



Research article

Nurse-mother communication and support: Perceptions of mothers in neonatal units

Farnoosh Tajik^{a,b}, Marzieh Mahmoodi^c, Parviz Azodi^d, Faezeh Jahanpour^{e,*}

^a Department of Pediatric and Neonatal nursing, School of Nursing and Midwifery, Semnan University of Medical Sciences, Semnan, Iran

^b MSc in Pediatric Nursing, Nursing and Midwifery Department, Member of Student Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran

^c Biostatistics and Epidemiology Department, Health and Nutrition Faculty, Clinical Research Development Center, Bushehr University of Medical Sciences, Bushehr, Iran

^d Paramedical Sciences Department, Bushehr University of Medical Sciences, Bushehr, Iran

^e Nursing and Midwifery Department, Bushehr University of Medical Sciences, Bushehr, Iran

ARTICLE INFO

Keywords:

Mothers
Family-centered care
Family nursing
Support
Communication

ABSTRACT

Introduction: Having a hospitalized neonate is a stressful experience for parents, especially mothers. Thus, in recent years, a paradigm shift occurred in the neonatal units, focusing on the needs of parents and supporting them in addition to caring for neonates. The aim of this study was to evaluate the nurse-mother communication and support in neonatal units in Bushehr, Iran.

Method: This descriptive cross-sectional study was performed in neonatal units of 6 hospitals in Bushehr, Iran, in 2022. Using the census method, all eligible mothers who met the inclusion criteria were included in this study. Data collection tools included demographic information form, nurse-parent support tool and nurse-parent communication questionnaire. The collected data were analyzed by SPSS version 24 using descriptive statistics, independent *t*-test, one-way ANOVA and Pearson correlation test.

Results: The total mean score of nurse-parent support tool was 3.72 ± 0.72 and the total mean score of nurse-parent communication questionnaire was $59/27 \pm 12/82$. Caregiving support had the highest mean score ($4.07 \pm 73.0.73$) and emotional support had the lowest ($3.42 \pm 91.0.91$). Also, a statistically significant difference was seen between the admitted unit variable and the mean score of nurse-mother communication and support. Additionally, there was a statistically significant difference between the mechanical ventilation status of the neonate and the mean score of nurse-mother support. A significant positive correlation was seen between the neonatal gestational age and the mean score of nurse-mother communication.

Conclusions: The total mean score of nurse-parent support and communication was moderate. Therefore, nursing support and communication need to be improved. Planning is needed to enhance the role of neonatal nurses and strengthen their support and communication skills in line with the family-centered care approach.

* Corresponding author. University of Bushehr, Bushehr, Iran.

E-mail address: f.jahanpour@yahoo.com (F. Jahanpour).

1. What is already known

- Having a hospitalized newborn is a highly stressful experience for mothers.
- In recent years, there has been a paradigm shift in neonatal care.
- Despite the undeniable importance of nursing communication and support in neonatal units, still there is a research gap.

2. What this paper adds

- The results of the present study revealed that mothers' perceptions of nurse-mother communication and support were at a moderate level.
- The lowest and highest levels of support were observed in the domains of emotional support and caregiving support.
- It is imperative to enhance the role of neonatal nurses and fortify their communication and supportive competencies.

3. Background

The birth of a newborn marks the beginning of a new journey for parents, significantly influencing their lives [1,2]. Therefore, nursing support plays an essential role especially when the newborn is admitted to the neonatal intensive care unit (NICU) due to prematurity or other health conditions, because this situation can create substantial stress on the parental role and the family system as a whole [3]. In such circumstances, mothers often experience rapidly changing emotions [2]. Mothers who were expecting a healthy baby, may suddenly and unexpectedly find their newborn in an unfamiliar NICU environment, which leads to challenges in fulfilling their maternal role [4,5].

Mothers of hospitalized neonates in the NICU may even exhibit signs of acute stress and post-traumatic stress disorder symptoms in the long term [6] due to fears of infant mortality, complications, and subsequent disabilities [7,8]. These fears may be compounded by the high global infant mortality rate, with approximately 7000 infant deaths occurring daily [9]. In Iran, the overall prevalence of neonatal mortality has been reported to be 8.21 % [10].

A study has indicated that 15 to 63 percent of parents reported clinical symptoms of anxiety, depression, acute stress disorder, or post-traumatic stress disorder during the hospitalization of their infants [11]. Similarly, research conducted in Iran revealed that 73.8 % of parents of NICU-admitted neonates experienced severe stress, while only 20.9 % experienced moderate stress, and 5.2 % reported mild stress [12].

Having a hospitalized newborn is a highly stressful experience for parents, especially for mothers. This stress is cause of exposure to various stressors including the infant's condition, changes in parental roles, the NICU environment, and interactions with the staff. Consequently, parents undergo negative psychological effects, including anxiety, guilt, distress, hopelessness, fear, helplessness, and various other emotional and mental challenges. Furthermore, in such circumstances, the process of establishing a healthy attachment and bonding between the mother and the newborn can be disrupted or hindered [13]. Moreover, the establishment of attachment between the mother and the newborn in the early postpartum period is influenced by the mother's relationship with caregivers [14, 15].

In recent years, there has been a paradigm shift in neonatal care, with a focus on meeting the needs of parents, fostering their involvement and participation, in addition to providing care for the infants [16,17]. This means that apart from the medical needs of the newborns, parents also require an equal level of family-centered care and nursing support during their newborn's hospitalization, regardless of the level of neonatal care or the duration of hospital stay [5,7,8,18].

Family-Centered Care, highlighted as a fundamental principle in neonatal care, is considered a valuable practice within the context of humanistic-care [1]. Jean Watson's theory of humanistic-care emphasizes the significance of acknowledging individuals' uniqueness and the holistic nature of their mind, body, and spirit, with the ultimate aim of nursing care being to uphold, enhance, and preserve human dignity [19].

The philosophy of family-centered care emerged in the latter half of the twentieth century in response to recognizing the role of families in promoting the health and well-being of children, with its ultimate goal being the social and emotional well-being of families and the medical care of infants [20]. The core concepts of family-centered care encompass respect, dignity, communication, information sharing, participation and collaboration. Communication stands out as one of the key components of family-centered care and serves as the heart of care, particularly in supporting the nurse-parent partnership [21], which ultimately leads to increased parental satisfaction and reduced stress [22].

