

Mothers' Perceptions of Family-Centered Care and Satisfaction with Care in the Neonatal Intensive Care Unit: A Correlational Study

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ABSTRACT

Parents play a crucial role in the family-centered care (FCC) model by evaluating the quality of care provided. The first step in understanding parents' perceptions of FCC is to identify and address their needs to enhance services for preterm newborns and their families. This study was conducted as a correlational study in the neonatal intensive care unit (NICU) of a referral hospital in location X. The study included a sample of 150 mothers of preterm newborns (28–36 weeks) hospitalized in the NICU. Data were collected using the “Perceptions of FCC-Parent” questionnaire and the Parents' Satisfaction Questionnaire from the NICU (EMPATHIC-N). The results of the study indicated that mothers of preterm infants received below-average FCC but expressed relatively high satisfaction with the care provided in the NICU. Furthermore, the findings demonstrated a significant positive correlation between mothers' perception of receiving FCC and their satisfaction with the care in the NICU. This study highlighted the positive impact of implementing FCC on parents' satisfaction with care. Given the suboptimal implementation of FCC in this study setting, it is essential to identify and address the barriers to its effective implementation in future research. This proactive approach can enhance the quality of care provided to parents and their preterm newborns in the NICU setting.

KEYWORDS: Family-centered care, mother, neonatal intensive care unit, perception, satisfaction

INTRODUCTION

According to the reports from the World Health Organization, approximately 15 million preterm infants are born worldwide each year.^[1] In Iran, the estimated prevalence of preterm birth is 7.95%.^[2] The majority of these infants require hospitalization in the neonatal intensive care unit (NICU),^[3] presenting a stressful experience for both the newborns and their parents.^[4,5] One of the key stressors for parents is the separation from their neonate and the loss of their parental role, contributing to distress and grief.^[6]

Past research indicates that providing parental support and involving parents in infant care can reduce stress and anxiety levels while enhancing the developmental outcomes of preterm infants.^[7,8] Family-centered care (FCC) is a practical and valuable approach aimed

at supporting and involving parents in neonatal care.^[9,10] The American Academy of Pediatrics emphasizes the key principles of FCC, including respect, diversity, flexibility, sharing, support, and cooperation.^[11]

This care philosophy recognizes the family as the primary recipient of healthcare and promotes a collaborative partnership among patients, families, and health-care providers.^[10,12] Parents are viewed as the essential members of the care team and primary decision-makers for their neonates, underscoring the importance of their involvement in all aspects of their

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infant's care both within and beyond the hospital setting.^[5,9,10]

Research demonstrates that parental participation in neonatal care leads to increased parental satisfaction and decreased anxiety.^[13] While FCC is commonly practiced in developed countries, its implementation across different nations encounters numerous challenges influenced by organizational, individual, and cultural factors.^[14-16]

Parents play a critical role as the key members of FCC and are instrumental in evaluating the quality of its implementation. To ensure the comprehensive implementation of FCC, it is vital to gather detailed insights into parents' experiences with FCC and their satisfaction levels regarding this approach to care.^[17] A study indicates that a significant barrier to implementing FCC is the lack of awareness regarding parents' perspectives on FCC.^[18] Exploring parents' perceptions of FCC serves as an initial step in understanding their needs and enhancing services for preterm infants and their families.^[17]

FCC has gained significant attention in the NICUs of (X) over the past decade. While previous research has primarily focused on parents' perceptions of the importance of FCC, there is a lack of accurate data regarding the extent to which FCC is actually being implemented in NICUs and its impact on parental satisfaction with care. This study aims to address this gap by investigating parents' perceptions of receiving FCC and exploring the relationship between their perception of FCC and their overall satisfaction with care in the NICU.

METHODS

Study design and settings

This study is a correlational research conducted in the NICU of a hospital serving as the sole referral center for premature neonates in the north-west region of X.

Participants

The study participants were the mothers of preterm infants receiving care in the NICUs. The inclusion criteria comprised mothers of neonates born with gestational ages between 28 and 36 weeks, mothers who had been present in the hospital for a minimum of 4 days continuously, and mothers who were in good physical and mental health as documented. Mothers of neonates diagnosed with abnormalities or chromosomal disorders were excluded from the study.

