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Obstacles to Parents' Interaction with Neonates in Neonatal Intensive Care Units from Parents' and Nurses' Points of View

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ABSTRACT

Background: This study aimed to identify the most important obstacles to proper interaction of parents with their neonates who were hospitalized in neonatal intensive care units (NICUs).
Methods: This descriptive cross-sectional study was conducted on 90 NICU nurses and 400 female and male parents using census and convenience sampling methods. To collect data, in a period of three months, a researcher-made questionnaire was prepared, including the factors threatening the parents' interaction with their neonates in NICUs. Data analysis was performed using the descriptive statistics including the number, percentage and mean scores of responses in SPSS software (version 16).
***Results*:** By calculating the mean scores of responses, from the nurses' points of view, "feeling of emotional discomfort due to being away from the neonate" (3.63) and "nurses' not understanding parents since they have no children" (1.42) were the most and the least important factors, respectively. From the mothers' points of view, "parental stress due to the neonate's hospitalization" (3.47), and "the maternity wards being away from NICUs" (1.37) were the most and the least important factors, respectively. Also, the most and the least important obstacles in the perspectives of the fathers were "parental stress due to the neonate's hospitalization" (3.09) and "the unwanted neonate", respectively.
Conclusion: The results showed that the stress and tension of parents were the most influencing factor on the interaction of neonate-parent in NICUs. Some neonatal and organizational factors were considered less important as the barriers to neonate-parent interactions in these wards.

Keywords: Interaction, Neonate, Neonatal intensive care unit, Nurse, Parents

Introduction

Annually, 2%-9% of neonates need specialized care in neonatal intensive care units (NICUs) (1). By improving the chance of survival of these neonates, there is concern about developmental problems, future prognosis, and their quality of life. A wide range of developmental issues is evidenced in these neonates (2). One of the explanations for these problems is an impaired process of parent-neonate interactions, which results in the neonate's not having normal growth and development (3).

In spite of an increased chance of survival for these neonates, the parents whose neonates are hospitalized in NICUs are still concerned about this event (4). They may think that their neonates are not healthy and expect the death of their child. As a result, the relationship between the parents and the neonates are tremendously affected (5). The parent-neonate interaction has an important effect on the child's physical, psychological, and intellectual development (6). The most common reported interactions of parents with neonates in NICUs are as follows: they avoid hugging the neonate, try not to love the neonate, and emotionally are prepared for losing the baby (4).

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The lack of proper interactions leads to the insecurity of the neonate and has a negative impact on the normal intellectual, linguistic, psychological, social, and cognitive development (7, 8). Parent-neonate interactions affect the process of bonding and attachment the quality of which depends on the health status of the parents and neonates, environmental factors, and the quality of care received by neonates. This process begins in the pregnancy period and develops after birth, in the first few weeks, with the presence of the newborn in the family (9).

Some researchers consider the first 45-60 min after birth as a vital period for the mother's contact with the neonate. Despite some criticisms against considering this short period relevant or imperative, the initial contact between the neonate and mother is important for the initiation of attachment and bonding process (6). The risk of interaction impairment between parents and neonates increases with the admission of the newborn in the NICU.

The results of a study revealed that mothers whose neonates are admitted in NICUs are more likely to ignore and refrain from interacting with the neonate (10). The findings of another study that explored parents' experience of having a hospitalized neonate in NICU showed that their interaction with neonates is tremendously affected by the atmosphere and condition of the ward (8).

Having eye contact with the neonate, talking to the baby, and touching the whole body with fingers in a loving manner form the basis of the initial engagement. This makes parents feel good and encourages them to take care of the neonate more responsibly (11), while the parents of hospitalized sick neonates are less likely to participate in activities than parents of normal babies (2, 12, 13).

Nowadays, much emphasis has been placed on the involvement of parents in the early care of the neonate and early intervention to enable the neonate's communication with parents. Facilitating parental interaction with the neonate has become a standard of care in NICUs (14, 15). Without good interaction between the parents and neonates in NICUs, the parents cannot be expected to give the neonates sufficient care after discharge. The nutritional problems, lack of weight gain, and re-hospitalization are among the problems reported in this regard (16).

