

Promoting Attachment Development in Fathers of NICU Infants

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Abstract

Purpose: This study reviewed articles that examined care practices promoting attachment formation in fathers of NICU infants and aimed to provide recommendations for clinical practice.

Methods: The research design was a literature review. Articles were identified through searches in the CINAHL and PubMed databases using the keywords “father” AND “attachment” AND “NICU newborn.” The quality of included studies was independently assessed using the Critical Appraisal Skills Program (CASP) Qualitative Research Checklist (2024 edition). Seven papers were ultimately extracted from CINAHL, PubMed, and the Medical Abstracts of Japan.

Results: Few care practices specifically targeted fathers of NICU infants. Those identified included promoting kangaroo care, skin-to-skin contact, and hugging; providing information to fathers about their infants to encourage learning and involvement; and fostering kind, supportive communication from NICU staff toward parents.

Conclusion: Care practices promoting father-infant attachment included encouraging kangaroo care, skin-to-skin contact, and hugging; sharing information about the infant to enhance parental involvement; and supporting respectful, communicative relationships between NICU staff and parents.

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Introduction

The neonatal intensive care unit (NICU) provides specialized care for infants requiring emergency treatment at birth or in other critical situations. Because infant treatment is the top priority in NICUs, infants are often separated from both mothers and fathers, resulting in limited opportunities for parental interaction [1].

Early mother-infant contact is a critical factor in attachment development [2], shown to reduce behavioral problems in infants [3,4] and increase exclusive breastfeeding rates [5]. However, for infants hospitalized in NICUs, poor health immediately after birth often makes skin-to-skin contact, kangaroo care, and direct breastfeeding temporarily impossible, leading to early mother-infant separation. Furthermore, when infants are admitted to the NICU, parents are unable to perform their parental roles smoothly [6], which increases childcare difficulties and heightens parental anxiety [7].

In Japan, expectations for fathers to participate in housework and childcare have been rising, with paternal involvement recognized as important for preventing maternal perinatal depression [8]. Although more than 30% of fathers in Japan now take childcare leave, many report uncertainty about their roles. At the same time, the increasing number of infant abuse cases—most often perpetrated by mothers or fathers—has become a serious social concern. Strengthening father-child attachment is therefore essential, as greater paternal involvement has been linked to reduced child abuse and improved developmental outcomes [9].

However, in the case of NICU admissions, fathers may hesitate to interact with their infants out of concern for the infant's fragile health, which can hinder attachment development. Since interaction is a crucial element in fostering attachment, neonatal nurses play a vital role in supporting fathers, encouraging attachment formation, and promoting the development of fatherhood under these challenging circumstances.

Compared with mother-infant attachment, father-infant attachment has received limited research attention. Yet, insufficient attachment formation with fathers may negatively affect the child's rearing environment. Therefore, supporting father-infant attachment in the NICU—where such attachment is especially difficult to establish—is an important and urgent issue in neonatal nursing. To address this, the present study reviewed existing research on care practices that promote attachment formation in fathers of NICU infants and offers recommendations for clinical practice.

Methods

Relevant articles were identified using the following databases: CINAHL and PubMed. The search keywords used were “fathers” AND “attachment” AND “NICU infants”. A total of 6 articles were retrieved from CINAHL, 12 from PubMed, and 28 from the Medical Abstracts of Japan.

As part of the article selection process, one researcher (KK) conducted the initial screening, and two researchers (KK, YU) independently appraised the quality of the included studies using the Critical Appraisal Skills Programme (CASP) checklist for qualitative research (2024). Differences in CASP assessment scores between the two researchers were resolved through consensus.

