



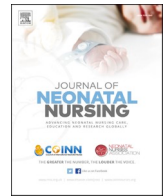
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Sociodemographic factors affecting depression-anxiety-stress levels and coping strategies of parents with babies treated in neonatal intensive care units during the COVID-19 pandemic

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ABSTRACT

Purpose: This study aimed to determine the sociodemographic factors affecting the depression-anxiety-stress levels and coping strategies of parents with babies treated in neonatal intensive care units during the COVID-19 pandemic.

Design: and **Methods:** This descriptive cross-sectional study was conducted between March and October 2021. The sample consisted of 93 parents. Data were collected using a descriptive questionnaire, the Depression Anxiety Stress Scale (DASS- 42), and Coping Style Scale (CSS).

Results: Participants had mean DASS “depression,” “anxiety,” and “stress” subscale scores of 13.69 ± 8.86 , 12.11 ± 8.37 , and 19.09 ± 9.24 , respectively. They had mean CSS “self-confident,” “optimistic,” “helpless,” “submissive coping,” and “seeking of social support” subscale scores of 2.71 ± 0.65 , 2.57 ± 0.59 , 2.29 ± 0.62 , 2.25 ± 0.49 , and 2.38 ± 0.52 , respectively. Fathers had lower mean CSS “helpless” and “submissive” subscale scores than mothers. Participants who were briefed about their babies’ condition by nurses had lower mean CSS “helpless” and “submissive” subscale scores than others. Participants with higher education had lower mean CSS “helpless” and “submissive” subscale scores than others. Participants with spouses with bachelor’s or higher degrees had a higher median CSS “optimistic” subscale score than those with literate spouses or spouses with primary school degrees. Participants who were worried about the “no visitors” policy had a lower median CSS “self-confident” subscale score than those who were not.

Conclusions: Parents who are not allowed to see their babies due to the “no visitors” policy during the COVID-19 pandemic experience more psychosocial problems. Though not a result of the present study, the “no visitors” policy seems to affect the mother-infant attachment adversely.

Practice implications: Healthcare professionals should brief parents about what a neonatal intensive care unit is like. They should also warn them that they may not be too happy about how their baby looks before seeing them. Therefore, they should use therapeutic communication techniques to talk to them and explain the situation in a way they can understand. Moreover, they should provide parents with psychological empowerment training programs to help them adopt active coping strategies to deal with challenges in times of crisis.

1. Introduction

It is hard for parents to have their babies in neonatal intensive care units (NICUs) because it means that they will have to change their parenting roles and put on hold the parent-infant attachment they are looking forward to (Grunberg2020; Al Maghairyh et al., 2016). A healthy parent-infant attachment through skin-to-skin contact has numerous health benefits: It promotes interaction, facilitates

neuro-behaviors and sensory stimuli, increases breast milk production, and reduces pain and stress (He2021; Montes2020). Parents of NICU babies may experience acute stress, depression, anxiety, passive coping, and post-traumatic stress disorder with long-term repercussions (Erdei and Liu., 2020; Grunberg2020; Lemmon et al., 2020). Parents with limited to no interaction with their babies are more likely to suffer from those problems (Busse et al. 2013; Lasiuk, Comeau & Newburn-Cook., 2020; Meesters et al., 2022).

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Parents of NICU babies were already dealing with stress and psychological problems before the pandemic. The COVID-19 pandemic exacerbated the situation because hospitals had to introduce a “no visitors” policy to avoid unnecessary risks to patients and staff. Parents of NICU babies not only suffer from psychosocial problems but also have to deal with the fact that they cannot interact with their babies and bond with them due to the preventive measures taken in connection with COVID-19 (Bembich et al., 2021; Cena et al., 2021; Darcy Mahoney et al., 2020; Garfield, Westgate, Chaudhary, King, O’Curry and Archibald., 2021; Montes et al., 2020; Muniraman et al., 2020; Osorio Galeano and Salazar Maya, 2021; Virani et al., 2020). Most countries, including Turkey, have introduced numerous preventive measures in NICUs to stop the spread of COVID-19. One of those measures is the “no visitors” policy. Before the pandemic, parents were allowed to visit their NICU babies every day, participate in their care to bond with them and promote positive health outcomes, and provide kangaroo care and breastfeeding in the public hospital where this study was conducted. The Turkish Ministry of Health has introduced restrictions to prevent the transmission of COVID-19 to babies in hospitals. For example, the hospital where this study was conducted has restricted daily visits. Parents are allowed to see their babies in person only once after birth. They can talk to doctors on the phone once a day to find out about their babies. They can ask nurses about their babies whenever they want. They can facetime with their babies once a week. Parents who live out of town can also facetime with their babies. However, parents are allowed to see their babies only on certain days. Parents on their deathbed are allowed to see their babies one last time. The public hospital where this study was conducted consists of three blocks. The hospital has 120 NICU incubators and provides care to tertiary-level patients. Research shows that many hospitals worldwide have similar restrictions, affecting parents psychosocially (Siani et al., 2017; Darcy Mahoney et al., 2020; Erdei and Liu., 2020; Lemmon et al., 2020; Muniraman et al., 2020; Montes et al., 2020). The “no visitors” policy due to the COVID-19 pandemic causes anxiety, depression, and post-traumatic stress disorder (Muniraman et al., 2020) and adversely affects the parent-infant attachment (Hugelius2021). This study aimed to determine the sociodemographic factors affecting depression-anxiety-stress levels and ways of coping in parents of NICU babies during the COVID-19 pandemic. The results will help healthcare professionals plan and implement family-based nursing interventions in times of crisis.

1.1. The research questions are as follows

- What are the depression, anxiety, and stress levels of parents of NICU babies during the COVID-19 pandemic?
- What coping strategies do parents of NICU babies have during the COVID-19 pandemic?
- What descriptive factors affect the coping strategies of parents of NICU babies during the COVID-19 pandemic?

2. Methods

This descriptive cross-sectional study adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines (Von Elm et al., 2007).

2.1. Setting and sample

This study was conducted between March and October 2021 in the NICU of a public hospital in Ankara, Turkey. The study population consisted of all parents who were not allowed to see their NICU babies (between 18.03.2021 and 11.11.2021) due to the “no visitors” policy introduced by the hospital as a response to the COVID-19 pandemic. The inclusion criteria were as follows:

- Having a 0-2-month-old baby admitted to the NICU of the hospital for at least a week
- Not having experienced a major stressor in the past year, such as losing a loved one, being diagnosed with a disease, getting a divorce, getting fired, etc.
- Having at least a primary school degree
- Speaking and understanding Turkish
- Not having a mental disorder

A power analysis was conducted (Gpower 3.1) on a sample of 72 parents based on the correlation between the Depression Anxiety Stress Scale (DASS- 42) and the Coping Style Scale (CSS) scores ($r = 0.337$). The results revealed a power of 83.26% with a 5% margin of error. The target sample was 150 parents to avoid missing data due to incomplete data collection or withdrawal. Those who declined to participate (1), did not meet the inclusion criteria (2), and failed to fill out the data collection tools (3) were excluded from the study. The final sample consisted of 93 parents.

2.2. Data collection tools

The data were collected using a descriptive questionnaire, the Depression Anxiety Stress Scale (DASS- 42), and the Coping Style Scale (CSS).

2.2.1. Descriptive questionnaire

The descriptive questionnaire was based on a literature review conducted by the researchers. The questionnaire consisted of items on parents’ age, a previous history of miscarriage, a history of stillbirth, the infant weight, single or multiple births, type of delivery, and the diagnosis of the baby. The questionnaire also included items on the year of marriage, marriage type, and other child’s intensive care history (Lemmon et al., 2020; Busse et al., 2013; Garfield et al., 2021).

