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Research

Nurses' Experiences and Perspectives on Perioperative Care During Neonatal Circumcision: A Qualitative Study

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A B S T R A C T

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Purpose: To explore nurses' knowledge, experiences and perceptions of perioperative care related to neonatal circumcision and to identify implications for nursing practice and care standardization.

Design: A qualitative descriptive study.

Methods: Twenty-eight nurses working in neonatal care settings and involved in neonatal circumcision care were recruited using snowball sampling. Data were collected through face-to-face, semi-structured in-depth interviews and analyzed using Braun and Clarke's reflexive thematic analysis. Reporting followed the Consolidated Criteria for Reporting Qualitative Research.

Findings: Five themes were identified: (1) knowledge and training needs, (2) clinical assessment of circumcision timing, (3) postoperative nursing care and family education, (4) interprofessional collaboration and nursing roles in perioperative care, and (5) policy and protocol needs. Nurses described variation in clinical practices and highlighted challenges related to pain assessment, bleeding and complication monitoring, and family education. Clinical experience was perceived as an important contributor to competence. Participants also emphasized the importance of coordinated perioperative care and greater standardization of neonatal circumcision practices.

Conclusions: Nurses have important roles throughout neonatal circumcision care, particularly in clinical assessment, pain and complication monitoring, family education, and interprofessional coordination. Practice-oriented education, standardized perioperative care protocols, and strengthened interdisciplinary communication may contribute to safer and more consistent neonatal circumcision care.

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Background

Male circumcision is a procedure that refers to the surgical removal of the prepuce on the penis, either completely or partially, and is commonly performed for sociocultural and religious reasons. The global prevalence of male circumcision is estimated to be approximately 38% to 39%, with substantial geographical and population-level variation.¹ When performed during the neonatal period, circumcision is a painful procedure and therefore requires appropriate pain assessment and management. Evidence indicates that neonatal circumcision pain may persist despite analgesic interventions, emphasizing the importance of effective and multimodal pain-management strategies during the procedure.^{2,3}

In recent years, several health reasons have been put forward for neonatal circumcision. Therefore, neonatal circumcision may provide protection against urinary tract infections, various sexually transmitted infections, penile inflammatory conditions, inadequate genital hygiene, phimosis, paraphimosis, sexual problems, penile cancer, prostate cancer, and sexually transmitted infections and cervical cancer in female sexual partners.⁴ Policy and evidence-based reviews by the American Academy of Pediatrics in 2012^{5,6} and the US Centers for Disease Control and Prevention in 2018^{7,8} concluded that the benefits of neonatal circumcision outweigh the risks.

Despite the widespread practice of neonatal circumcision, limited research has explored nurses' experiences across the perioperative care process. Nurses contribute to multiple aspects of neonatal circumcision care, including clinical preparation, pain assessment and management, postoperative monitoring, complication recognition, family education, and interprofessional coordination. These responsibilities have important implications for pediatric,

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perioperative, and perianesthesia nursing practice because neonates require close physiological and behavioral assessment throughout the procedural and recovery periods. However, qualitative evidence regarding nurses' experiences and perceived roles in this context remains limited. Therefore, this study aimed to explore nurses' knowledge, experiences, and perceptions of perioperative care related to neonatal circumcision and to identify implications for nursing practice and care standardization.

Materials and Methods

Study Design

This study employed a qualitative descriptive design to explore nurses' knowledge, experiences and perceptions of perioperative care related to neonatal circumcision. Data were analyzed using reflexive thematic analysis as described by Braun and Clarke.⁹ The study was reported in accordance with the Consolidated Criteria for Reporting Qualitative Research.¹⁰

Participants and Sample Type

Participants were recruited using snowball sampling from neonatal care units in different clinical settings.¹¹ Snowball sampling was used to facilitate access to nurses with direct experience in neonatal circumcision care. Efforts were made to ensure variation in participants' clinical experience, years of practice, and institutional backgrounds to enhance the richness and diversity of the data. The sample size ($n = 28$) was determined based on considerations of sample size sufficiency in qualitative research, taking into account the depth, richness, and relevance of the data.¹² Data collection continued until sufficient depth and richness of data were achieved.