Initially, articles closely related to the theme of “attachment development in fathers of NICU infants” were selected. All analysed papers were scored and validated using the CASP (2024). The scoring

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items included, for example: 1. Was there a clear statement regarding the aims of the research? 2. Is a qualitative methodology appropriate? 3. Was the research design appropriate to address the aims of the research? The CASP consists of 10 questions. The first two are screening questions and are easily answered. It is worth proceeding to the remaining questions if both are answered “yes.” For most items, respondents are asked to mark either “yes,” “no,” or “can’t tell.” CASP provides no clear cut-off point. However, Lavender et al. [10] judged that a score of ≥ 7 points indicates a high-quality paper, and this criterion was used when analysing papers in this review. The analysed articles consisted of 5 written in English and 2 written in Japanese. The metaphors, categories and raw data extracted from all qualitative articles were analysed thematically using NVivo 14 for Windows.

Results

Table 1 shows the previously reported care practices that promote attachment in fathers of NICU infants. There were relatively few practices of care specifically targeting fathers. The practices that were identified included promoting kangaroo care, skin-to-skin contact, and hugging; providing information about the infant, which encouraged parents to learn more about their child; and encouraging NICU staff to treat parents kindly and communicate with them.

Discussion

Compared to the interest in attachment formation among mothers of infants hospitalized in the NICU, there is less focus on care for

Table 1: Research on care to promote attachment in fathers of NICU infants.

	Authors	source	Date	title	Care for fathers
Research published in English					
1	Dong Q, Steen M, Wepa D, Eden A. Exploratory study of fathers providing	Journal of clinical nursing	2022	Exploratory study of fathers providing Kangaroo Care in a Neonatal Intensive Care Unit	The emotions experienced by fathers who participated in kangaroo care were as follows: “Positive psychological connection,” “Embracing father-infant kangaroo care,” and “Challenges to father-infant kangaroo care.”
2	Ingram J, Beasant L, Odd D, Chakkarapani E.	Health Expect	2022	Opportunity to bond and a sense of normality: Parent and staff views of cuddling babies undergoing therapeutic hypothermia in neonatal intensive care: 'CoolCuddle'.	After the CoolCuddle intervention (holding a baby undergoing cooling therapy for hypoxic-ischemic encephalopathy), the following five themes were extracted from the parents' feedback: 1. “Mixed feelings about CoolCuddle,” “Closeness,” “Sense of normality,” “Reassurance and support,” and “Skill set, staff numbers, and training issues.”
3	Olsson E, Eriksson M, Anderzén-Carlsson A.	J Pediatr	2017	Skin-to-Skin Contact Facilitates More Equal Parenthood - A Qualitative Study From Fathers' Perspective	The skin-to-skin experience of fathers of low birth weight infants was generally positive, and they felt that they were participating in infant care and that they were as important as mothers. The demands placed on fathers, such as the necessity of skin-to-skin contact due to premature birth, helped to build more equal relationships between fathers and mothers.
4	Ignell Modé R, Mard E, Nyqvist KH, Blomqvist YT.	Sex Reprod Healthc	2014	Fathers' perception of information received during their infants' stay at a neonatal intensive care unit	Providing information about the baby to the father by NICU staff increases the father's level of happiness and sense of control over the current situation.
5	Guillaume S, Michelin N, Amrani E, Benier B, Durrmeyer X, Lescure S, Bony C, Danan C, Baud O, Jarreau PH, Zana-Taïeb E, Caeymaex L.	BMC Pediatr	2013	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.	The compassionate attitude of nurses toward parents of NICU infants and communication with parents reduce parental stress and enable interaction with their infants.
Research published in Japanese					
6	Ami Towata	Bulletin of the Fukuoka Red Cross Nursing Research Association	2020	Fatherhood development for fathers of newborns in neonatal intensive care (in Japanese)	After implementing kangaroo care for two fathers of infants admitted to the NICU, the following themes emerged: “feeling like a father,” “feeling love for my baby,” and “developing a sense of fatherhood.”
7	Naoko Ito, Masako Nishimura	Perinatal Medicine	2007	- Through kangaroo care -	Kangaroo care was provided to 10 fathers during their children's stay in the NICU. The results showed that repeated care deepened their attachment to their children and increased their sense of closeness. Skin-to-skin contact through kangaroo care allowed fathers to feel the weight of their babies, observe changes in their facial expressions, and learn about their growth, which led to a sense of security and relaxation.

fathers. Previous studies have identified several components of care that promote attachment between fathers and their infants in the NICU, including promoting kangaroo care, skin-to-skin contact, and hugging; providing information about the infant to encourage parents to learn more about their child; and encouraging NICU staff to treat parents kindly and communicate with them.

