



The impact of the COVID-19 pandemic on nursing care and nurses' work in a neonatal intensive care unit

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ABSTRACT

Purpose: This study was conducted to determine the effects of the COVID-19 pandemic process on nursing care and nurses' work in neonatal intensive care units.

Design and methods: The study was conducted using a qualitative method. The data were collected by voice recording with a one-on-one in-depth interview technique, and a semi-structured question form was used in the interviews. The data obtained from voice recordings were evaluated using the qualitative content analysis method.

Results: The main themes and subthemes of the study were as follows: (1) decrease in physical contact with newborns due to fear of transmitting Covid-19 (*decrease in physical contact between neonatal nurses and newborns, decrease in physical contact between mothers and newborns, decrease in physical contact between fathers and newborns*), (2) communication problems between healthcare professionals and parents (3) changes in the working conditions for neonatal nurses (*increase in the frequency and duration of work intense working speed, exhaustion and decreased motivation due to use of protective equipment*).

Conclusion: The COVID-19 pandemic process led to a decrease in nurses' and parents' touching newborns, nurses' experiencing problems with parents due to measures taken, heavier working conditions and a decrease in motivation for nurses.

Practice implications: This study will inform future research to be directed to nursing care and the work of nursing who work on the front line in the COVID-19 pandemic process.

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Introduction

As a global event, the COVID-19 pandemic is among the most damaging to human health so far (Sinyor et al., 2021). The idea of contracting COVID-19 has caused individuals to experience fear, stress and anxiety; while contracting COVID-19 has caused some patients to receive intense treatment and care; and to die (Reznik et al., 2020). The pandemic is forcing even the best systems of the world to fight against it (Makoni, 2020; Menendez et al., 2020). Countries are taking quarantine measures to prevent the pandemic from spreading. Measures are also being implemented in neonatal intensive care units (NICUs) to reduce the risk of COVID-19 transmission (Cena et al., 2021).

The NICU is a place where medical and invasive processes and nursing care are applied to newborns requiring special care for such reasons as prematurity and low birth weight. When newborns are hospitalised

in this unit, negative effects on mother–infant bonding may become apparent (Dündar et al., 2011). Neonatal nurses working in the NICU can assist the start of mother–infant bonding in the early period via such methods as keeping the baby and the mother in the same room, kangaroo care and starting breastfeeding as soon as possible (Deng et al., 2018; Shattnawi et al., 2019; Valizadeh et al., 2013). However, restrictions put in place because of the COVID-19 pandemic have caused a decrease in the benefits mothers and newborns receive from healthcare services and in the quality of care (Ashish et al., 2020; Graham et al., 2020).

Although there has been worldwide progress in improving mother–newborn health in the last two decades, the COVID-19 pandemic is creating a risk in reversing these gains (Ashish et al., 2020; Kc et al., 2020). Studies have shown that COVID-19 has had a negative effect on the healthcare service provided to mothers and newborns (Ashish et al., 2020; Cena et al., 2021; Lemmon et al., 2020). A study conducted during COVID-19 quarantine showed that the rate of breastfeeding newborns within 1 h of birth decreased by 3.5% (Ashish et al., 2020). Other studies have reported that COVID-19 has negatively affected kangaroo care practice and neonatal care in hospitals (Minckas et al., 2021; Rao et al., 2021). Healthcare services provided to mothers are also negatively

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affected by this process. It was reported in one study that quarantine measures, social distance and hospital restriction policies increased postpartum depression and decreased breastfeeding and skin-to-skin contact in women who gave birth (Chávez-Tostado et al., 2021). In addition to these factors, restrictions in NICUs because of the COVID-19 pandemic may cause conflicts between healthcare professionals and families related to obeying precautions.