Given that neonatal circumcision requires appropriate clinical assessment, procedural care, pain management, and parent education, participants were required to have direct clinical involvement in neonatal care and post-circumcision care processes.¹³ Eligibility criteria were defined to ensure that participants had relevant clinical experience and could provide information directly related to the phenomenon under investigation, consistent with methodological principles for selecting information-rich participants in nursing research.¹⁴

Inclusion Criteria

- Actively working in neonatal care.
- Participating in post-circumcision care processes.
- Having at least 6 months of clinical experience.
- Voluntary participation in the study and permission for voice recording.

For confidentiality purposes, participant identities are coded as H1 to H28.

Data Collection

The interview guide and questions were developed by the researchers based on the current literature on neonatal circumcision, neonatal care, and nursing practices. The semistructured interview guide was specifically developed for this study (Table 1).

Data were collected through semi-structured, in-depth interviews conducted face-to-face. All interviews were carried out by the first author, who has prior training and experience in qualitative research. The interview guide was developed based on a review of the literature and expert consultation with two researchers experienced in qualitative methods.¹⁵ Before data collection, the interview guide was pilot-tested

Table 1
Interview Guide

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- How do you evaluate your level of knowledge, competence, and training needs regarding neonatal circumcision care?
 - How do you evaluate the timing of neonatal circumcision in relation to neonatal health and clinical parameters?
 - How do you describe your post-circumcision care practices, including pain assessment, monitoring, and infection prevention?
 - How do you experience and implement family education in the post-circumcision care process?
 - How do you evaluate your roles and responsibilities within multidisciplinary collaboration in neonatal circumcision care?
 - How do you evaluate existing policies and protocols, and what are your views on the need for standardization?
-

with two neonatal nurses, and minor revisions were made to improve clarity and relevance. Interviews were conducted in a quiet and private setting to ensure confidentiality and lasted approximately 30 to 60 minutes. All interviews were audio-recorded with participants' consent. Field notes were taken during and immediately after each interview to capture contextual details and initial reflections.¹⁶ Considerations related to data adequacy in qualitative research were also taken into account.¹⁷

Data Management

Audio recordings were transcribed verbatim and checked for accuracy by the research team. All transcripts were anonymized by assigning codes (H1 to H28) to participants. Data were organized and managed using MAXQDA 24 software.¹⁸

Data Analysis

Data were analyzed using reflexive thematic analysis following the six-phase approach described by Braun and Clarke: (1) familiarization with the data, (2) generating initial codes, (3) constructing themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the report.¹⁹ The analysis was primarily conducted by the first researcher. Regular analytic discussions were held within the research team to support reflexivity, challenge interpretations, and enhance analytical depth. Themes were developed inductively and grounded in participants' accounts.

Reflexivity

Reflexivity was carefully considered throughout all stages of the research process. The primary researcher is an academic with a professional background in nursing and experience in neonatal care, which may have influenced both data collection and interpretation. This prior clinical and academic experience facilitated a deeper understanding of the context but also required ongoing critical reflection to minimize potential bias. To address this, the researcher maintained reflexive field notes during and after each interview, documenting personal assumptions, preconceptions, and evolving interpretations.

No prior personal or hierarchical relationships existed between the researchers and the participants, which helped to reduce the risk of response bias and power imbalance. Data collection and analysis were conducted with an inductive approach, allowing themes to emerge from participants' accounts rather than being shaped by pre-existing assumptions.

Regular research team discussions were held to critically examine coding decisions, theme development, and interpretations, ensuring that findings remained grounded in the data. Differences in interpretation were openly discussed and resolved through consensus, enhancing analytical rigor. This iterative and reflective

process contributed to transparency, credibility, and confirmability of the findings.

Trustworthiness

The trustworthiness of the study was ensured based on Lincoln and Guba's criteria.²⁰ Credibility was achieved through prolonged engagement with the data, research team discussions, and the use of direct quotations to support the findings. Dependability was ensured by maintaining a detailed and systematic audit trail of the research process, including data collection and analysis procedures. Confirmability was supported through reflexive note-taking and ensuring that findings were grounded in the participants' accounts rather than researchers' assumptions. Transferability was enhanced by providing rich and detailed descriptions of the research context, participants, and procedures.

Results

Participant Descriptive Characteristics

The study included 28 nurses (H1 to H28) aged 24 to 35 with 2 to 16 years of professional experience. The majority of participants were female, most had undergraduate or postgraduate education, and all nurses played an active role in neonatal care processes.