Parents perceive nurses as the primary source of information, communication, and support in neonatal units due to their significant presence and involvement at the bedside [23,24]. Support in pediatric nursing refers to the crucial assistance provided by nurses to parents during their newborn's hospitalization, constituting a vital aspect of nursing care. This support encompasses emotional, communicational, informational, and esteem-related aspects, aimed at empowering parents and preserving family unity during challenging times. It closely aligns with the principles of family-centered care, as it enables family members to be partnership with nurses and support them in stressful situations [7,25].

The perception of recipients regarding service delivery is a crucial indicator in evaluating the effectiveness of any service. When it comes to family-centered care services, the feedback from mothers, who are the primary recipients of such services, holds particular significance, as it sheds light on the quality of care provided [26]. Despite the undeniable importance of nursing communication and support in neonatal units, there is a noticeable research gap, particularly in the context of Bushehr province. Therefore, this study aims to explore mothers' perception of nursing communication and support in neonatal units within hospitals in Bushehr province. By

gaining insights into mothers' experiences, this research seeks to contribute valuable information to enhance the implementation of family-centered care services and, ultimately, improve the well-being of both neonates and their families.

4. Method

This descriptive cross-sectional study was conducted in the neonatal units of six hospitals in Bushehr Province in 2022. Following the approval of the research proposal and obtaining the necessary permissions, the researcher initiated the study by presenting a formal introduction letter from the Research Deputy to the Treatment Deputy and the target hospitals, thereby securing permission from these institutions to conduct the study.

The study employed a census method, where all eligible mothers who met the specified criteria were recruited over a two-month period. The inclusion criteria for participation needed mothers to be present in the neonatal unit and have at least one hospitalized neonate for a duration exceeding 24 h, adequate reading and writing literacy and voluntary informed consent for their involvement in the study. Conversely, mothers were excluded from the study if they had incomplete questionnaire responses, were diagnosed with any known mental illness, or exhibited alcohol or substance addiction.

Considering the statistical formula, a minimum sample size of 128 individuals was estimated to be needed for the study and 236 mothers were enrolled in the study.

After introducing the researcher to the participants and providing an overview of the study's objectives and significance, she emphasized the importance of honesty in their responses and the confidentiality of their information. Subsequently, the participants were invited to take part in the research and they were told that they could withdraw from the study at any time. So they were requested to read and sign the consent form if they agreed to participate. Additionally, any ambiguities or questions raised by the participants were addressed by providing further explanations.

To collect data, a demographic information form and the Nurse-Parent Support Tool and Nurse-Parent Communication questionnaire were utilized. The demographic information form was researcher-developed, and designed to capture the necessary socio-demographic variables pertinent to the study.

The Nurse-Parent Support Tool, designed by Margaret Miles et al., in 1999, has been validated for its reliability and validity [27]. Comprising 21 items, the Nurse-Parent Support Tool assesses mothers' perceived support from nurses in four dimensions: 1) Emotional support, 2) Communication-informational support, 3) Parental esteem support, and 4) Caregiving support. Participants were asked to rate the "level of support received from the nursing staff" using a 5-point Likert scale, with scores ranging from 1 (almost never) to 5 (almost always). The total score of the questionnaire was calculated by summing all the item scores and dividing by the total number of items. The minimum possible score on this questionnaire was 1, and the maximum score was 5. The original version of the questionnaire is in English; however, in this study, the translated and validated version in Persian was used. In the study of Sanjari et al. (2009), it was translated into Persian by two translators (both Persian speakers and fluent in English) and then reviewed and revised by health care professionals, including two nurses in the field of psychiatric nursing and pediatric nursing. Its reliability has been reported using Cronbach's alpha coefficient after checking on 20 people similar to the target population (pilot), $\alpha = 0.95$ [28]. Also, its content and face validity and reliability have been confirmed in other Iranian studies [25,29–31].

Emotional support includes expressions of empathy, love, attentiveness to family feelings and concerns, expressing concern for the health of parents and the infant, and taking practical actions to protect and assist them in coping with the infant's condition. Communication-informational support involves education and providing information about the disease, treatment, care, and developmental needs of the infant, responding with emotional and behavioral support, and addressing parents' rights and responsibilities during the newborn's hospitalization. Parental esteem support includes encouraging parents and allowing them to participate in caregiving, strengthening their parental role. Caregiving support encompasses nursing actions related to neonatal care [32].

The nurse-parent communication questionnaire, designed by Tilley Reid et al., in 2007, has been validated for its reliability and validity. In this study, the translated and adapted version of the questionnaire in Persian was employed. In the study of sepehri Nia et al. (2012), it was translated into Persian and content validity was checked by giving the questionnaire to 10 faculty members of Nursing and Midwifery Department and 5 mothers. Also, in order to check the reliability of the questionnaire, Cronbach's alpha ($\alpha = 0.86$) and test-retest reliability were used [33]. Also, its reliability have been confirmed in other Iranian study [34]. The questionnaire consists of 16 statements regarding mothers' perceptions of nursing staff communication, rated on a 5-point Likert scale. The total score of the questionnaire ranges from 16 to 80, with the scoring as follows: strongly disagree = 5, disagree = 4, neutral = 3, agree = 2, and strongly agree = 1. The questionnaire assesses dimensions of interpersonal relationships, general barriers, participation, and satisfaction.

The collected data were analyzed using SPSS version 24. The present study employed descriptive statistics to extract information from the data. Frequency tables were utilized for qualitative variables, allowing for a comprehensive understanding of their distribution. For quantitative variables, measures of mean and standard deviation were calculated, providing insights into the data's central values and variability. To explore potential relationships between variables, independent *t*-test, one-way ANOVA¹ and Pearson correlation test were used.

¹ Analysis of variance.

5. Results

In this study, data collected from 236 mothers were analyzed. The qualitative demographic characteristics of the mothers are presented in [Table 1](#), while their quantitative characteristics are provided in [Table 2](#). Additionally, the relationships between qualitative demographic variables and perceived support and communication are provided in [Table 3](#), and the relationships between quantitative demographic variables and perceived support and communication are provided in [Table 4](#). Also, the mothers' perceptions of nurse-parent support and communication are presented in [Tables 5 and 6](#), respectively.