The benefits of positive interaction of parents with the hospitalized neonates include improving the physiological and behavioral responses of the neonates, as well as reducing the parents stress and anxiety that empower them and reduce the period of hospitalization and financial burden of a longer stay (17). Considering the fact that there has been no study conducted on the obstacles to parental interactions in NICUs in Iran, this study aimed to investigate these obstacles from the parents' and NICU nurses' viewpoints in the selected hospitals of Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Methods

This cross-sectional descriptive study was conducted on the parents of the neonates admitted to the NICUs and the nurses working in these departments in the selected hospitals of Shahid Beheshti University of Medical Sciences in Tehran, Iran. In this study, using the following formula and taking into account the 95% confidence interval, the error margin of 0.05, the standard deviation of 14, and the difference with the mean score of not more than 2, the sample size of 190 for each group of parents was obtained. Therefore, 200 mothers and 200 fathers were included in this study (18).

$$n = \frac{z^2_{\alpha/2}\sigma^2}{d^2}$$

The selection criteria for parents' participation in the study included the hospitalization of their neonates in NICUs for more than 48 h, the willingness to participate in the study, and the adequate Persian language skills to answer the questions. An incomplete answer to the questionnaire was considered as a reason for the exclusion from the project. The sampling was not done in the nurses' population and just 90 nurses who worked in the NICUs of Mahdieh, Imam Hossein, Mofid, Ayatollah Taleghani, and Shohdaye Tajrish hospitals participated in this study in the three months of the study. The nursing standards for entering the study were having at least one year of work experience in NICUs and having at least a bachelor degree in nursing.

The tool of the study was a researchers-made questionnaire. For proper design of this tool, a deep and systematic review of the related literature was initially undertaken. In order to increase the validity of the questionnaire, a focused group method was used to adjust the questionnaire, along with the literature review. By

this method, the parents and nurses were interviewed in separate groups of 10 people.

These 45-60 min sessions were conducted in the mothers' restrooms (for parents) and nurses' restrooms (for nurses) of the NICUs by arranging the time with the participants. Discussions at these meetings first began with a brief introduction regarding the parent-neonate interaction. Then, the obstacles to this interaction were discussed in the NICUs with the participants. With the permission of the participants, the discussion was recorded with an MP3 Player. Finally, all the written and recorded information was reviewed and the most important and frequent obstacles to parental interaction were prioritized.

Based on a quantitative content analysis, the obtained data from the literature review, and focused group interviews, a questionnaire was designed entitled "Obstacles to parental interactions with neonates in NICUs from the parents' and nurses' points of view". The questionnaire had two parts, including 1) the demographic information of parents and nurses such as the age, gender, number of children, education, occupation (for parents), work record (for nurses), reasons for admission, duration of admission, and diagnosis of the neonate (for parents) and 2) 40 items about the main obstacles to parents' and neonates' interaction.

The face and content validity and the stability of the designed questionnaire were defined. In order to define content validity, the first questionnaire with 47 items was handed to 11 professors specialized in NICU nursing, pediatric nursing and neonatology. The content validity ratio was obtained as 0.62. Also, using the content validity index, the items were examined for clarity, simplicity, and relevance which led to the removal of seven questions (19).

The final 40-item questionnaire was made based on the Likert scale with five options for the answers (strongly agree, agree, neutral/ undecided, strongly disagree, and disagree). In order to measure the stability of the test, re-test and internal consistency of the Cronbach's alpha coefficient were used. First, a questionnaire was given to 20 parents and 20 nurses who met the inclusion criteria for participating in the study and they filled out the questionnaires.

Two weeks later, the questionnaire was again given to the same individuals, and then the intra-class correlation coefficient was measured (20). This factor was 89% for the parents' questionnaire and 87% for the nurses' questionnaire (P=0.001), which is totally in the acceptable range. The Cronbach's alpha coefficients were 0.91 for the parents' questionnaire and 0.90 for the nurses' questionnaire (P=0.001). It should be noted that these two questionnaires did not differ regarding the survey questions. They just differed in the section related to demographic information.

