Original Article

Why Do Nurses Fail to Implement Pain Assessment Instruments for Hospitalized Infants?

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Abstract

Background: Effective pain assessment in neonatal care is crucial for ensuring the well-being of newborns. However, barriers to its successful implementation persist. This study aims to identify the obstacles that hinder effective neonatal pain assessment by Neonatal Intensive Care Units (NICUs) nurses. **Materials and Methods:** This qualitative study was conducted using the method of conventional content analysis. Purposive sampling was employed from February to September 2023, selecting 14 female nurses working in NICUs of hospitals in Tehran and Karaj as participants. Indepth, semistructured interviews were conducted to collect the data. The software "MAXQDA" version 2016 was utilized for managing qualitative data. **Results:** Four main themes and eleven subthemes were identified: "Overtasked," "Discordant atmosphere," "Soulless care," and "Lack of awareness." Each of these main themes is further elaborated through the subsequent subthemes. **Conclusions:** This study found that the lack of knowledge and understanding of neonatal pain assessment tools, the busyness of nurses, lack of time, excessive documentation, and the inadequacy of staff relative to the number of newborns were the most significant obstacles to the assessment of newborn pain. Addressing these challenges is critical for optimal neonatal pain assessment and management, promoting the well-being of newborns.

Keywords: *Infant, intensive care, neonatal, nurses, pain, pain measurement, qualitative research*

Introduction

Hospitalized neonates in Neonatal Intensive Care Units (NICUs) not only experience separation from their families but are also consistently exposed to the unpleasant sensation of pain.[1] According to prior research, each hospitalized infant endures an average of 16 to 20 painful procedures daily. These procedures include actions such as venipuncture, Peripherally Inserted Central Catheterization (PICC), oral suctioning or tube insertion, tape removal, chest tube insertion, circumcision, handling, monitoring, and even routine activities like diaper changes.[2,3] Interestingly, some seemingly straightforward procedures, such as diaper changes, are not always perceived by healthcare providers, including nurses, as painful or distressing.[4] Given the complexity of pain assessment in neonates and infants, responses predominantly rely on behavioral and physiological indicators of noxious stimuli.[5] Since neonates cannot report pain, appropriate and accurate assessment of pain is necessary for deciding the effective pain management.[4,6-8] Research findings demonstrate that untreated pain, even in the absence of verbal responses, significantly elevates stress hormone levels in infants' bloodstream.[9] Consequently, Ten Barge argues that healthcare professionals should rely on behavioral, physiological, and biochemical responses for assessing infant pain.[1] This is particularly crucial, as untreated pain, due to its duration, can lead to both short- and long-term physical, psychological, and emotional consequences.[10,11] Consequently, several assessment instruments have been tailored for infants, empowering nurses to employ suitable interventions based on pain levels, thus facilitating effective pain management and rapid infant recovery.

Nonetheless, despite the availability of various assessment instruments, gauging pain in infants remains a persistent challenge for healthcare providers.[12] Perry's 2018 study highlighted a gap between knowledge and practical application in assessing

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and managing infant pain, resulting in substantial pain management challenges.[4]

While some studies suggest that caregivers' limited awareness of pain measurement and relief strategies for infants contributes to these challenges, comprehensive documentation concerning the reasons and barriers for deficient pain assessment is lacking. Understanding these impediments is vital for healthcare administrators, educators, and clinical planners, potentially paving the way for the design and implementation of targeted interventions. Therefore, this study aims to identify the obstacles that hinder effective neonatal pain assessment by NICUs nurses.