Overview of Themes and Subthemes

Theme 1. Knowledge Level and Training Needs Regarding Neonatal Circumcision

Subtheme 1.1. Perceived Knowledge Sufficiency. The vast majority of nurses described their knowledge level regarding neonatal circumcision as "sufficient" or "good." It has been noted that increased professional experience and more frequent encounters with circumcision enhance knowledge and clinical confidence. Some nurses emphasized the difference between theoretical knowledge and clinical practice, stating that their knowledge level significantly increased after starting work in the institution.

However, several participants described their knowledge level as "basic" or "intermediate-good," highlighting a particular lack of practical experience. This suggests that while nurses may perceive themselves as generally competent, experience and case count are significant determinants in specific areas such as neonatal circumcision.

H2. "I find it sufficient. I have encountered many circumcisions since I have been working in the profession for a long time."

H15. "I have basic knowledge. I think I am theoretically sufficient."

H18. "I think my level of knowledge has increased more since I started working at the institution compared to my undergraduate studies. During my undergraduate studies, I only had this knowledge theoretically. However, since I started working at the institution and performed neonatal circumcisions and followed up with male infants, I think my level of knowledge has increased even more."

Subtheme 1.2. Quality of Education and Areas Identified as Lacking. While the existence of in-house training and procedures was mostly described as "adequate" by nurses, some participants emphasized the need for improvement in training content. In particular, a need for more in-depth content regarding surgical complications, postoperative genital care, and family education was expressed.

Some nurses stated that while their training in neonatal care was strong, the surgical and psychosocial aspects of circumcision were

not adequately addressed in the training programs. Less experienced nurses, even those who had received institutional training, indicated that they did not feel fully competent due to the low number of cases.

H3. "We are looking at the issue more from the perspective of neonatal nursing. Perhaps additional topics related to surgery, surgical patient follow-up, or surgical complications could be added. However, I think the training I received in neonatal care is sufficient."

H15. "I don't think it's sufficient. I think the training approach needs to be improved. I think the educational level of the family, the approach of the doctors, and the knowledge and theoretical information of healthcare professionals regarding circumcision are insufficient."

H26. "I received training on neonatal circumcision and neonatal care at the institution where I work. However, since I have been working for two years, I haven't had the opportunity to encounter many cases, and therefore I don't consider myself completely adequate. There are areas where I am lacking; especially, I feel that I need more experience in how to properly care for the genital area of a male baby after circumcision. Therefore, I think I need to receive more training."

Theme 2. Clinical Assessments of Circumcision Timing and Its Impact on Neonatal Health

Subtheme 2.1. Risk Perception Associated With Jaundice and the Adaptation Process. Many nurses reported that circumcision performed too early in the neonatal period can pose risks, particularly in terms of jaundice, weight loss, and the adaptation process. They emphasized the importance of prioritizing the baby's basic needs in the first few days, such as feeding, establishing sucking behavior, monitoring urine and stool, and tracking jaundice.

While some nurses avoided establishing a direct causal link between jaundice and circumcision, based on their clinical experience, they noted that early circumcision could complicate jaundice monitoring and confuse care priorities for families. Conversely, a small number of nurses generally considered neonatal circumcision a "positive" intervention if there were no risk factors.

H3. "I believe that circumcision should be performed after the neonatal jaundice period has passed, which is approximately one to ten days later. This is because, for a neonate to successfully adapt to life, they need to learn to feed, learn to suckle, and produce sufficient urine and meconium. Therefore, I think circumcision could negatively affect this period. I believe that performing it after the jaundice period has passed and adaptation has been achieved will have a more positive impact on the baby."

H2. "I don't know if there's a direct impact, but I think a new mother might miss some follow-up appointments in the early period because she doesn't know whether to prioritize feeding her baby or caring for the circumcision area."

H10. "If the baby has no risk factors for jaundice or weight loss, or if these risk factors have resolved and the circumcision is performed when the baby is clinically stable, I believe it may be beneficial. However, circumcision is not the primary factor, and other clinical parameters should be carefully considered. When these parameters are within normal limits, particularly in the first 30 days, circumcision is perceived as a relatively quick-healing procedure with manageable pain."

Subtheme 2.2. Opinions Regarding the Appropriate Time Frame. The vast majority of nurses consider a suitable timeframe for neonatal circumcision to be "after the first 24 hours, usually starting from days 7 to 10 and within the first month." This view is based on

clinical parameters such as reduced risk of jaundice, infant weight gain, decreased edema, and completion of the adaptation process.

