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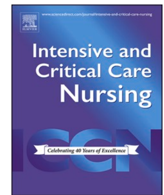

Research Article

# Fathers' experiences of nurses' roles and care practices during their preterm infant's stay in the neonatal intensive care unit

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ABSTRACT

*Introduction:* Neonatal intensive care unit (NICU) nurses play a crucial role in providing infant care, as well as in bridging the communication gap with parents.
*Aim:* Explore fathers' perceptions and interactions with nurses during their preterm infants' stay in a NICU.
*Design:* Qualitative study using ethnographic data collection techniques.
*Methods:* Twenty fathers of preterm infants were purposively sampled in a level III NICU in Italy. Data collection comprised 120 h of participant observation, 68 informal conversations, and 20 semi-structured interviews. Data analysis was performed using reflexive thematic analysis.
*Results:* Analysis revealed five primary themes: (i) communication and clarity about infants' health condition and progress, (ii) inclusiveness and guidance from nurses, (iii) fathers' satisfaction with nurses' support for mother, (iv) nurses' personal attention to the babies, and (v) nurses' varied personalities.
*Conclusion:* Nurses are crucial in facilitating father-infant bonding in the NICU. Although the content of nurse communication is critical for fathers, the delivery style becomes especially relevant during their infant's hospitalization. Discrepancies in messages and guidance can negatively impact fatherly confidence and their ability to care for their preterm infants and support partners. Thus, training that emphasizes the recognition of the unique ways that fathers exhibit distress is crucial.
*Relevance to Clinical Practice:* Nurses play a critical role in shaping the fathers' experiences in NICU. Emphasizing clear communication and individualized care is vital. To strengthen father support in NICU settings, recommended approaches include regular training, holistic care, fostering inclusivity, emotional support, and improving bonding opportunities.
*Reporting Method:* Adherence to the COREQ guidelines.

## Introduction

The neonatal intensive care unit (NICU) operates as a specialized care facility for premature or critically ill infants, ensuring that they receive the necessary medical attention. For parents, the NICU often emerges as an overwhelming environment, brimming with unfamiliar technology and medical jargon [1,2]. Amidst this, the looming concerns about the infant's health and potential changes in parental role add to the complexity of the situation [3]. In the NICU, nurses play a crucial role in providing infant care, as well as in bridging the communication gap with parents [4]. Their supportive role is essential to promote parental bonding, improve the caregiving experience, and facilitate understanding. This support can be categorized into structural and functional components [5]. Structural support refers to the interactive network, while the functional dimension encompasses various forms of assistance, namely instrumental, emotional, evaluation, and informational support. In the context of family-centered care [6,7], nurses' involvement is pivotal not only in providing medical care but also in supporting parental roles and fostering family dynamics within the NICU environment. The role of nursing potentially transcends mere medical care, influencing parental involvement, confidence, and the general well-being of both mother and father.

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## Background

Historically, mothers' experiences and needs during hospitalization of a preterm infant received the most attention [8], whereas fathers' lived experiences are much less understood [9–11]. However, there is now a growing recognition of the different challenges and perceptions faced by fathers.

Even in settings where family-centered care is implemented, fathers often feel their role is underrated, and parents frequently report that fathers are viewed as secondary to mothers within the NICU, leading to their marginalization [12]. Some nurses also report feeling uncomfortable with the prolonged presence of fathers while performing their routine work [12,13].

Recent studies have illuminated how fathers within the NICU setting manifest stress differently from mothers [14,15]. While mothers' symptoms often encompass anxiety and fatigue, fathers tend to experience anger or fear [16,17]. A significant observation is that many fathers may not openly show signs of stress until their child is discharged from the NICU [18].