After the finalization of the questionnaire with the permission of the Ethics Committee of Shahid Beheshti University of Medical Sciences (IR.SBMU. PHMN.1385.690), the researcher referred to the selected hospitals (one day a week to each hospital) in the morning and afternoon shifts. The nurses' questionnaires were delivered to the head nurses of the relevant wards and the completed questionnaires were collected one week later.

Regarding the parents, the first author of this article, as the main researcher, selected the parents who met the criteria for participating in the study, and these parents completed the questionnaires in her presence. The data were collected by SPSS software (version 16) and analysed using descriptive statistics (i.e., percentage and frequency).

Results

This study was carried out on a total of 200 fathers, 200 mothers, and 90 nurses from the five NICUs of the selected hospitals. Table 1 shows some demographic information of the participants. Table 2 and 3 show the most and the least five important threatening factors for the parental interaction with the neonates from the participants' points of view. The scores, recommended by statistician, were simplified as a fraction of four that was just a conventional number in this study. As it was shown, from the nurses' points of view, "feeling of emotional discomfort due to being away from the neonate" (3.63) and "nurses' not understanding parents since they have no children" (1.42) were the most and the least important factors, respectively.

From the mothers' points of view, "parental stress due to the neonate's hospitalization" (3.47), and "the maternity wards being away from NICUs" (1.37) were the most and the least important factors, respectively. Also, the most and the least important obstacles from the perspectives of the fathers were "parental stress due to the neonate's hospitalization" (3.09) and "the unwanted newborn".

Table 1. Demographic information of studied parents and nurses

		Fathers	Mothers	Nurses
Age group	20-25 years	31	9	-
	26-30 years	65	59	-
	31-35 years	87	83	38
	36 and more	17	33	52
	Total	200	200	90
Educational status	Up to high school diploma	34	31	-
	Diploma	115	120	-
	Bachelor degree	49	40	83
	Master degree and higher	2	9	7
	Total	200	200	90
Number of children (n=200)	One	115		47
	Two	66		28
	Three and more	19		15
	Total	200		90
Gestational age of neonates (n=200)	25-30 weeks	22		-
	31-35 weeks	87		-
	36-40 weeks	74		-
	41 and more	17		-
	Total	200		-
Birth weight (n=200)	Under 1000 gr	16		-
	100-2000 gr	70		-
	200-3000 gr	78		-
	3001 and more	36		-
	Total	200		-
Gender of neonates	Male	96		-
	Female	104		-
	Total	200		
Experience of nursing in neonatal intensive care units	1-5 years	-		45
	6-10 years	-		28
	11 and more	-		17
	Total			90

Table 2. Five most important obstacles for parental interaction with neonates in neonatal intensive care units (NICUs) from mothers' points of view of hospitalized neonates in NICUs

Items		Amount of agreement					
		Strongly agree n (%)	Agree n (%)	Neutral/ Undecided n (%)	Disagree n (%)	Strongly Disagree n (%)	The mean of responses from 4
Mothers	Parental stress due to neonate's hospitalization	109 (54.5)	79 (39.5)	9 (4.5)	3 (1.5)	0(0)	3.47
	Feeling of lack of family support	69 (34.5)	85 (42.5)	15 (7.5)	25 (12.5)	6 (3)	2.93
	Fear of infection transmission to neonate	66 (33)	84 (42)	18 (9)	30 (15)	2(1)	2.91
	Fear of losing neonate	65 (32.5)	78 (39)	15 (7.5)	39 (29.5)	3 (1.5)	2.81
	Lack of parental involvement in care-giving to neonates by NICU staff	58 (29)	80 (40)	29 (14.5)	27 (13.5)	6 (3)	2.73
Fathers	Parental stress due to neonate's hospitalization	53 (25)	118 (55.7)	23 (1.80)	6 (2.8)	0 (0)	3.09
	personal parental issues (like being away from each other, road trip, job problems, and family disputes)	38 (19)	126 (63)	20 (10)	16 (8)	0 (0)	2.93
	Concern for hospital costs	44 (22)	97 (48.5)	14 (7)	45 (2.52)	0 (0)	2.70
	Concern for other children at home	47 (22.2)	78 (36.8)	37 (1.57)	37 (1.57)	1(5)	2.66
Nurses	Feeling of emotional distress due to being away from neonate	25 (27.77)	53 (58.88)	7 (7.77)	5 (5.55)	0 (0)	3.63
	Parental stress due to neonate's hospitalization	50 (44.44)	40 (55.44)	0 (0)	0 (0)	0 (0)	3.55
	Maternal postpartum fragility	28 (31.11)	52 (57.77)	8 (8.88)	2 (2.22)	0 (0)	3.54
	Fear of touching neonate due to attached devices	30 (33.33)	45 (50)	5 (5.55)	6 (6.7)	3 (4.44)	3.50
	Concern about others' reaction to situation	21 (23.3)	46 (51.1)	15 (16.7)	6 (6.7)	0 (0)	3.48