The total mean score of nurse-parent support tool was 3.72 ± 0.72 and the total mean score of nurse-parent communication tool was $59/27 \pm 12/82$. Caregiving support had the highest mean score (4.07 ± 0.73) and emotional support had the lowest (3.42 ± 0.91).

To assess the association between the neonatal unit variable and the mean score of mothers' perception of nurse-mother communication and support, we utilized the independent *t*-test, which revealed a statistically significant difference ($p = 0.042$ and $p = 0.016$, respectively). Notably, the mean score of mothers' perception of communication and support in the neonatal intensive care unit was found to be lower than that in other neonatal units. Additionally, the independent *t*-test between the variable of mechanical ventilation status of the neonate and the mean score of mothers' perception of nurse-parent support indicated a statistically significant difference ($p = 0.017$). Mothers of neonates requiring mechanical ventilation reported lower mean scores of nursing support.

Moreover, the Pearson correlation test indicated a significant positive correlation ($p = 0.043$) between the variable of neonatal gestational age and the mean score of mothers' perception of nurse-parent communication. As the gestational age of the neonates decreased, the mean score of mothers' perception of nurse-parent communication also decreased.

6. Discussion

The results of this study indicated that the mean score of mothers' perception of nurse-parent communication and support was at a moderate level.

In the present study conducted in Bushehr Province, the mean score of mothers' perception of nurse-parent communication was higher than that reported in prior studies conducted by Sepahri-Nia et al. (2013) in Tehran and Salmani et al. (2016) in Yazd. However, similar to the findings of the current study, the mean score of mothers' perception of nurse-parent communication in those studies was also moderate [33,34].

In some quantitative studies, it has been shown that mothers received less nursing support than they expected [35–38]. Moreover,

Table 1
Quantitative demographic variables.

Variable	Variable levels	N	%
Unit	Neonatal	133	56/36
	NICU	103	43/64
Neonate Gender	Girl	103	43/64
	Boy	133	56/36
Mechanical Ventilation Status of the Neonate	Yes	61	25/85
	No	175	74/15
Neonate Multiplicity Status	Single	225	95/34
	Twins or more	11	4/66
First Liveborn Neonate	Yes	102	43/22
	No	134	56/78
Delivery type	NVD	101	42/80
	C.S	135	57/20
Experience of Difficult Delivery	Yes	92	38/98
	No	144	61/02
History of infertility	Yes	26	11/02
	NO	210	88/98
Mother's educational status	Elementary and Middle school	52	22/03
	Diploma	93	39/41
	Associate's degree	23	9/75
	Bachelor's degree	58	24/58
	Master and higher	10	4/24
Mother's Employment Status	Employed	42	17/8
	Unemployed	194	82/2
Level of Income	Adequate	73	30/93
	Moderate	119	50/42
	Low	44	18/64
Insurance Status	Insured	224	94/91
	Uninsured	12	5/09
Residence Status	Native	183	77/54
	Non-native	53	22/45
Maternal Newborn Hospitalization Experience	Yes	40	16/95
	No	196	83/05

Table 2
Qualitative demographic variables.

Variable	Min	Max	Mean	SD
Age of Neonate (day)	1	30	6/58	5/78
Gestational Age of the Neonate (week)	28	42	36/79	2/61
Neonate Weight (gram)	1	30	4/95	4/84
Mother's Age (year)	17	44	30/00	5/41
Number of children	1	6	1/92	0/96
Admission days in the unit	1	30	4/95	4/84
Presence days of mother in the unit	1	30	4/31	4/21

Table 3
Relationship between qualitative demographic variables with perceived support and communication.

Variable	Variable levels	Support (Mean \pm SD)	P-Value	Communication (Mean \pm SD)	P-Value
Unit	Neonatal	80/41 \pm 14/99	0.016	60/76 \pm 11/85	0.042
	NICU	75/63 \pm 15/12		57/33 \pm 13/80	
Neonate Gender	Girl	77/74 \pm 15/81	0.608	58/58 \pm 13/10	0.469
	Boy	78/77 \pm 14/76		59/80 \pm 12/63	
Mechanical Ventilation Status of the Neonate	Yes	74/32 \pm 15/17	0.017	57/01 \pm 14/60	0.111
	No	79/72 \pm 15/00		60/05 \pm 12/09	
Neonate Multiplicity Status	Single	78/04 \pm 15/33	0.206	59/21 \pm 12/86	0.755
	Twins or more	84/00 \pm 11/38		60/45 \pm 12/54	
First Live born Neonate	Yes	78/33 \pm 14/98	0.995	59/69 \pm 12/33	0.658
	No	78/32 \pm 15/42		58/94 \pm 13/22	
Delivery type	NVD	78/75 \pm 16/22	0.710	58/61 \pm 14/33	0.497
	C.S	78/00 \pm 14/45		59/76 \pm 11/60	
Experience of Difficult Delivery	Yes	78/51 \pm 12/43	0.882	59/51 \pm 10/74	0.819
	No	78/20 \pm 16/78		59/11 \pm 14/02	
History of infertility	Yes	72/92 \pm 14/59	0.055	54/88 \pm 14/31	0.064
	NO	78/99 \pm 15/17		59/81 \pm 12/56	
Mother's educational status	Elementary and Middle school	82/40 \pm 15/74	0.169	59/82 \pm 13/28	0.708
	Diploma	76/66 \pm 16/16		58/55 \pm 12/68	
	Associate's degree	79/86 \pm 12/01		61/26 \pm 10/96	
	Bachelor's degree	77/63 \pm 14/40		59/86 \pm 13/55	
Mother's Employment Status	Master and higher	73/00 \pm 11/33	0.900	55/00 \pm 12/34	0.678
	Employed	78/59 \pm 13/13		58/52 \pm 14/32	
Level of Income	Unemployed	78/26 \pm 15/64	0.072	59/43 \pm 12/51	0.480
	Adequate	77/53 \pm 15/01		58/30 \pm 13/80	
Insurance Status	Moderate	77/06 \pm 15/65	0.473	59/13 \pm 12/50	0.126
	Low	83/04 \pm 13/60		61/25 \pm 12/07	
Residence Status	Insured	78/49 \pm 15/17	0.852	59/56 \pm 12/56	0.119
	Uninsured	75/25 \pm 16/07		53/75 \pm 16/69	
Maternal Newborn Hospitalization Experience	Native	78/42 \pm 15/06	0.413	59/97 \pm 12/37	0.588
	Non-native	77/98 \pm 15/83		56/84 \pm 14/13	
	Yes	80/12 \pm 15/10		60/27 \pm 12/63	
	No	77/95 \pm 15/23		59/06 \pm 12/88	

Table 4
Relationship between quantitative demographic variables with perceived support and communication.