Materials and Methods

This qualitative study was conducted using the method of conventional content analysis. The research was conducted from June 2022 to May 2023. Qualitative content analysis serves as a research approach that delves into individuals' comprehension of everyday occurrences and aids in the interpretation of textual data.[13] Purposive sampling was employed, and fourteen female nurses working within NICUs in 4 central hospitals in Tehran and Karaj were chosen as participants. Considering the purpose of the research and based on her previous experiences and personal judgment, the researcher selected the participants, who agreed to participate and signed the Free and Informed Consent Form. Inclusion criteria encompassed a minimum of 6 months' experience in neonatal intensive care units and a willingness to share experiences linked to the research objectives. Semistructured, face-to-face individual interviews were the data collection method. Interview durations spanned from 35 to 80 minutes. Interview times and locations were determined in coordination with participants, and all interviews occurred at their workplaces. Employing a semistructured approach, the interview guide was initially developed using the authors' experiences and a brief review of previously conducted interviews. Interviews commenced with a general inquiry about routine care during a work shift, for instance, "Could you delineate the care tasks undertaken during your work shift?" Depending on the participant's response and the interview guide, subsequent questions were posed. For instance, "How acquainted are you with pain assessment tools for infants?" and "What methods do you employ to gauge pain in infants?" Additionally, the interview process incorporated clarifying questions, such as "Did you mean that....?" and concluded with an open-ended inquiry, "Is there anything you'd like to add?" All interviews were recorded with participants' consent and transcribed promptly. Concurrently, the interviewer documented pertinent observations, such as nonverbal reactions. These field notes proved valuable during data analysis, serving as influential prompts. For instance, pauses, extended silences, or subtle smiles were noteworthy elements documented in the field notes during the analysis phase.

For data analysis, the Graneheim and Lundman's method was employed.[14] After multiple readings of the interviews by researchers, the original text was divided into meaningful units, followed by condensing and coding of these units. Codes that were conceptually similar were categorized into one group. During the process, as each interview was implemented and analyzed, more emphasis was placed on dimensions and features that had not yet reached saturation. As the analysis process progressed and the extracted codes and subcategories were studied repeatedly, their differences and similarities became evident.[15] In this regard, by continuously comparing categories with one another, subcategories were formed, ultimately leading to the extraction of the main categories representing underlying concepts. The interviews continued until data saturation was reached, meaning no new information was obtained.[16] The "MAXQDA" software version 2016 was used for qualitative data management.

Ethical considerations

Following ethical approval from the Ethics Committee of Islamic Azad University of Medical Sciences in Tehran (ethics code: IR.IAU.TMU.REC.1402.049), this qualitative study was conducted as part of a nursing doctoral thesis. Participants were informed about the aims and objectives of the study and that participation was voluntary. Ethical principles of anonymity and confidentiality were maintained using numbers instead of names.

Results

The study included fourteen nurses working in Nurses Working in Neonatal Intensive Care Units (NICUs) across four specialized and subspecialized hospitals in Tehran and Karaj. The participants' ages ranged between 35 and 55 years, with an average age falling within this range. Among the participants, two held doctoral degrees in nursing, while three had master's degrees, including one with a specialization in neonatology. The remaining participants possessed bachelor's degrees in nursing. In terms of work experience, participants exhibited a range of 6 to 17 years in neonatal intensive care units, accompanied by an overall clinical experience spanning from 8 to 22 years [Table 1].

The results of the data analysis yielded four main themes:

Table 1: Demographic of participants

Demographic information	Mean (SD)* *n*
Age	(45) 35–55 years old
Degree	
Bachelor's degree in nursing	(64.30%) 9
Master's degrees	(21.40%) 3
PhD	(14.30%) 2
Clinical experience	(15) 8–22 years
Work experience in the NICU	(11.50) 6–17 years

*Median (1st–3rd quartile)

"Overtasked," "Discordant Atmosphere," "Soulless Care," and "Lack of Awareness." [The Themes and Subthemes are listed in Table 2]. Each of these main themes will be further elaborated upon in the following sections to discuss their respective subthemes.

1-Overtasked: One of the primary themes that emerged from this study is the multifaceted nature of nurses' roles, leading to an intricate interplay of responsibilities. Nurses revealed reasons that contribute to assuming various roles at the patient's bedside, resulting in the inadvertent neglect of certain essential care elements. This theme is further elaborated upon through the exploration of four subthemes: "Temporal Challenges," "Suboptimal Staffing Alignment," "Resource Scarcity," and "Inherent Disparity in Infant Care."

1,1-**Temporal Challenges:** Many nurses often believed that using pain assessment tools was time-consuming, and despite their willingness to assess pain using these tools, the high workload and heavy caseloads in the NICU left little opportunity for pain measurement with these instruments. In most cases, despite the desire to assess pain, it unfortunately did not take place. One participant with 12 years of experience in the NICU expressed it this way: *"The workload is so high, and the job pressure is intense that we are forced to overlook certain tasks. There is simply no time left for pain measurement and recording"* (Participant No. 6).