2.2.2. Depression Anxiety Stress Scale (DASS- 42)

The Depression Anxiety Stress Scale (DASS- 42) was developed by Lovibond and Lovibond (1995). The instrument consists of 42 items and three subscales: depression (Items 3, 5, 10, 13, 16, 17, 21, 24, 26, 31, 34, 37, 38, and 42), anxiety (Items 2, 4, 7, 9, 15, 19, 20, 23, 25, 28, 30, 36, 40, and 41), and stress (Items 1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35, and 39). The items are rated on a four-point Likert-type scale (“0 = Did not apply to me at all,” “1 = Applied to me to some degree,” “2 = Applied to me to a considerable degree,” and “3 = Applied to me very much”). The scale asks each participant to read each statement and choose a number 0, 1, 2, or 3 that indicates how much the statement applies to them over the past week. Higher scores indicate higher depression, anxiety, and stress levels. The “depression” subscale measures discontent, helplessness, worthlessness, loss of interest, and low energy. The “anxiety” subscale measures autonomic arousal, situational and specific anxiety, and muscle response level. The “stress” subscale measures difficulty relaxing, nervous stimulation, irritability and upset, discomfort, intolerance, and overreaction. No items are reverse scored. The total score ranges from 0 to 42. The scale was adapted to Turkish by Akin and Çetin (2007). The Turkish version has test-retest and split-half reliability values of $r = 0.99$ and $r = 0.96$, respectively. The scale has a Cronbach’s alpha (α) of 0.96 (Akin and Çetin, 2007).

2.2.3. Coping Style Scale

The Ways of Coping Inventory was a 68-item tool developed by Folkman and Lazarus (1986) and adapted to Turkish by Sahin et al. (1992). Sahin and Durak (1995) developed a short form of the scale and named it “the Coping Style Scale” (CSS). The scale consists of 30 items and five subscales: self-confident (Items 8, 10, 14, 16, 20, 23, and 26), optimistic (Items 2, 4, 6, 12, and 18), seeking of social support (Items 1, 9, 29, and 30), helpless (Items 3, 7, 11, 19, 22, 25, 27, and 28), and submissive (Items 5, 13, 15, 17, 21, and 24) coping styles. Items 1 and 9

are reverse scored. Higher “optimistic,” “self-confident,” and “seeking of social support” subscale scores indicate a higher likelihood of using active coping strategies. Higher “helpless” and “submissive” subscale scores indicate a higher likelihood of using passive coping strategies (Sahin and Durak, 1995). Each item starts with the phrase “When I have a problem ...” The scale asks each participant to remember what they generally do to cope with problems or stressors and mark each item on a four-point Likert-type scale depending on how much the item describes them or how much it applies to them. Each item takes a value ranging from 0% to 100%. If a behavior does not apply to the participant, it is rated as 0%, whereas if a behavior applies to them, it is rated as 100%. The total score of a subscale is divided by the number of its items. The subscale scores range from 0 to 3. Higher scores indicate a higher likelihood of using the corresponding coping style (Sahin and Durak, 1995). The “self-confident coping” subscale has a Cronbach’s alpha of .62–.80. The “helpless coping” subscale has a Cronbach’s alpha of .64–.73. The “optimistic coping” subscale has a Cronbach’s alpha of .49–.68. The “submissive coping” subscale has a Cronbach’s alpha of .47–.72. The “seeking of social support” subscale has a Cronbach’s alpha of .45–.47 (Sahin and Durak, 1995). The total scale has a Cronbach’s alpha of .76 (Sahin and Durak, 1995).

2.3. Procedure

One of the researchers called all parents and informed them about the research purpose and procedure. She then scheduled all interviews at the convenience of parents who met the inclusion criteria and volunteered for the study. The interviews were scheduled for the days when parents visited the hospital to bring breast milk over or to facetime with their babies. One of the researchers conducted the interviews in the training room of the hospital. During the interviews, she took all the necessary preventive measures (mask, social distancing, etc.). She asked each participant to think about their experiences with the “no visitors” policy as they filled out the data collection forms. The data collection was based on self-report and lasted 45 min minutes on average. The researcher was present in the training room in case participants had questions.

2.4. Data analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS, v. 26.0). Numbers and percentages were used for descriptive statistics. The Kolmogorov-Smirnov test was used for normality testing. A simple linear regression analysis was used to determine the effect of some variables on participants’ CSS scores. The simple linear regression analysis results showed that the variables affected participants’ CSS scores. Therefore, a multiple linear regression analysis (backward elimination) was conducted with those variables.

2.5. Ethical considerations

The study was approved by the Non-Interventional Human Research Ethics Committee of a university (No: E2-21-627). Permission was obtained from the Clinical Research Ethics Committee Department No:2 of the hospital. Written consent was obtained from parents who agreed to participate in the study.

3. Results

3.1. Participants’ sociodemographic characteristics

Table 1 shows all participants’ sociodemographic characteristics. The sample consisted of 52 mothers (55.91%) and 41 fathers (44.09%). Participants had a mean age of 32.01 ± 5.33 years. The median year of marriage was 6 (1–19) years. Most participants had a marriage based on mutual consent (75.27%). The majority of the participants had social

Table 1
Sociodemographic and descriptive characteristics.

Variables	Number (n)	Percentage (%)
Parent (participant)		
Mother	52	55.91
Father	41	44.09
Age (years) ^a	32.01 ± 5.33	
Duration of marriage (years) ^b	6 (1–19)	
Type of marriage		
Arranged	23	24.73
Mutual consent	70	75.27
Health coverage		
Yes	87	93.55
No	6	6.45
Education (degree)		
Primary school	13	13.98
High school	34	36.56
Bachelor’s or higher	46	49.46
Occupation		
Civil servant	29	31.18
Worker	15	16.13
Self-employed	17	18.28
Unemployed	32	34.41
Spouse education (degree)		
Literate	2	2.15
Primary school	11	11.83
High school	34	36.56
Bachelor’s or higher	46	49.46
Spouse occupation		
Civil servant	32	34.41
Worker	14	15.05
Self-employed	19	20.43
Unemployed	28	30.11
Family type		
Alone	1	1.08
Nuclear	80	86.02
Extended	12	12.90
Place of residence		
City	70	75.27
District	12	12.90
Town/village	11	11.83
Income		
High	18	19.35
Middle	67	72.04
Low	8	8.60
Tobacco use		
Yes	34	36.56
No	59	63.44

^a Mean \pm standard deviation.

^b Median (min-max).

security (93.55%). Half the participants had bachelor’s or higher degrees (49.46%). More than a quarter of the participants were employed (30.11%). Most participants had nuclear families (86.02%) and a middle income (72.04%).

3.2. Participants’ characteristics regarding their babies

Table 2 shows the participants’ characteristics regarding their babies and their health.

Table 3 shows the descriptive characteristics regarding scale scores. Participants had a mean DASS “depression,” “anxiety,” and “stress” subscale score of 13.69 ± 8.86 , 12.11 ± 8.37 , and 19.09 ± 9.24 , respectively. All subscale scores indicated moderate levels of depression, anxiety, and stress. Participants had a mean CSS “self-confident,” “optimistic,” “helpless,” “submissive coping,” and “seeking of social support” subscale score of 2.71 ± 0.65 , 2.57 ± 0.59 , 2.29 ± 0.62 , 2.25 ± 0.49 , and 2.38 ± 0.52 , respectively (Table 3).

3.3. The effect of sociodemographic characteristics on DASS scores

Marriage duration, marriage type, parent education, parent occupation, spouse education, and tobacco use did not affect DASS scores (p

Table 2
Parental and babies characteristics.