Participants were recruited using the convenience sampling. With approval from the hospital management, the researcher visited the NICU and invited eligible mothers to participate in the study.

Data measurement

The data collection instruments used in this study were the "Perceptions of FCC-Parent (PFCC-P)" questionnaire and the "Parents' Satisfaction Questionnaire from the NICU (EMPATHIC-N)."

The PFCC-P questionnaire was originally developed by Shields and Tanner,^[19] and subsequently modified by Gill *et al.* in 2012.^[20] This questionnaire consists of 20 items categorized into three dimensions: respect (questions 1–6), cooperation (questions 7–15), and support (questions 16–20). It utilizes a Likert scale ranging from never (1) to always (4) to assess mothers' perceptions of receiving FCC. For negative statements in questions 5 and 15, the scoring was reversed: never (4), sometimes (3), usually (2), and always (1). In this study, the questionnaire underwent thorough content validation by a panel of experts. The reliability of the tool was assessed using Cronbach's alpha coefficient, resulting in a value of 0.91.

The EMPATHIC-N questionnaire assessed parental satisfaction with care in the NICU across five domains: information (12 questions), care and treatment (17 questions), organization (8 questions), parental participation (8 questions), and professional attitude (12 questions). Each area was rated on a 6-point Likert scale, ranging from strongly agree (6) to strongly disagree (1).^[21]

The tool demonstrated good content validity, with a content validity ratio of 0.83 and a content validity index of 0.87. Furthermore, the reliability of the questionnaire was evaluated using Cronbach's alpha coefficient, yielding a value of 0.86.

Sample size

The sample size was determined by the correlation coefficient ($r = 0.23$) between the variables of perception of nursing care and satisfaction, as reported in the study by King *et al.*^[22] Utilizing G * Power 3.1.9.4 software, (Franz Faul, Universitat Kiel, Germany). To account for an anticipated attrition rate of 10%, the final sample size was adjusted to include 150 mothers.

Ethical considerations

This research received ethical approval from the ethics committee (REC number 1400.000). Prior to data collection, participants were informed about the study's objectives. Subsequently, informed written consent was obtained from all the participants.

Statistical analysis

For data analysis, we utilized IBM SPSS software (Version 25.0, IBM Corp., Armonk, NY, USA). Nominal and ordinal variables were examined using the

frequency and percentage, whereas mean and standard deviation were calculated for the numerical variables. To explore the relationship between the perception of FCC and satisfaction with NICU care, Pearson's correlation coefficient was employed. Statistical significance was determined at a level below 0.05.

RESULTS

In this study, a total of 150 mothers of preterm infants hospitalized in the NICUs participated. The average age of the mothers was 27.59 ± 3.22 years, with 67.3% having only one child. In addition, 52.7% of the mothers had a male neonate. The mean birth weight of the babies was 2288.40 ± 388.99 g, and the average length of hospitalization was 4.52 ± 0.68 days. Demographic characteristics are summarized in Table 1.

The mean score for mothers' perception of FCC was 2.14 ± 0.19 , suggesting that mothers perceived receiving below-average FCC. Furthermore, the mean scores for the perception of cooperation (2.18 ± 0.31) and respect (2.17 ± 0.34) subscales were higher than that of the support (2.02 ± 0.37) subscale, as presented in Table 2.

In the respect subscale items, mothers predominantly selected "usually" for items such as "Parents' reception parents upon arrival at the hospital" (3.08) and "Respect for the privacy and confidentiality of the child's information" (3.04). For other items in this subscale, they tended to choose "sometimes."

Within the collaboration subscale, all items were rated as "sometimes." Conversely, in the support subscale, mothers opted for "usually" in response to items like "Openness of staff to listen to parents' concerns" (3.0) and "identification of the same team caring for the child daily" (3.0). For the remaining items in this subscale, "sometimes" was the chosen response.

The average satisfaction level of mothers with the NICU was 4.82 ± 0.15 . Among the various subscales, mothers expressed the highest satisfaction with the treatment and care subscale (4.89 ± 0.24) and the lowest satisfaction with the information subscale (4.64 ± 0.33), as outlined in Table 2.