An essential nuance in the NICU journey is that fathers are frequently the first visitors, being present alongside their babies while mothers recover after childbirth [19]. This initial interaction is of paramount importance. Typically, the attending nurse uses this period to explain the infant's health status and intended care regimen. However, these interactions are often clouded for fathers, who grapple with simultaneous concerns for their newborn and recovering partner [20,21]. This juggling of roles, oscillating between being a supportive partner and an anxious new parent, introduces layers of emotional complexity [22,23]. Furthermore, fathers often sideline or hide their own emotional and daily life needs [20,24].

Research in the NICU consistently highlights that many fathers feel marginalized. About half of fathers report a lack of emotional support and insufficient information on the care of their child [25,26]. This sense of sidelining deepens when medical consultations predominantly involve mothers, pushing fathers to the sidelines [17,27]. Such exclusionary experiences can heighten feelings of distress and helplessness [28,29].

The role of nurses in shaping these experiences is crucial. Although fathers may appear composed outwardly, many internally confront the expectation of remaining unyielding for their families, sometimes to the detriment of their emotional health [27,30]. However, the dynamics between nurses and fathers can vary considerably. Some fathers expressed satisfaction with the support provided by nurses to them [31] and especially to their children [32], while others felt that inconsistent behavior of different nurses increased their anxiety, leading to confusion about what was expected of them [33]. This varied treatment from nursing staff, especially when they perceived a bias toward mothers, resulted in fathers feeling further alienated.

However, in instances where nurses were meticulous in explaining, answering questions, and clarifying care rationale, fathers felt empowered, valued, and more in control of the situation [25], demonstrating the principles of FCC in action. Such positive interactions underscore the lasting impression that the NICU experiences an imprint on fathers [26] and the indispensable role of nurses in shaping this journey.

Incorporating family-centered care principles, which emphasize collaborative involvement of both patients and their families in the healthcare process, can address the unique needs and challenges faced by fathers. Supporting fathers not only reduces paternal stress, but also fosters father-infant interaction and promotes infant general well-being [29,34]. However, to fully harness the potential of these supporting interventions, understanding fathers' perceptions is paramount. Although the NICU environment significantly influences fathers and underscores their crucial role in family support, the literature that explores fathers' views of NICU nurses is limited.

The aim of this study was to explore the perceptions and interactions that fathers of preterm infants have with nurses during their stay in the NICU.

## Methods

### *Study design*

An ethnographic observation with observations, semi-structured interviews, and clinical data was conducted. Ethnography is 'a science about humans by humans' [35], which uses an interpretive methodology to offer in-depth representations and aims to clarify the cultural knowledge of a certain community [36,37]. This research, conducted on-site in the NICU, focused on analyzing the behaviors and narratives of fathers of preterm infants. The objectives, rationale, and methodology of the larger study are detailed in the study protocol [38]. The reporting of the present article adheres to the COnsolidated criteria for REporting Qualitative studies (COREQ) checklist (see Appendix S1).

### *Study setting*

The research was conducted in a Level III NICU at the "Borgo Roma" University Hospital in Verona, northern Italy. The unit featured two intensive-care rooms equipped with open heated cots under radiant warmers and incubators, one sub-intensive-care room with incubators, and one ordinary care room with open cots and no breathing support. Each room had five beds. The nursing team included about 30 members of the staff, with six nurses on duty during the day and five nurses at night. Approximately 450 neonates with various medical and/or surgical conditions were admitted annually to the ward. A significant proportion of these patients were preterm infants (20 % with a gestational age of ≤32 weeks) who required medical interventions and technical support, such as incubators, respirators, continuous positive airway pressure, and feeding tubes.

The unit practiced family-centered care, providing parents with psychological support and guidance on how to interact with their infants. Once the infant was stable enough to be moved out of the incubator, parents were encouraged to engage in daily skin-to-skin contact and actively participate in their infant's care. Parents had access to the intensive- and sub-intensive-care rooms from 8:00 a.m. to 8:00p.m., while the ordinary care room was open to them 24 h a day.