In the context of the epidemic, healthcare professionals work on the front line for the prevention of COVID-19 infection, as well as in the diagnosis, treatment and care of patients who do contract the virus (Lai et al., 2020). One group of healthcare professionals working on the front line in the fight against COVID-19 comprises nurses (Huang, Liu, et al., 2020; Huang, Wang, et al., 2020; Sethi et al., 2020). Just as nurses have fought such contagious diseases as severe acute respiratory syndrome (SARS), Middle East respiratory syndrome–coronavirus (MERS-CoV), Ebola and H1N1, they are also working selflessly with moral and professional responsibility by ignoring their personal needs while fighting COVID-19. Nurses experience the fear, anxiety and stress of possibly being infected with COVID-19 or infecting others; moreover, their workload has increase, and it is difficult for them to communicate with people and to work in the clinic simultaneously (Coşkun Şimşek & Günay, 2021; Rao et al., 2021; Semaan et al., 2020). Despite these negative experiences at work, nurses fulfil their professional mandate (Coşkun Şimşek & Günay, 2021; Khalid et al., 2016; Rose et al., 2021). There are studies in the literature on how COVID-19 affects the psychology of healthcare professionals, the experiences of nurses while providing care to mothers and newborns, and COVID-19's influence on mother and newborn care (Ashish et al., 2020; Lai et al., 2020; Minckas et al., 2021; Patricia & Apriyeni, 2021; Rose et al., 2021). However, there are no qualitative studies examining how the COVID-19 pandemic has affected the nursing practices of neonatal nurses, the difficulties experienced by neonatal nurses while providing care or the relationships of nurses with parents of newborns in the NICU.

This study aims to determine the effects of Covid-19 pandemic processes on neonatal nursing care and work processes in NICUs.

Method

Study design and sampling

This qualitative descriptive study (Kim et al., 2017) was conducted in the first-, second- and third-level NICUs of a university hospital in the Eastern Anatolia Region of Turkey. Qualitative research aims to determine in-depth the observations, feelings, behaviors, knowledge and experiences of participants about a specific topic. The data in the study were collected between 1 and 30 July 2021. A total of 45 neonatal nurses were working in the NICU. An explanation was given to all neonatal nurses working in the NICU concerning the purpose of the study and the principles of participation. A total of 19 neonatal nurses agreed to participate in the study. Since data saturation was reached with 19 neonatal nurses, the sample size was not increased (data saturation is the repetition of same or similar data).

Inclusion criteria

Having worked in the NICU at least for 6 months, having worked as a nurse actively in the NICU during the coronavirus pandemic process.

Ethical considerations

This study was approved by XXX University Health Sciences Non-interventional Clinical Researches with the number 2021/2800. Neonatal nurses were informed about the aim and content of the study. It was stated that the study would be carried out on a voluntary basis. The

nurses who participated in the study were informed that study data and their personal information would be kept confidential and the results obtained would be used for scientific purposes. Oral consent was given, and written consent was collected with informed consent forms. The study was conducted in accordance with the Declaration of Helsinki.

Data collection

The data in the study were collected through one-on-one, in-depth interviews with the neonatal nurses. Before the interviews, the neonatal nurses were informed of the aim and content of the study and were told that the interviews would be audio recorded. All of the participants agreed to audio recording. One-on-one interviews were conducted by the third researcher in the study. The researcher made appointments with each of the participating neonatal nurses and conducted the interviews in a quiet room in the NICU. Each neonatal nurse was interviewed once and each interview lasted for 35–45 min. During the interviews, the researcher avoided making supportive or judgemental expressions and gestures. The reason why the researcher avoided supportive or judgmental gestures and mimics during the interviews was to ensure that neonatal nurses felt comfortable, trusted the researcher and answered the research questions sincerely.

In the interviews, the following three open-ended questions were asked: (1) How did the Covid-19 processes affect the nursing care provided to newborns? (2) How did the Covid-19 processes affect the relationship between newborns treated in the NICU and their parents? (3) What issues or difficulties did the Covid-19 processes cause for the neonatal nurses?

Data analysis

The data obtained from the interview audio recordings were evaluated using a qualitative content analysis method (Graneheim & Lundman, 2004). The material analyzed is the effect of COVID-19 pandemic on neonatal nurses.

