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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 Maghaireh 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., 2020; 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. 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, 64,19, 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 a considerable 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 Akın 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 (Akın 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 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. | 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**                    | 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 baby’s admission** | | |
| No                                 | 82         | 88.17          |
| Yes                                 | 11         | 11.83          |
| **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** | | |
| No                                 | 43         | 47.25          |
| Yes                                 | 48         | 52.75          |
| **Support from your mother and other family members during the baby’s admission** | | |
| No                                 | 38         | 41.76          |
| Yes                                 | 53         | 58.24          |
| **Support from friends during the baby’s admission** | | |
| No                                 | 46         | 50.55          |
| Yes                                 | 45         | 49.45          |
| **Follow-up duration in the intensive care unit** | 15 (8–220) | |
| **Presence of chronic diseases**    |            |                |
| No                                 | 85         | 91.40          |
| Yes                                 | 8          | 8.60           |
| **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** | | |
| No                                 | 37         | 48.05          |
| Yes                                 | 40         | 51.95          |
| **Admission in other children**     |            |                |
| No, never                           | 53         | 63.86          |
| Yes, very often/always              | 4          | 4.82           |
| Several times                       | 26         | 31.33          |

### Table 2 (continued)

| Variables | Number (n) | Percentage (%) |
|-----------|------------|----------------|
| **Frequency of getting information about the baby** | | |
| Yes       | 68         | 73.12          |
| No        | 16         | 17.20          |
| **Seeing the baby last** | | |
| During birth | 23 | 24.73 |
| Video call | 67 | 72.04 |
| Never | 3 | 3.23 |

Note: a Mean ± standard deviation. b Median (min-max).

### Table 3

| Scales | Mean | Standard Deviation | Minimum | Maximum | Cronbach’s Alpha Values |
|--------|------|--------------------|---------|---------|-------------------------|
| Depression | 44.88 | 24.62 | 3.00 | 105.00 | 0.965 |
| Anxiety | 12.11 | 8.37 | 0.00 | 40.00 | 0.916 |
| Stress | 19.09 | 9.24 | 2.00 | 39.00 | 0.915 |
| Coping Style | 2.43 | 0.33 | 1.29 | 3.41 | 0.768 |
| Scale (CSS) | 2.71 | 0.65 | 1.00 | 4.00 | 0.829 |

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 mean 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 total and depression, anxiety, and stress subscale scores than those who had arranged marriages. Participants with bachelor’s or higher degrees had a higher median CSS total and anxiety subscale scores than those with extended families. Participants living in cities had higher median CSS 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).