Specifically within the information subscale, mothers reported the highest satisfaction with the item "The information given by the doctors and nurses was always the same" (4.78), while the lowest satisfaction level was related to the item "We were always informed right away when our child's physical condition worsened" (4.55). In terms of care and treatment, the highest satisfaction was related to the item "The team had a common goal: the best care and treatment for our child

Table 1: Demographic characteristics of mothers and infants participating in the study

Qualitative variable	Frequency (%)
Mother's education	
Primary	30 (20)
Secondary	82 (54.7)
Bachelor of science	38 (25.3)
Number of children	
One	101 (67.3)
Two	40 (26.7)
Three	9 (6)
Monthly family income	
Income is less than expenses	5 (3.3)
Income equals expense	120 (80)
Income is more than expenses	25 (16.7)
Place of residence	
City	132 (88)
Village	18 (12)
Infant sex	
Male	79 (52.7)
Female	71 (47.3)
Diagnosis	
RDS	25 (16.7)
LBW	104 (69.3)
Heart failure	7 (4.7)
Metabolic	14 (9.3)
Quantitative variable, mean \pm SD	
Mother age (years)	27.59 \pm 3.22
Infant age (weeks)	36.02 \pm 0.81
Infant weight (g)	2288.40 \pm 388.99
Duration of hospitalization (days)	4.52 \pm 0.68

SD - Standard deviation; LBW - Low birth weight; RDS - Respiratory distress syndrome

Table 2: The mother's perception of receiving family-centered care and satisfaction with care in neonatal intensive care unit

	Mean \pm SD	Median (IQR)
Overall mother's perception*	2.14 \pm 0.19	2.15 (2.0–2.30)
Domains of mother's perception*		
Respect	2.17 \pm 0.34	2.16 (2.0–2.50)
Collaboration	2.18 \pm 0.31	2.22 (2.0–2.44)
Support	2.02 \pm 0.37	2.0 (1.80–2.20)
Overall mother's satisfaction**	4.82 \pm 0.15	4.80 (4.72–4.93)
Domains of mother's satisfaction**		
Information	4.64 \pm 0.33	4.66 (4.50–4.83)
Caring and treatment	4.89 \pm 0.24	4.91 (4.70–5.11)
Parental participation	4.88 \pm 0.38	4.87 (4.62–5.12)
Organization	4.87 \pm 0.33	4.87 (4.62–5.12)
Professional attitude	4.82 \pm 0.28	4.83 (4.66–5.0)

*Item scoring range 1–4; **Item scoring range 1–6.

IQR - Interquartile range; SD - Standard deviation

and ourselves" (5.1). Conversely, the lowest level of satisfaction was linked to the item "The doctors and nurses worked closely together" (4.75).

In the parental participation subscale, the highest level of satisfaction was indicated by the item "We had confidence in the team" (5.04), while the lowest satisfaction level was associated with "Before discharge the care for our child was once more discussed with us" (4.69).

In the professional attitude subscale, the highest satisfaction level was associated with the item "The Neonatology unit instilled a sense of safety" (4.96), while the lowest satisfaction level related to the item "Ease of contacting the unit via telephone" (4.73).

Within the organization subscale, mothers reported the highest satisfaction with the item "The Neonatology unit instilled a sense of safety."^[5] Conversely, the lowest satisfaction level was associated with the item "Ease of contacting the unit via telephone" (4.78).

The Pearson test results revealed a significant positive correlation ($P \leq 0.001$) between the total score of mothers' perception of FCC and their satisfaction with NICU care. In addition, positive correlations were found between the total score of mothers' satisfaction and the collaboration subscale ($P = 0.01$) and the support subscale ($P \leq 0.001$). Furthermore, positive correlations were observed between the total score of mothers' perception and the organization subscale ($P \leq 0.001$) and the professional attitude subscale ($P = 0.04$), as shown in Table 3.

DISCUSSION

The objective of this study was to explore mothers' perceptions of receiving FCC and their satisfaction with the NICU, as well as to investigate the correlation between these factors. It is important to highlight that prior research has primarily concentrated on parents' perceptions of the importance of FCC, with minimal studies examining the actual experience of FCC in the NICU.