After the interviews were completed, the researchers transcribed the voice recordings exactly as the participants spoke. Colaizzi was used in data analysis. Data analysis method was carried out in 7 stages. (1) the written texts were reread carefully multiple times (2) expressions with great importance were determined (3) similar or same expressions brought together (4) main themes of the study were formed (5) sub-themes of the study were determined (6) the participants' expressions were written on the main and sub-themes of the study (7) the expressions were read to the participants and approved.

Results

The mean age of the neonatal neonatal nurses in the study was 32.5 years and their mean neonatal nursing experience was 7 years. Of the 19 neonatal nurses interviewed, 17% were male and 90% were undergraduates. The following three main themes and five sub-themes were determined:

- (1) Decrease in physical contact with newborns due to fear of transmitting Covid-19
 - (1.1) Decrease in physical contact between neonatal nurses and newborns
 - (1.2) Decrease in physical contact between mothers and newborns
 - (1.3) Decrease in physical contact between fathers and newborns
- (2) Communication problems between healthcare professionals and parents
- (3) Changes in the working conditions for neonatal nurses
 - (3.1) Increase in the frequency and duration of work
 - (3.2) Intense working speed, exhaustion and decreased motivation due to use of protective equipment

1. Decrease in physical contact with newborns due to fear of transmitting Covid-19

1.1 Decrease in physical contact between neonatal nurses and newborns

Out of fear of transmitting Covid-19, neonatal nurses took precautions to touch babies less frequently and to make more observations.

Quote from a neonatal nurse:

"I am worried about transmitting Covid-19 to babies. Therefore, I touch them less and make more observations compared to before the pandemic. However, there has been no change in other nursing care" (Neonatal nurse, 4).

1.2 Decrease in physical contact between mothers and newborns

Neonatal nurses and specialists restricted the frequency of the parents' visits to prevent the transmission of Covid-19 to their newborns.

Quotes from neonatal nurses:

"Due to the pandemic processes and considering the risk of parents transmitting Covid-19 to newborns, we decreased mothers' visits to their babies. Fathers, on the other hand, could hardly visit their babies at the beginning of the pandemic. We did this to protect the babies" (Neonatal nurse, 12).

Some of the mothers came less often to NICU in order to protect their babies against the COVID-19 pandemic.

Quotes from neonatal nurses:

"Mothers make fewer visits; they are afraid of touching their babies and transmitting Covid-19 to them" (Neonatal nurse, 10).

NICU neonatal nurses stated that they allowed mothers to see their babies less frequently and greatly reduced instances of kangaroo care.

Quotes from neonatal nurses:

"Kangaroo care was more frequently practiced before the pandemic. We do not allow it during the pandemic, even if it is suitable for the baby. We also started to delay the time to start sucking in the early period" (Neonatal nurse, 5).

While the neonatal nurses took a break from the kangaroo care practice, they did not take the opinion of parents and this had a negative effect on the cooperation between them and the parents.

Quotes from neonatal nurses:

"During the pandemic, we did not give babies to their mothers. Kangaroo care and family-centred care were negatively affected" (Neonatal nurse, 15).

1.3 Decrease in physical contact between fathers and newborns

Neonatal nurses stated that before the pandemic, fathers would see and touch their babies as often as mothers. However, during the pandemic, they had fewer newborn visits due to the precautions taken in the NICU and the fathers' concerns about transmitting Covid-19 to their babies.

Quote from a neonatal nurse:

"While fathers saw their babies twice a week before the pandemic, we let them see their babies once a week during the pandemic" (Neonatal nurse, 5).

Neonatal nurses had reduced the frequency of parents seeing their babies to protect the health of babies.

Quote from a neonatal nurse:

Early in the pandemic, some fathers insisted on seeing their babies; however, we had to think of the babies. What if they were infected? We did not allow the fathers to see the babies because of this. (Neonatal nurse, 3)

2. Communication problems between healthcare professionals and parents

The nurses stated that they took safety precautions, including wearing masks, restricting visits, and suspending skin-to-skin contact practices in the NICU due to the risk of COVID-19 transmission. However, they stated that sometimes parents did not want to follow safety practices, and therefore they experienced conflicts with parents.