Variable	Support (r)	P-Value	Communication (r)	P-Value
Age of Neonate (day)	0.70	0.283	0.036	0.586
Gestational Age of the Neonate (week)	0.062	0.346	0.132	0.043
Neonate Weight (gram)	-0.068	0.297	-0.024	0.709
Mother's Age (year)	0.041	0.530	0.073	0.267
Number of children	0.053	0.422	0.004	0.946
Admission days in the unit	0.019	0.770	-0.023	0.723
Presence days of mother in the unit	0.042	0.522	-0.022	0.742

certain qualitative studies have indicated a gap between the level of support mothers anticipated and the support they actually received; thus, mothers needed more support [39–41].

Among the studies that employed a similar instrument (Nurse-Parent Support Tool) for data collection, the mean nurse-parent support score in the current study was found to be higher than that reported by Abbasi et al. (2017) in Zanjan [38], Zavalgard et al. (2017) in Rasht [30], Valizadeh et al. (2012) in Tabriz [35], Mariano et al. (2022) in Qatar [32], and Aftyka et al. (2017) in

Table 5
Status of perceived nurse-parent support.

Perceived Nursing Support	Min	Max	Mean \pm SD
Emotional support	1	5	3/42 \pm 0/91
Communication informational support	1	5	3/65 \pm 0/79
Parental esteem support	1	5	3/69 \pm 0/81
Caregiving support	1	5	4/00 \pm 7/73
Total perceived support	1	5	3/72 \pm 0/72

Table 6
Status of perceived nurse-parent communication.

Perceived Nursing communication	Min	Max	Mean \pm SD
Relationships	3	15	11/23 \pm 2/88
Participation	1	5	3/80 \pm 0/97
Barriers	11	55	40/56 \pm 8/98
Satisfaction	1	5	3/66 \pm 0/96
Total Perceived communication	16	80	59/27 \pm 12/82

Poland [42]. However, it was lower than the scores observed in the research conducted by Sanjari et al. (2009) in Tehran [28], Lam et al. (2007) in Australia [43], Mok et al. (2006) in Hong Kong [37], Ndango (2018) in South Africa [7], Frank et al. (2013) in Greater London [44], Couper (2021) in Vancouver [45], Weiss et al. (2013) in Denmark [46], Miles et al. (1999) in the United States [27], and Akkoyun et al. (2019) in Turkey [47].

In the present study, it was observed that mothers received the lowest level of support in the domain of emotional support. This finding is consistent with previous research conducted by Mariano et al. (2022), Aftyka et al. (2017), Mok et al. (2006), Frank et al. (2013), and Abbasi et al. (2017), all of which reported that mothers perceived the least support in the area of emotional support. Moreover, a systematic review study (2016) corroborated these findings by highlighting emotional support as the weakest aspect of family-centered care from mothers' perspectives [48]. Remarkably, the most significant point of dissatisfaction among mothers pertains to the insufficient recognition and attention given to their emotional needs [49]. Furthermore, within the context of Iran, emotional support has been recognized as the most overlooked dimension [50].

In the current study, the domain of caregiving support was found to have the highest perceived level of support from the mothers' perspective. This finding aligns with previous research conducted by Mariano et al. (2022), Aftyka et al. (2017), Abbasi et al. (2017), Sanjari et al. (2009), Mok et al. (2006), Valizadeh et al. (2012), Frank et al. (2013), and Zavalgard et al. (2017), which also reported that mothers perceived the highest level of support in the domain of caregiving support. Notably, the literature has consistently highlighted the significance of caregiving support from the perspective of mothers [35,36,51].

Furthermore, studies conducted in Iran have demonstrated that mothers' primary need revolves around the assurance of their infants' care [51]. When mothers observe that nurses promptly attend to their infants' needs, they experience a heightened sense of support [32]. Qualitative investigations have shed light on the predominant patient-centered nature of caregivers' activities, focusing on infant treatment and care, while comparatively overlooking other family-centered care aspects, such as supporting mothers [39]. However, it is imperative for nurses to recognize families, particularly mothers, as active recipients of care throughout the neonatal care process, ensuring that their needs are not disregarded [41].

Notably, research has underscored the link between mothers' perception of nurse-parent support and their level of depression, wherein a one-point decrease in mothers' scores on the Nurse-Parent Support Tool corresponds to a 6 % increase in the risk of developing depression [23]. These findings emphasize the significance of providing adequate support to mothers, given its potential impact on their mental well-being.

The findings of a review study conducted in 2016 indicated that Iran, in comparison to other regions such as the United States and Hong Kong, obtained lower scores on the Nurse-Parent Support Tool. Despite the importance parents place on various aspects of support, they expressed dissatisfaction with different dimensions of support in Iran, except for caregiving support. In other words, in Iran, apart from caregiving support, which was rated at a moderate level, perceived support in other dimensions received lower scores. Notably, emotional support was identified as the most neglected dimension. Overall, the scores for received support in Iran were lower than those in other countries such as Italy, the United States of America, Australia, and the Netherlands [50].

The existing variations observed in the studies across different countries may be attributed to certain cultural differences [42,44]. Additionally, organizational differences play a significant role; for instance, some hospitals may face heavy nursing workloads, staff shortages, resource constraints (e.g., budget, equipment, and facilities), restricted visiting hours, unclear job descriptions for nurses, lack of motivation, inadequate grasp of the supportive role among nurses, limited perspectives and other factors, which can influence the implementation of family-centered care and parental support [52,53].