The results of this study indicated that mothers reported receiving levels of FCC below the average. Most mothers reported experiencing the different FCC subscales only occasionally. In contrast, a study

conducted by Gill *et al.* (2014) in Australia found that parents generally had positive perceptions of FCC, with many indicating that they "usually" received care related to aspects such as respect, support, and cooperation.^[20] In addition, a systematic review noted that parents of children with physical disabilities received respectful care, support, and participatory action to a notable extent.^[23] These findings differ from the outcomes of the current study, which may be influenced by cultural variations, differences in institutional resources, staffing, and hospital policies regarding the implementation of FCC.

In this study, mothers reported receiving less support compared to the other scales of FCC. The inadequacy of support for mothers of hospitalized neonates has been documented in several studies in Iran, highlighting a discrepancy between the expected support and the support actually provided by health-care professionals.^[7,16] Conversely, in the research by Gill *et al.*, parents received more care in terms of respect compared to cooperation and support.^[20] The disparity in these findings may stem from variations in organizational culture in implementing FCC, as well as the individual and social characteristics of the study participants.

This study indicated that mothers expressed a high level of satisfaction with the care provided in the NICU. Aligning with our findings, several previous studies have demonstrated that parents of neonates in NICU generally reported satisfactory levels of satisfaction with neonatal care.^[24] On the other hand, there have been contrasting results in other studies, with some reporting high levels of parental satisfaction with NICU care,^[25] while others noted lower levels of satisfaction.^[26]

In this study, mothers reported the highest satisfaction levels with treatment and care, but expressed lower satisfaction with the information provided. Similarly, a study by Costa-Cordella *et al.* found that parents were less satisfied with the information they received.^[26] In Alle's *et al.* study, the highest level of parental satisfaction was associated with information provision, whereas the lowest satisfaction was linked to the care and treatment subscales.^[27]

Table 3: Correlation between parent's perception of family-centered care and satisfaction with care in neonatal intensive care unit

	Mother's satisfaction, r (P)	Information, r (P)	Caring and treatment, r (P)	Participation, r (P)	Organization, r (P)	Professional attitude, r (P)
Mother's perception of FCC	0.28 (0.001)	0.08 (0.28)	0.12 (0.14)	0.08 (0.29)	0.25 (0.001)	0.16 (0.04)
Respect	0.08 (0.28)	0.03 (0.67)	0.02 (0.80)	-0.02 (0.80)	0.11 (0.17)	0.08 (0.32)
Collaboration	0.19 (0.01)	0.02 (0.78)	0.02 (0.76)	0.07 (0.34)	0.26 (0.001)	0.14 (0.08)
Support	0.22 (0.001)	0.11 (0.15)	0.20 (0.01)	0.09 (0.23)	0.03 (0.69)	0.05 (0.51)

FCC - Family-centered care

Furthermore, the findings revealed a significant correlation between mothers' perception of receiving FCC and their satisfaction with care in the NICU. This indicates that mothers' satisfaction with care tends to increase when they perceive they are receiving FCC, consistent with the findings from prior studies.^[28] For example, Voos *et al.* observed a notable increase in parental satisfaction scores among those who received FCC in their 2011 study.^[19]

A positive correlation was observed between the total score of mothers' satisfaction and the collaboration and support subscales, suggesting that when health-care providers collaborate with mothers and offer support, it can enhance maternal satisfaction with NICU care. Collaboration is a key dimension of FCC in the conceptual model of FCC.^[23] In addition, a qualitative study highlighted the importance of parents' involvement in neonate care and active support for creating a family-friendly NICU environment.^[29]

Similarly, a positive correlation was identified between the total score of mothers' perception and the organization and professional attitude subscales. This indicates that satisfaction with the organization improves when receiving FCC, a finding supported by other studies.^[24,30]

In this study, the researchers were unable to assess fathers' comprehension of FCC and their satisfaction with NICU care, as they were not consistently present at the hospital.

CONCLUSION

The current study aimed to identify the challenges associated with the adoption of FCC and factors contributing to mothers' dissatisfaction with NICU care. The findings indicated suboptimal implementation of FCC. It is recommended that nursing managers empower nurses in FCC implementation through ongoing training programs and adequate supervision. Moreover, the study demonstrated that implementing FCC could enhance mothers' satisfaction with the care of neonates in the NICU. Consequently, efforts should be made to recognize and address the barriers hindering the implementation of FCC.

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Conflicts of interest

There are no conflicts of interest.

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