Quote from a neonatal nurse:

We took some precautions in the pandemic. Wearing masks was our first precaution. There were mothers who did not care about the precautions. We had some problems with them. (Neonatal nurse, 16)

While neonatal nurses were taking precautions to protect the babies, some parents discussed with the nurses because they did not want to understand why these precautions were necessary.

Quote from a neonatal nurse:

Various precautions were taken in this period, but mothers did not care about these precautions and rules. This caused various discussions between us and the mothers. (Neonatal nurse, 1)

The parents were curious about the health of their babies since the babies were in NICU. They wanted to see their babies and touch them. However, healthcare professionals had restricted visitors to NICU due to COVID-19 pandemic. This had caused healthcare professionals and parents to experience problems.

Quote from a neonatal nurse:

Some fathers insisted on seeing their children. However, we had to think about the newborns, and we did not allow them... This caused disputes between the fathers and the health team from time to time. (Neonatal nurse, 9)

3. Changes in the working conditions for neonatal nurses

3.1 Increase in the frequency and duration of work

The nurses stated that they worked instead of their friends who were infected with COVID-19, and their work hours increased.

Quote from a neonatal nurse:

Some of our friends were infected with the COVID-19 infection at the same time. The frequency and intensity of our visits to the hospital increased. We could not get support from the other services, since the number of nurses working in the hospital is low. (Neonatal nurse, 17)

3.2 Intense work pace and exhaustion and decreased motivation due to the use of protective equipment

The increased amount of time nurses spent in the hospital and the cancellation of their leaves negatively affected their motivation.

Quote from a neonatal nurse:

When the pandemic started, the hospital management switched to 24-hour-long shifts. Annual leaves were cancelled. Sometimes, I felt very tired; not being able to rest decreased my motivation. (Neonatal nurse, 1)

Nurses stated that they did not feel well because they were working under intense and difficult conditions.

Quote from a neonatal nurse:

I experienced problems such as headache, fatigue and stress as I worked intensively in the hospital during this period. (Neonatal nurse, 18)

Nurses experienced physical and mental problems due to the constant use of protective equipment.

Quote from a neonatal nurse:

Using gloves all the time caused allergy on my hands... I wear double masks; they stay on my face long enough to leave marks... sometimes I feel suffocated wearing masks... (Neonatal nurse, 6)

Discussion

The government and the Ministry of Health have implemented various precautions and policies to prevent the spread of COVID-19 (Cai, Lian, et al., 2020; Cai, Wu, et al., 2020). In hospitals, nurses wear protective equipment, such as masks and gowns (Sun et al., 2020). Since the epidemic has spread quickly, nurses are spending more time at the hospital. This study takes a qualitative method to investigate how COVID-19 has affected nurses' way of working and caring for their patients.

The neonatal nurses who participated in the study stated that they restricted visitors to the NICU, stopped kangaroo care practice and began to observe the babies instead of touching them to prevent the transmission of COVID-19 to the babies. In a study conducted in 62 countries, Rao et al. found that more than half of the countries suspended the practice of kangaroo care for newborns during the COVID-19 pandemic (Rao et al., 2021). Kangaroo care provides many advantages, including reducing newborn deaths, thanks to the prolonged skin-to-skin contact, which develops the mother-baby bond, reduces mothers' anxiety, depression and stress levels, promotes breastfeeding, increases milk production and leads to early discharge (Athanasopoulou & Fox, 2014; Hake-Brooks & Anderson, 2008; Heidarzadeh et al., 2013; Ludington-Hoe et al., 2008; Sweeney et al., 2017). In the study, neonatal nurses stated that physical contact of parents with their babies was reduced to prevent the transmission of COVID-19 to babies. Reduced contact with their babies may negatively affect the development of a secure attachment between parents and their baby, and may cause parents to experience stress and anxiety, damage the baby's sense of trust and impede the development of parents' developing parenting skills (Güleşen & Yıldız, 2013; Kavlak, 2007; Köse et al., 2013). The World Health Organization (WHO) recommends that, during the pandemic, mothers continue to implement kangaroo care while taking safety precautions, such as wearing a mask and washing their hands (WHO, 2020). In their study, Minckas et al. stated that the benefits of kangaroo care are 65 times greater than the risk of death caused by COVID-19 (Minckas et al., 2021).

