their emotions, and the Cronbach's alpha coefficient was established to be 0.94.

Data Analysis

Data analysis was carried out using SPSS version 27. Descriptive analyses were employed to offer insight into the general characteristics of the participants, and these included calculating frequency, percentage distribution, and mean value with standard deviation (mean \pm standard deviation). The normal distribution of quantitative scale scores was evaluated using the Kolmogorov-Smirnov test. Pairwise comparisons were conducted using the Mann-Whitney U test, while comparisons involving more than two groups were made using the Kruskal-Wallis test. The significance level was set at $p < 0.05$.

RESULTS

Table 1 presents the distribution of the 222 participating women according to their sociodemographic characteristics. In term of age, it was observed that 31.1% were 24 years and younger, 36% were in the 24-29 age group, 25.2% were in the 30-34 age group and 7.7% were 35 years and older. Educational background revealed that 8.6% of female participants had completed elementary school, 20.7% had finished secondary school, 23% had attained a high school education, and 47.7% had completed university degrees. As for the duration of marriage, 66.6% of the women had been married for 0-5 years, 19.8% for 5-10 years, and 13.5% for 11 years or more. In terms of family type, 83.8% of the women belonged to nuclear families, while 16.2% had extended family arrangements. When assessing income levels, it was determined that 10% of women had high incomes, 74.2% had moderate incomes, and 15.8% had low incomes (Table 1).

Tablo 1
Socio-Demographic Characteristics of Women (n: 222)

Variables	n	%
Mother age		
≤ 24 age	69	31.1
24 - 29 age	80	36.0
30 - 34 age	56	25.2
≥ 35 age	17	7.7
Education status		
Primary School	19	8.6
Middle School	46	20.7
High School	51	23.0
University	106	47.7
Marriage duration		
≤ 5 year	148	66.6
6-10 year	44	19.8
≥ 11 year	30	13.5
Family type		
Nuclear family	186	83.8
Extended family	36	16.2
Income level		
Low	35	15.8
Middle	165	74.2
High	22	10.0

It was found that 51% of the women underwent a caesarean section, while 49% had a normal delivery. Additionally, 70.7% of the babies were exclusively breastfed, 24.8% received a combination of breastfeeding and formula, and 4.5% were formula-fed. Furthermore, 29% of the babies experienced sleep problems, with 71% having no sleep issues. It was revealed that 37% of the women encountered sleep problems, whereas 63% did not have sleep-related difficulties. Moreover, 10% of the babies faced health problems, while 90% did not have experience any health issues. The data also indicated that 82.9% of the women rated their communication with their husbands as good, 15.3% as satisfactory, and 1.8% as fair. Additionally, 47.7% of the women had a single child. Regarding the age distribution of the babies, 43.3% were 0-2 weeks old, 20.0% were 3-4 weeks old, 7% were 5-6 weeks old, and 30.7% were 7-8 weeks old (Table 2).

Table 2
Distribution of Women's Characteristics of the Postpartum Period (n: 222)

Variables	n	%
Mode of delivery		
Vaginal	109	49.0
Caesarean section	113	51.0
Baby's feeding style		
Breastfed only	157	70.7
Breastfed and formula	55	24.8
Formula only	10	4.5
Baby's sleep problem		
Yes	64	29.0
No	158	71.0
Mother's sleep problem		
Yes	82	37.0
No	140	63.0

Baby's health problem		
Yes	22	10.0
No	200	90.0
Number of alive children		
1	106	47.7
2	74	33.3
3 and above	42	19.0
Communication with the spouse		
Good	184	82.9
Middle	34	15.3
Bad	4	1.8
Baby's week		
0-2 week	94	43.3
3-4 week	44	20.0
5-6 week	15	7.0
7-8 week	68	30.7