3.5. 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
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 higher median CSS “self-confident” subscale score than participants who were public officials and self-employed. Unemployed participants had a lower median CSS “self-confident” subscale score than participants who were public officials and self-employed ones. Unemployed participants who were blue-collar workers had a significantly lower median “self-confident” 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 “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).
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 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 |
| Having another child | | | | | |
| 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) | K = -0.667 p = 0.716 | 13(0-40) | K = 1.753 p = 0.416 | 7(0-34) | 0.241 | 19(5-39) | 0.966 |
| Gestation week | | | | | |
| <28 | 42(8-105) | 0.61 | 15(0-40) | 0.92 | 12(1-24) | 0.307 | 18(3-35) | 0.635 |
| 28-36 | 47(5-105) | 0.815 | 15.5(0-34) | 0.299 | 12(1-24) | 0.725 | 18(2-39) | 0.207 |
| 37-42 | 40(3-94) | 110(29) | 11.5(1-33) | 0.052 | 12(1-24) | 19(2-36) |
| Delivery type | | | | | |
| Vaginal | 41(12-84) | 0.6 | 12(1-34) | 0.92 | 12(1-24) | 0.307 | 18(3-35) |
| Cesarean | 42(3-105) | 13.5(0-40) | 10.5(0-34) | 18.5(0-39) |
| Birth weight | | | | | |
| r = 0.048 p = 0.647 | | | | |
| Baby gender | | | | | |
| Girl | 47(3-105) | 0.815 | 14(0-40) | 0.465 | 12.5(1-34) | 0.725 | 18(2-39) |
| Boy | 41.56(94) | | 12(0-34) | 0.263 | 11(0-33) | 19(2-36) |
| Baby diagnosis | | | | | |
| Premature | 42(5-105) | 0.214 | 12(0-34) | 0.299 | 7(0-34) | 0.1947 | 17(2-39) |
| Other | 42(3-105) | 13(0-34) | 13.5(1-33) | 0.708 | 12(1-24) | 19(2-36) |
| Informer | | | | | |
| Physician | 47(3-105) | 0.234 | 13(0-40) | 0.691 | 13(1-34) | 0.268 | 20(2-39) |
| Nurse | 31(5-105) | | 12(0-34) | 0.263 | 16(1-27) | 16(2-34) |
| Miscarriage | | | | | |
| Yes | 60(3-105) | 0.226 | 18(0-40) | 0.445 | 16(1-27) | 0.444 | 24(2-38) |
| No | 43(4-105) | 15(0-34) | 14(0-34) | 19(2-39) |
| Baby admitted to a neonatal intensive care unit before | | | | | |
| Yes | 41(3-71) | 0.301 | 8(0-29) | 0.263 | 8(1-19) | 0.156 | 18(2-29) |
| No | 42(5-105) | 13.5(0-40) | 11.5(0-43) | 18.5(2-39) |
| Baby respirator | | | | | |
| Yes | 41(8-105) | 0.99 | 12(0-40) | 0.651 | 10(0-34) | 0.437 | 18(3-39) |
| No | 44(5-101) | | 14(0-30) | 0.263 | 14(1-33) | 18(2-34) |
| Support from the spouse’s mother and other family members during the baby’s admission | | | | | |
| No | 47(5-105) | 15(0-40) | 14(0-33) | 16(2-39) |
| Support from your mother and other family members during the baby’s admission | | | | | |
| No | 45(5-105) | 14(0-40) | 11(1-33) | 18(2-39) |
| Support from friends during the baby’s admission | | | | | |
| No | 41(5-105) | 15(0-40) | 10.5(1-33) | 18(5-36) |
| Follow-up duration in the intensive care unit | | | | | |
| Having someone else helping with the care of children | | | | | |
| Yes | 41(3-105) | 11.5(0-34) | 10(1-33) | 17(5-26) |
| No | 43(7-105) | 15(0-40) | 11(0-33) | 17(5-26) |
| Admission in other children | | | | | |
| No, never | 42(5-105) | 14(0-40) | 11(0-33) | 17(2-38) |
| Anxiety due to “no visitors” policy | | | | | |
| Yes | 47(6-105) | 0.056 | 16(1-40) | 0.179 | 14(1-34) | 0.1947 | 17(2-36) |
| No | 20.5(5-31) | 5.5(0-16) | 5.5(0-16) | 0.1947 | 17(2-36) |
| Frequency of getting information about the baby | | | | | |
| Every day | 47(3-105) | 15(0-40) | 12.5(0-34) | 19(2-39) |
| Every few days once a week | 34(7-105) | 8(1-34) | 8(1-33) | 17(2-36) |
| Seeing the baby last | | | | | |
| During birth | 27(3-105) | 0.014 | 9(0-40) | 0.141 | 7(0-27) | 0.133 | 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 statistic, K: Kruskal-Wallis test statistic.
Table 6
The Distribution of CSS scores by participants’ sociodemographic characteristics.