COVID-19 is a virus that is transmitted from person to person through droplets. Since the immune system of newborn babies is not completely developed, they are in a high-risk group for contracting COVID-19 (Cai, Lian, et al., 2020; Cai, Wu, et al., 2020; Cao et al., 2020; Huang, Liu, et al., 2020; Huang, Wang, et al., 2020; Sarman & Tuncay, 2021). In NICUs, health teams take safety precautions to protect the babies (Huang, Liu, et al., 2020; Huang, Wang, et al., 2020). The nurses in the present study stated that they asked parents to wear a mask while visiting their babies to protect the babies against COVID-19; however, some parents did not want to wear a mask, and the nurses experienced communication problems with these parents. Both the WHO and the Ministry of Health have reported the necessity of wearing masks to prevent the spread of COVID-19 (Ministry of Health of the Republic of Turkey, 2019; WHO, 2019). Communication problems between nurses and parents have a negative effect on family-centred care, which is an important care approach in newborn intensive care units because family-centred care involves cooperation between the family and the healthcare professionals in planning, implementing and evaluating the care to be given to the newborn (Cena et al., 2021; Davidson et al., 2017; Öztürk & Dijle, 2014). In Turkey, the family-centred care approach was not at the desired level in the pre-pandemic period (Tosun & Tüfekçi, 2015). We believe that communication problems between parents and nurses may negatively impact the family-centred care approach.

COVID-19 continues to be transmitted to a large number of people, and infected people may require intense treatment and care. Thus, healthcare professionals are needed more, and both healthcare professionals and families are spending more time in hospital (Lai et al., 2020). The nurses who participated in the current study stated that they spent more time in the hospital during the pandemic, their

working hours and workload increased, they were exhausted. Previous studies have found that nurses working during the COVID-19 pandemic have experienced physical and mental problems, including insomnia, depression, fatigue and a sense of helplessness (Lai et al., 2020; Sun et al., 2020). Healthcare professionals carry out their duties while wearing protective equipment so that they do not become infected with or transmit COVID-19 to others (Coşkun Şimşek & Günay, 2021; Huang, Liu, et al., 2020; Huang, Wang, et al., 2020; Lai et al., 2020; Patricia & Apriyeni, 2021; Rose et al., 2021; Sun et al., 2020). Neonatal nurses who participated in the study stated that they wore protective equipment to prevent COVID-19 pandemic from spreading and they added that it was tiring to work this way and their motivation was negatively affected. In their study, Chen et al. found that nurses had difficulties in performing their duties while wearing protective equipment (Chen et al., 2021). Working under these intense and difficult conditions has negatively affected healthcare professionals both physically and psychologically (Coşkun Şimşek & Günay, 2021; Huang, Liu, et al., 2020; Huang, Wang, et al., 2020; Lai et al., 2020; Patricia & Apriyeni, 2021; Rose et al., 2021; Sun et al., 2020).

Practice implications

The COVID-19 pandemic has increased the workload of nurses, who are at the forefront in the fight against the pandemic. Neonatal nurses have had arguments with parents because the parents did not want to follow the rules in the fight against COVID-19. In addition, visitor restriction in the NICU has negatively affected parent–infant bonding. By increasing the number of nurses, the workload of nurses can be reduced and their motivation increased. Measures (such as wearing masks, washing hands, social isolation) can be taken to reduce the negative impact of reduced parent–infant bonding during the fight against COVID-19.

Limitations

The limitation of the study is the small sample size. Future studies should be based on a larger sample size.

Conclusion

This study examined the effects of the COVID-19 pandemic on nursing care and nurses' work in a neonatal intensive care unit. The study found that nurses performed kangaroo care practice less, they experienced conflicts with parents who did not follow safety precautions, they experienced burnout due to the increased number and length of shifts, and their motivation decreased.

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Ethical considerations

This study was approved by Inonu University Health Sciences Non-interventional Clinical Researches with the number 2021/2800. Neonatal nurses were informed about the aim and content of the study. It was stated that the study would be carried out on a voluntary basis. The nurses who participated in the study were informed that study data and their personal information would be kept confidential and the results obtained would be used for scientific purposes. Oral consent was given, and written consent was collected with informed consent forms. The study was conducted in accordance with the Declaration of Helsinki.