The distribution of the women's characteristics in relation to COVID-19 is displays in Table 3. Among the women who gave birth, COVID-19 illness was detected in 22.6%, while 77.4% did not contact the virus. When the timing of COVID-19 illness was analyzed, it was revealed that 77.4% of the women remained COVID-19 free. In contrast, 16.2% contracted the disease during pregnancy, 3.2% immediately after giving birth, and another 3.2% at other times. Furthermore, 68.5% of the women expressed fear of contracting COVID-19, while 31.5% did not share the same fear. The mean scores of the 222 women participating in the study were 31.2 ± 10.36 on the BAI and 29.45 ± 12.98 on the DERS-16. The sub-dimensions of the DERS-16 were as follow: Openness 3.52 ± 1.54 , Goals 6.95 ± 3.29 , Impulse 5.05 ± 2.77 , Strategies 8.79 ± 4.65 , and Acceptance 5.14 ± 2.72 . Table 3 compares the average ratings on the BAI and DERS-16 based on the sociodemographic details of the female population. When the women's BAI scores were evaluated by age group, a significant difference was observed between the groups ($p < 0.05$, Table 3). Future research, which involved paired group comparison, revealed statistically significant difference between the 24-and-under age group and the 30-34 age group, as well as between the 24-29 and 30-34 age groups. Specifically, the age groups of 24 and under (30.91 ± 11.11) and 24-29 (29.53 ± 9.44) had lower BAI scores, while the 30-34 age group (34.38 ± 10.41) exhibited higher scores. When the BAI findings of the women were evaluated in relation to their educational attainment, a significant difference between the groups was observed ($p < 0.05$, Table 3). Further investigation revealed statistically significant difference between women with elementary and university education, secondary and high school education, and secondary and university education. Women with primary education exhibited lower BAI scores (28.00 ± 5.2), while those with secondary education had higher scores (28.7 ± 10.09) compared to women with high school education (32.65 ± 12.16) and university education (32.17 ± 9.63). In contrast, women's DERS-16 scores did not differ significantly from each other based on their educational background ($p < 0.05$, Table 3).

Table 3

Comparison of Beck Anxiety Inventory (BAI) and Difficulties in Emotion Regulation Scale Short Form (DERS-16) Scores According to Socio-Demographic Characteristics of Women (n: 222)

Variables	Mean±SS(BAI) (Q1;Q3)	Significant (p)	Mean±SS(DERS-16) (Q1;Q3)	Significant (p)
Mother age				
≤ 24 age	30.91 ± 11.11 27 (21;38) ^{ac}	H: 10.766 <i>p</i> [*] =0.013	29.84 ± 13.90 26 (19;36)	H: 0.496 <i>p</i> =0.920
24- 29 age	29.53 ± 9.44 26 (22; 35) ^a		29.03 ± 12.61 25 (20;35)	
30- 34 age	34.38 ± 10.41 32 (26; 42) ^b		29.68 ± 12.14 27 (21;34)	
≥ 35 age	29.82 ± 9.63 28 (25;31) ^{ab}		29.12 ± 14.58 24 (19;36)	
Education status				
Primary School	28.00 ± 8.52 26 (21;29) ^{ab}	H: 10.705 <i>p</i> [*] =0.013	27.74 ± 16.38 22 (16;30)	H: 4.532 <i>p</i> =0.209
Middle School	28.7 ± 10.09 25 (21;32) ^a		27.70 ± 11.42 24 (20;32)	
High School	32.65 ± 12.16 29 (23;40) ^{bc}		29.37 ± 13.42 25 (20;34)	
University	32.17 ± 9.63 30 (25;37) ^c		30.56 ± 12.81 27 (20;38)	
Marriage duration				
≤ 5 year	31.18 ± 10.36 29 (23;35)	H: 3.150 <i>p</i> =0.207	29.51 ± 12.70 27 (19;36)	H: 0.883 <i>p</i> =0.643
6-10 year	29.27 ± 8.61 26 (22; 36)		28.61 ± 13.88 25 (19;32)	
≥ 11 year	34.13 ± 12.18 30 (25;42)		30.4 ± 13.39 28 (21;35)	
Family type				
Nuclear family	31.54 ± 10.30 29 (23;37)	U: 1.727 <i>p</i> =0.084	29.87 ± 13.14 26 (20;35)	U:-1.373 <i>p</i> =0.170
Extended family	29.44 ± 10.61 25 (21; 35)		27.31 ± 12.09 25 (16;32))	
Income level				
Low	31.94 ± 12.10 27 (21;40)	H: 0.230 <i>p</i> =0.891	29.97 ± 15.73 24 (20;36)	H: 0.529 <i>p</i> =0.767
Middle	31.19 ± 10.40 28 (23;38)		29.41 ± 12.86 26 (19;35)	
High	30.09 ± 6.71 30 (25;35)		28.95 ± 9.037 27 (22;33)	