Variables	Number (n)	Percentage (%)
Having Another Child		
Yes	28	30.11
No	65	69.89
Gestation Week		
<28	33	35.48
28-36	22	23.66
37-42	38	40.86
Delivery Type		
Vaginal	33	35.48
C-section	60	64.52
Number of Babies		
One	85	91.40
Two	8	8.60
Birth weight^a	2184.57 ± 1246.93	
Baby Gender		
Girl	46	49.46
Boy	44	47.31
Girl and boy	3	3.23
Baby Diagnosis		
Premature	47	50.54
Infection	4	4.30
Cardiac disease	11	11.83
Diaphragmatic hernia	3	3.23
Ligament problems	3	3.23
Down	4	4.30
Syndromic	4	4.30
Respiratory distress	7	7.53
Blood sugar	3	3.23
Hypoxia	5	5.38
Epilepsy	2	2.15
Information about the baby's condition		
Yes	90	96.77
No	3	3.23
Informer		
Physician	67	74.44
Nurse	23	25.56
Miscarriage		
Yes	11	18.97
No	47	81.03
Stillbirth		
Yes	3	5.17
No	55	94.83
Baby admitted to a neonatal intensive care unit before		
Yes	11	11.83
No	82	88.17
Baby respirator		
Yes	63	67.74
No	30	32.26
Support from the spouse's mother and other family members during the baby's admission		
Yes	48	52.75
No	43	47.25
Support from your mother and other family members during the baby's admission		
Yes	53	58.24
No	38	41.76
Support from friends during the baby's admission		
Yes	45	49.45
No	46	50.55
Follow-up duration in the intensive care unit^b	15 (8–220)	
Presence of chronic diseases		
Yes	8	8.60
No	85	91.40
Chronic diseases		
Diabetes	2	28.57
Renal	2	28.57
Hypertension	2	28.57
Other	1	14.29
Having someone else helping with the care of children		
Yes	40	51.95
No	37	48.05
Admission in other children		
Yes, very often/always	4	4.82
Several times	26	31.33
No, never	53	63.86

Table 2 (continued)

Anxiety due to “no visitors” policy		
Yes	77	82.80
No	16	17.20
Frequency of getting information about the baby		
Every day	68	73.12
Every few days	18	19.35
Once a week	7	7.53
Seeing the baby last		
During birth	23	24.73
Video call	67	72.04
Never	3	3.23

^a Mean ± standard deviation.

^b Median (min-max).

Table 3

Descriptive statistics on Scale Scores and Cronbach's Alpha values

Scales	Mean	Standard deviation	Minimum	Maximum	Cronbach's Alpha Values
Depression	44.88	24.62	3.00	105.00	0.965
Anxiety					
Stress Scale (DASS- 42)					
Depression	13.69	8.86	0.00	40.00	0.916
Anxiety	12.11	8.37	0.00	34.00	0.911
Stress	19.09	9.24	2.00	39.00	0.915
Coping Style Scale (CSS)	2.43	0.33	1.29	3.41	0.768
Self-confident	2.71	0.65	1.00	4.00	0.829
Optimistic	2.57	0.59	1.00	4.00	0.716
Helpless	2.29	0.62	1.13	3.88	0.776
Submissive	2.25	0.49	1.00	3.83	0.443
Seeking of social support	2.38	0.52	1.00	3.50	0.522

> 0.05).

Mothers had higher mean DASS total and “depression” and “anxiety” subscale scores than fathers. Self-employed participants had higher median DASS total and “depression” subscale scores than unemployed participants. Participants with nuclear families had higher median DASS total and “depression,” “anxiety,” and “stress” subscale scores than those with extended families. Participants living in cities had higher median DASS total and “anxiety” subscale scores than those living in towns/villages. High-income participants had higher median DASS total and “anxiety” and “stress” subscale scores than middle-income participants ($p < 0.05$) (Table 4).

3.4. The effect of babies and their health on participants' DASS scores

Participants who experienced anxiety due to the “no visitors” policy had higher median DASS “depression,” “anxiety,” and “stress” subscale scores than those who did not. Participants who last saw their babies through video calls had a higher median DASS “stress” subscale score than those who last saw their babies during birth ($p < 0.05$) (Table 5).

3.5. The effect of sociodemographic characteristics on CSS scores

Table 6 shows the effect of participants' sociodemographic characteristics on their CSS scores. Age, marriage duration, and family type did not affect participants' CSS scores ($p > 0.05$).

Mothers had a lower median CSS “self-confident coping” and a higher median CSS “helpless” subscale score than fathers. Participants who married based on mutual consent had higher median CSS “self-confident” and “optimistic” subscale scores than those who had arranged marriages. Participants with bachelor's or higher degrees had a

Table 4
The Distribution of DASS- 42 scores by participants' sociodemographic characteristics.

	Depression Anxiety Stress Scale (DASS-42)		Depression		Anxiety		Stress	
	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value
Parent (participant)								
Mother	53(3-105)	z=-2.728 p=0.006	z=-2.974 p=0.003		z=-3.146 p=0.002		z = -1.553 p = 0.12	
Father	31(7-101)							
Age (years)		r=-0.232 p=0.025		r=-0.253 p=0.014		r=-0.263 p=0.011		r = -0.137 p = 0.191
Duration of marriage (years)		r = -0.156 p = 0.134		r = -0.147 p = 0.161		r = -0.191 p = 0.067		r = -0.115 p = 0.272
Type of marriage								
Arranged	38(22-101)	z = -0.04 p = 0.968	12(5-34)	z = -0.299 p = 0.765	10(0-33)	z = -0.192 p = 0.848	17(9-36)	z = -0.196 p = 0.845
Mutual consent	42.5(3-105)		13(0-40)		11.5(0-34)		19(2-39)	
Education (degree)								
Primary school	30(22-71)	K = 3.780 p = 0.151	8(5-29)	K = 2.704 p = 0.259	8(0-19)	K = 4.188 p = 0.123	14(9-27)	K = 4.720 p = 0.094
High school	52.5(3-105)		16(0-40)		15(1-33)		22.5(2-38)	
Bachelor's or higher	40(7-101)		12(0-29)		10.5(0-34)		17.5(2-39)	
Occupation								
Civil servant	38(7-101)	K = 3.227 p = 0.358	10(0-28)	K = 2.751 p = 0.432	7(0-34)	K = 5.704 p = 0.127	18(2-39)	K = 1.153 p = 0.764
Worker	38(18-60)		12(4-21)		8(0-19)		18(10-29)	
Self-employed	47(8-105)		15(1-40)		14(1-27)		18(4-38)	
Unemployed	48(3-101)		16(0-34)		14(1-33)		20.5(2-36)	
Spouse education (degree)								
Literate/Primary school	K = 3.939 p = 0.140		K = 3.350 p = 0.187		K = 5.244 p = 0.073		K = 2.703 p = 0.259	
High school								
Bachelor's or higher								
Spouse occupation								
Civil servant	45(5-101)	K = 7.217 p = 0.065	16(0-29)	K=8.844 p=0.031	12.5(0-34)	K = 7.153 p = 0.067	20(3-39)	K = 3.518 p = 0.318
Worker	42(6-101)		13.5(1-34)		11.5(3-33)		18.5(2-36)	
Self-employed	51(3-105)		17(0-40) ^a		15(1-27)		20(2-38)	
Unemployed	30(7-67)		9.5(2-20) ^a		8(0-19)		15.5(2-36)	
Family type								
Nuclear	45(5-105)	z=-2.644 p=0.008	14.5(0-40)	z=-2.356 p=0.018	13.5(0-34)	z=-2.09 p=0.037	20(2-39)	z=-3.163 p=0.002
Extended	27.5(3-67)		6.5(0-24)		8(1-19)		11.5(2-30)	
Place of residence								
City	49.5(5-105) ^a	K=6.318 p=0.042	16(0-40)	K = 5.996 p = 0.050	14(0-34) ^a	K=7.681 p=0.021	20(2-39)	K = 4.620 p = 0.099
District	34.5(3-71)		10.5(0-29)		8(1-19)		16(2-29)	
Town/village	30(22-43) ^a		7(5-16)		8(0-14) ^a		14(9-27)	
Income								
High	19(5-105) ^a	K=12.960 p=0.002	5(0-40) ^b	K=16.568 p<0.001	5(0-27) ^a	K=8.804 p=0.012	10(2-38) ^a	K=8.452 p=0.015
Middle	48(3-101) ^a		16(0-34) ^{a,b}		14(0-34) ^a		20(2-39) ^a	
Low	30(24-43)		7(5-8) ^a		8(3-11)		16(9-27)	
Tobacco use								
Yes	44.5(18-105)	z = -0.981 p = 0.326	13(4-40)	z = -0.391 p = 0.696	13.5(1-31)	z = -0.966 p = 0.334	20.5(3-38)	z = -1.557 p = 0.119
No	41(3-101)		12(0-34)		8(0-34)		16(2-39)	

r: Pearson Correlation Coefficient, z: Mann-Whitney U test z statistic, K= Kruskal Wallis test statistic, The source of difference is expressed with the same letter index.