| Variables                  | Coping Style Scale | Spouse Coping Style Scale |
|----------------------------|--------------------|---------------------------|
|                           | Median(min-max)    | Test and p value | Median(min-max) | Test and p value |
| Parent (participant)       |                    | z = −0.169 p        |                |                |
|                           | Mother             | 2.43 (1.58-3.41)    | z = −2.04 p    | 2.4 (1.47-3.86) |
|                           | Father             | 2.49 (1.29-2.99)    | p = 0.041      | 3 (1.4-4)       |
| Age (years)                | r = −0.027 p = 0.796 |                   |                |                |
| Duration of marriage       | r = −0.052 p = 0.625 |                   |                |                |
| Type of marriage           | Arranged           | z = −2.345 p = 0.019 | x = −3.677 p | 2.2 (1.71-3.43) |
|                           | Mutual consent     | 2.47 (1.29-3.14)    | p = 0.001      | 2.3 (1.61-4)    |
| Education (degree)         | Primary school     | K = 2.966 p = 0.227 | K = 8.733      | 2.2 (1.71-3.43) |
|                           | High school        | 2.43 (1.87-3.29)    | p = 0.012      | 2.43 (1.57-4.3) |
|                           | Bachelor’s or higher | 2.46 (1.58-3.41)    |                | 2.29 (1.71-3.4) |
| Occupation                 | Civil servant      | K = 9.214 p = 0.027 | K = 4.622      | 3.29 (2.29-3.86) |
|                           | Worker             | 2.47 (2.08-2.97)    | p = 0.001      | 3.29 (2.14-4.3) |
|                           | Self-employed      | 2.61 (2.02-3.41)    |                | 3.29 (1.84-3.6) |
|                           | Unemployed         | 2.75 (1.58-2.94)    |                | 2.29 (1.57-3.5) |
| Spouse education (degree)  | Primary school     | K = 9.351 p = 0.009 | K = 12.470     | 2.2 (1.71-3.4)  |
|                           | High school        | 2.42 (1.29-2.99)    | p = 0.002      | 2.2 (1.71-3.4)  |
|                           | Bachelor’s or higher | 2.47 (2.11-3.41)    |                | 2.2 (1.86-3.8)  |
| Spouse occupation          | Civil servant      | K = 10.734 p = 0.013 | K = 8.980      | 2.86 (1.86-3.8) |
|                           | Worker             | 2.45 (1.84-2.94)    | p = 0.030      | 2.86 (1.86-3.8) |
|                           | Self-employed      | 2.56 (2.2-2.31)     |                | 2.86 (1.57-3.8) |
|                           | Unemployed         | 2.205 (1.29-2.99)   |                | 2.86 (1.23-4)   |
| Family type                | Nuclear            | z = −1.39 p = 0.164 | x = −0.649 p  | 2.86 (1.14-4)   |
|                           | Extended           | 2.44 (1.19-3.41)    | −0.112 p       | 2.86 (1.14-4)   |

(continued on next page)
4.751 p = 0.163

3.825 p = 0.148

3.767 p = 0.152

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1.13–3.43)

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| Variables                        | Coping Style Scale | Self-confident | Optimistic | Helpless | Submissive | Seeking of social support |
|---------------------------------|-------------------|---------------|------------|----------|------------|--------------------------|
|                                 | Median(min-max)   | 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            |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| Yes                             | 2.49 (1.84-2.99)  | -1.102        | p = 0.27   |          |             |              |              |               |              |              |              |              |              |              |
| No                              | 2.42 (1.29-3.41)  | -2.264        | p = 0.024  |          |             |              |              |               |              |              |              |              |              |              |
| Gestation week                  |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| <28                             |                   | -4.037        | p = 0.133  |          |             |              |              |               |              |              |              |              |              |              |
| 28-36                           |                   | -5.781        | p = 0.056  |          |             |              |              |               |              |              |              |              |              |              |
| 37-42                           |                   | -1.834        | p = 0.067  |          |             |              |              |               |              |              |              |              |              |              |
| Delivery type                   |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| Vaginal                         | 2.38 (2.02-2.97)  | -0.835        | p = 0.404  |          |             |              |              |               |              |              |              |              |              |              |
| C-section                       | 2.44 (1.84-2.97)  | -0.849        | p = 0.396  |          |             |              |              |               |              |              |              |              |              |              |
| Birth weight                    | r = -0.255 p = 0.014 |              |            |          |            |              |              |               |              |              |              |              |              |              |
| Baby gender                     |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| Girl                            | 2.49 (1.29-3.41)  | -0.961        | p = 0.337  |          |             |              |              |               |              |              |              |              |              |              |
| Boy                             | 2.38 (1.84-2.99)  | -0.963        | p = 0.613  |          |             |              |              |               |              |              |              |              |              |              |
| Baby diagnosis                  |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| Premature                       | 2.475 (1.58-3.41) | -1.519        | p = 0.129  |          |             |              |              |               |              |              |              |              |              |              |
| Other                           | 2.375 (1.29-2.97) | -1.576        | p = 0.115  |          |             |              |              |               |              |              |              |              |              |              |
| Informer                        |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| Physician                       | 2.43 (1.84-3.41)  | -1.743        | p = 0.068  |          |             |              |              |               |              |              |              |              |              |              |
| Nurse                           | 2.42 (1.29-2.94)  | -1.736        | p = 0.081  |          |             |              |              |               |              |              |              |              |              |              |
| Miscarriage                     |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| Yes                             | 2.54 (2.24-3.41)  | -1.158        | p = 0.097  |          |             |              |              |               |              |              |              |              |              |              |
| No                              | 2.385 (1.58-2.97) | -1.488        | p = 0.137  |          |             |              |              |               |              |              |              |              |              |              |
| Baby admitted to a neonatal intensive care unit before |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| Yes                             | 2.42 (1.84-2.84)  | -1.188        | p = 0.459  |          |             |              |              |               |              |              |              |              |              |              |
| No                              | 2.43 (1.29-3.41)  | -1.113        | p = 0.565  |          |             |              |              |               |              |              |              |              |              |              |
| Baby respirator                 |                   |               |            |          |            |              |              |               |              |              |              |              |              |              |
| Yes                             | 2.47 (1.29-3.41)  | -0.466        | p = 0.641  |          |             |              |              |               |              |              |              |              |              |              |
| No                              | 2.5 (1.84-2.84)   | -0.368        | p = 0.459  |          |             |              |              |               |              |              |              |              |              |              |