Mean: Average; SD: Standard Deviation; M: Median; Q1: 1st quarter; Q3: 3rd quarter

1: Man Whitney U test (U) 2: Kruskal Wallis Test (H)

a, b, c: Different letters or letter combinations in the same row indicate statistically significant difference (*p*<0.05)

p*<0.05 *p*<0.01

Table 4 provides a comparison of the average scores on the DERS-16 and the BAI based on the characteristics of the women in relation to the postpartum period. Statistical analysis revealed a significant difference in BAI and DERS-16 score when the scale scores were analyzed according to the mother's sleep problems status (*p*<0.01, Table 4). In contrast to mothers without sleep issues, women experiencing sleep problems exhibited higher scores on both the BAI and the DERS-16 (*p*<0.01, Table 4). Moreover, a significant differences in DERS-16 score were observed among the different groups (*p*<0.05, Table 4). It was discovered that women who perceived their relationships with their spouses as

good (23.43 ± 12.45) had lower DERS-16 scores than women who rated their relationships as bad (34.50 ± 14.62) ($p < 0.05$, Table 4). However, the mother's relationship status with her husband did not have a significant effect on BAI ($p < 0.05$). In contrast, DERS-16 scores differed based on the relationship status with her husband ($p < 0.05$). Mothers in good relationship with their spouses had lower DERS-16 scores compared to those in average relationship with their spouses.

Table 4

Comparison of Beck Anxiety Inventory (BAI) and Difficulties in Emotion Regulation Scale Short Form (DERS-16) Scores According to Women's Characteristics Related to Postpartum Period (n: 222)

Variables	Mean \pm SS(BAI) (Q1;Q3)	Significant (p)	Mean \pm SS (DERS-16) (Q1;Q3)	Significant (p)
Mode of delivery				
Vaginal	30.05 \pm 9.34 27 (23;35)	U: -1.240 $p=0.215$	28.59 \pm 11.22 25 (20;35)	U: 0.522 $p=0.601$
Sezaryen	32.32 \pm 11.18 30 (23;39)		30.28 \pm 13.90 27 (20;36)	
Baby's feeding style				
Breastfed only	30.81 \pm 9.91 28 (23;35)	H: 0.596 $p=0.742$	30.81 \pm 9.91 25 (19;34)	H: 0.884 $p=0.643$
Breastfed and formula	32.33 \pm 11.22 30 (23;40)		31.35 \pm 15.01 26 (21;39)	
Formula only	31.2 \pm 12.88 26 (21;38)		31.40 \pm 15.08 28 (19;41)	
Baby's sleep problem				
Yes	33.30 \pm 11.67 30 (24;41)	U: 1.635 $p=0.102$	31.34 \pm 13.44 30 (19;39)	U: 1.445 $p=0.418$
No	30.35 \pm 9.68 27 (23;35)		28.68 \pm 12.76 25 (20;34)	
Mother's sleep problem				
Yes	36.16 \pm 11.98 34 (26;44)	U: 4.851 $p^{**}=0.001$	34.79 \pm 15.43 31 (22;43)	U: 4.210 $p^{**}=0.001$
No	28.30 \pm 7.99 26 (22;32)		26.32 \pm 10.13 23 (19;31)	
Baby's health problem				
Yes	35.55 \pm 13.38 31 (25;44)	U: 1.539 $p=0.124$	35.55 \pm 15.96 30 (22;44)	U: 1.306 $p=0.191$
No	30.73 \pm 9.89 28 (23;35)		29.00 \pm 12.58 25 (19;35)	
Number of alive children				
1	30.96 \pm 9.77 29 (23;35)	H: 0.206 $p=0.902$	30.27 \pm 12.72 28 (20;37)	H: 1.634 $p=0.442$
2	31.78 \pm 11.07 28 (23;40)		29.08 \pm 14.40 23 (19;32)	
3 and above	30.79 \pm 10.70 27 (23;37)		28.02 \pm 11.00 26 (21;32)	
Communication with the spouse				
Good	30.36 \pm 9.45 28 (23;35)	H: 3.666 $p=0.160$	23.43 \pm 12.45 25 (19;34) ^a	H: 6.247 $p^{*}=0.044$
Middle	34.71 \pm 13.46 30 (23;46)		34.50 \pm 14.62 30 (22;47) ^b	
Bad	40 \pm 13.29 44 (27;50)		33.50 \pm 15.19 35 (19;48) ^{ab}	