higher median CSS “self-confident coping” subscale score than those with high school degrees. Self-employed participants had a higher median CSS “optimistic coping” and a lower median CSS “helpless” subscale score than blue-collar workers. Participants who were public officials had a lower median CSS “submissive coping” subscale score than self-employed participants. Participants who were blue-collar workers had a lower median CSS “self-confident” subscale score than participants who were public officials and self-employed ones. Unemployed participants had a lower median CSS “self-confident” subscale score than participants who were public officials and self-employed ones. Participants with spouses with bachelor’s or higher degrees had a higher median CSS “optimistic” subscale score than those with literate spouses or spouses with primary school degrees. Participants with at least bachelor’s degrees had a significantly higher median “self-confident” subscale score than those with high school degrees. Participants with high school degrees had a significantly higher median “seeking of

social support” subscale score than literate participants and those with primary school degrees. Participants whose spouses were blue-collar workers had a significantly lower median “self-confident” subscale score than those whose spouses were public officials. Participants who were blue-collar workers had a significantly higher median “helpless” subscale score than those who were public officials or unemployed. Participants living in cities had a significantly higher median “self-confident” subscale score than those living in towns/villages. High-income participants had a significantly higher median “self-confident” subscale score than low-income ones. Middle-income participants had a significantly higher median “seeking of social support” subscale score than low-income ones. Smokers had a significantly lower median “seeking of social support” subscale score than non-smokers (p < 0.05).

Table 5
The Distribution of DASS- 42 scores by Baby’s characteristics.

	Depression Anxiety Stress Scale (DASS- 42)		Depression		Anxiety		Stress	
	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value
Having another child		$z = -1.843$ p =		$z = -1.488$ p =		$z = -1.124$ p =		$z = -1.958$ p =
Yes	32(6–101)	0.065	12(0–29)	0.137	6.5(0–34)	0.261	14.5(2–39)	0.05
No	43(3–105)		13(0–40)		13(1–33)		20(2–38)	
Gestation week		$K = 0.667$ p =		$K = 1.753$ p =		$K = 2.843$ p =		$K = 0.070$ p =
<28	42(8–105)	0.716	15(0–40)	0.416	7(0–34)	0.241	19(5–39)	0.966
28–36	47.5(5–101)		15.5(0–34)		14(2–33)		19(2–36)	
37–42	40(3–94)		11(0–29)		11.5(1–33)		16.5(2–36)	
Delivery type		$z = -0.51$ p =		$z = -0.1$ p =		$z = -1.021$ p =		$z = -0.474$ p =
Vaginal	41(12–84)	0.61	12(1–34)	0.92	12(1–24)	0.307	18(3–35)	0.635
C-section	42(3–105)		13.5(0–40)		10.5(0–34)		18.5(2–39)	
Birth weight		$r = 0.048$ p = 0.647		$r = 0.001$ p = 0.995		$r = 0.116$ p = 0.267		$r = 0.022$ p = 0.832
Baby gender		$z = -0.234$ p =		$z = -0.731$ p =		$z = -0.352$ p =		$z = -1.261$ p =
Girl	47(3–105)	0.815	14(0–40)	0.465	12.5(1–34)	0.725	18(2–39)	0.207
Boy	41.5(6–94)		12(0–34)		11(0–33)		19(2–36)	
Baby diagnosis		$z = -1.241$ p =		$z = -1.038$ p =		$z = -1.947$ p =		$z = -0.788$ p =
Premature	42(5–105)	0.214	12(0–40)	0.299	7(0–34)	0.052	17(2–39)	0.43
Other	42(3–101)		13(0–34)		13.5(1–33)		20(2–36)	
Informer		$z = -1.189$ p =		$z = -0.398$ p =		$z = -1.107$ p =		$z = -1.783$ p =
Physician	47(3–105)	0.234	13(0–40)	0.691	13(1–34)	0.268	20(2–39)	0.075
Nurse	31(5–101)		12(0–34)		8(0–33)		16(2–34)	
Miscarriage		$z = -1.21$ p =		$z = -0.764$ p =		$z = -0.765$ p =		$z = -1.748$ p =
Yes	60(3–105)	0.226	18(0–40)	0.445	16(1–27)	0.444	24(2–38)	0.08
No	43(5–101)		15(0–34)		14(0–34)		19(2–39)	
Baby admitted to a neonatal intensive care unit before		$z = -1.035$ p = 0.301		$z = -1.119$ p = 0.263		$z = -1.417$ p = 0.156		$z = -0.524$ p = 0.6
Yes	41(3–71)		8(0–29)		8(1–19)		18(2–29)	
No	42(5–105)		13.5(0–40)		11.5(0–34)		18.5(2–39)	
Baby respirator		$z = -0.012$ p =		$z = -0.452$ p =		$z = -0.778$ p =		$z = -1.102$ p =
Yes	41(8–105)	0.99	12(0–40)	0.651	10(0–34)	0.437	18(3–39)	0.27
No	44.5(3–101)		14.5(0–34)		14(1–33)		18(2–34)	
Support from the spouse’s mother and other family members during the baby’s admission		$z = -1.189$ p = 0.235		$z = -1.142$ p = 0.254		$z = -1.11$ p = 0.267		$z = -0.955$ p = 0.34
No	47(5–105)		15(0–40)		14(1–33)		20(2–38)	
Yes	39.5(3–101)		12(0–31)		8(0–34)		16.5(2–39)	
Support from your mother and other family members during the baby’s admission		$z = -0.443$ p = 0.658		$z = -0.516$ p = 0.606		$z = -0.185$ p = 0.853		$z = -0.342$ p = 0.732
No	45(5–105)		14.5(0–40)		11(1–33)		19(2–38)	
Yes	42(3–101)		12(0–31)		11(0–34)		18(2–39)	
Support from friends during the baby’s admission		$z = -0.25$ p = 0.802		$z = -0.457$ p = 0.648		$z = -0.568$ p = 0.57		$z = -0.028$ p = 0.978
No	41(5–101)		12(0–34)		10.5(1–33)		18.5(2–36)	
Yes	47(3–105)		15(0–40)		12(0–34)		19(2–39)	
Follow-up duration in the intensive care unit		$r = -0.027$ p = 0.797		$r = 0.006$ p = 0.951		$r = -0.043$ p = 0.684		$r = 0.018$ p = 0.868
Having someone else helping with the care of children		$z = -0.637$ p = 0.524		$z = -0.811$ p = 0.417		$z = -0.495$ p = 0.621		$z = -0.561$ p = 0.574
Yes	41(3–101)		11.5(0–34)		10(1–33)		17.5(2–36)	
No	43(7–105)		15(1–40)		11(0–33)		20(2–38)	
Admission in other children		$z = -0.441$ p = 0.659		$z = -0.778$ p = 0.437		$z = -0.868$ p = 0.385		$z = -0.171$ p = 0.864
Yes, very often/always-Several times	39.5(3–88)		10(0–34)		8(1–31)		18.5(2–29)	
No, never	42(5–105)		14(0–40)		11(0–33)		17(2–38)	
Anxiety due to “no visitors” policy		$z = -4.689$ p < 0.001		$z = -4.208$ p < 0.001		$z = -4.22$ p < 0.001		$z = -4.428$ p < 0.001
Yes	47(6–105)		16(1–40)		14(1–34)		20(2–39)	
No	20.5(3–51)		5.5(0–16)		4.5(0–14)		9.5(2–21)	
Frequency of getting information about the baby		$z = -1.001$ p = 0.317		$z = -1.344$ p = 0.179		$z = -1.046$ p = 0.296		$z = -0.499$ p = 0.618
Every day	47(3–105)		15(0–40)		12.5(0–34)		19(2–39)	
Every few days-once a week	34(7–101)		8(1–34)		8(1–33)		17(2–36)	
Seeing the baby last		$z = -2.452$ p = 0.014		$z = -1.472$ p = 0.141		$z = -1.5$ p = 0.133		$z = -3.065$ p = 0.002
During birth	27(3–105)		9(0–40)		7(0–27)		10(2–38)	
Video call	43(7–101)		13(0–34)		12(0–34)		20(2–39)	

r: Spearman Correlation coefficient, z: Mann-Whitney U test z statistic, K= Kruskal-Wallis test test statistic.