"Although we may recognize the presence of pain, the overwhelming workload absorbs all our time and distracts us from our core responsibilities. Numerous additional tasks consume considerable time. On multiple occasions, I've observed pain in a neonate; however, due to the magnitude of work or being occupied with another infant, I find myself unable to evaluate the pain of the former" (Participant No. 2).

1.2 Suboptimal Staffing Alignment: In the NICU, there's a constant challenge with the number of infants and available nursing staff. A participant with four years of experience mentioned, *'There's a mismatch between nurses and infants. Sometimes, I'm responsible for 4 to 5 infants per shift, and tasks are unpredictable until the shift ends"* (Participant No. 5).

A head nurse in the unit asserted, *"For the work to align with standards, the workforce distribution should correspondingly adjust. Our unit necessitates a minimum of 8 nurses per shift and at least one nursing assistant, yet even this minimum is not met. Our unit mandates 5 to 6 nurses at the least. Presently, they are managing with merely 2 staff members"* (Participant No. 11).

1.3 Resource Scarcity: According to nurses working in the NICU department, even if pain assessment is conducted according to standards, operational difficulties such as the lack of tools and materials that assist in pain management have led to the neglect of pain measurement. In this regard, Participant No. 11, overseeing the department, emphasized the limitations, stating: *"Our facilities are very limited. Even if we aim to use pain assessment tools, it's futile without sucrose to manage pain?*"

Participant No. 7 echoed this sentiment: *"When sucrose isn't available, we face a dilemma in selecting alternatives."*

1.4 Inherent Disparity in Infant Care: Insights from the nurses underscored the distinct and distinctive nature of work within the NICU. Every task performed with neonates mandates serenity and minimal disruption throughout the process. This unique nature requires calm and meticulous attention. Neonatal tasks, including diaper changes and breastfeeding, demand significant time and vigilance. A nurse with 18 years of experience debunked misconceptions, stating *"Despite the serene appearance, quick and silent actions are imperative during critical moments like IV-line malfunctions or distress in neonates"* (Participant No. 12).

Table 2: Themes, subthemes, and statements based on nurse interviews

Themes	subthemes	Statements
Overtasked	Temporal Challenges	Workload Departmental busyness Lack of opportunity for pain assessment
	Suboptimal Staffing Alignment	High workload per shift uneven workforce distribution Staff shortage during shifts
	Resource Scarcity	Lack of sucrose Absence of pacifiers Unavailability of neonatal overhead equipment
	Inherent Disparity in Infant Care	Adherence to NIDCAP Use of infusion pump and syringe Diaper change Breastfeeding with a syringe
Discordant Atmosphere	Neglecting Pain	Individual/Lack of motivation due to low salaries, Colleague mockery, Decreased motivation for proper work
		Organizational/Failure to recognize and incentivize proper work Formality in training
	Lack of Ongoing Education	Importance of emphasizing education Repetition of training sessions Lack of importance attached to training by authorities
	Routine Care	Formal pain score documentation Empirical pain management Objective pain assessment
Soulless Care	Major vs Minor Care	Simultaneous paper-based documentation Performance of non-nursing related administrative tasks
	Excessive Documentation	Addressing primary infant needs Sustaining life throughout the shift
Lack of Awareness	Deficiency in Tool Proficiency	Limited familiarity with tools Lack of awareness regarding tool usage
	Lack of Pain Knowledge	Unawareness of pain symptoms Lack of knowledge about the consequences of unrelieved pain

"In the neonatal unit, tasks involving intricate interactions with neonates, such as diaper changes and preparation of IV fluids, demand significant time and quick responses. This contrasts with traditional adult units, where tasks primarily revolve around IV fluids and medication administration" (Participant No. 7).

2-Discordant Atmosphere: Nurses' experiences revealed that despite their willingness to use pain assessment tools, the clinical environment is not conducive, and various factors hinder proper caregiving in multiple ways. Two subthemes, "Neglecting Pain" and "Lack of Ongoing Education," constituted this main theme.

2.1 Neglecting Pain: A combination of organizational and individual factors contributes to neglecting and assessing pain, preventing nurses from providing proper healthcare.