Baby's week				
0-2 week	30.38 ± 23.00	H: 4.132	28.56 ± 20.00	H: 2.160
	34 (29;9)	$p=0.248$	33 (25;13)	$p=0.540$
3-4 week	30.75 ± 21.25		31.20 ± 19.25	
	35 (27;11)		41 (28;14)	
5-6 week	32.33 ± 25.00		24.80 ± 17.00	
	41 (28;12)		32 (22.8)	
7-8 week	32.50 ± 22.25		30.57 ± 19.00	
	41 (28;12)		40 (27;14)	

Mean: Average; SD: Standard Deviation; M: Median; Q1: 1st quarter; Q3: 3rd quarter

1: Man Whitney U test (U) 2: Kruskal Wallis Test (H)

a. b. c: Different letters or letter combinations in the same row indicate statistically significant difference ($p<0.05$)

* $p<0.05$ ** $p<0.01$

When we analyzed Table 5, a statistical difference is evident for DERS-16 ($p<0.05$) and BAI ($p<0.01$) in relation to the fear of contracting COVID-19. In both of these scales, mothers who expressed fear of COVID-19 exhibited higher scores compared to mothers who did not have this fear. Furthermore, a comparison between DERS-16 and BAI revealed a positive, moderate, and significant correlation between mood issues and anxiety levels among the female participants in the study.

Table 5

Comparison of Beck Anxiety Inventory (BAI) and Difficulties in Emotion Regulation Scale Short Form (DERS-16) Score Means with COVID-19 Disease Characteristics (n: 222)

Variables	Mean±SS(BAI) (Q1;Q3)	Significant	Mean±SS(DERS-16) (Q1;Q3)	Significant
COVID-19 disease status				
Yes	33 ± 10.98	U:-1.450	29.42 ± 10.85	U: -0.703
	30 (24;42)	$p=0.147$	26 (22;36)	$p=0.482$
No	30.75 ± 10.17		29.46 ± 13.50	
	27 (23;35)		25 (20;35)	
Time to catch COVID-19 disease				
No	30.67 ± 10.23	H:5.088	29.29 ± 13.52	H:4.132
	27 (22;35)	$p=0.165$	25(19;34)	$p=0.248$
Pregnancy	32.22 ± 11.16		28.08 ± 9.77	
	30 (24;40)		25(21;34)	
Postpartum period	36.86 ± 9.40		36.86 ± 14.83	
	41 (29;42)		36 (21;49)	
Other	33.43 ± 9.77		33.00 ± 11.40	
	29 (26;47)		35 (24;38)	
Fear of getting COVID-19				
Yes	32.49 ± 10.89	U:-2.767	30.74 ± 13.78	U: -2.172
	30 (23;39)	$p^{**}=0.006$	27 (20;36)	$p^{*}=0.030$
No	28.41 ± 8.52		26.64 ± 10.63	
	26 (22;32)		24 (17;32)	

Mean: Average; SD: Standard Deviation; M: Median; Q1: 1st quarter; Q3: 3rd quarter

1: Man Whitney U test (U) 2: Kruskal Wallis Test (H)

a. b. c: Different letters or letter combinations in the same row indicate statistically significant difference ($p<0.05$)

* $p<0.05$ ** $p<0.01$

DISCUSSION

This study aimed to evaluate the impact of the rapidly spreading COVID-19 pandemic worldwide on the postpartum anxiety and emotion regulation of mothers and to provide recommendations. The average score of the participants on the BAI was found to be 31.2 ± 10.36 . In a previous study by Işıl et al. (2006), the mean BAI score was reported as 22.50 ± 13.43 . Various studies have reported different prevalence rate for postpartum anxiety symptoms. Dennis et al. (2018), Fallon et al. (2016), and Puryear (2014) found clinical levels of postpartum anxiety symptoms ranging from 12% to 20% (Dennis et al., 2018; Fallon et al., 2016; Puryear, 2014). Tietz et al. (2014), reported an 11% frequency of anxiety disorders during the postpartum period, while Fairbrother et al. (2016) noted 17.1% for postpartum generalized anxiety disorder. Polte et al. (2019), reported a rate of 4% for anxiety at 8 weeks postpartum, and Kara et al. (2020) found that 12.3% of young mothers experienced generalised anxiety disorder.