(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 |
|           |                    |                 |            |          |            |                           |                |                |
| 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              | (1.58–2.341)    | 2.6(1.57–4) | 2.6(1.4–4) | 2.315 | (1.13–3.88) | 2.33(1–3.83) | (1.25–3.5) | 2.375 | (1.25–3.5) | 2.25(1–3.5) |
| Yes       | 2.43               | (1.29–2.97)     | 2.785      | (1.38–6)  | 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               | (1.58–2.341)    | 2.715      | (1.57–4)  | 2.6(1–3.6) | 2.13 | (1.13–3.5) | 2.33(1–3.83) | (1.5–3.5) | 2.5(1–3.5) | 2.25(1–3.5) |
| Yes       | 2.43               | (1.29–2.97)     | 2.71(1–3.6) | 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)  | 2.25 | (1.13–3.88) | 2.33(1–3.33) | (1.25–3.5) | 2.25 | (1.25–3.5) | 2.25(1–3.5) |
| Yes       | 2.47               | (1.29–3.41)     | 2.86(1–3.6) | 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 = 0.173 | r = -0.022 | p = 0.836 |
| Having someone else helping with the care of children | z = -1.937 | p = 0.033 | z = -2.423 | p = 0.015 | z = -1.492 | p = 0.136 | z = -0.194 | p = 0.846 | z = -0.128 | p = 0.349 | z = -0.937 | p = 0.349 |
| No        | 2.35               | (1.58–2.97)     | 2.43 | (1.57–3.86) | 2.3 | (1–3.6) | 2.315 | (1.13–3.88) | 2.33(1–3.33) | (1.25–3.5) | 2.25 | (1.5–3.5) |
| Yes       | 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(1–3.5) |
| Admission in other children | z = -1.116 | p = 0.246 | z = -1.682 | p = 0.093 | z = -1.21 | p = 0.226 | z = -1.766 | p = 0.077 | z = -1.666 | p = 0.506 | z = -2.179 | p = 0.029 |
| No, never | 2.395              | (1.95–2.97)     | 2.43 | (1.57–3.86) | 2.3 | (1–3.6) | 2.38 | (1.38–3.88) | 2.17(1–3.83) | (1.5–3.5) | 2.375 | (1.5–3.5) |
| Yes, yes, always | 2.645            | (1.29–3.41)     | 2.71(1–4)  | 2.6(1–4)  | 2(1.33–7.5) | 2.17(1–3.83) | 2.375 | (1.5–3.5) | 2.25(1–3.5) |
| 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 |
| No        | 2.43               | (1.29–3.41)     | 2.57(1–3.6) | 2.4(1–3.6) | 2.38 | (1.13–3.88) | 2.17 | (1.33–3.83) | 2.25(1–3.5) |
| Yes       | 2.49               | (1.58–2.99)     | 3(1.86–4)  | 2.6(1–4)  | 1.88 | (1–2.75) | 2.17(1–2.83) | 2.5(1–3.5) |
| 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 |
| No, every | 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) | (1.25–3.5) | 2.25 | (1.25–3.5) | 2.25(1–3.5) |
| Yes, every | 2.47              | (1.29–3.41)     | 2.43 | (1.57–3.57) | 2.6 | (1–3.4) | 2.25 | (1.38–3.75) | 2.17 | (1.33–3.5) | 2.25(1–3.5) |
| Seeing the baby last during admission | 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 |
| 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.
passive coping strategies more often than those who have arranged marriages. Though experiences 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 strategies. 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 facemasked 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