### *Participants and sampling procedure*

Biological fathers of babies born before 34 weeks of gestation of Italian origin, and living in the home with the mother of the baby were eligible for inclusion; those with a diagnosed or evident psychiatric mental disorder and/or who misused drugs or substances were excluded. Participants were recruited through purposive sampling. Twenty fathers were enrolled in the study. Tables 1 and 2 report the characteristics of fathers and their babies, respectively.

A field researcher (AS) undertook data collection. He was a male Ph. D. student and licensed clinical psychologist (Psy.D.) trained in infant observation and psychological assessment. He was presented to parents by ward staff as a psychologist conducting a research project funded by the University of Verona, unaffiliated with the hospital.

The eligibility criteria significantly reduced the number of families that could be contacted, as almost 40 % of the families were immigrants or had at least one foreign parent. The larger study included a component that required both parents to be recruited, since mothers were required to be videotaped during spontaneous face-to-face communication with their preterm babies. For this part of the study, 15 families refused to participate. In only one case, the decision not to join the study was attributed to the father's preference; in the remaining 14 cases, the preference of the mother was the reason given to the researcher. Six fathers were asked to join the study without involving their partners, and all six accepted.

**Table 1**
Father characteristics ($N=20$).

| Age (years) | |
|---|---|
| Mean (SD) | 39 (5) |
| Median (IQR) | 41 (35–44) |
| Range | 31–47 |
| First-time parents | 14 (70 %) |
| Educational level | |
| Middle school | 2 (10 %) |
| High school | 12 (60 %) |
| University | 6 (30 %) |
| Working status | |
| Employed | 20 (100 %) |
| Socioeconomic status | |
| Mean (SD) | 2.9 (0.6) |
| Median (IQR) | 2.8 (2.5–3.2) |
| Range | 1.8–4 |
| CES-D score | |
| Mean (SD) | 14.9 (7.7) |
| <16 | 11 (55 %) |
| ≥16 | 9 (45 %) |

*Note.* CES-D=Center for Epidemiologic Studies Depression Scale [39]; cut-off for depression ≥16. Socioeconomic status was coded using Pierrehumbert et al.'s [40] 4-point scoring system derived from Hollingshead's Index. Specifically, socioeconomic status was categorized into three levels based on education and professional status: Level 1 represented no training and/or an employee position; level 2 indicated specialized training and/or a specialized position; and level 3 corresponded to high-level education and/or private practice in a profession. Education and professional status were coded separately for the father and his co-habiting partner, and the scores were then averaged.

**Table 2**
Infant characteristics ($N = 28$).

| Pregnancy | |
|---|---|
| Singleton | 12 (60 %) |
| Twin (couples) | 8 (40 %) |
| Type of birth | |
| Vaginal | 1 (4 %) |
| Cesarean | 27 (96 %) |
| Infant biological sex | |
| Males | 12 (43 %) |
| Females | 16 (57 %) |
| Gestation at birth | |
| <28 weeks | 3 (11 %) |
| 28–31 weeks | 12 (43 %) |
| 32–36 weeks | 13 (46 %) |
| Birth weight | |
| <1.000 g | 5 (18 %) |
| 1.000–1.500 g | 10 (36 %) |
| 1.500–2.500 g | 13 (46 %) |
| Perinatal risk score (PERI) | |
| Mean (SD) | 8.4 (6.2) |
| Median (IQR) | 5 (1–10.3) |
| Range | 1–21 |
| Presence of major sequelae (Yes) | 17.9 % (5) |
| Length of time spent in NICU (days) | |
| Mean (SD) | 51 (35) |
| Median (IQR) | 46 (22–65) |
| Range | 10–143 |

*Note.* PERI=Perinatal Risk Inventory [41]; cut-off for risk ≥5.

*Data collection*

Data comprised field notes, informal and formal individual interviews, participant observations, semi-structured interviews, self-report questionnaire on depressive symptoms, and infant clinical data. The field researcher spent ~ 300 h at different times and on different days observing interactions between fathers and the NICU population (i.e., their infant, their partner, and the NICU staff) over a period of 18 months.