Some participants advocated for circumcision as early as day 10 to 15, emphasizing the importance of waiting for metabolic conditions, nutrition, and potential neonatal intensive care processes to be completed. This finding suggests that neonatal nurses evaluate timing not based on a single fixed day, but on the baby's clinical stability and individual risk profile.

H2. "It is actually said that circumcision can be performed on a neonate 24 hours after birth. However, since the baby's adaptation takes a little longer, I think it is more appropriate to do it between the 10th and 15th days, after issues such as jaundice and weight gain have been clarified."

H6. "I believe circumcision should be performed within the first 24 hours and within the first month. This is because circumcision performed in the first few days can lead to weight loss, increased jaundice, and difficulties in monitoring bleeding in infants. Therefore, it can generally be done under local anesthesia within the first month, as long as the baby has gained weight and recovered, and does not exceed the 4 kg mark."

H10. "This is actually parallel to the answer I gave earlier. Generally, I would say that the 15- to 30-day period after birth, after the first 10 to 15 days, is suitable. During this period, the risk of jaundice has passed, the edema has subsided, and the baby has started to gain weight. By the second week, the baby has also reached its birth weight. This process is easier both in terms of health and monitoring care. The baby doesn't get tired, and the families don't struggle with care. Because umbilical cord care and jaundice monitoring are completed. Since the baby has gained weight, the families feel more relaxed and more adapted to the process. Thus, the burden on the families doesn't accumulate at the same time. That's why I would say the 15- to 30-day period is suitable."

Subtheme 2.3. Knowledge and Beliefs About Long-Term Child Health Outcomes. Nurses emphasize that circumcision performed in the neonatal period can have protective effects in the long term, both physically and psychologically. Advantages, particularly in terms of urinary tract infections and hygiene, are frequently mentioned. Furthermore, it is noted that circumcision performed at older ages can create a psychological and physiological burden on the child due to castration anxiety, traumatic perceptions, and the need for general anesthesia.

Some participants identified the 0- to 2-year period as suitable, while the 2- to 6-year period was considered risky due to sexual identity development and psychosocial effects. It was stated that a procedure completed with local anesthesia in the neonatal period, resulting in a shorter recovery time and less pain, was "less traumatic" for both the child and the family.

H3. "I believe that neonatal circumcision should be performed and that it has more positive effects on the child's health. Circumcision during the period leading up to toilet training is already desirable. Because with toilet training, the child transitions from the oral to the anal stage, and circumcision performed during this period can lead to traumatic psychological effects. Therefore, I think that performing it in the neonatal period, that is, between 0 and 28 days, especially after the first 10 days, has a more positive effect on the child both psychologically and physiologically. This is perceived as less distressing in the long term compared to children who are circumcised later."

H10. "When circumcision is performed in the neonatal period, it is done with local anesthesia. Therefore, the baby does not receive general anesthesia. However, when it is done outside the neonatal period, it needs to be done under general anesthesia, which can lead to the use of more medication. In the neonatal period, pain control is easier to tolerate, and because tissue regeneration is faster, the healing time is

shorter. The pain level is also lower. However, when done at older ages, the opposite negative effects can be seen. When done at an older age, the child is aware of the process, so it can be more psychologically traumatic, and this can negatively affect the child's psychology. In the neonatal period, there is no such perception or psychological impact. Also, when it comes to urinary tract infections, the risk of infection is much lower in circumcised penises. Hygiene and care are also easier to maintain. Therefore, the risk of contracting infections such as fungal infections is reduced. In the long term, it has been observed that the risk of sexually transmitted diseases is also lower in circumcised men. These are the things I can say."

H24. "As far as I know, circumcision should be done within the first year, and if it's not done within the first year, it shouldn't be done until the age of six. I read research suggesting that circumcision between the ages of 3 and 6 is unhealthy because it's a period when children are discovering their sexual identity. This information was present in approximately 90% of the articles I researched. Furthermore, I believe that circumcisions performed within the first year, or even within the first month or forty days, are healthier because they can be done with sedation only, meaning without epidural, spinal, or general anesthesia. We don't see many problems in terms of nutrition either. However, in the 2-3 year, or even 5-6 year age ranges, children haven't yet reached sufficient mental maturity, so circumcision may not be possible even with epidural anesthesia, and general anesthesia is required. For general anesthesia, they need to fast for at least four hours. I think this makes the children more agitated."