In Iran, the nursing profession faces numerous challenges in its professional advancement, and these differences in comparison to other countries can be related to structural elements of care within Iranian hospitals. Unlike many neonatal units in Europe and the United States, neonatal units in Iran lack defined levels of care. Typically, only mothers are allowed to stay in the unit, and fathers have limited visiting hours. Moreover, there is a significant shortage of nurses and nurse educators, insufficient resources for hiring nurses,

disproportionate nurse-to-patient ratios, heavy workloads, work-life conflicts, job burnout, and other related issues. Furthermore, nurses could receive inadequate training or awareness during or after their university education regarding family-centered care approaches and the crucial importance of supporting and effectively communicating with parents. Additionally, Iranian nurses in these units are predominantly female, and female nurses in Iran not only have to manage their own life stressors (given their primary roles as homemakers, caregivers for children, and sometimes care providers for elderly parents) but also bear the responsibility of managing the stress experienced by families with hospitalized neonates, introducing additional challenges [54–58]. In some cases, nurses may be receptive to aspects such as respect, cooperation, and family-centered care, but may consider parental involvement to be a hindrance to providing care to the neonate [52]. Consequently, individual, familial, cultural, organizational, and managerial factors can affect the attitudes of nurses in Iranian neonatal units. This can lead them to prioritize neonatal care while potentially allocating less attention to other dimensions of support, particularly emotional support. Therefore, it is essential for organizations and nursing authorities to implement changes that encourage nurses to not only care for neonates but also provide more support to parents, especially mothers [59–61].

It can be inferred that the implementation of family-centered care principles in Iran is still in its early stages, and the widespread adoption of full implementation in healthcare centers is not currently prevalent. As a result, several barriers exist in the execution of family-centered care that need to be identified and addressed within the system. To achieve this, fundamental changes are needed in the infrastructural facilities, human resources, and governing policies within hospitals [26].

Furthermore, nursing staff can use new communication and information technologies like telehealth to improve nurse-mother communication and therefore they should be trained how to use them during their studies to provide better services at the scene [62]. Also, they should be trained to provide effective care in complex systems of modern healthcare and especially they should pay attention to provide appropriate spiritual care [63]. On the other hand, health managers should have continuous supervision of the psychological status of nursing staff and provide psychological support programs for improving the mental health of them [64]. Also, the society should cultivate a compassionate and supportive emotional environment for patients and their families [65].

Another finding of this study was that a statistically significant difference was seen between the average scores of mothers' perceptions of nurse-mother communication and support and the neonatal care unit in which their neonates were hospitalized. It can be noted that mothers with infants admitted to NICU had lower satisfaction levels concerning both the communication and support provided by nurses. In alignment with these findings, a qualitative study indicated that during turbulent and stressful periods of neonatal hospitalization in the NICU, parents require increased communication about the unfamiliar aspects of the unit and their roles. Establishing accurate and continuous communication with caregivers is perceived as one of the most crucial factors in reducing stress and enhancing the self-confidence of mothers in NICUs [24].

Furthermore, a significant positive correlation was observed between the average scores of mothers' perceptions of nurse-mother communication and the gestational age of the neonate. Essentially, it can be argued that as the gestational age of the neonate decreases, the need for nurse-mother communication increases among mothers. Findings from a study also demonstrated that mothers with premature neonates require continuous provision of information about their neonates' condition, treatment, care, and responses to their emotional and behavioral needs. In the absence of fulfilling these needs and experiencing unsatisfactory responses from the healthcare team, mothers are susceptible to feelings of helplessness and vulnerability [66].

Furthermore, a statistically significant difference was observed between the mechanical ventilation status of the neonate and the average scores of mothers' perceptions regarding nurse-mother support. However, in Akkoyun's study (2018), no statistically significant relationship was reported between nursing support and the ventilation status of the neonate. Nevertheless, that study reported a statistically significant difference between maternal stress and the ventilation status of the neonate. Specifically, mothers of neonates connected to mechanical ventilation experienced heightened stress levels. Hence, neonatal nurses should assume a pivotal role in managing and alleviating maternal stress, particularly in cases involving mechanical ventilation. Nurses should provide substantial support to mothers and be adequately prepared and qualified to assist mothers of premature neonates [47].

We should also consider the importance of teamwork and benefit of allied health professionals, as well as the potential for improved parent communication from a more multidisciplinary team [67,68].

7. Limitations

One limitation of our study is the potential impact of maternal emotional states at the time of completing the questionnaires on the study results. It is recommended that future studies consider strategies to mitigate these potential effects and, if possible, employ observational methods to investigate nurse-mother communication and support in neonatal units.

8. Conclusions

The overall results of this investigation revealed that mothers' perceptions of nurse-mother communication and support were at a moderate level. Moreover, the lowest and highest levels of support obtained were observed in the domains of emotional support and caregiving support, respectively.

Hence, it is imperative to devise a comprehensive plan to enhance the role of neonatal nurses, familiarize them more with the needs of mothers and fortify their communication and supportive competencies, all within the framework of a family-centered care approach. It is strongly advised that nursing authorities and policymakers implement substantial changes in the existing structures, policies, and resources and create platforms to educate and enable nurses to better empathize with the emotions of parents, especially mothers, and effectively foster improved communication and emotional support. Such measures are expected to significantly

contribute to the well-being of both mothers and infants and elevate the overall quality of nursing care quality.

Ethics and consent

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the ethics committee of Bushehr University of Medical Sciences in 2021 (code: IR.BPUMS.REC.1399.187). The participants were assured about the confidentiality of the information and voluntary involvement in the study. Moreover, the research objectives were explained verbally and in written form. Informed consent to participate and publish was acquired from each participant. In addition, the questionnaires were completed individually and anonymously.

Data availability statement

The datasets used and analyzed in the current study are available from the corresponding author upon reasonable request.

CRediT authorship contribution statement

Farnoosh Tajik: Writing – original draft, Visualization, Methodology, Investigation, Conceptualization. **Marzieh Mahmoodi:** Writing – review & editing, Software, Methodology, Formal analysis, Data curation. **Parviz Azodi:** Supervision, Methodology, Conceptualization. **Faezeh Jahanpour:** Writing – review & editing, Validation, Project administration, Methodology, Conceptualization.