*Participant observation, field notes, and informal conversations*

During an eighteen-month period, a total of ~120h of participant observation and 68 informal conversations were conducted with 20 fathers. Observations were carried out to follow a specific participant throughout his stay in the NICU. The level of participation of the field researcher varied and depended on the activity. The passive observer role was used during father-infant, father-partner, and father-NICU staff interactions. Active participation was used during informal conversations. In some situations, the field researcher approached the fathers with questions to gain insight into their account of a specific event. Field notes were generated as soon as possible after each activity.

*Semi-structured interviews*

An individual semi-structured interview was conducted with each father face-to-face in a private room in the NICU when the infant's medical condition had been stabilized. The interview guide was developed based on existing literature (e.g., [17,42–44] and the recommendations of subject matter experts. It consisted of three macro themes: the infants, the partner (i.e., the infant's mother), and the NICU environment/staff (see Table 3). Fathers were initially asked about the ward staff in general, rather than specifically about nurses or neonatologists, to allow for the spontaneous emergence of thoughts or associations between specific situations or activities and physicians *versus* nurses. For example, we were interested in which professional category fathers would prioritize when discussing their perception of the relationship between their partner and the department staff.

*Preunderstanding within the research team*

The research team included professionals with diverse backgrounds and levels of experience in NICU settings. Two members were seasoned neonatologists with decades of experience in NICU settings, another specialized in clinical psychology and psychological assessment, and the fourth was a psychiatrist. These mental health professionals had no prior experience in the NICU setting. Furthermore, two developmental psychologists were involved in the part of the study on parent-infant interactions.

*Methodological rigor*

The rigor of the study was upheld by adhering to the criteria for naturalistic inquiry [36]. To enhance credibility, the research integrated fieldwork, which included observations and non-tape-recorded informal interviews, alongside semi-structured interviews. A triangulation process was used to cross-check the findings across multiple data sources.

Regarding trustworthiness and credibility, the study involved prolonged engagement in the field. Various methods, including observations, participant observations, and interviews, were utilized. Auditability was ensured through a recorded paper trail.

The bias of the researcher was addressed in several ways. Methodological notes were taken to account for the presence of the researcher and any problems that could affect data collection. Although the

**Table 3**
Examples of type of questions.

| Type of question | Example of question |
|---|---|
| Infant(s) | Did you perform caregiving activities (changing diapers, feeding, bathing, etc.) for *[baby's name]*? |
| Partner | Have you ever watched *[partner's name]* while she was taking care of *[baby's name]*? |
| NICU | How do you find the relationship between your *[partner's name]* and the department staff? |

researcher was known to the parents, as is common in many ethnographic studies, objectivity was maintained throughout data collection. A continuous and thoughtful review process of the observations helped to maintain as much objectivity as possible. The researcher bracketed his own perceptions early on, prior to the beginning of the study, to remain aware of potential preconceived notions.

To further ensure objectivity and minimize bias, observations were periodically supervised by a clinical psychologist with extensive experience in NICUs. These supervisions mainly focused on ethnographic techniques for data collection, such as the importance of informing informants (the fathers, in this case) that the purpose was to learn from them and then keeping the conversation focused on the topic while allowing the informant to express his thoughts. Additionally, to mitigate biases, the team engaged in reflexive discussions to clarify preconceptions and ensure a multi-angled data interpretation. The instrument for this study – i.e., the researcher – was reliable in that it remained consistent and was the only individual who completed the observations and conducted the interviews.

The substantial number of observation hours in the NICU, covering different days and times, further solidified the validity and trustworthiness of the data.