NICU: neonatal intensive care unit

Table 3. Five least important obstacles for parental interaction with neonates in neonatal intensive care units from participants' points of view

Items		Amount of agreement					
		Strongly agree n (%)	Agree n (%)	Neutral/ Undecided n (%)	Disagree n (%)	Strongly Disagree n (%)	The mean of responses from 4
Mothers	Maternity wards being away from neonatal intensive care units	9 (4.5)	32 (16)	21 (10.5)	101 (55.5)	37 (1.58)	1.37
	Unwanted neonate	69 (34.5)	85 (42.5)	15(7.5)	25 (12.5)	6 (3)	2.93
	Birth of neonate with gender not expected by parents	11 (5.5)	14 (7)	23 (11.5)	116 (58)	35 (15.7)	1.40
	Daunting and unsecure environment of neonatal intensive care units	12 (6)	33(1.56)	29 (14.5)	100 (50)	25 (2.52)	1.58
	Inappropriate environmental conditions in neonates wards, such as improper light and noise	21 (10.5)	46 (23)	26 (13)	81 (50.4)	26 (13)	1.77
Fathers	Unwanted newborn	3 (1.5)	16 (8)	45 (22.5)	90 (45.5)	46 (23)	1.20
	Maternity wards being away from neonatal intensive care units	0 (0)	14 (7)	24 (12)	153 (76.5)	9 (4.5)	1.21
	Inappropriate visiting hours or time of being by neonate's bedside	19 (9.5)	39 (19.5)	33 (16.5)	72 (36)	37 (1.58)	1.65
	Inappropriate environmental conditions in neonates wards, such as improper light and noise	4 (2)	58 (28)	33 (16.5)	92 (46)	13 (6.5)	1.74
Nurses	Birth of a neonate with a gender not expected by parents	22 (11)	54 (27)	10 (5)	51 (25.5)	53 (2.56)	1.80
	Nurses' not understanding parents since they have no children	4 (4.4)	13 (14.4)	16 (17.8)	41(45.6)	16(17.8)	1.42
	Nurses' negligence of parental interaction with neonate	2 (2.2)	19 (21.1)	7(7.8)	50 (55.6)	12(13.3)	1.43
	Not familiar nurses with parental psychological conditions	2 (2.2)	22 (24.2)	11 (12.2)	44 (48.9)	11 (12.2)	1.55
	Nurses' negligence of encouraging parents to hug their neonates	4 (4.4)	19 (21.1)	7 (7.8)	48 (53.3)	12 (13.3)	1.50
	Lack of parental involvement in neonatal comfort care by neonatal intensive care unit staff	10 (11.1)	20 (22.2)	10 (11.1)	36 (40)	14 (15.6)	1.73

Discussion

This study assessed the perspectives of NICU nurses and parents about the most important barriers of neonate-parent interaction in NICUs. Based on the results, the nurses have attributed most of these obstacles to the factors that are related to parents and not nursing function. In some other studies, it was shown that nurses usually overestimate the efficacy of their care, while parents express more attention and consideration (5, 21).

However, according to the results of a review carried out by Franklin, it was suggested that nursing measures in NICUs should be based on family-centered care that encourages optimum parent-child interaction (6, 22). Enhancing and facilitating frequent parental visits in NICUs, even allowing a 24-hour presence at neonates' bedside, taking measures to reduce the physical and mental discomfort of the new mothers, increasing physical parental contacts with neonates through methods, such as kangaroo care, and providing parental care for neonates' primary care are the methods often recommended in studies to empower parents to take care of their neonates in NICUs in addition to reducing the new mothers' stress (23, 24, 25).