In a recent systematic review by Field (2018), the prevalence of postpartum maternal anxiety symptoms was found to range from 13 to 40%. A study conducted during the COVID-19 pandemic, investigating postpartum generalized anxiety disorder, revealed that 68.2% of mothers experienced anxiety (Yalçın & Kaya, 2018). Additionally, Yalçın & Kaya (2018) reported that 34% of women experienced anxiety during the postpartum period. In addition to Dönmez and Bükülmez (2015) found that mothers experiencing mental health problems had shorter breastfeeding durations. When assessing anxiety levels among the mothers in the study group, it was discovered that 68% of them had severe anxiety, while 32% had moderate anxiety. This is believed to be one of the harmful impacts of the COVID-19 epidemic on women. According to this study, women received a mean DERS-16 score of 29.45 ± 12.98 . The effective utilization of emotion regulation skills holds particular significance for the social and psychological well-being of new mothers (Berking et al., 2014). Emotion regulation skills are closely linked to a mothers' capacity to manage both positive and negative experiences, as well as to identify and distinguish potential issues (Yalçın & Kaya, 2018).

Maternal emotion regulation plays critical role in infant care and, consequently, infant development (Rutherford et al., 2015). One study found a positive correlation between anxiety and difficulty regulating emotions (Kashdan et al., 2008). Similarly, according to Marganska et al. (2013), experiencing anxiety symptoms and struggling to control one's emotions are significantly correlated. These findings align with the results of the present study, which demonstrated a positive, moderate, and significant association between women's mood issues and anxiety levels ($r = 0.619$; $p = 0.001$). Emotion regulation difficulties are a concept linked to experiences such as increased stress, disasters, and epidemics (Tucker et al., 2012). In a study analyzing the accuracy and inaccuracy percentages of COVID-19 outbreak information and pandemic protection measures, it was discovered that women possessed more precise information (Durduran et al., 2021). Research on COVID-19 has revealed that women are disproportionately affected by the pandemic (Liu et al., 2020). This study discovered that women who feared contracting COVID-19 also exhibited elevated levels of anxiety and struggled with emotion regulation. Other studies have indicated that mothers experience higher levels of anxiety (Zeybekoğlu & Dursun, 2020).

In the study conducted by Tees et al. (2010), it was reported that women who experienced a disaster faced an increased risk of depression and anxiety during both pregnancy and the postpartum period. Bargi and Koku (2022), reported in their study that the fear of COVID-19 increased as a result of the decrease in the time that individuals allocated to physical activity and increased fatigue levels due to the pandemic. Similarly, in another study, the COVID-19 pandemic was found to have a detrimental impact on mothers' anxiety levels and their ability to regulate emotion (Yalçın & Kaya, 2018). The research by Gonzalez Garcia et al. (2021) further confirmed the significant connection between the COVID-19 outbreak and increased anxiety. Furthermore, Ceylan and Günay Molu (2022) reported that