*Data analysis*

Data were processed using the reflexive thematic analysis method, following the framework developed by Braun & Clarke [45–47]. Given the ethnographic orientation of our study, this method was appropriate due to its ability to integrate diverse data streams. The data set included observation notes, transcripts of informal conversations and semi-structured interviews, reflection notes, and memos. Field notes and transcribed interviews were included from the beginning of the six-phase thematic analysis process. Each statement was treated as valuable for gaining deeper understanding of one or multiple concepts.

The first author thoroughly familiarized with the data, comparing semi-structured interview data with memos from the interviews and observations. All data were analyzed and discussed in relation to the reflections from the field observations. The primary focus of the coding was on the fathers' narratives about their perceptions of nurses and their interactions with nurses within the NICU. The first and second authors independently read, coded, and analyzed the material to ensure trustworthiness and capture the nuances in the findings [48]. Preliminary themes were developed, reviewed, and finalized into five main themes. The final stage of the analysis, which involved writing the report, included selecting illustrative quotes for each theme. All quotes originally in Italian were translated into English for greater accessibility. Table 4 provides a snapshot of this analytical process.

*Ethics approval*

All fathers provided written informed consent according to the study protocol [38] approved by the Ethical Committee for Clinical Trials of the Verona and Rovigo Provinces (reference no.: 569CESC). The research was conducted in accordance with the Declaration of Helsinki. Participants could withdraw at any time without explanation or effect on their or their children's current or future care [49]. All data were anonymized, assigned an alphanumeric code, and securely stored [50]. Contact information for health professionals was provided in case of inconvenience or need for further information.

**Findings**

Five main themes were identified from thematic analysis of the collected data: (i) communication and clarity about infants' health condition and progress, (ii) inclusiveness and guidance from nurses, (iii) fathers' satisfaction with nurses' support for mothers, (iv) nurses' personal attention to the babies, and (v) nurses' varied personalities.

**Table 4**
Example of the analytical process.

| Illustration | Initial codes | Theme |
|---|---|---|
| The father sits next to his son, looking somewhat overwhelmed. He tentatively leans over the incubator, his fingers hovering just above its transparent lid. His posture suggests hesitancy, and his eyes remain fixed on the tiny infant inside. A nurse approaches and offers a comforting smile, initiating a gentle conversation about the baby. She confidently guides the father's hand closer, reassuring him that his touch will not harm the baby. Their hands — one clearly experienced, the other a beginner's — touch the infant simultaneously. It's a static touch. The father's eyes, notably expressive, convey deep emotion. Sensing his emotional state, the nurse assures him that everything is fine, emphasizing the baby's calmness. She then leaves them and continues to her next duty. After waiting a few moments, I approach the father. Our conversation begins with general pleasantries. As we continue, he opens up. Father: "I always feel like I'm walking on eggshells here. It's so intimidating. But the nurses show me what to do, how to touch [son's name]. He's so tiny. I always observe how they handle the babies; I always wonder how they don't break them, and I try to replicate their movements in my mind. But actually, doing it is daunting; I fear hurting him. Even today, before I touched him, I felt apprehensive." | Hesitancy & apprehension<br>Physical interaction guidance<br>Emotional reassurance<br>Observation & learning | Inclusiveness and guidance from nurses |

Table 5 provides illustrative quotes for each theme that occurred.

*Communication and clarity about infants' health conditions and progress*

Many fathers felt that nurses kept them well-informed about their infants' health conditions and the daily progress of the treatment plan. (It should be noted that this refers to general updates on the child's condition, response to medications, and development trajectory (e.g., weight gain), not to specific medical updates like the results of instrumental examinations). However, some fathers (20 %) perceived ambiguity or lack of clarity in the communication, which was a significant source of emotional distress. This perception was usually related to the communication of prognostic information, which often had an inherent uncertainty about specific outcomes. Interestingly, some fathers who were satisfied with the communication from both nurses and doctors still reported repeatedly asking the same questions to different nurses. They sought continuous confirmation of what the previous nurses had said and reassurance about their own understanding of the information.