3.6. The effect of babies and their health on participants’ CSS scores

Gestational week, delivery type, infant gender and diagnosis, the source of information, miscarriage history, having a NICU baby before, family support during NICU admission, follow-up time duration, information duration, and seeing the baby did not affect participants’ CSS

scores (p > 0.05). Participants with more than one child had a significantly lower median “self-confident” subscale score than those with only one child. Participants whose NICU babies were intubated had a significantly lower “seeking of social support” subscale score than those whose NICU babies were not intubated. Participants who received family support during NICU admission had a significantly lower median

Table 6
The Distribution of CSS scores by participants' sociodemographic characteristics.

Variables	Coping Style Scale		Self-confident		Optimistic		Helpless		Submissive		Seeking of social support	
	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median (min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value
Parent (participant)		$z = -0.169$ p = 0.866		$z = -2.04$ p = 0.041		$z = -0.999$ p = 0.318		$z = -3.434$ p = 0.001		$z = -0.98$ p = 0.327		$z = -0.012$ p = 0.99
Mother	2.43 (1.58–3.41)		2.43 (1.57–3.86)		2.4 (1.4–3.6)		2.38 (1.13–3.88)		2.33(1–3.83)		2.5(1–3.5)	
Father	2.49 (1.29–2.99)		3(1–4)		2.6(1–4)		2(1.13–3)		2.17(1.33–3)		2.25 (1.25–3.25)	
Age (years)	$r = 0.027$ p = 0.796		$r = -0.017$ p = 0.875		$r = 0.01$ p = 0.926		$r = 0.01$ p = 0.925		$r = 0.149$ p = 0.158		$r = -0.065$ p = 0.538	
Duration of marriage	$r = -0.052$ p = 0.625		$r = -0.176$ p = 0.095		$r = -0.096$ p = 0.36		$r = 0.086$ p = 0.417		$r = 0.184$ p = 0.078		$r = -0.105$ p = 0.318	
Type of marriage		$z = -2.345$ p = 0.019		$z = -3.677$ p < 0.001		$z = -2.417$ p = 0.016		$z = -1.804$ p = 0.071		$z = -0.096$ p = 0.924		$z = -1.374$ p = 0.169
Arranged	2.22 (1.87–2.94)		2.29 (1.71–3.43)		2.2 (1.4–3.4)		2.5(1.5–3.75)		2.33(1.33–3)		2.25 (1.5–2.75)	
Mutual consent	2.47 (1.29–3.41)		2.86(1–4)		2.6(1–4)		2.25 (1.13–3.88)		2.17(1–3.83)		2.5(1–3.5)	
Education (degree)		$K = 2.966$ p = 0.227		$K = 8.733$ p = 0.012		$K = 4.622$ p = 0.099		$K = 2.954$ p = 0.228		$K = 5.623$ p = 0.060		$K = 6.291$ p = 0.043
Primary school	2.255 (1.87–2.89)		2.29 (1.71–3.43)		2.2 (1.6–3.2)		2.625 (1.5–3.25)		2.415 (1.67–3)		2.25 (1.5–2.75)a	
High school	2.43 (1.58–3.41)		2.43(1.57–4)a		2.5(1.4–4)		2.38 (1.13–3.88)		2.33(1–3.83)		2.5(1.25–3.5) a	
Bachelor's or higher	2.46 (1.29–2.97)		2.86(1–3.86)a		2.6(1–3.6)		2.25 (1.13–3.25)		2.17 (1.33–3.5)		2.25(1–3.25)	
Occupation		$K = 9.214$ p = 0.027		$K = 25.617$ p < 0.001		$K = 11.302$ p = 0.010		$K = 11.631$ p = 0.009		$K = 7.875$ p = 0.049		$K = 4.158$ p = 0.245
Civil servant	2.47 (2.08–2.97)		3(2.29–3.86) a,c		2.6(2–3.6)		2.25(1.5–3)		2.17 (1.5–2.83)a		2.25(1.25–3)	
Worker	2.17 (1.29–2.99)a		2.14(1–4)a,b		2.2(1–4)a		2.13 (1.13–3.13)a		2.25 (1.33–2.83)		2.25(2–2.75)	
Self-employed	2.61 (2.02–3.41)a		3(2.14–3.86) b,d		3(1.8–3.6)a		1.88 (1.38–3.5)a		2.33 (1.83–3.83)a		2.5(1–3.5)	
Unemployed	2.375 (1.58–2.94)		2.29 (1.57–3.57)c, d		2.2 (1.4–3.6)		2.565 (1.13–3.88)		2.25(1–3.33)		2.5(1.25–3.5)	
Spouse education (degree)		$K = 9.351$ p = 0.009		$K = 12.470$ p = 0.002		$K = 7.006$ p = 0.030		$K = 0.712$ p = 0.700		$K = 2.872$ p = 0.238		$K = 8.789$ p = 0.012
Literate/	2.19 (1.87–2.89)a		2.29 (1.71–3.43)a		2.2 (1.4–3.2)a		2.13(1.5–3)		2.33(1.67–3)		2(1.5–2.75)a, b	
Primary school	2.42 (1.29–2.99)		2.29(1–4)a		2.3(1–4)		2.315 (1.13–3.88)		2.25(1–3.33)		2.5(1.25–3.5) a	
High school	2.47 (2.11–3.41)a		2.86 (1.86–3.86)a, b		2.6(2–3.6)a		2.25 (1.38–3.75)		2.17 (1.5–3.83)		2.5(1–3.5)b	
Bachelor's or higher		$K = 10.734$ p = 0.013		$K = 8.980$ p = 0.030		$K = 3.649$ p = 0.302		$K = 17.064$ p = 0.001		$K = 7.814$ p = 0.050		$K = 3.355$ p = 0.340
Civil servant	2.455 (1.58–2.97)		2.86 (1.86–3.86)a		2.6 (1.4–3.6)b		2.25 (1.13–3.13)a		2.17(1–3.5)		2.5(1–3.25)	
Worker	2.35 (1.84–2.94)		2.29 (1.57–3.43)a		2.2 (1.6–3.4)a, b		2.75 (2.13–3.75)a, b		2.25 (1.67–2.83)		2.375 (1.5–2.75)	
Self-employed	2.565 (2.2–3.41)a		3.075 (1.57–3.86)		2.5 (1.8–3.6)		2.19 (1.38–3.88)		2.415 (1.5–3.83)		2.375 (1.25–3.5)	
Unemployed	2.205 (1.29–2.99)a		2.43(1–4)		2.3(1–4)a		1.94(1.13–3)a		2.25(1.33–3)		2.25 (1.5–3.25)	
Family type		$z = -1.39$ p = 0.164		$z = -0.649$ p = 0.517		$z = -0.112$ p = 0.911		$z = -0.271$ p = 0.787		$z = -0.053$ p = 0.957		$z = -0.918$ p = 0.359
Nuclear	2.44 (1.29–3.41)		2.86(1–4)		2.6(1–4)		2.25 (1.13–3.88)		2.17(1–3.83)		2.5(1–3.5)	
Extended	2.235 (1.84–2.89)		2.43 (1.71–3.57)		2.6 (1.4–3.4)		2.315 (1.38–3)		2.25(1.67–3)		2.25(1.5–3.5)	

(continued on next page)

Table 6 (continued)