Credit authorship contribution statement

Didem Coşkun Şimşek: Conceptualization, Methodology, Software, Data curation, Writing – original draft, Visualization, Investigation, Writing – review & editing. **Ulviye Günay:** Conceptualization, Methodology, Software, Data curation, Writing – original draft, Visualization, Investigation, Supervision, Writing – review & editing. **Sümeyye Özarslan:** Conceptualization, Methodology, Software, Visualization, Investigation.

Declaration of Competing Interest

None.

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References

- Ashish, K., Gurung, R., Kinney, M. V., Sunny, A. K., Moinuddin, M., Basnet, O., ... Målvqvist, M. (2020). Effect of the COVID-19 pandemic response on intrapartum care, stillbirth, and neonatal mortality outcomes in Nepal: A prospective observational study. *The Lancet Global Health*, 8(10), e1273–e1281.
- Athanasopoulou, E., & Fox, J. R. (2014). Effects of kangaroo mother care on maternal mood and interaction patterns between parents and their preterm, low birth weight infants: A systematic review. *Infant Mental Health Journal*, 35(3), 245–262.
- Cai, S., Wu, L., Chen, D., Li, Y., Liu, Y., Fan, Y., ... Li, S. Y. (2020). Analysis of bronchoscope-guided tracheal intubation in 12 cases with COVID-19 under the personal protective equipment with positive pressure protective hood. *Zhonghua jie he he hu xi za zhi = Zhonghua jiejie he huxi zazhi = Chinese Journal of Tuberculosis and Respiratory Diseases*, 43, E033–E033.
- Cai, W., Lian, B., Song, X., Hou, T., Deng, G., & Li, H. (2020). A cross-sectional study on mental health among health care workers during the outbreak of Corona Virus Disease 2019. *Asian Journal of Psychiatry*, 51, Article 102111.
- Cao, Q., Chen, Y., Chen, C., Chen, C., & Chiu, C. (2020). SARS-CoV-2 infection in children: Transmission dynamics and clinical characteristics. *Journal of the Formosan Medical Association*, 119(3), 670.
- Cena, L., Biban, P., Janos, J., Lavelli, M., Langfus, J., Tsai, A., ... Stefana, A. (2021). The collateral impact of COVID-19 emergency on neonatal intensive care units and family-centered care: Challenges and opportunities. *Frontiers in Psychology*, 12.
- Chávez-Tostado, M., Chavez, K. V., López-Valenzuela, G., Hernández-Corona, D. M., González-Heredia, T., Fuentes-Orozco, C., & González-Ojeda, A. (2021). Postpartum depression and breastfeeding practices during the COVID-19 pandemic lockdown in Mexican mothers: A cross-sectional study. *Research Square*.
- Chen, F., Zang, Y., Liu, Y., Wang, X., & Lin, X. (2021). Dispatched nurses' experience of wearing full gear personal protective equipment to care for COVID-19 patients in China—A descriptive qualitative study. *Journal of Clinical Nursing*, 30(13–14), 2001–2014.
- Coşkun Şimşek, D., & Günay, U. (2021). Experiences of nurses who have children when caring for COVID-19 patients. *International Nursing Review*, 68(2), 219–227.
- Davidson, J. E., Aslakson, R. A., Long, A. C., Puntillo, K. A., Kross, E. K., Hart, J., ... Curtis, J. R. (2017). Guidelines for family-centered care in the neonatal, pediatric, and adult ICU. *Critical Care Medicine*, 45(1), 103–128.
- Deng, Q., Zhang, Y., Li, Q., Wang, H., & Xu, X. (2018). Factors that have an impact on knowledge, attitude and practice related to kangaroo care: National survey study among neonatal nurses. *Journal of Clinical Nursing*, 27(21–22), 4100–4111.
- Dündar, S. A., Bayat, M., & Erdem, E. (2011). Levels and organization of neonatal units. *Journal of Health Science*, 20(2), 137–142.