*Inclusiveness and guidance from nurses*

Most fathers (85 %) felt included by nurses when it came to caring for their babies. They believed that they received equal treatment as their partners, even after the initial days when their partners were bedridden, enjoying the same rights, responsibilities, and access. All fathers noted that nurses demonstrated how to care for their newborns to varying degrees. By observing nurses intently, fathers acquired the essential skills to care for their babies, increasing their active participation.

**Table 5**
Themes, quotes, and number of interviews in which themes were mentioned.

| Theme | Illustrative quotes |
|---|---|
| Communication and clarity about infants' health condition and progress | "The hospital's communication is never entirely clear or black and white. It is often ambiguous, leaving room for interpretation and imagination. Now, [son's name] is doing well and we can see the end of his stay in the NICU approaching, but I was very concerned about the lack of definitive answers on his condition and the effects of the treatment he was undergoing." "When the situation was still uncertain, and we weren't sure about the possible consequences, the doctors and nurses would explain how things were progressing, and it was clear. But I felt the need to hear the updates multiple times from various people. I would consistently ask every nurse about [son's name] condition and sometimes even ask another nurse to reconfirm what I'd heard, even when I knew I'd understood correctly. It seemed like hearing ten people say things were going well would genuinely reassure me. However, deep down, I felt that even if a thousand people gave me the same positive feedback, I wouldn't truly be at ease." |
| Inclusiveness and guidance from nurses | "It's our first child, and we're inexperienced with newborns. Her fragile and petite nature is quite intimidating; there's this overwhelming fear of causing harm just by holding or even touching her. Yet, watching the nurses handle and care for them reassures us. I paid close attention to their interaction with [son's name] and other infants on the ward, trying to learn the right approach. The desire to hold and embrace him is profound, but the fear of inadvertently hurting him is equally strong. Seeing nurses in action and their consistent assurances that it was safe, and even beneficial for [son's name], offered immense relief." |
| Fathers' satisfaction with nurses' support for mother | "The staff here are outstanding, and we believed everything was excellent. But the guidelines for parental care, like how long to wait before bottle-feeding our daughters' post-bath, varied among nurses without clear general instructions. This inconsistency was sometimes perplexing, especially for [partner's name], leading her to feel uncertain and questioning her maternal capabilities." |
| Nurses' personal attention to the babies | "I tried giving him a pacifier, but he kept refusing it. A nurse approached us, explaining that he favoured a different teat type, and handed it to me. He accepted it instantly. This gesture reassured me, signalling that they were genuinely observant of his needs, not solely focusing on medical care." Another dad shared: "I sat next to [daughter's name], watching her gaze intently around. A nurse passing by remarked, 'she's so alert, always looking at her surroundings.' The realization that the nurses might know her nuances even better than I did was both melancholy and heartening. It underscored their genuine care for her." |
| Nurses' varied personalities | "There's a rotation of nurses here; you meet one today, and a different one tomorrow. Some are naturally cheerful, and others are more reserved. Some nurses, when they can, take extra time to discuss how [children's names] are doing, while others are more succinct. Yet, they all demonstrate proficiency and genuine concern for the babies. Whenever we have questions, which is frequent, the staff is always approachable." |

*Fathers' satisfaction with nurses' support for mother*

Most of the fathers expressed high satisfaction with the nurses' support for their partners. This support included emotional reassurance, information dissemination, and encouragement for parental participation in infant care. However, a minority (15 %) felt that despite general satisfaction with support, the advice given on infant care often reflected the perspectives of individual nurses rather than standardized nursing guidelines. This inconsistency led to confusion for both parents, somewhat tainting their care experience.

*Nurses' personal attention to the babies*

Fathers acknowledged that the intimate knowledge of their child (ren) demonstrated by NICU nurses played a critical role in comforting their anxieties and fears, contributing to their overall positive experience. This understanding was not only rooted in medical expertise but also in recognizing the habits and preferences of the infant.