For example, kangaroo care is known to improve the health of premature infants, low birth weight infants, and medically fragile full-term infants, and it contributes to achieving optimal perinatal health for both parents and infants. Historically, however, the primary provider of kangaroo care has been considered the mother [11]. Although research on this topic from the fathers' perspective remains limited, studies have described emotions associated with father-infant kangaroo care in the NICU, such as "positive psychological connection," "embracing father-infant kangaroo care," and "challenges to father-infant kangaroo care." Fathers reported experiencing a silent language of love and forming a connection with their infants through kangaroo care despite the challenges of the NICU environment [12].

In particular, infants in critical condition at birth may not be able to have contact with their fathers while receiving treatment in the NICU. For instance, parents of infants undergoing cooling therapy for hypoxic-ischemic encephalopathy are not permitted to hold their babies because of the risk of rewarming or dislodging breathing tubes or vascular catheters. However, a study that allowed fathers to hold their infants during cooling therapy found that the intervention did not interfere with treatment and, in fact, helped fathers develop a sense of closeness with their infants. Following the Cool Cuddle intervention (holding a baby undergoing cooling therapy for hypoxic-ischemic encephalopathy), five themes were identified in parents' feedback: "mixed feelings about Cool Cuddle," "closeness," "sense of normality," "reassurance and support," and "skill set, staff numbers, and training issues" [13]. This reaffirms that simply holding a child and deepening the parent-child bond provides an opportunity for fathers, in particular, to form attachment with their infants.

Furthermore, even visiting the NICU may provide opportunities for fathers to develop attachment with their infants [14]. During the COVID-19 pandemic, visitation restrictions had a significant impact on parents' ability to acquire their parental roles. It has been reported that these restrictions, in particular, left fathers feeling emotionally isolated and struggling to learn how to care for their infants [14]. Restrictions on visiting and the inability to see their infant's face may delay attachment formation. Since such limitations can negatively affect families, it is important for NICUs to establish systems that balance infection prevention with parental access.

In an interview study with fathers of single-birth premature infants in the NICU at Canada's largest university-affiliated maternal and child health centre, a model of the relationship between fathers and their premature infants was proposed [15]. The study suggested that the central theme in fathers' relationships with their NICU infants is "involvement," which may take concrete forms such as carrying the infant to the NICU entrance and thereby fostering positive emotions.

Although fathers are often separated from their infants admitted to the NICU, studies indicate that when NICU staff provide fathers with information about their infants, it increases paternal happiness and fosters a sense of control over the situation [16].

Taken together, the evidence indicates that attachment formation between fathers and their NICU infants often depends on

opportunities for contact. Fathers are likely to feel close to their infants and develop affection through such interactions. Additionally, it is important that NICU staff provide care by explaining the infant's condition to fathers in a thoughtful and supportive manner.

Conclusion

There has been limited practice of care specifically targeting fathers of infants hospitalized in the NICU. Identified care practices included promoting kangaroo care, skin-to-skin contact, and hugging; providing information about the infant to encourage parents to learn more about their child; and fostering kind and supportive communication from NICU staff. Furthermore, fathers' attachment to their infants can be enhanced when NICU staff provide detailed explanations about the infant's condition.

Author Contribution

YO and KK, as the primary authors, coordinated all aspects of the study, developed the study hypotheses, and completed the manuscript. Both YO and KK contributed to generating ideas, processing study data, presenting the results of the analysis, and preparing the final paper.

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Competing Interests

The authors declare that they have no competing interests.

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