These methods do not need any complicated facilities and it is possible to improve these humanistic relations between parents and their babies in any kinds of NICUs. As a result, if the nurses are aware of their important role in implementing the principles of family-centered care, these mentioned obstacles will be removed. However, among the primary responsibilities of NICU nurses are reducing the stress of parents with neonates, especially mothers, supporting them, and enhancing parent-neonate relation (23). The nurses participating in this study seem to be unaware of the implementation of family-centered care principles.

In a study conducted by Mirlashari et al. in 2015, the most important obstacles to implementing family-centered care in the NICUs of the affiliated hospitals of Tehran University of Medical Sciences, from the NICU nurses' points of view were related to individual parental factors. Nonetheless, these researchers emphasized organizational factors as the most important obstacles mentioned in the global studies for providing family-cantered care (24).

In a qualitative study conducted by Moghaddam et al. (2017), about the obstacles of parenting in mothers with premature neonates in NICUs, the emphasis was placed on the important role of NICU nurses to provide information for parents and reduce the maternal stress caused by mothers' fragility and neonates' admission in NICUs (25). It should be mentioned that due to the focus on the tasks related to the neonates' treatment, as well as managerial and organizational causes, such as the lack of time, personnel, and experience, along with professional knowledge, NICU nurses ignore the importance of sympathizing with the neonates' families. This finding results in a lack of attention to parents and their integrity (24, 26).

This fact is consistent with what the selected parents in this study have mentioned as the obstacles to their interaction with their neonates. From these parents' points of view, parental stress, personal problems, the lack of training in interacting with neonates, the lack of experience, the lack of information provided by nurses, and the fear of transmission of infections to the neonate were the main obstacles to the parental interaction with neonates in NICUs. This finding suggests a lack of family-centered care in these wards.

There was a consensus among the three groups in this study in selecting the tension/stress factor as the most important obstacle to parents' interaction with their neonates in NICUs. This is consistent with the results of other studies claiming that stress is an important obstacle that prevents parents from having an effective role in NICUs (22, 27). In fact, the existence of parents' tension and its damaging effects on many parental and neonate variables have been supported in many studies (28, 29).

In a study carried out on the parental perceptions of NICU issues in Iran, most parents were aware of the importance of their presence in NICUs. However, they did not feel empowered to participate in post-discharge care that was mostly due to the high level of tension they were experiencing. On the other hand, according to the results of the mentioned study, it was found that the parents' high level of stress was not managed and relieved, while it is one of the main obstacles to parental interaction with neonates and parental duties (30).

Indeed, reducing parental tensions can be considered a care priority (22). Providing this care will have successful psychological effects on parents, as well as resulting in empowerment, better management of grief process, more effective care at home, and the improvement of the process of bonding/attachment with the infant (18, 31). These factors are successful in influencing the neonate-related variables and can accelerate their recovery and better long-term outcomes (32).

It is well-established that neonate-related factors, as well as the environment of the NICU with the connection of devices to the neonate and the parents' lack of familiarity with existing technologies, are important factors in causing parental stress and considered obstacles to initiating parental interaction with the neonate in other studies (18, 23, 26). In this study, the neonate-related items were not among the most important obstacles in any of the three groups of mothers', fathers', and nurses' points of view. In a qualitative study carried out of Moghaddam et al. (2017), it is suggested that the Iranian mothers choose the emotional relation as a method of creating a secure and strong attachment and bond with extremely non-healthy neonates who cannot be hugged (25).

On the other hand, the structure of various service-providing organizations in Iran is not customer-centered (33). Thus the parents participating in this study did not expect the NICUs to be an ideal environment with sufficient facilities for their presence, despite emphasizing their opinion on organizational factors, such as improper mothers' rest place, not being able/ allowed to remain on NICUs, or the lack of familiarity with the horrifying nursing technology in NICUs. This is also supported in other studies that the parents with neonates in NICUs mostly emphasized the importance of support and training in parental stress management and other issues related to the admission of their neonates rather than their own welfare issues (34).