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.

Acknowledgements

The present manuscript was extracted from the master's thesis authored by Farnoosh Tajik. We would like to thank all the mothers for participating in this study and sharing their experiences with us. Additionally, we would like to express our sincere gratitude and appreciation to the research deputy of Bushehr University of Medical Sciences and authorities of Bushehr Health Centers who cooperated with us for their valuable support and assistance throughout this research. Their contributions have played a crucial role in ensuring the success and quality of this study.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2024.e29325>.

References

- [1] G.C.C. Machado, M.C. de Carvalho Furtado, N.T. Baptista Oliveira, J.M. de Jesus Santos, M. Lima, A.M. Leite, How is the communication of bad news being performed in Neonatal Intensive Care Units and how to improve it: a Scoping Review, *J. Neonatal Nurs.* 26 (5) (2020) 252–258.
- [2] P. Lundqvist, J. Weis, B. Sivberg, Parents' journey caring for a preterm infant until discharge from hospital-based neonatal home care—a challenging process to cope with, *J. Clin. Nurs.* 28 (15–16) (2019) 2966–2978.
- [3] N.M. Kynoe, D. Fugelseth, I. Hanssen, When a common language is missing: nurse–mother communication in the NICU. A qualitative study, *J. Clin. Nurs.* 29 (13–14) (2020) 2221–2230.
- [4] S. Reid, S. Bredemeyer, M. Chiarella, Integrative review of parents' perspectives of the nursing role in neonatal family-centered care, *J. Obstet. Gynecol. Neonatal Nurs.* 48 (4) (2019) 408–417.
- [5] J. Petty, J. Jarvis, R. Thomas, Understanding parents' emotional experiences for neonatal education: a narrative, interpretive approach, *J. Clin. Nurs.* 28 (9–10) (2019) 1911–1924.
- [6] C. Enke, A.O. y Hausmann, F. Miedaner, B. Roth, C. Woopen, Communicating with parents in neonatal intensive care units: the impact on parental stress, *Patient Educ. Counsel.* 100 (4) (2017) 710–719.
- [7] I.N. Ndango, Parents' Perception of Nursing Support in Neonatal Intensive Care Units in Private Hospitals in the Western Cape, University of the Western Cape, 2018.
- [8] A. Brodsgaard, J.T. Pedersen, P. Larsen, J. Weis, Parents' and nurses' experiences of partnership in neonatal intensive care units: a qualitative review and meta-synthesis, *J. Clin. Nurs.* 28 (17–18) (2019) 3117–3139.
- [9] C. Horwood, L. Haskins, S. Luthuli, N. McKerrow, Communication between mothers and health workers is important for quality of newborn care: a qualitative study in neonatal units in district hospitals in South Africa, *BMC Pediatr.* 19 (1) (2019) 496–503.
- [10] M. Mohammadi, A.A. Vaisi-Raygani, R. Jalali, A. Ghobadi, N. Salari, M. Hemmati, A systematic review of the prevalence of neonatal mortality in the intensive care unit of hospitals in Iran, *Tehran Univ. Med. J.* 77 (9) (2019) 539–547.
- [11] E.G. Epstein, J. Arechiga, M. Dancy, J. Simon, D. Wilson, J.L. Alhusen, Integrative review of technology to support communication with parents of infants in the NICU, *J. Obstet. Gynecol. Neonatal Nurs.* 46 (3) (2017) 357–366.
- [12] H. Heidari, M. Hasanpour, M. Fooladi, Exploring the Concept of Parental Stress in the Neonatal Intensive Care Unit (NICU): Developing a Care Program Using Exploratory Mixed Method Research, Isfahan University of Medical Sciences, Isfahan, Iran, 2013.