	K = 4.751 p = 0.093	K = 6.121 p = 0.047	K = 3.631 p = 0.163	K = 3.695 p = 0.158	K = 3.825 p = 0.148	K = 3.767 p = 0.152
Place of residence						
II						
District	2.45 (1.29–3.41)	2.86(1–4)a	2.6(1–4)	2.25 (1.13–3.88)	2.17(1–3.83)	2.5(1–3.5)
Town/village	2.455 (1.84–2.85)	3(1.71–3.71)	2.8 (1.4–3.4)	2.005 (1.38–3.25)	2.415 (1.67–2.67)	2.25(1.5–3.5)
Income	2.22 (1.87–2.89)	2.29 (1.71–3.43)a	2.2 (1.6–3.2)	2.5(1.75–3)	2.17(1.67–3)	2.25 (1.5–2.75)
High	2.45 (1.29–3.41)	3.29(1–3.86)a	2.7(1–3.6)	2(1.13–3.5)	2.17(1–3.83)	2.25(1–2.75)
Middle	2.445 (1.87–2.99)	2.71(1.57–4)	2.6(1.4–4)	2.25 (1.38–3.88)	2.33 (1.33–3.33)	2.5(1.25–3.5)
Low	2.24 (2.04–2.68)	2.215 (1.71–3.43)a	2.2 (1.8–2.8)	2.625 (1.88–2.88)	2.17 (1.83–2.83)	a 2(1.5–2.5)a
Tobacco use						
Yes	2.47 (1.29–3.41)	2.86(1–4)	z = -1.477 p = 0.14	z = -0.826 p = 0.409	z = -0.122 p = 0.903	z = -1.818 p = 0.069
No	2.405 (1.58–2.97)	2.43 (1.57–3.86)	2.6 (1.4–3.6)	2.315 (1.13–3.88)	2.33 (1.33–3.83)	2.25 (1.25–3.25)

r: Spearman Correlation coefficient, z: Mann-Whitney U test z statistic, K = Kruskal-Wallis test statistic.

“submissive coping” subscale score than those who did not. Participants who received support from friends during NICU admission had significantly higher median “self-confident” and “optimistic” subscale scores than those who did not. Participants who had others helping them with the care of their children had a significantly higher median “self-confident” subscale score than those who did not. Participants with other children who also had been hospitalized before had a significantly lower median “seeking of social support” subscale score than those with other children who had never been hospitalized. Participants who experienced anxiety due to the “no visitors” policy had a significantly lower median “self-confident” subscale score than those who did not ($p < 0.05$). (Shown in Table 7).

3.7. Regression analysis results

Some variables that might affect CSS scores were identified using preliminary analyses. Afterward, a simple linear regression analysis was conducted to test the effect of those variables on CSS scores. The variables of “the participant’s gender,” “the source of information about the baby,” and “education” affected participants’ “submissive” and “helpless” subscale scores. The variables of “the spouse’s education” and “anxiety due to the ‘no visitors’ policy” affected participants’ “self-confident,” “seeking of social support,” and “optimistic” subscale scores. Afterward, a multiple linear regression analysis (backward elimination) was conducted with those variables. Table * shows the results. The variables of “the participant’s gender,” “the source of information about the baby,” and “education” explained 28.3% of the total variance of the passive coping scores (submissive and helpless) ($F = 9.685 p < 0.001$). The Depression Anxiety Stress Scale (DASS- 42) had a more significant effect on the passive coping scores than the other variables (Beta = 0.329). One unit of increase in the DASS score led to a 0.013 unit increase in the passive coping scores. Male participants (gender) led to a 0.425-unit reduction in the passive coping scores. Being informed by nurses (the source of information) led to a 0.519-unit reduction in the passive coping scores. Higher education led to a 0.352-unit reduction in the passive coping scores.

The variables of “the spouse’s education level” and “anxiety due to the ‘no visitors’ policy” explained 15.2% of the total variance of the active coping scores (self-confident, seeking of social support, and optimistic) ($F = 7.718 p < 0.001$). The variable of “the spouse’s education level” had a greater effect on the active coping scores than that of “anxiety due to the ‘no visitors’ policy.” (Beta = 0.364). Higher education (spouse’s education level) led to a 0.506 unit increase in the active coping scores. The lack of anxiety due to the ‘no visitors’ policy led to a 0.734 unit increase in the active coping scores.(Shown in Table 8)

4. Discussion

The COVID-19 pandemic is a challenging process for both healthcare professionals and NICU babies and their parents. There is not enough scientific data regarding the best nursing care for parents of NICU babies in times of crisis. This study aimed to determine the depression-anxiety-stress levels and coping styles of parents whose babies were admitted to the NICU of a public hospital in Turkey during the COVID-19 pandemic. The neonatal intensive care units in Turkey adopt a family-centered approach. Family involvement in care contributes to NICU babies’ physiological and psychological wellbeing (Page., 2016). Therefore, the absence of one or both parents from care may cause unpredictable consequences related to the development of their NICU baby and the family’s functionality (Murray and Swanson., 2020). Critically ill patients, in particular, need their family members (Page., 2016). Family support is a key source of motivation for NICU patients to fight for their lives and get better (Engström and Söderberg., 2007). The pandemic has taken a toll on family-centered care (Litmanovitz2021; Veenendaal, Deierl, Bacchini, O’Brien, Franck & International Steering Committee for Family Integrated Care., 2021). Our participants had moderate DASS

Table 7
The Distribution of CSS scores by Baby's characteristics.