- Graham, W. J., Afolabi, B., Benova, L., Campbell, O. M. R., Filippi, V., Nakimuli, A., ... Ronsmans, C. (2020). Protecting hard-won gains for mothers and newborns in low-income and middle-income countries in the face of COVID-19: Call for a service safety net. *BMJ Global Health*, 5(6), Article e002754.
- Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105–112.
- Güleşen, A., & Yıldız, D. (2013). Investigation of mother–infant attachment in the early postpartum period with evidence-based practices. *TAF Preventive Medicine Bulletin*, 12(2).
- Hake-Brooks, S., & Anderson, G. C. (2008). Kangaroo care and breastfeeding of mother–preterm infant dyads 0–18 months: A randomized, controlled trial. *Neonatal Network*, 27(3), 151–159.
- Heidarzadeh, M., Hosseini, M. B., Ershadmanesh, M., Tabari, M. G., & Khazae, S. (2013). The effect of kangaroo mother care (KMC) on breast feeding at the time of NICU discharge. *Iranian Red Crescent Medical Journal*, 15(4), 302.
- Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., ... Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*, 395(10223), 497–506.
- Huang, J., Liu, F., Teng, Z., Chen, J., Zhao, J., Wang, X., & Wu, R. (2020). Care for the psychological status of frontline medical staff fighting against Coronavirus Disease 2019 (COVID-19). *Clinical Infectious Diseases*, 71(12), 3268–3269.
- Kavlak, O. (2007). Attachment of the mother and father and the role of the nurse. *Journal of Ege University Faculty of Nursing*, 23(2), 183–194.
- Kc, A., Jha, A. K., Shrestha, M. P., Zhou, H., Gurung, A., Thapa, J., & Budhathoki, S. S. (2020). Trends for neonatal deaths in Nepal (2001–2016) to project progress towards the SDG target in 2030, and risk factor analyses to focus action. *Maternal and Child Health Journal*, 24(1), 5–14.
- Khalid, I., Khalid, T. J., Qabajah, M. R., Barnard, A. G., & Qushmaq, I. A. (2016). Healthcare workers emotions, perceived stressors and coping strategies during a MERS-CoV outbreak. *Clinical Medicine & Research*, 14(1), 7–14.
- Kim, H., Sefcik, J. S., & Bradway, C. (2017). Characteristics of qualitative descriptive studies: A systematic review. *Research in Nursing & Health*, 40(1), 23–42.
- Köse, D., Çınar, N., & Altınkaynak, S. (2013). The bonding process of the newborn with the mother and father. *Hi*, 22(6), 239–245.
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., ... Hu, S. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, 3(3), e203976–e203976.
- Lemmon, M. E., Chapman, I., Malcolm, W., Kelley, K., Shaw, R. J., Milazzo, A., ... Hintz, S. R. (2020). Beyond the first wave: Consequences of COVID-19 on high-risk infants and families. *American Journal of Perinatology*, 37(12), 1283–1288.
- Ludington-Hoe, S. M., Morgan, K., & Abouelfetoh, A. (2008). A clinical guideline for implementation of kangaroo care with premature infants of 30 or more weeks' postmenstrual age. *Advances in Neonatal Care*, 8(3), S3–S23.
- Makoni, M. (2020). Africa prepares for coronavirus. *The Lancet*, 395(10223), 483.
- Menendez, C., Gonzalez, R., Donnay, F., & Leke, R. G. (2020). Avoiding indirect effects of COVID-19 on maternal and child health. *The Lancet Global Health*, 8(7), e863–e864.
- Minckas, N., Medvedev, M. M., Adejuyigbe, E. A., Brotherton, H., Chellani, H., Estifanos, A. S., ... Yoshida, S. (2021). Small and Sick Newborn Care Collaborative Group. (2021). Preterm care during the COVID-19 pandemic: A comparative risk analysis of neonatal deaths averted by kangaroo mother care versus mortality due to SARS-CoV-2 infection. *EClinicalMedicine*, 33, Article 100733.
- Ministry of Health of the Republic of Turkey, 2019.