- [13] D.F. Al Maghairy, K.L. Abdullah, C.M. Chan, C.Y. Piaw, M.M. Al Kawafha, Systematic review of qualitative studies exploring parental experiences in the Neonatal Intensive Care Unit, *J. Clin. Nurs.* 25 (19–20) (2016) 2745–2756.
- [14] S. Guillaume, N. Michelin, E. Amrani, B. Benier, X. Durrmeyer, S. Lescure, 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.* 13 (1) (2013) 18–27.
- [15] C. Harding, A. Levin, S.-L. Crossley, R. Murphy, L. Van den Engel-Hoek, Effects of early communication intervention on speech and communication skills of preterm infants in the neonatal intensive care unit (NICU): a systematic review, *J. Neonatal Nurs.* 25 (4) (2019) 177–188.
- [16] S. Hall, M. Hynan, R. Phillips, S. Lassen, J. Craig, E. Goyer, et al., The neonatal intensive parenting unit: an introduction, *J. Perinatol.* 37 (12) (2017) 1259–1264.
- [17] f ghorbani, j Mirlashari, s valizadeh, Involving the parents in caring for hospitalized premature infant in the NICU: a qualitative study, *Iranian Journal of Pediatric Nursing* 6 (4) (2020) 59–70.
- [18] A. Serlachius, J. Hames, V. Juth, D. Garton, S. Rowley, K.J. Petrie, Parental experiences of family-centred care from admission to discharge in the neonatal intensive care unit, *J. Paediatr. Child Health* 54 (11) (2018) 1227–1233.
- [19] J. Watson, Watson's theory of human caring and subjective living experiences: carative factors/caritas processes as a disciplinary guide to the professional nursing practice, *Texto & Contexto-Enfermagem* 16 (1) (2007) 129–135.
- [20] CoH. Care, IfP. Care, Patient-and family-centered care and the pediatrician's role, *Pediatrics* 129 (2) (2012) 394–404.
- [21] J. Weis, P. Lundqvist, Parent experiences of communication with healthcare professionals in neonatal intensive care units: a qualitative systematic review protocol, *JBI database of systematic reviews and implementation reports* 14 (8) (2016) 12–18.
- [22] G. De Bernardo, M. Svelto, M. Giordano, D. Sordino, M. Riccitelli, Supporting parents in taking care of their infants admitted to a neonatal intensive care unit: a prospective cohort pilot study, *Ital. J. Pediatr.* 43 (1) (2017) 36–47.
- [23] S.L. Hall, J. Cross, N.W. Selix, C. Patterson, L. Segre, R. Chuffo-Siewert, et al., Recommendations for enhancing psychosocial support of NICU parents through staff education and support, *J. Perinatol.* 35 (Suppl 1) (2015) S29–S36.
- [24] J. Monaghan, T. Kim, J. Dol, A. Orovec, M. Campbell-Yeo, Parents' learning needs and preferences in a neonatal intensive care unit: a desire for enhanced communication and eHealth technology, *J. Neonatal Nurs.* 26 (2) (2020) 101–105.
- [25] L. Valizadeh, M. Akbarbegloo, M. Asadollahi, Supports provided by nurses for mothers of premature newborns hospitalized in NICU, *Iran J. Nurs.* 22 (58) (2009) 89–98.
- [26] P. Rasoolpur, M. Rahkar Farshi, M. Jabraeili, Perceptions of preterm infant mothers from receiving family-centered care in neonatal intensive care Unit: a cross-sectional study, *Journal of Health and Care* 24 (1) (2022) 76–85.
- [27] M.S. Miles, J. Carlson, S. Brunson, The nurse parent support tool, *J. Pediatr. Nurs.* 14 (1) (1999) 44–50.
- [28] M. Sanjari, F. Shirazi, S. Heidari, S. Salemi, M. Rahmani, M. Shoghi, Nursing support for parents of hospitalized children, *Issues Compr. Pediatr. Nurs.* 32 (3) (2009) 120–130.
- [29] S. mehdizadeh, bousarim soheilaabbsi, Nursing support and premature s infants in neonatal intensive care units: the views of mothers, *Health Monitor Journal of the Iranian Institute for Health Sciences Research* 16 (2) (2017) 231–238.
- [30] E. Zavalgard, E. KhazemNejad Leili, M. Jafari Asl, S.Z. Shafipour, Viewpoint of mothers of premature newborns about nursing supports in neonatal intensive care Units, *Journal of Holistic Nursing And Midwifery* 27 (1) (2017) 61–67.
- [31] K. Bekmaz, H. Hojjati, G. Akhoundzadeh, Relationship between mothers' concerns and nursing support of children admitted to Baqiyatallah Al-azam hospital of ali abad katoul, golestan province, Iran, in 2018, *Modern Care Journal* 16 (4) (2019) e92471.
- [32] K. Mariano, J.P.B. Silang, R. Cui-Ramos, G.R. Galang-Gatbonton, Q. Roxas-Ridulme, R.R. Gatbonton, et al., Maternal stress and perceived nurse support among mothers of premature infants in the neonatal intensive care unit of a tertiary hospital in Qatar, *J. Neonatal Nurs.* 28 (2) (2022) 98–102.
- [33] M. Sepehri Nia, M. Rassouli, F. Alae Karahroudi, F. Zayeri, Tafreshi M. Zagheri, Comparing perception of nurse-mother communication between nurses and mothers' hospitalized children, *Quarterly Journal of Nursing Management* 2 (3) (2013) 52–59.
- [34] N.D.M. Salmani, Z. Maghsoudi, A. Dabirifard, Z. Karjo, Comparing perception of nurse-mother communication between neonatal intensive care nurses and mothers of hospitalized neonates, *Hayat, Journal of School of Nursing and Midwifery* 22 (3) (2016) 291–299. Tehran University of Medical Sciences.
- [35] L. Valizadeh, V. Zamanzadeh, M. Akbarbegloo, L. Sayadi, Importance and availability of nursing support for mothers in NICU: a comparison of opinions of Iranian mothers and nurses, *Iran J Pediatr* 22 (2) (2012) 191–196.
- [36] E. Zavalgard, Compare Mothers' and Nurses' Viewpoint on Level and Importance of Nursing Support of Mothers of Premature Infants Hospitalized in NICU of Health Centers in Rasht City 2014, *Guilan university of medical sciences, Rasht*, 2015.
- [37] E. Mok, S.F. Leung, Nurses as providers of support for mothers of premature infants, *J. Clin. Nurs.* 15 (6) (2006) 726–734.
- [38] S. Abbasi, S. Mehdizadeh, K. kamali, joo M. Afshin, The relationship between nursing support and parent's stress in mothers of premature's infants in neonatal intensive care unit, *Nursing and Midwifery Journal* 15 (9) (2017) 652–658.
- [39] R. Negarandeh, H. Hassankhani, M. Jabraeili, M. Abbaszadeh, A. Best, Health care staff support for mothers in NICU: a focused ethnography study, *BMC Pregnancy Childbirth* 21 (1) (2021) 1–12.
- [40] D.B. Apedani, A. Koduah, A.A. Druye, N.I. Ebu, Experiences of mothers with preterm babies on support services in Neonatal Intensive Care Unit of a mission hospital in Ghana, *International Journal of Africa Nursing Sciences* 15 (2021) 100366–100373.
- [41] M. Kohan, F. Borhani, A. Abbaszadeh, J. Sultan Ahmadi, M. Khajehpoor, Experience of mothers with premature infants in neonatal, *Journal of Qualitative Research in Health Sciences* 1 (1) (2012) 41–51.
- [42] A. Aftyka, I. Rozalska-Walaszek, A. Wrobel, A. Bednarek, K. Dąbek, D. Zarzycka, Support provided by nurses to parents of hospitalized children—cultural adaptation and validation of Nurse Parent Support Tool and initial research results, *Scand. J. Caring Sci.* 31 (4) (2017) 1012–1021.
- [43] J. Lam, K. Spence, R. Halliday, Parents' perception of nursing support in the neonatal intensive care unit (NICU), *Neonatal Paediatr. Child Health Nurs.* 10 (3) (2007) 19–25.
- [44] L.S. Franck, A. Axelin, Differences in parents', nurses' and physicians' views of NICU parent support, *Acta Paediatr.* 102 (6) (2013) 590–596.
- [45] J. Couper, Micro-preemie parents' perceptions of trauma-informed developmental neuroprotective care and nursing support, *Adv. Neonatal Care: official journal of the National Association of Neonatal Nurses* 22 (5) (2021) 422–431.
- [46] J. Weis, V. Zoffmann, G. Greisen, I. Egerod, The effect of person-centred communication on parental stress in a NICU: a randomized clinical trial, *Acta Paediatr.* 102 (12) (2013) 1130–1136.
- [47] S. Akkoyun, F. Tas Arslan, Investigation of stress and nursing support in mothers of preterm infants in neonatal intensive care units, *Scand. J. Caring Sci.* 33 (2) (2019) 351–358.
- [48] S. Raiskila, L. Lehtonen, B.S. Tandberg, E. Normann, U. Ewald, S. Caballero, et al., Parent and nurse perceptions on the quality of family-centred care in 11 European NICUs, *Aust. Crit. Care* 29 (4) (2016) 201–209.
- [49] K. Kasat, G. Stoffels, M. Ellington, Improving communication with parents: the neonatal intensive care unit empathy workshop, *J. Perinatol.* 40 (9) (2020) 1423–1432.
- [50] S.S. Mousavi, R. Chaman, A. Khosravi, P. Mohagheghi, S.A. Mousavi, A. Keramat, The needs of parents of preterm infants in Iran and a comparison with those in other countries: a systematic review and meta-analysis, *Iranian journal of pediatrics* 26 (5) (2016) e4396.
- [51] V. Akbari, H. Asayesh, M. Haji Mohammad Hoseini, F. Sharififard, M. Shahidi, M. Goudarzi, Needs of family with hospitalized infant in neonatal intensive care unit: a comparison between mothers' and nurses' viewpoint, *Qom Univ. Med. Sci. J.* 14 (3) (2020) 10–18.
- [52] S. Vetcho, A.J. Ullman, H. Petsky, W. Wiroonpanich, M. Cooke, Parent and interdisciplinary professional perceptions of family-centered care in Thai NICU: a qualitative study, *Nurs. Crit. Care* (2021) 1–9.
- [53] S.R. Jafarian Amiri, A. Zabihi, M. Qanbari Qalehsari, Factors affecting nurses' support of the patient and professional ethics: a review study, *Islam and Health Journal* 5 (2) (2020) 58–65.
- [54] Chenari H. Ahmadi, M. Zakerimoghadam, S.L. Baumann, Nursing in Iran: issues and challenges, *Nurs. Sci. Q.* 33 (3) (2020) 264–267.