*Nurses' varied personalities*

Some fathers (20 %) highlighted the diverse personalities among the nursing staff, ranging from outgoing to reserved, and even stern. While these differences were observed, the fathers distinguished personality from the quality of care and support each nurse provided. For them, consistent high-quality care trumped personal style.

## Discussion

The findings from this study provide nuanced insights into the perceptions and interactions fathers have with nurses during their NICU stay. They show that fathers generally had positive perceptions of their interactions with NICU nurses, appreciating their communication, inclusiveness, support for mothers, and personal attention to their infants. However, some fathers experienced challenges with communication clarity and consistency in care advice, which occasionally led to confusion and emotional distress. Despite these issues, the overall quality of care and support provided by the nurses significantly contributed to a positive experience for the fathers during their preterm infants' stay in the NICU. Findings were described in five overall themes.

*Communication and clarity about infants' health condition and progress*

In line with the existing literature, clear and recurrent communication was identified as a crucial factor determining father satisfaction [31,51,52]. While most fathers believed they were well informed about their infants' medical conditions and treatment plans, a certain group expressed feelings of uncertainty and resulting emotional distress. The expressed desire for continuous reassurance indicates that during their child's hospitalization, fathers are searching not only for information but also for emotional containment. This is consistent with previous studies suggesting that despite receiving substantial neonatal nursing support in caregiving and information dissemination, fathers often felt emotionally underserved during their stay in the NICU [5]. This underscored need for holistic support resonates with the observations of Arockiasamy et al. [42], which emphasize the importance of effective communication with the healthcare team as a means of instilling a sense of control in fathers. In general, communication appears to be a linchpin

of care satisfaction.

*Inclusiveness and guidance from nurses*

Our findings indicate that fathers perceive a significant level of inclusivity and guidance from nurses in the NICU. Through active involvement in infant care and the provision of hands-on demonstrations, nurses appear to be instrumental in empowering fathers. This increases father confidence and encourages their active participation in childcare. This pivotal role for nurses in nurturing the bond between hospitalized newborns and their fathers is echoed in previous studies [4,5,24] highlighting the crucial relationship between neonatal nurses and fathers. These studies emphasize the importance of addressing the unique needs of fathers, especially those who may have had limited interaction time in the NICU or who might feel less confident. In essence, professional guidance and positive demeanor of the medical team are vital to boost the confidence and participation of fathers in the NICU.

*Fathers' satisfaction with nurses' support for mother*

In the NICU environment, the satisfaction that fathers express about the support nurses offer their partners highlights the intertwined nature of family support. When fathers witness and praise the care their partners receive, it strengthens their trust and confidence in the nursing staff. However, our findings resonate with sentiments from other studies, revealing an inconsistency in care advice that often perplexes fathers [53,54]. Such inconsistencies further magnify the multifaceted challenges fathers face, from supporting their partners in the NICU to juggling other obligations like work and caregiving for other children [5]. This underscores the need for a comprehensive support system that addresses these varied challenges holistically.

*Nurses' personal attention to the babies*

The attentiveness of nurses to the habits and preferences of infants resonates deeply with fathers, highlighting the comprehensive and human-centered approach adopted by NICU nurses. Such personal care echoes the findings of previous studies [31,55]. These works emphasize the paramount importance of a nursing support system that goes beyond a simple medical intervention, also focusing on the unique emotional and familial needs of each patient.

*Nurses' varied personalities*

The range of personalities among nurses was not a primary factor in shaping fathers' perceptions, as long as consistency and quality of care were maintained. This crucial finding emphasizes that, while personal attributes of nurses do matter, proficiency and a uniform standard of care take precedence. Thus, striking a balance between personal demeanor and clinical expertise is central to the broader discussions surrounding NICU experiences.