Variables	Coping Style Scale		Self-confident		Optimistic		Helpless		Submissive		Seeking of social support	
	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median (min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value
	Coping Style Scale		Self-confident		Optimistic		Helpless		Submissive		Seeking of social support	
	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median (min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value
Having another child		$z = -1.102$		$z = -2.264$		$z = -1.863$		$z = -0.176$		$z = -0.793$		$z = -0.03$
Yes	2.49 (1.84–2.99)	$p = 0.27$	3(1.71–4)	$p = 0.024$	2.8(1.6–4)	$= 0.063$	2.25 (1.5–3.13)	$p = 0.86$	2.17(1.5–3.5)	$= 0.428$	2.5(1–3.25)	$= 0.976$
No	2.42 (1.29–3.41)		2.57(1–3.86)		2.4(1–3.6)		2.25 (1.13–3.88)		2.33(1–3.83)		2.25 (1.25–3.5)	
Gestation week		$K = 4.037$		$K = 5.781$		$K = 4.089$		$K = 2.782$		$K = 1.608$		$K = 3.354$
<28	2.55 (1.87–3.41)	$p = 0.133$	3(1.71–4)	$= 0.056$	2.8(1.4–4)	$= 0.129$	2.315 (1.63–3.5)	$= 0.249$	2.17 (1.67–3.83)	$= 0.448$	2.25(1–3.25)	$= 0.187$
28–36	2.46 (1.29–2.94)		2.57(1–3.57)		2.4(1–3.4)		2.38 (1.13–3.75)		2.33(1–3.33)		2.25 (1.5–2.75)	
37–42	2.355 (1.84–2.97)		2.43 (1.71–3.86)		2.4 (1.8–3.6)		2(1.38–3.88)		2.17 (1.5–3.33)		2.5(1.25–3.5)	
Delivery type		$z = -0.835$		$z = -0.849$		$z = -1.834$		$z = -1.396$		$z = -1.554$		$z = -1.501$
Vaginal	2.38 (2.02–2.97)	$p = 0.404$	2.57 (1.57–3.86)	$= 0.396$	2.4 (1.6–3.6)	$= 0.067$	2.38 (1.5–3.88)	$p = 0.163$	2.33 (1.5–3.33)	$= 0.12$	2.25 (1.25–3.25)	$= 0.133$
C-section	2.44 (1.29–3.41)		2.86(1–4)		2.6(1–4)		2.13 (1.13–3.75)		2.17(1–3.83)		2.5(1–3.5)	
Birth weight	$r = -0.255$		$r = -0.225$		$r = -0.234$		$r = -0.09$		$r = -0.225$		$r = 0.103$	
Baby gender		$z = -0.961$		$z = -0.046$		$z = -0.14$		$z = -0.062$		$z = -1.569$		$z = -0.551$
Girl	2.49 (1.29–3.41)	$p = 0.337$	2.785 (1–3.86)	$= 0.963$	2.6(1–3.6)	$= 0.888$	2.38 (1.13–3.88)	$p = 0.951$	2.33(1–3.83)	$= 0.117$	2.25(1–3.5)	$= 0.582$
Boy	2.38 (1.84–2.99)		2.86(1.57–4)		2.6(1.6–4)		2.25 (1.5–3.38)		2.17 (1.5–3.33)		2.5 (1.25–3.25)	
Baby diagnosis		$z = -1.519$		$z = -1.576$		$z = -1.39$		$z = -0.485$		$z = -1.432$		$z = -1.008$
Premature	2.475 (1.58–3.41)	$p = 0.129$	2.86(1.57–4)	$= 0.115$	2.6(1.4–4)	$= 0.165$	2.25 (1.13–3.5)	$p = 0.627$	2.33(1–3.83)	$= 0.152$	2.25(1–3.5)	$= 0.314$
Other	2.375 (1.29–2.97)		2.43(1–3.86)		2.4(1–3.6)		2.15 (1.13–3.88)		2.17 (1.33–3.33)		2.5(1.25–3.5)	
Informer		$z = -1.828$		$z = -1.743$		$z = -1.173$		$z = -1.8$		$z = -1.818$		$z = -0.457$
Physician	2.43 (1.84–3.41)	$p = 0.068$	2.86(1.57–4)	$= 0.081$	2.6(1.6–4)	$= 0.241$	2.38 (1.38–3.88)	$p = 0.072$	2.33 (1.5–3.83)	$= 0.069$	2.375(1–3.5)	$= 0.648$
Nurse	2.42 (1.29–2.94)		2.29(1–3.71)		2.4(1–3.4)		1.88 (1.13–3.75)		2.17(1–3.33)		2.25 (1.5–3.25)	
Miscarriage		$z = -1.659$		$z = -1.158$		$z = -1.488$		$z = -0.528$		$z = -0.927$		$z = -0.484$
Yes	2.54 (2.24–3.41)	$p = 0.097$	2.57 (1.86–3.86)	$= 0.247$	2.6(2–3.6)	$= 0.137$	2.63 (1.38–3.5)	$p = 0.598$	2.33 (1.83–3.83)	$= 0.354$	2.25(2–3.5)	$= 0.628$
No	2.385 (1.58–2.97)		2.43 (1.57–3.86)		2.4 (1.4–3.6)		2.38 (1.13–3.88)		2.17(1–3.5)		2.5(1–3.5)	
Baby admitted to a neonatal intensive care unit before		$z = -0.74$		$z = -0.369$		$z = -0.121$		$z = -0.187$		$z = -0.565$		$z = -1.113$
Yes	2.42 (1.84–2.84)	$p = 0.459$	2.5(2–3.57)	$= 0.712$	2.8 (1.8–3.4)	$= 0.904$	2.38 (1.38–3.25)	$p = 0.852$	2.33 (1.83–2.67)	$= 0.572$	2(1.5–3.5)	$= 0.266$
No	2.43 (1.29–3.41)		2.86(1–4)		2.6(1–4)		2.25 (1.13–3.88)		2.17(1–3.83)		2.5(1–3.5)	
Baby respirator		$z = -0.466$		$z = -1.113$		$z = -0.638$		$z = -1.176$		$z = -0.475$		$z = -2.182$
Yes	2.47 (1.29–3.41)	$p = 0.641$	2.86(1–3.86)	$= 0.266$	2.6(1–3.6)	$= 0.523$	2.38 (1.13–3.75)	$p = 0.24$	2.17 (1.33–3.83)	$= 0.635$	2.25(1–3.25)	$p = 0.029$
No			2.5(1.57–4)		2.4(1.4–4)		2(1.13–3.88)		2.17(1–3.33)		2.5(1.25–3.5)	

(continued on next page)

Table 7 (continued)

Variables	Coping Style Scale		Self-confident		Optimistic		Helpless		Submissive		Seeking of social support	
	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median (min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value	Median(min-max)	Test and p value
	2.39 (1.58–2.99)											
Support from the spouse's mother and other family members during the baby's admission		$z = -0.55$ p = 0.582		$z = -1.544$ p = 0.123		$z = -1.106$ p = 0.269		$z = -0.061$ p = 0.952		$z = -2.424$ p = 0.015		$z = -0.144$ p = 0.886
No	2.415 (1.58–3.41)		2.43(1.57–4)		2.4(1.4–4)		2.315 (1.13–3.88)		2.33(1–3.83)		2.375 (1.25–3.5)	
Yes	2.43 (1.29–2.97)		2.785 (1–3.86)		2.6(1–3.6)		2.25 (1.13–3.88)		2.17 (1.33–3.5)		2.25(1–3.5)	
Support from your mother and other family members during the baby's admission		$z = -0.332$ p = 0.74		$z = -0.402$ p = 0.687		$z = -0.635$ p = 0.525		$z = -1.131$ p = 0.258		$z = -1.094$ p = 0.274		$z = -0.687$ p = 0.492
No	2.42 (1.58–3.41)		2.715 (1.57–4)		2.6(1.4–4)		2.13 (1.13–3.5)		2.33(1–3.83)		2.5(1.5–3.5)	
Yes	2.43 (1.29–2.97)		2.71(1–3.86)		2.6(1–3.6)		2.38 (1.13–3.88)		2.17 (1.33–3.5)		2.25(1–3.5)	
Support from friends during the baby's admission		$z = -1.768$ p = 0.077		$z = -2.621$ p = 0.009		$z = -2.26$ p = 0.024		$z = -0.465$ p = 0.642		$z = -1.085$ p = 0.278		$z = -0.008$ p = 0.993
No	2.38 (1.58–2.99)		2.43(1.57–4)		2.2(1.4–4)		2.25 (1.13–3.88)		2.33(1–3.33)		2.25 (1.25–3.5)	
Yes	2.47 (1.29–3.41)		2.86(1–3.86)		2.6(1–3.6)		2.25 (1.13–3.88)		2.17 (1.33–3.83)		2.25(1–3.5)	
Follow-up duration in the intensive care unit		$r = 0.194$ p = 0.064		$r = 0.12$ p = 0.256		$r = 0.152$ p = 0.147		$r = 0.149$ p = 0.156		$r = 0.143$ p = 0.173		$r = -0.022$ p = 0.836
Having someone else helping with the care of children		$z = -1.937$ p = 0.053		$z = -2.423$ p = 0.015		$z = -1.492$ p = 0.136		$z = -0.194$ p = 0.846		$z = -0.128$ p = 0.898		$z = -0.937$ p = 0.349
Yes	2.35 (1.58–2.97)		2.43 (1.57–3.86)		2.3 (1.4–3.6)		2.315 (1.13–3.88)		2.33(1–3.33)		2.25 (1.25–3.5)	
No	2.47 (1.29–3.41)		2.86(1–4)		2.6(1–4)		2.13 (1.13–3.75)		2.17 (1.33–3.83)		2.25(1.5–3.5)	
Admission in other children		$z = -1.16$ p = 0.246		$z = -1.682$ p = 0.093		$z = -1.21$ p = 0.226		$z = -1.766$ p = 0.077		$z = -0.666$ p = 0.506		$z = -2.179$ p = 0.029
Yes, very often/always- Several times	2.395 (1.95–2.97)		2.43 (1.57–3.86)		2.3 (1.4–3.6)		2.38 (1.38–3.88)		2.33(1.5–3.5)		2.125(1–3.5)	
No, never	2.45 (1.29–3.41)		2.71(1–4)		2.6(1–4)		2(1.13–3.75)		2.17(1–3.83)		2.375 (1.5–3.5)	
Anxiety due to "no visitors" policy		$z = -0.973$ p = 0.331		$z = -2.172$ p = 0.03		$z = -1.307$ p = 0.191		$z = -1.722$ p = 0.085		$z = -0.475$ p = 0.635		$z = -0.918$ p = 0.358
Yes	2.43 (1.29–3.41)		2.57(1–3.86)		2.4(1–3.6)		2.38 (1.13–3.88)		2.17 (1.33–3.83)		2.25(1–3.5)	
No	2.49 (1.58–2.99)		3(1.86–4)		2.6(1.4–4)		1.88 (1.13–2.75)		2.17(1–2.83)		2.5(1.5–3.5)	
Frequency of getting information about the baby		$z = -1.317$ p = 0.188		$z = -1.11$ p = 0.267		$z = -0.675$ p = 0.5		$z = -0.708$ p = 0.479		$z = -0.731$ p = 0.465		$z = -0.236$ p = 0.813
Every day	2.47 (1.29–3.41)		2.86(1–4)		2.6(1–4)		2.38 (1.13–3.88)		2.33(1–3.83)		2.25 (1.25–3.5)	
Every few days-once a week	2.37 (1.87–2.89)		2.43 (1.57–3.57)		2.6 (1.6–3.4)		2.25 (1.38–3.75)		2.17 (1.33–3.5)		2.5(1–3.5)	
Seeing the baby last		$z = -1.219$ p = 0.223		$z = -1.716$ p = 0.086		$z = -0.73$ p = 0.465		$z = -0.005$ p = 0.996		$z = -0.417$ p = 0.677		$z = -1.352$ p = 0.177
During birth	2.49 (1.58–3.41)		3(1.71–3.86)		2.6 (1.4–3.6)		2.38 (1.13–3.88)		2.17(1–3.83)		2.5(1.25–3.5)	
Video call	2.42 (1.29–2.99)		2.57(1–4)		2.5(1–4)		2.25 (1.13–3.88)		2.17 (1.33–3.5)		2.25(1–3.5)	