- [55] F. Soroush, A. Zargham-Boroujeni, M. Namnabati, The relationship between nurses' clinical competence and burnout in neonatal intensive care units, Iran. J. Nurs. Midwifery Res. 21 (4) (2016) 424–429.
- [56] F. Ghorbani, M. Jabraeili, Beliefs and attitudes of nurses towards open visiting policy in neonatal intensive care units: a descriptive cross-sectional study in northwest of Iran, J. Neonatal Nurs. 28 (2) (2022) 123–129.
- [57] M. Khajeh, N.D. Nayeri, F. Bahramnezhad, A.S.S. Hoseini, Family centered care of hospitalized children: a hybrid concept analysis in Iran, Health Promot. Perspect. 7 (4) (2017) 210–215.
- [58] S. Eskandari, S.N. Mirhaghjou, M. Maleki, A. Mardani, M. Gholami, C. Harding, Identification of the range of nursing skills used to provide social support for mothers of preterm infants in neonatal intensive care, Critical care research and practice 2021 (2021) e6697659.
- [59] B. Pouraboli, m forozy, m ghazanfra nejad, y jahani, The evaluation of the nurses' communication performance and satisfaction with hospital care from the perspective of mothers of newborns admitted to neonatal intensive care units (NICU), Iranian Journal of Pediatric Nursing 5 (4) (2019) 1–10.
- [60] F. Ghorbani, J. Mirlashari, E. Navab, W. Higman, S. Valizadeh, Experiences of the Iranian neonatal intensive care unit nurses in implementing family-centered care: walking on an insecure foundation, Iranian Journal of Neonatology IJN 9 (2) (2018) 42–49.
- [61] J. Mirlashari, H. Brown, F.K. Fomani, J. de Salaberry, T.K. Zadeh, F. Khoshkhou, The challenges of implementing family-centered care in NICU from the perspectives of physicians and nurses, J. Pediatr. Nurs. 50 (2020) 91–98.
- [62] M. Nejadshafiee, M. Nekoei-Moghadam, K. Bahaadinbeigy, H. Khankeh, H. Sheikhbardsiri, Providing telenursing care for victims: a simulated study for introducing of possibility nursing interventions in disasters, BMC Med. Inf. Decis. Making 22 (1) (2022) 54.
- [63] A. Abdollahyar, H. Baniasadi, M.M. Doustmohammadi, H. Sheikhbardsiri, M.H. Yarmohammadian, Attitudes of Iranian nurses toward spirituality and spiritual care, J. Christ. Nurs. 36 (1) (2019) E11–E16.
- [64] H. Sheikhbardsiri, M.M. Doustmohammadi, P.J. Afshar, M. Heidarijamebozorgi, H. Khankeh, M. Beyramijam, Anxiety, stress and depression levels among nurses of educational hospitals in Iran: time of performing nursing care for suspected and confirmed COVID-19 patients, J. Educ. Health Promot. 10 (2021).
- [65] H. Sheikhbardsiri, A. Tavan, P.J. Afshar, S. Salahi, M. Heidari-Jamebozorgi, Investigating the burden of disease dimensions (time-dependent, developmental, physical, social and emotional) among family caregivers with COVID-19 patients in Iran, BMC primary care 23 (1) (2022) 165.
- [66] S.S. Mousavi, A. Keramat, P. Mohagheghi, S.A. Mousavi, Z. Motaghi, A. Khosravi, et al., The need for support and not distress evoking: a meta-synthesis of experiences of Iranian parents with premature infants, Iranian Journal of Psychiatry and Behavioral Sciences 11 (4) (2017) e5916.
- [67] J. Petty, L. Whiting, A. Mosenthal, C. Fowler, D. Elliott, J. Green, The knowledge and learning needs of health professionals in providing support for parents of premature babies at home: a mixed-methods study, J. Neonatal Nurs. 25 (6) (2019) 277–284.
- [68] S. Bhayat, J. Birch, C.C. Ganado, Development of better teamwork on a NICU using the TeamSTEPPS concept, Inf. Dent. 16 (2020) 166–170.