- Öztürk, C., & Dije, A. (2014). Family-centered care in pediatric nursing. *Dokuz Eylul University Faculty of Nursing Electronic Journal*, 7(4), 315–320.
- Patricia, H., & Aprieny, E. (2021). Determinant factors of psychological well being nurses on the frontline against the Covid-19 pandemic. Paper presented at the 2nd Syedza Sainitika International Conference on Nursing, Midwifery, Medical Laboratory Technology, Public Health, and Health Information Management (SeSICNiMIPH 2021).
- Rao, S. P., Minckas, N., Medvedev, M. M., Gathara, D., Prashantha, Y., Estifanos, A. S., ... Tumukunde, V. on behalf of the COVID-19 Small and Sick Newborn Care Collaborative Group. (2021). Small and sick newborn care during the COVID-19 pandemic: Global survey and thematic analysis of healthcare providers' voices and experiences. *BMJ Global Health*, 6(3), Article e004347.
- Reznik, A., Gritsenko, V., Konstantinov, V., Khamenka, N., & Isralowitz, R. (2020). COVID-19 fear in Eastern Europe: Validation of the fear of COVID-19 scale. *International Journal of Mental Health and Addiction*, 1.
- Rose, S., Hartnett, J., & Pillai, S. (2021). Healthcare worker's emotions, perceived stressors and coping mechanisms during the COVID-19 pandemic. *PLoS One*, 16(7), Article e0254252.
- Sarman, A., & Tuncay, S. (2021). Principles of approach to suspected or infected patients related Covid-19 in newborn intensive care unit and pediatric intensive care unit. *Perspectives in Psychiatric Care*, 57(2), 957–964.
- Semaan, A., Audet, C., Huysmans, E., Afolabi, B., Assarag, B., Banke-Thomas, A., ... Benova, L. (2020). Voices from the frontline: Findings from a thematic analysis of a rapid online global survey of maternal and newborn health professionals facing the COVID-19 pandemic. *BMJ Global Health*, 5(6), Article e002967.
- Sethi, A., Aamir, H. S., Sethi, B. A., Ghani, N., & Saboor, S. (2020). Impact on frontline nurses in the fight against coronavirus disease. *Annals of King Edward Medical University*, 26 (Special Issue), 120–125.
- Shattnawi, K. K., Al-Ali, N., & Alnuaimi, K. (2019). Neonatal nurses' knowledge and beliefs about kangaroo mother care in neonatal intensive care units: A descriptive, cross-sectional study. *Nursing & Health Sciences*, 21(3), 352–358.
- Sinyor, M., Knipe, D., Borges, G., Ueda, M., Pirkis, J., Phillips, M. R., ... Collaboration, I. C. -S. P. R. (2021). Suicide risk and prevention during the COVID-19 pandemic: One year on. *Archives of Suicide Research*, 1–6.
- Sun, N., Wei, L., Shi, S., Jiao, D., Song, R., Ma, L., ... Wang, H. (2020). A qualitative study on the psychological experience of caregivers of COVID-19 patients. *American Journal of Infection Control*, 48(6), 592–598.
- Sweeney, S., Rothstein, R., Visintainer, P., Rothstein, R., & Singh, R. (2017). Impact of kangaroo care on parental anxiety level and parenting skills for preterm infants in the neonatal intensive care unit. *Journal of Neonatal Nursing*, 23(3), 151–158.
- Tosun, A., & Tüfekçi, F. G. (2015). Investigation of family-centered care practices in pediatric clinics. *Anatolian Journal of Nursing and Health Sciences*, 18(2), 131–139.
- Valizadeh, L., Ajoodaniyan, N., Namnabati, M., & Zamanzadeh, V. (2013). Nurses' viewpoint about the impact of kangaroo mother care on the mother–infant attachment. *Journal of Neonatal Nursing*, 19(1), 38–43.
- World Health Organization (2019). Coronavirus disease (COVID-19) advice for the public: When and how to use masks. Retrieved from <https://www.who.int/diseases>.

Further reading

What should be done to protect from COVID-19? www.who.int (2022). (Accessed 20 January 2022).