Conclusion

In sum, parents mostly point to the insufficiency in providing empowerment-based care, support for reducing their tension, and the lack of required information provided by NICU nurses as the main obstacles to the interaction with their neonates in NICUs. On the other hand, the nurses' viewpoints are mostly based on the factors that are not the result of their lack of skill or inadequate knowledge.

The factors related to the structure of NICUs or neonates themselves were regarded as less important from the parents' point of view that is consistent with the expectations of the Iranian care seekers. Due to the fact that this study was conducted in the hospitals of Shahid Beheshti

University of Medical Sciences, its results cannot be generalized to non-educational hospitals and the hospitals affiliated to other universities of Tehran, Iran.

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Conflicts of interests

None declared.

References

1. Valizadeh L, Zamanzadeh V, Akbarbegloo M, Sayadi L. Importance and availability of nursing support for mothers in NICU: a comparison of opinionsi of Iranian mothers and nurses. Iran J Pediatr. 2012; 22(2):191-5.
2. Valizadeh L, Ajoodaniyan N, Namnabati M, Zamanzadeh V. Nurses' viewpoint about the impact of Kangaroo mother care on the mother–neonate attachment. J Neonatal Nurs. 2013; 19(1):38-43.
3. Tooten A, Hoffenkamp HN, Hall RA, Winkel FW, Eliëns M, Vingerhoets AJ, et al. The effectiveness of video interaction guidance in parents of premature neonates: a multicenter randomised controlled trial. BMC Pediatr. 2012; 12(1):76-9.
4. Fegran L, Helseth S, Fagermoen MS. A comparison of mothers' and fathers' experiences of the attachmentprocess in a neonatal intensive care unit. J Clin Nurs. 2008; 17(6):810-6.
5. Howland LC. Preterm birth: implications for family stress and coping. Newborn Infant Nurs Rev. 2007; 7(1):14-9.
6. Franklin C. The neonatal nurse's rolein parental attachment in the NICU. Crit Care Nurs Quart. 2006; 29(1):81-5.
7. Moran TS. The importance of access to benefits under the family medical leave act for low-income families for bonding and attachment facilitation with a fragile neonate and the role of the social worker. 21st Century Soc Justice. 2014; 1(1):1.
8. Pisoni C, Garofoli F, Tzialla C, Orcesi S, Spinillo A, Politi P, et al. Risk and protective factors in maternal–fetal attachment development. Early Hum Dev. 2014; 90(Suppl 2):S45-6.
9. Flacking R, Lehtonen L, Thomson G, Axelin A, Ahlqvist S, Moran VH, et al. Closeness and separation in neonatal intensive care. Acta Paediatr. 2012; 101(10):1032-7.
10. Tilokskulchai F, Phatthanasiriwethin S, Vichitsukon K, Serisathien Y. Attachment behaviors in mothers of premature neonates: a descriptive study in Thai mothers. J Perinat Neonatal Nurs. 2002; 16(3):69-83.
11. Jones L, Woodhouse D, Rowe J. Effective nurse parent communication: a study of parents' perceptions in the NICU environment. Patient Educ Counsel. 2007; 69(1-3):206-12.
12. Lariviere J, Rennick JE. Parent picture-book reading to neonates in the neonatal intensive care unit as an intervention supporting parent-neonate interaction and later book reading. J Dev Behav Pediatr. 2011; 32(2):146-52.
13. Rosenberg SA, Robinson CC, Beckman PJ. Measures of parent-neonate interaction: an overview. Topics Early Childhood Spec Educ. 1986; 6(2):32.
14. Guillaume S, Michelin N, Amrani E, Benier B, Durrmeyer X, Lescure S, et al. Parents' expectations of staff in the early bonding process with their premature babies in the intensive care setting: a qualitative multicenter study with 60 parents. BMC Pediatr. 2013; 13(1):18.
15. Melnyk BM, Feinstein NF, Alpert-Gillis L, Fairbanks HF, Crean RA, Sinkin PW, et al. Reducing premature neonates' length of stay and improving parents' mental health outcomes with the creating opportunities for parent empowerment (COPE) neonatal intensive care unit program. A randomized, controlled trial. Pediatrics. 2005; 118(5):e1414-27.
16. Melnyk BM, Crean HF, Feinstein NF, Fairbanks E. Maternal anxiety and depression after a premature neonate's discharge from the neonatal intensive care unit. Nurs Res. 2008; 57(6):383-94.
17. Schoenherr J, Rubarth LB, Schneider S, Vlcan L. Parental interaction in the neonatal Intensive Care Unit (NICU). Nebraska: Creighton University; 2013.
18. Browner WS, Newman TB, Hulley SB. Estimating sample size and power: applications and examples. Design Clin Res. 2007; 3:367.
19. Lawshe CH. A quantitative approach to content validity. Person Psychol. 1975; 28(4):563-75.
20. Feldt LS. The sampling theory for the intraclass reliability coefficient. Appl Measurem Educ. 1990; 3(4):361-7.
21. Maastrup R, Weis J, Engsig AB, Johannsen KL, Zoffmann V. Now she has become my daughter: parents' early experiences of skin-to-skin contact with extremely preterm neonates. Scand J Car Sci. 2018; 32(2):545-53.
22. Purdy IB, Melwak MA, Smith JR, Kenner C, Chuffo-Siewert R, Ryan DJ, et al. Neonatal nurses NICU quality improvement: embracing EBP recommendations to provide parent psychosocial support. Adv Neonatal Care. 2017; 17(1):33-44.
23. Cross J. Neuroprotective core measure 7: optimizing nutrition-breastfeeding, human milk and attachment. Newborn Neonate Nurs Rev. 2015; 15(3):128-31.
24. Mirlashari J, Sadeghi T, Sagheb S, Khanmohammadzadeh T. Nurses' and physicians' perspective about barriers to implement family centered care in