2.1.1 Individual Factors: Some nurses believed that even if they perform pain assessment and management, they still face opposition from certain colleagues. It is important to consider factors that contribute to such situations. For instance, a participant with 15 years of NICU experience cited lack of motivation as a primary reason for this issue, saying, *"Sometimes, even if you do the right thing, others tell you to let it go. They don't care as long as it's not their problem"* (Participant No. 7).

2.1.2 Organizational Factors: Nurses' experiences reveal a perceived lack of importance given to pain assessment by hospital administrators, supervisors, and head nurses. *"During inspections, supervisors primarily focus on the expiring dates of catheters, while neglecting the issue of pain assessment"* (Participant No. 13).

Some nurses noted that the head nurse's indifference to pain assessment contributes to decreased motivation. Participants expressed frustration, stating that supervisors tend to focus on faults and weaknesses, seldom acknowledging strengths or offering encouragement. *"The emphasis on administrative aspects during inspections, rather than patient care measures like suctioning and infection control, contributes to demotivation among the nursing staff"* (Participant No. 6).

2.2 Lack of Ongoing Education: Participants noted the clinical setting's deficiency in offering regular education and updates on pain assessment methods. The ongoing lack of training hindered their effective utilization of pain assessment tools. A participant, with 18 years of experience and a master's degree in community health, stated, *"There's a lack of proper training and workshops. We need constant education on pain assessment methods and tools. We may know about them, but without proper and regular training, we can't use them effectively"* (Participant No. 12).

Another nurse shared, *"The problem is that we're not trained enough about these pain assessment tools. Even if we want to use them, we lack the necessary training and information. Sometimes, it's hard to even understand how to use them"* (Participant No. 3).

3. Soulless Care: Nurses' experiences indicated that compassionate care has faded, and the focus of care is more on completing tasks and documenting them before the end of the shift. The three subthemes "Routine Care," "Excessive Documentation," and "Major vs Minor Care" constitute this main theme, which we will discuss in detail below.

3.1 Routine Care: Participants' experiences revealed that pain assessment is not carried out as a tool for pain management. Instead, actions are taken based on existing experiences and established routines. In this regard, a participant with five years of experience stated, *"Well, often the work of doctors and nurses has become routine. Certain tasks are done routinely. For example, if someone cries, it means they're in pain"* (Participant No. 13).

"Currently, colleagues routinely administer sucrose before conducting pain assessments" (Participant No. 14).

3.2 Major vs Minor Care: Many nurses perceive that major care tasks, such as documentation, administering medication, giving injections, and placing IV lines, are prioritized over more delicate care tasks like infection control. This preference is attributed to the visibility and scrutiny that major care tasks often receive. A participant, holding a nursing PhD with a specialization in neonatal care, highlighted this perspective, stating, *"NICU staff take more pride in their ability to successfully insert an IV line; they don't really consider the emotional and psychological aspects of the infant. Not just pain, but the presence of the mother and family aren't really taken into account"* (Participant No. 9). *"Therapeutic care neglects the holistic needs of the patients. For instance, in the first shift turnover, checking the IV is important, followed by completing the IVs, and amino acids"* (Participant No. 4).

3.3 Excessive Documentation: Excessive documentation emerged as a substantial obstacle to providing adequate and efficient care, frequently discussed during the interviews. Participants believed that the significant volume of documentation required during each shift prevents them from executing precise clinical care. A participant with four years of experience mentioned, *"Many times, we do recognize the pain, but the extensive paperwork occupies all our time and distances us from the actual work. There's a lot of additional work that is time-consuming. Believe me, every task we perform needs to be documented in multiple places. It's really time-consuming. It takes away from our care time"* (Participant No. 5).

"For new admissions, we must document in ten places before going to the baby's bedside. Writing is important, but it shouldn't hinder proper bedside care. Even during a short afternoon shift, it's challenging to manage so much paperwork" (Participant No. 6).

4. Lack of Awareness: One of the most significant barriers to pain assessment is the lack of awareness about the presence of pain and pain-related symptoms, as well as a lack of knowledge about the consequences of uncontrolled pain and the tools used for pain assessment. This issue prominently surfaced in many interviews. The two subthemes "Lack of Knowledge on Tool Use" and "Lack of Pain Knowledge" constitute this theme, which we will elaborate on below.