### Table 8

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

| Independent Variables | Non-standardized coefficient | Standard error | Standardized coefficient | Beta |
|-----------------------|-----------------------------|----------------|--------------------------|------|
| **Passive Coping**    |                             |                |                          |      |
| Constant              | 6.410                       | 0.636          | 10.077                   | <0.001|
| Depression Anxiety Stress Scale | 0.013 | 0.004 | 0.329 | 3.481 | 0.001 |
| Gender (participant)  | -0.425                      | 0.178          | -0.224                   | -2.384| 0.019 |
| Informer              | -0.519                      | 0.200          | -0.241                   | -2.591| 0.011 |
| Education (degree)    | -0.352                      | 0.122          | -0.266                   | -2.885| 0.005 |
| F = 9.685 p < 0.001 Adjusted. R² = 0.283 | | | | |
| **Active Coping**     |                             |                |                          |      |
| Constant              | 5.17                        | 0.673          | 7.586                    | <0.001|
| Spouse education (degree) | 0.506 | 0.148 | 0.364 | 3.426 | 0.001 |
| Anxiety due to “no visitors” policy | 0.734 | 0.393 | 0.199 | 1.869 | 0.066 |
| F = 7.718 p < 0.001 Adjusted. R² = 0.152 | | | | |
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.

References

Akin, A., Çetin, B., 2007. The depression anxiety and stress scale (DASS): the study of validity and reliability. Educ. Sci. Theor. Pract. 7 (1), 260–268.

Al Maghairy, F.D., Abdulla, K.L., Chan, C.M., Piaw, C.Y., Al Kawafah, M.M., 2016. Systematic review of qualitative studies exploring parental experiences in the Neonatal Intensive Care Unit. J. Clin. Nurs. 25 (19–20), 2745–2756. https://doi.org/10.1111/jocn.13295.

Bembich, S., Tripani, A., Mastromarino, S., Di Risio, G., Castelpietra, E., Risso, F.M., Akin, A., Çetin, B., 2007. The depression anxiety and stress scale (DASS): the study of stability of scales in a sample of female university students. J. Health Soc. Behav. 219–220, 364–381.

Busse, M., Strongren, K., Thorngate, L., Thomas, K.A., 2013. Parents’ experiences of neonatal intensive care units and family-centered care: challenges and opportunities. Front. Psychol. 12, 630594.

Cena, L., Biban, P., Janos, J., Lavelli, M., Langfus, J., Tsai, A., Stefana, A., et al., 2021. The COVID-19associated with preterm birth. BMC Pregnancy Childbirth 13 (1), 1–10. https://doi.org/10.1186/s12884-020-0340-7.

Deierl, A., Bacchini, F., Olsberg, S., 2007. Receiving power through confirmation: the meaning of “no visiting policy” in neonatal intensive care units. Pet. Health 18 (1), 1–10. https://doi.org/10.1055/s-0040-1715839.

Engström, A., Söderberg, S., 2007. Power receiving through confirmation: the meaning of ‘close relatives for people who have been critically ill. J. Adv. Nurs. 59 (6), 569–576. https://doi.org/10.1111/j.1365-2648.2007.04262.x.

Engström, A., Söderberg, S., 2007. Power receiving through confirmation: the meaning of ‘close relatives for people who have been critically ill. J. Adv. Nurs. 59 (6), 569–576. https://doi.org/10.1111/j.1365-2648.2007.04262.x.

Erdei, C., Liu, C.H., 2020. The downstream effects of COVID-19: a call for supporting parental trauma associated with preterm birth. BMC Pregnancy Childbirth 20, 1–28. https://doi.org/10.1186/s12884-020-0340-7.

Hugelius, K., Harada, N., Marutani, M., 2021. Consequences of visiting restrictions during the COVID-19 pandemic: an integrative review. Int. J. Nurs. Stud. 121, 110400. https://doi.org/10.1016/j.ijnurstu.2021.1104000.

Kapirisova, I., Vaculik, M., Prochazka, J., Schaufel, W.B., 2018. Why resilient women perform better: the role of jobs satisfaction and work engagement. J. Workplace Behav. Health 33 (1), 43–62.