Theme 3. Postoperative Nursing Care and Family Education Following Neonatal Circumcision

Subtheme 3.1. Use of Standard Procedures and Protocols. Nurses stated that institutional procedures, the Ministry of Health's postoperative care protocols, and TNPS (Turkish Neonatal Postnatal Standards) practices provide the framework for postoperative care. Many nurses follow standardized care steps within the institution through written instructions, follow-up forms, and electronic systems. However, some participants emphasized that physician-specific differences create variability in care, particularly that the details of application can vary according to physician preferences. This indicates that while nursing care is standardized to a certain extent, it contains micro-variations depending on the physician.

H3. "After taking the baby out of the operating room, we monitor vital signs according to postoperative patient follow-up procedures. We also assess whether the baby is in pain or has developed hypothermia as part of the postoperative monitoring, because this process can negatively affect the baby's adaptation to the environment. Neonates may not always be able to regulate their body temperature well. Therefore, we follow the postoperative patient follow-up steps as a procedure."

H4. "I follow the Ministry of Health's Turkish Neonatal Postpartum Standards practices, and I also follow the institution's procedures."

H20. "We have informational instructions about circumcision within the hospital. We have care instructions for babies who have been circumcised and their families. We also have instructions regarding the follow-up of circumcised babies. We can access these through our hospital's system, via Smartport."

Subtheme 3.2. Postoperative Monitoring of Pain, Bleeding, and Infection. Nurses place pain control, bleeding, signs of infection, edema, and urine output monitoring at the center of nursing care in the post-circumcision period. The inability of neonates to verbally

express their pain has been identified as a significant challenge for nurses; therefore, the need for careful assessment of behavioral and physiological pain signs has been emphasized.

The risk of bleeding makes diaper control and dressing monitoring critical, especially in the early stages. Signs of infection such as redness, discharge, foul odor, and fever formed the core topics of family education both in the hospital and after discharge.

H3. "One of the most common challenges we face in the post-circumcision period is the neonate's inability to express pain. Because the baby cannot articulate their pain, it is difficult for us to wonder, 'Is the baby in pain?' and to monitor the signs and symptoms of pain. Another challenge is the need for close monitoring of the baby due to the risk of bleeding. So, when evaluated in terms of pain and bleeding risk, this process presents a significant challenge for us."

H7. "We evaluate bleeding, urine output, signs and symptoms of infection, edema monitoring, and pain control."

H28. "In post-circumcision care procedures, the Ministry of Health's postoperative care protocol is applied. Vital signs need to be measured every 15 minutes in the first hour, and every half hour in the second hour. As far as I have observed, babies are generally monitored. There are usually no problems with feeding. In fact, in some cases, mothers even breastfeed their babies in the operating room, but this is very rare. Therefore, the procedure I know and apply is the Ministry of Health's postoperative care procedure."

Subtheme 3.3. Family Participation and Training in the Care Process. Nurses define family education in post-circumcision care as a fundamental component of the nursing role. Education on diaper changes, wound care, signs of infection, bathing time, pain management, and medication/dressing application is supported by verbal and written materials.

Nurses have reported that common problems include incorrect medication use by families, inadequate pain control, difficulty adhering to the dressing process, and intense anxiety/excessive fear. Some nurses have emphasized that involving a family member (usually the father) during circumcision strengthens the training and increases cooperation.

H3. "The issue that families are most concerned about is diaper changes. Therefore, we explain how to control bleeding. In the hospital, nurses already monitor closely, but when they go home, we educate families as much as possible about the risk of infection, the possibility of urine and stool contamination of the area, how to clean the area, and how to fasten the diaper. We provide information on hygiene requirements. During their stay in the hospital, we also explain how to monitor for bleeding."

H7. "I provide verbal and written information on pain management, wound care, bathing times, signs and symptoms of infection, and follow-up appointments."