4.1 Lack of Pain Knowledge: Nurses find that the concept of infant pain is not well-established, and many struggle to recognize pain symptoms in infants beyond surgical situations. Some believe only surgical pain is real, and there is limited awareness of the long-term consequences of uncontrolled pain. Knowledge among nurses varies; some can identify pain symptoms, while others think infants' express pain solely through crying. A participant with significant experience in the field shared, *"In my view, only surgically treated infants feel significant pain, and only post-surgical or intubated infants need pain assessment and management, and their pain is real"* (Participant No. 5).

"Infants express pain through crying since they can't verbally communicate. It's just a baby. When they want their mom, they cry. If I don't have anything specific to do, I'll hold them." (Participant No. 1).

4.2 Deficiency in Tool Proficiency: Ignorance about tools in the department, limited familiarity, lack of awareness regarding tool purposes, and forgetfulness in operation were factors in this sub-category. Even nurses with master's degrees lacked precise knowledge about each tool's utility and expressed forgetfulness. A participant with a master's in neonatology and 17 years of experience mentioned, *"In the neonatal intensive care unit, we have a tool that I don't remember the name of. We use it to measure post-operative pain on the sheets. Honestly, I don't remember the names and purposes of the tools. I only know these two"* (Participant No. 10).

"I have a basic familiarity with them. While I lack specialized knowledge in this area, I know that these tools are used for infant pain assessment. We used to have them in the department, but I believe we no longer do" (Participant No. 2).

Discussion

The present study delved into the barriers that impede nurses' effective assessment of neonatal pain, uncovering multiple challenges including "Overtasked," "Discordant Atmosphere," " Soulless Care," and "Lack of Awareness." The findings underscored that factors such as time constraints, inadequate nurse-patient interaction, and insufficient pain management resources hinder the utilization of pain assessment tools. In terms of time constraints, our study resonates with Neshat *et al*. (2023),[17] revealing that employing pain assessment tools demands substantial time, a resource that is often scarce due to the demanding workload in NICUs. Furthermore, while Tarjoman *et al*. (2019)[18] identified high workload and inadequate resources as obstacles to pain control and management, they didn't extensively delve into pain assessment barriers. Zahed Pasha *et al*. (2017)[19] similarly pointed to staff shortages and time constraints due to heavy workloads as significant obstacles in implementing non-pharmacological pain control methods. Nonetheless, most studies have predominantly focused on barriers to pain control measures rather than delving extensively into pain assessment barriers.

Both individual and organizational factors played a role in the neglect of pain assessment, resulting in a discordant atmosphere. These factors were influenced by individual motivations and the importance attached to pain assessment by personnel and administrators. In this vein, Blomqvist (2020) in Sweden demonstrated that the majority of NICU nurses (75%) had not use pain assessment tools for managing neonatal pain.[20] Similarly, Anderson (2018) in Sweden demonstrated that the majority of NICU patients had received at least one pain assessment during their hospital stay.[21] Additionally, Erickson (2019) suggested that specific guidelines and protocols for tool utilization and implementation need to be established to ensure their proper utilization and integration into clinical practice.[22] These studies emphasize the pivotal roles of nurses and administrators in shaping policies for tool utilization.

A significant finding was the Lack of Ongoing Education. Administrators' failure to emphasize education and the existence of tight shifts diminished the significance of educational sessions. Most nurses highlighted the need for periodic reinforcement of training to enhance their awareness and commitment. In line with this, Maxwell *et al*. (2019)[23] recommended more comprehensive training in the diversity of pain measurement tools in neonates, given the varied applications of each tool. Consequently, offering comprehensive and periodic training is essential to empower nurses in effectively utilizing pain assessment tools.