Kokkinos, C.M., Panagoulopoulou, P., Tsalidou, I., Tselisou, E., 2015. Coping with bullying and victimisation among preadolescents: the moderating effects of self-efficacy. Emot. Behav. Difficulties 20 (2), 205–222.

Laskić, G.C., Comeau, T., Newburn-Cook, C., 2013. Unexpected: an interpretive description of parental trauma associated with preterm birth. BMJ Pregnancy Childbirth 9, 1–8. https://doi.org/10.1136/bmjpo-2012-000899.

Meesters, N., van Dijk, M., Sampieri de Carvalho, F., Havenier, L., Reis, I., Simons, S., van den Bosch, G.E., 2022. COVID-19 lockdown impacts the wellbeing of parents with infants on a Dutch neonatal intensive care unit. J. Pediatr. Nurs. 62, 106–112. https://doi.org/10.1016/j.pednin.2021.09.024.

Meule, A., Reichenberger, J., Bleeher, J., 2018. Smoking, stress eating, and body weight: the moderating role of perceived stress. Subst. Use Misuse 53 (13), 2195–2206.

Munte, T.S., Herranz-Rubia, N., NeNe Nursing Group, 2020. Neonatal nursing in the COVID-19 pandemic: can we improve the future? J. Neonatal Nurs. : J. Neonatal Nurs. 26 (5), 247–251. https://doi.org/10.1177/1357639120831081.

Muniraman, H., Ali, M., Cawley, P., Hillyer, J., Heathcote, A., Ponnusamy, V., Coleman, Z., Hammond, K., Kairani, G.-Carr, E., Myers, S., Hunt, K., Govande, V., Jain, A., Clark, R., Doherty, C., Raju, V., Clarke, P., 2020. Parental perceptions of the impact of neonatal unit visitation policies during COVID-19 pandemic. BMJ Paediatrics Open 4 (1), e000899. https://doi.org/10.1136/bmjpo-2020-000899.

Murray, P.D., Swanson, J.R., 2020. Visitation restrictions: is it right and how do we support families in the NICU during COVID-19? J. Perinat. Perinat. Soc. North Am. 40 (10), 1576–1581. https://doi.org/10.1097/JPN.0000000000000781.

Nohlert, E., Öhrvik, J., Helgason, A.R., 2018. Self-perceived ability to cope with stress and depressive mood without smoking predicts successful smoking cessation 12 months later in a quitline setting: a secondary analysis of a randomized trial. BMC Publ. Health 18 (1), 1–10.

Osorio Galeano, S.P., Salazar Maya, A.M., 2021. Experiences of parents of preterm children hospitalized regarding restrictions to interact with their children imposed due to COVID-19: a cross-sectional survey. J. Perinat. Neonatal Nurs. 31 (4), 333–340. https://doi.org/10.1097/JPN.0000000000000265.

Pape, P., 2016. Critical illness trajectory for patients, families and nurses - a literature review. Nurs. Crit. Care 21 (4), 195–205. https://doi.org/10.1111/nicc.12199.

Sahin, N.H., Durak, A., 1995. The scale of coping styles with stress: Application for university students. Turk. J. Psychol. 10 (34), 56–73.

Siani, S.A, Doll, J., Campbell-Yeo, M., 2017. Impact of parent-targeted ehealth on parent and infant health outcomes: a scoping review. J. Perinat. Neonatal Nurs. 31 (4), 332–340. https://doi.org/10.1097/JPN.0000000000000265.

Van Voornseeld, N.R., Reidel, A., Baccini, F., O’Brien, K., Franck, L.S., International Steering Committee for Family Integrated Care, 2021. Supporting parents as essential care partners in neonatal units during the SARS-CoV-2 pandemic. Acta Paediatr. 110 (7), 2008–2022. https://doi.org/10.1111/apa.15857.

Vanoli, A.R., Pulcini, H., Milos, R., Longstaff, H., Goldman, R.D., Lantos, J.D., 2020. Benefits and risks of visitor restrictions for hospitalized children during the COVID-19 pandemic. Pediatrics 146 (2), e202000786. https://doi.org/10.1542/peds.2020-00786.

Von Elm, E., Altman, D.G., Egger, M., Pocock, S.J., Gotzsche, P.C., Vandenbroucke, J.P., Strobe Initiative, 2007. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Bull. World Health Organ. 85 (11), 867–872. https://doi.org/10.2471/BLT.07.045120.