neonatal intensive care units. Iran J Nurs. 2015; 28(93):140-50.

25. Moghaddam Tabrizi F, Alizadeh S, Radfar M. Barriers of parenting in mothers with a very low-birth-weight preterm neonate, and their coping strategies: a qualitative study. Int J Pediatr. 2017; 5(9):5597-608.
26. Khan S. An integrative review of nurses' perspectives of family-centered care practice in the level III NICU: addressing persisting barriers. [Master Thesis]. Canada: University of Victoria; 2015.
27. Phuma-Ngaiyaye E, Kalembo FW. Supporting mothers to bond with their newborn babies: Strategies used in a neonatal intensive care unit at a tertiary hospital in Malawi. Int J Nurs Sci. 2016; 3(4):362-6.
28. Valizadeh L, Zamanzadeh V, Mohammadi E, Arzani A. Continuous and multiple waves of emotional responses: Mother's experience with a premature neonate. Iran J Nurs Midwifery Res. 2014; 19(4):340.
29. Sharifnia M, Hasanzadeh MH, Asadi Kakhaki SM, Mazlom SR, Karbandi S. The impact of praying on stress and anxiety in mothers with premature neonates admitted to NICU. Iran J Neonatol. 2016; 7(4):15-22.
30. Khalesi N, Anjom FS, Rezaeiezadeh G, Farahani Z. Evaluation of parents' awareness and knowledge about problems and issues related to their premature neonates in an Iranian hospital. Open J Nurs. 2015; 5(5):465.
31. Geller PA, Bonacquisti A, Patterson CA. Maternal experience of neonatal intensive care unit hospitalization: trauma exposure and psychosocial responses. Motherhood in the face of trauma. New York: Springer; 2018. P. 227-47.
32. Maree C, Downes F. Trends in family-centered care in neonatal intensive care. J Perinatal Neonatal Nurs. 2016; 30(3):265-9.
33. Ghahramanian A, Rezaei T, Abdullahzadeh F, Sheikhalipour Z, Dianat I. Quality of healthcare services and its relationship with patient safety culture and nurse-physician professional communication. Health Promot Perspect. 2017; 7(3):168.
34. Johnson AN. Promoting maternal confidence in the NICU. J Pediatr Health Care. 2008; 22(4):254-7.