Routine care emerged as another barrier, hindering nurses from employing pain assessment tools. Nurses emphasized formal pain score documentation and a tendency to subjectively gauge pain levels. Experiences underscored the influence of routines and established methods in nurses' decisions concerning neonatal pain assessment, which could lead to non-instrumental interventions based on past experiences and knowledge. This might result in suboptimal pain management in neonates. Williams (2020) similarly emphasized that numerous painful procedures in neonates don't necessarily provoke crying, and neonates might solely manifest pain through physiological indicators. Failing to thoroughly assess neonatal pain could potentially

lead to neurological developmental consequences even from minor pains.[11]

Another concept that surfaced was the undue Major Vs Minor Care. Nurses' experiences illuminated that in specialized neonatal care environments, physical and therapeutic care, such as documentation, medication administration, and venipuncture, took precedence and were considered primary priorities. This preference arose from the ease of measurement and observation associated with these care tasks compared to psychosocial and integrated care, rendering them more visible. Indeed, based on their experiences, therapeutic care often took center stage as the most critical care, and failing to execute these tasks prompted requests for their completion and potential problems. Various studies have championed the adoption of NIDCAP (Newborn Individualized Developmental Care and Assessment Program) in neonatal care and proposed involving parents to enhance communication and provide higher-quality care. Bertoncelli *et al*. (2022)[24] recommended the implementation of NIDCAP in conjunction with parents to improve care delivery and foster a soothing environment for neonates. This underscores the significance of striking a balance between physical and psychosocial care in neonatal nursing. While physical care is paramount for the medical well-being of neonates, psychosocial care, including emotional support and parental involvement, is equally indispensable for their holistic development and well-being. Achieving equilibrium between these care facets ensures a comprehensive approach to neonatal care, yielding superior outcomes for both infants and their families.

One of the most prominent barriers to pain assessment was the lack of knowledge among nurses regarding pain indicators and the consequences of inadequate pain relief in neonates. This knowledge gap manifested in two subthemes: "Deficiency in Tool Proficiency" and "Lack of Pain Knowledge." Nurses' experiences unveiled that the concept of neonatal pain wasn't fully ingrained, and many nurses only deemed surgical pain as genuine pain. Furthermore, the long-term implications of inadequate neonatal pain relief remained ambiguous for most nurses, leaving them with limited information on the subject.

While certain nurses were able to identify pain indicators in neonates, they believed that crying was the sole means by which infants expressed pain. Consequently, nurses' awareness of authentic pain indicators and symptoms in neonates is crucial. This disparity in nurses' comprehension of neonatal pain experiences underscores the necessity for continuous education and training to enhance their understanding. Carlson (2021) also noted that Swedish nurses were not proficient in recognizing pain indicators in neonates,[25] emphasizing the importance of raising awareness of pain indicators as the fifth vital sign that nurses need to be educated about.[26]

Within the "Deficiency in Tool Proficiency" subtheme, the lack of awareness regarding the existence and usage of tools within the department, including unfamiliarity with these tools and limited knowledge of their usage, emerged as a significant factor in the pain assessment dilemma. Even seasoned and highly educated nurses often lacked precise information about the usage of these tools and frequently forgot about them. Many studies align with the current research in highlighting this concern. Boskovic (2021) stated that despite being aware of neonatal pain indicators, nurses did not utilize pain assessment tools and faced challenges in their application.[27] This accentuates the significance of enhancing the education process and nurses' familiarity with tools used in neonatal pain relief.[28] This weakness underscores the necessity for improving nurses' familiarity and training in the use of tools for managing neonatal pain, as emphasized by Llerena (2023).[29] These measures can contribute to enhanced performance in neonatal pain management and reduce the likelihood of medical errors. Thus, investing in educating nurses about pain assessment tools and strategies is highly recommended to ameliorate neonatal pain management and patient outcomes. One limitation of this study is that certain nurses had limited availability for interviews due to time constraints. To address this issue, a significant portion of the interviews were scheduled to take place during nighttime or evening hours.

Conclusion

This study underscored the enduring challenges surrounding pain assessment in neonates, encompassing a spectrum of issues from lack of awareness; overtasked, routine-centric approaches; excessive documentation; and a focus on physical care in neonatal care units. Enhancing nurses' knowledge regarding pain symptoms and care protocols holds promise for improving pain assessment accuracy and implementing effective pain management strategies for neonates. Moreover, the study advocates for the widespread adoption of pain assessment tools and the incorporation of programs like NIDCAP (Newborn Individualized Developmental Care and Assessment Program) to promote comprehensive and individualized care for neonates.

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Conflicts of interest

Nothing to declare.

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