H25. "We allow one family member inside during the circumcision procedure. This is usually the mother or father, but fathers are more often present because mothers can be more emotionally sensitive to this process. We want the baby to have been fed before the circumcision because it's important to prevent agitation. After the circumcision, some medication is given, and we explain that this medication should be applied to the penis area at specific intervals. In some cases, the penis area should not come into contact with the diaper. The area is usually bandaged, but if it's not, we recommend using sterile swabs. If there is light pink bleeding in the diaper, this is important for us and needs to be monitored. If the neonate's body temperature is above 38.5°C, or if there is widespread redness, discharge, or swelling in the penis area, these are signs of infection. Therefore, we explain these signs to the family in an

educational way and ask them to monitor it daily. We recommend checking the diaper at least every two hours."

Theme 4. Interprofessional Collaboration and Nursing Roles in Perioperative Care

Subtheme 4.1. Teamwork and Communication. Nurses view neonatal circumcision as a surgical procedure and emphasize that the process "absolutely requires multidisciplinary teamwork." Collaboration and information-sharing between pediatric surgeons, pediatricians, anesthesia team, operating room team, and neonatal nurses are identified as prerequisites for safe care.

Communication was described as critical, particularly regarding the timing of Emla cream application, assessment of bleeding risk, management of the baby's transfer to and from the operating room, and postoperative follow-up. Some nurses emphasized the importance of ensuring that all members of the multidisciplinary team share consistent and accurate information.

H3. "In the neonatal period, pediatric surgery performs circumcision procedures. It's important for us to be in close communication with pediatric surgery. For example, we exchange information on topics such as the timing of Emla cream application, when the baby needs special attention, or whether there is a risk of bleeding. By working in coordination with the operating room, we can shorten the time spent in the operating room and ensure the baby stays warm. Therefore, communication between pediatric surgery and nurses is essential, and teamwork is crucial in this process."

H10. "I think it's important. In fact, I believe that a multidisciplinary approach is necessary not only for circumcision, but for all types of treatment, planning, and operations in the healthcare field. In this process, it's crucial that all links in the chain communicate with each other at every stage – from the physician assessing the baby's suitability and deciding on circumcision, to the nurse monitoring the process and handing the baby over to the operating room team, and the operating room team returning the baby to the nurse after the procedure. I believe it's essential for the entire team to work together towards a common understanding."

H28. "In this way, multidisciplinary training and multidisciplinary teamwork are extremely important. The initial process begins with families receiving training from us nurses. Families first receive information from us about the conditions under which circumcision can be performed. So, the first stage goes through the nurse. Then we refer the family to the physician. After the physician makes the appropriate assessment, they refer them to the anesthesiologist. At this stage, the sedation medication and its dosage are evaluated. When we take them to the operating room, the operating room team greets us. The operating room team includes a pediatric surgeon, an anesthesiologist, anesthesia technicians, and a baby nurse or neonatal care nurse. Therefore, multidisciplinary teamwork, that is, a holistic team approach, comes into play."

Subtheme 4.2. The Contribution of Circumcision to Nursing Care. Participants stated that circumcision practices in the neonatal period contribute to nursing care in a multifaceted way. It was noted that nurses' roles in care, education, pain management, family counseling, and psychosocial support are significantly strengthened during this process.

Follow-up of circumcised neonates is considered an important learning area, especially for nurses working in the neonatal intensive care unit, providing experience in pre- and postoperative patient care. Furthermore, it is emphasized that family education and psychosocial support strengthen the "family-centered care" approach in nursing.

H6. "I believe it enhances the nurse's roles as an educator, trainer, pain manager, and collaborator with the family."

H10. "Especially for a neonatal nurse (to give an example from the hospital where I work), there are two different units: the neonatal intensive care unit and the neonatal care unit. Mostly healthy babies are monitored in the neonatal care unit. They are monitored here when short-term follow-up is needed, either with their mothers or after birth. They are also monitored here if there are short-term conditions like hypoglycemia, but if the situation is prolonged, they are transferred to the intensive care unit. Therefore, for a nurse working in the neonatal care unit, caring for circumcised infants is very important in terms of monitoring post-operative patients or being involved in the pre-operative preparation process. I can say that caring for circumcised infants contributes a great deal to nursing care in terms of the nurse's self-development, being able to monitor pre-operative and post-operative patients, and gaining experience."

H15. "From a nursing professional perspective, this process strengthens both our caregiving and educational roles. I believe that nursing provides psychological support to families and that we contribute to families with our knowledge and experience."