both mothers and fathers experienced moderate anxiety during the COVID-19 pandemic, and there was no significant difference in anxiety levels between parents with and without COVID-19 diagnosis. Consistent with prior research, this study revealed that women who expressed concerns about contracting COVID-19 also experienced significant levels of anxiety and face challenges in regulating their emotions. It is believed that the restrictions and health precautions imposed due to the COVID-19 epidemic are contributing to this situation. According to this study, women in the 30- to 34-year-old age range exhibited higher levels of anxiety compared to women aged 35 and above. Additionally, it was also observed that women aged 30-34 faced more difficulties with emotion regulation than other age groups. Insufficient recognition, perception, and regulation of emotions can result in increased emotional and psychological issues for mothers (Nilsson & Lundgren, 2009). Studies have reported that postpartum anxiety tend to decreases with increasing age (Bayri Bingöl & Demirgöz Bal, 2021; Hakanen et al., 2019). This is likely due to the increased experience and maturity of older mothers, which is expected to result in lower levels of anxiety. In the study, it was discovered that postpartum anxiety in women was associated with higher levels of education. A study in the USA found that younger and more educated individuals experienced higher levels of COVID-19 anxiety (Lee, 2020). According to the existing literature, education can influence how women perceive and report postpartum depressive symptoms by impacting their subjective experience, self-awareness, and acceptance. This, in turn, affects the symptoms experienced by highly educated women and how they express them. Furthermore, a higher level of education is linked to reduced fear of stigma associated with mental health (Cook & Wang, 2010; Di Florio et al., 2017). The experience of motherhood is associated with various emotion management aspects, and the skills that women employ to handle both positive and negative emotions have a significant impact on their well-being during this period (Haga et al., 2012). Numerous variables influence mothers' emotion regulation skills, particularly in the postnatal period. For instance, in one study, it was observed that poor sleep quality had a detrimental effect on emotion regulation skills (Palmer & Alfano, 2017). Even before the epidemic, a survey indicated that approximately 30% of women experienced sleep disturbances after giving birth (Nowakowski et al., 2018). In a study conducted by Nowakowski et al. (2018), it was found that 29.5% of Argentine women were experienced sleep problems during the postpartum period. Previous studies have consistently reported that maternal sleep problems are prevalent in the postpartum period, often leading to mood and anxiety disorders at the clinical diagnosis level (Bei et al., 2015; Lawson et al., 2015). According to Tibubos et al. (2018), sleep, fatigue, and depersonalization are all significantly correlated with difficulties in emotion regulation. Similarly, in this study, it was discovered that 37% of mothers experienced sleep problems, and a significant correlation was found between experiencing sleep problems and level of anxiety and emotion regulation skills. Although the concept of interpersonal emotion regulation is rarely discussed, it is noted in the literature that it is associated with psychological disorders. It is emphasised that understanding anxiety disorders requires addressing the concept of interpersonal emotion regulation (Marroquin, 2011). According to this study, women who reported a good relationship with their spouse lower scores on the emotion dysregulation scale. Similarly, Uçak Duman (2019) found that women with strong spousal support had lower score on emotion regulation difficulties. Emotional control is considered a crucial aspect of marital relationship and communication between spouses. In conclusion, women facing stressful situations during childbirth may find it challenging to perceive events realistically. This may lead them to constant effort to avoid negative stressors and result in emotion regulation (Marques et al., 2018).

CONCLUSION AND SUGGESTIONS

Early identification of issues related to anxiety and emotion regulation in the postnatal period can significantly contribute to the development and well-being of both mother and child. Health professionals are encountered to monitor maternal anxiety and emotional well-being as a routine part of postnatal care. It is evident that mothers who gave birth during the COVID-19 outbreak experienced higher levels of anxiety, which can affect their emotional control. In the light of these facts, it is crucial that mothers receive support from health professionals to enhance awareness and coping mechanisms for handling situations that may impact their emotional well-being.

LIMITATIONS

The study's findings are applicable to the specific sample used during its execution, and its limitation lies in the inability to generalize the results to the broader population.

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Ethic Approval

Permission was granted by the Ministry of Health, and clearance was obtained from the Karatay Chamber of Commerce University's Ethics committee, specifically the Non-Pharmaceutical and Medical Device Research Ethics Committee, as indicated by their date of approval on 13.07.2021 and their reference numbered number E-41901325-050.99-11866, to facilitate the study. Prior to participation, the study's objectives were explained to willing individuals, and written informed consent was obtained from them. Furthermore, consent to use the BAI and DERS-16 was secured via email from the respective authors.

Conflict of interest

The authors declare no conflict of interest.

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Authorship Contributions

Design: H.D.T., K.A., Data Collection or Processing: H.D.T., K.A., Analysis or Interpretation: H.D.T., K.A., Literature Search: H.D.T., K.A., Writing: H.D.T., K.A.

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