*Strengths and limitations*

This research is distinctive, being among the limited qualitative investigations that investigate fathers of preterm infants' perspectives on NICU nurses. While its scope is limited to a NICU in an Italian university hospital, potentially constraining its wider relevance, the findings echo many international studies. A salient strength of this study is its ethnographic approach, which uses a mix of data collection methods to elucidate disparities and present multifaceted insights into the data [37]. By using examples from the data, transparency between the data and findings is ensured. The integration of participant observation meant that the researcher was not just an observer but an active conversationalist, suggesting that the data collection was a joint effort. This interaction may have inadvertently shaped the results, leading participants to potentially reconsider or act differently from their initial inclinations. In an effort to counter personal biases, the researcher maintained reflective daily field notes and held regular discussions with clinical and developmental psychologists. It is worth noting that the primary researcher, who managed data collection, was proficient in the Tavistock method of parent-infant observation and was trained in child and family psychotherapy, as well as psychological assessment. Data interpretation was further enhanced by working in collaboration with an external mental health expert, ensuring a wide range of expertise and minimizing the risk of oversight arising from inherent biases [37]. A limitation to note is that participants were not given an opportunity to review the study findings, thus hindering comprehensive data triangulation. Furthermore, although the study sample is homogeneous in certain key aspects (such as Italian cultural background and premature birth of the neonate), the limited sample size ($N$=20) precludes in-depth analysis of similarities and differences within subgroups for specific variables such as the presence of sequelae, socioeconomic conditions, or the birth of a single baby rather than a twin pair.

**Conclusion**

This study aimed to investigate and describe the perceptions and interactions of fathers of preterm infants with nurses in a level III NICU in Italy. The findings have profound implications for clinical nursing practice. Nurses play an essential role in creating opportunities for fathers to bond with their babies, allowing them to embrace their paternal role even in the challenging NICU setting. In addition, they are instrumental in supporting fathers as they navigate emotional hurdles. In particular, for these fathers, the substance of nurse communication appears to outweigh the style of delivery, particularly during the hospitalization of their child. Inconsistent messages and nurses' guidance can adversely affect father confidence and experience in caring for their preterm infants, as well as their ability to support their partners. Therefore, specialized training that focuses on recognizing the distinct ways in which fathers manifest distress is of paramount importance.

**Relevance to clinical practice**

Our study reveals critical implications for clinical practice in the context of fathers of preterm infants hospitalized in NICU. The role of nurses in shaping the NICU experience for these fathers is pivotal. Clear and consistent communication, coupled with personalized care, emerge as fundamental elements.

To enhance support for fathers in NICU settings, we recommend a multifaceted approach:

- *Regular training*: Prioritizing ongoing training for nurses is crucial to standardize communication and care guidelines. This ensures that fathers receive consistent and reliable information and support throughout their NICU journey.
- *Holistic care:* Emphasizing holistic care, which encompasses both medical and emotional aspects, is essential. Fathers often experience a wide range of emotions and stressors, and addressing these aspects is paramount for their well-being.
- *Inclusion*: Creating an inclusive environment where both parents are actively involved in their infant's care is essential. Encouraging fathers to participate in caregiving tasks can significantly improve their sense of involvement and support.
- *Emotional support*: Recognizing and addressing the often-disguised emotional needs of fathers is crucial, as they often feel overwhelmed and neglected in the NICU setting. Providing emotional support can alleviate your distress and improve your coping mechanisms.
- *Strengthening bonds*: Facilitating stronger bonds between neonatal nurses and fathers can optimize the NICU experience of these

parents. This can be achieved through regular communication, empathy, and a patient-centered approach.

By implementing these recommendations, healthcare facilities can improve the overall quality of care and support provided to fathers during this challenging period, ultimately improving the well-being of fathers and their families.

## CRediT authorship contribution statement

**Alberto Stefana:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Stefano Barlati:** Writing – review & editing, Formal analysis. **Renzo Beghini:** Writing – review & editing, Supervision. **Paolo Biban:** Writing – review & editing, Supervision.

## 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.

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