r: Spearman Correlation coefficient, z: Mann-Whitney U test z statistic, K= Kruskal-Wallis test test statistic.

Table 8
The effect of sociodemographic characteristics on coping stress scale (CSS) scores.

Independent Variables		Non-standardized coefficient		Standardized coefficient	
		B	Standard error	Beta	
Passive Coping	Constant	6.410	0.636		
	Depression Anxiety Stress Scale	0.013	0.004	0.329	10.077
	Gender (participant)	-0.425	0.178	-0.224	3.481
	Informer	-0.519	0.200	-0.241	-2.384
	Education (degree)	-0.352	0.122	-0.266	-2.591
F = 9.685 p < 0.001 Adjusted. R ² = 0.283					0.005
Active Coping	Constant	5.17	0.673		
	Spouse education (degree)	0.506	0.148	0.364	7.686
	Anxiety due to "no visitors" policy	0.734	0.393	0.199	3.426
	F = 7.718 p < 0.001 Adjusted. R ² = 0.152				1.869
					0.066

"anxiety" and "stress" subscale scores. Research also shows that parents who are separated from their NICU babies experience anxiety and stress (Erdei & Liu., 2020; Lemmon et al., 2020). What is more, parents who are allowed to see their NICU babies for a limited time only or are not allowed to see them at all experience anxiety, depression, and stress and use passive coping strategies more often (Cooklin2012; Lasiuk et al., 2013; Meesters et al., 2022). Our result may have several reasons. First, their babies were admitted to the NICU. Second, their health status might change any second. Third, the hospital imposed a "no visitors" policy due to the pandemic. Fourth, the participants could not have physical contact and could not see their babies in person. Our results showed that participants who last saw their babies through video-call experienced more stress than those who last saw their babies during birth. This might have several reasons. First, their babies were admitted to the NICU. Second, the parents stayed in an unfamiliar setting with machines and devices. Third, they could not see their babies in person and could not touch them and be there for them. Research shows that parents of NICU children generally use passive coping strategies (Grunberg et al., 2020). Our female participants had significantly higher CSS "submissive" and "helpless" scores than male participants. This result indicates that mothers use passive coping strategies more often than fathers. This is probably because women are expected to live up to traditional gender roles in Turkish society. Participants who married based on mutual consent had higher "self-confident" and "optimistic" subscale scores than those who had arranged marriages. This result shows that people who marry based on mutual consent use active coping strategies more often than those who have arranged marriages. Though arranged marriages may seem like a relic of a bygone age, they are still popular in Turkey. However, arranged marriages are common among low-SES communities. Low-SES is associated with passive coping (Kokkinos2015; Verweij., M'hamdi, Steegers, Reiss & Schoenmakers., 2020). It is no surprise that parents with good education and good jobs are more likely to use active coping strategies. Our results are consistent with the literature (Kašpárková2018; Park2020). This study also showed that smokers had lower "seeking of social support" subscale scores than non-smokers, suggesting that smokers use passive coping strategies more often than non-smokers. Tobacco use is a negative coping strategy (Meule2018; Nohlert2018). Showing smokers that there are things they can do instead of smoking can help them stop using tobacco as a coping strategy and adopt more positive behavior. Participants with more than one child had lower "self-confident" scores than those with only one child. Having a low "self-confident" score indicates a higher likelihood of using passive coping strategies. Our result may be because parents have to meet the needs of their children apart from the one in the NICU, which is an additional stressor for them. Participants whose NICU babies were intubated had a significantly lower "seeking of social support" subscale score than those whose NICU babies were not intubated. This is no surprise because having their NICU babies intubated is an extra stressor for parents. A low "seeking of social support" score indicates a higher likelihood of using passive coping strategies. This is probably because parents lack or believe that they lack enough sources of social support. It may also be because social interaction is limited due to the

pandemic. Participants who received support from family members and friends had higher active coping scores than those who did not. This result indicates how important it is for parents of NICU babies to receive support from their family members and friends. Participants who had their other babies admitted to NICUs before had higher passive coping scores. Experience makes people more prepared for stressors. However, our result may be because the experience the parents go through is quite challenging. They also have to deal with different procedures, such as the "no visitors" policy due to the pandemic. All these factors may be extra stressors for parents of NICU babies. Participants who experienced anxiety due to the "no visitors" policy had lower "self-confident" subscale scores than those who did not. This is probably because parents who suffer from anxiety due to the "no visitors" policy are less likely to recognize and adopt active coping strategies. It may also be because parents regard this process as a crisis, and therefore, the coping strategies they used in the past may not apply to the new situation they find themselves in.

Participants' CSS scores were affected by their DASS scores, gender, source of information, and education levels. These variables explained 28.3% of the total variance. Participants with higher DASS scores had higher passive coping subscale scores. Fathers had lower passive coping scores than mothers. Participants who were informed by nurses about their babies had lower passive coping scores than those who were not. Participants with higher education had lower passive coping scores. People under stress are more likely to use passive coping strategies. The fact that fathers had lower passive coping scores than mothers may be because fathers in Turkey are not expected to be as involved in the care of their children as mothers. Being informed by nurses reduced the prevalence of passive coping strategies, probably because nurses spend much time taking care of NICU babies (1), involve parents in the care of their babies (2), communicate with parents therapeutically (3), and avoid using medical terminology when informing parents about their babies (4). Participants who did not experience anxiety due to the "no visitors" policy had higher active coping scores. Anxiety affects coping strategies negatively. People who can manage their anxiety are more likely to use active coping strategies.

4.1. Implications for practice

This study will help healthcare professionals implement interventions and provide care for parents of NICU babies. The first result showed that participants who faceted with their babies experienced high depression, anxiety, and stress. Therefore, healthcare professionals should brief parents about what a neonatal intensive care unit is like. They should also warn them that they may not be too happy about how their baby looks. Therefore, they should use therapeutic communication techniques to talk to them and explain the situation in a way they can understand. The second result showed that participants who experienced stress due to the "no visitors" policy in response to the COVID-19 pandemic had higher passive coping scores. Therefore, healthcare professionals should implement interventions to reduce parents' anxiety levels. The third result showed that tobacco use was associated with

passive coping strategies. Therefore, healthcare professionals should encourage parents to quit smoking and help them adopt positive behaviors that can replace tobacco use.

4.2. Limitations

This study had two limitations. First, we asked participants to think about the “no visitors” policy when they filled out the data collection forms, but we did not take other factors that might affect their responses under control. Second, the study was conducted only in one NICU, and therefore, the results cannot be generalized to other NICUs.

5. Conclusion

This study determined the factors affecting the depression-anxiety-stress levels and coping strategies of parents of NICU babies. Parents whose neonates are admitted to NICUs are more likely to suffer from psychological distress, which is exacerbated by the fact that they are not allowed to see their babies in person because of the “no visitors” policy imposed by the hospital in response to the COVID-19 pandemic. Though not a result of the present study, the “no visitors” policy seems to affect the mother-infant attachment adversely. Researchers should conduct further studies and focus on mother-infant attachment in the future.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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