Theme 5. Views on Policy and Protocol Requirements

Subtheme 5.1. Differences in Implementation and the Need for Standardization. A significant number of nurses emphasized that differences in approach among physicians regarding neonatal circumcision and care lead to variability in care. Physician-based differences in practice are evident in areas such as dressing type, bathing timing, recommendations regarding cream and barrier use, and frequency of post-discharge follow-up.

Therefore, some participants stated that "nationally standardized procedures and protocols specific to neonatal circumcision" should be developed. The fact that circumcision is a very common practice in Turkey, both religiously and culturally, increases the expectation for the development of policies and procedures in this area.

H1. "Yes... I am thinking. Differences in care can occur due to differences in physicians. I believe these need to be standardized."

H3. "From a religious perspective, over 90% of our country is Muslim, and circumcision is widely practiced in Muslim countries as it is a religious requirement. Therefore, I believe that policies and procedures should be developed in this regard. Because circumcision is not limited to a specific group; it is generally applied to all male children in our country. According to studies, even non-Muslims may choose circumcision for reasons other than religious ones, such as hygiene and reducing the risk of infection. Circumcision is recommended for hygienic reasons and to reduce the risk of infection later in life. Therefore, considering the religious dimension of the country, I think that more formal processes and protocols should be developed. I believe that improvements can be made in this area."

H15. "I think it needs to be improved. A specific procedure and protocol should be created for neonatal circumcision. Because every physician can proceed differently. I believe that establishing a single method and a single application in this process will ensure a more accurate and organized approach."

Subtheme 5.2. Perception of Current Policies and Procedures. Some nurses state that the policies and procedures regarding neonatal circumcision are existing and functional in their institutions, and that they have not experienced any serious problems with these practices to date. These nurses believe that the internal protocols are sufficient, prioritizing the continuation of the practice and

strengthening family education rather than changes; they do not see a need for additional regulation at the national level.

This subtheme demonstrates that even within the same country and similar healthcare systems, institutional differences shape nurses' perceptions of policy, and the standardization debate can vary from institution to institution.

H2. "Actually, there's such a protocol at the institution where I work; however, since I've noticed that the same practices and protocols aren't followed everywhere, I think it could be improved."

H10. "We already have such a policy and procedure in place at our hospital. So far, we haven't experienced any disruptions or shortcomings while using these procedures. Therefore, I don't think there's a need for any new developments in this area within our hospital."

H28. "I believe the post-operative protocol specified by the Ministry of Health is appropriate. The only thing needed is closer monitoring of bleeding, perhaps every two hours. In cases where we don't trust the family or where we feel they haven't understood after providing education, I believe babies should be monitored in the hospital for the first 24 hours. I don't think any policy needs to be changed. I just think infection and bleeding monitoring should be done at more frequent intervals."

Discussion

Circumcision performed during the neonatal period has implications for both neonatal health and nursing care. In this study, increased exposure to circumcision procedures was associated with greater confidence and perceived knowledge among nurses, consistent with evidence that clinical experience supports professional competence.²¹ This finding suggests that experiential learning plays an important role in consolidating theoretical knowledge and improving care delivery.

A gap between theoretical education and clinical practice was also evident. Some nurses reported that their undergraduate knowledge remained largely theoretical, while their perceived competence developed through clinical exposure. Although evidence from student midwives indicates that professional development in healthcare education may also occur within a broader context involving resilience, stress, and burnout,²² the present findings specifically emphasize the importance of clinical exposure and experiential learning. In this study, limited clinical exposure was perceived by some participants as a factor affecting their confidence and preparedness for neonatal circumcision care. These findings highlight the importance of expanding opportunities for experiential learning in neonatal nursing practice. Previous qualitative research on nurses' experiences in caring for high-risk newborns has similarly highlighted the demanding and experience-dependent nature of neonatal nursing practice.²³ Taken together, these findings highlight the importance of experiential learning and continued professional development in neonatal nursing practice.

Overall, nurses' perceived competence appeared to be shaped by experience, institutional practices, and case exposure. Participants identified the need for more practice-oriented education, particularly in areas such as complication management, postoperative care, and family education. Previous research has similarly identified ongoing training needs among neonatal and pediatric healthcare professionals.²⁴ In addition, neonatal circumcision involves psychosocial and cultural dimensions, indicating the importance of communication, emotional support, and culturally sensitive care.²⁵

Less experienced nurses reported lower confidence despite institutional training, reinforcing the role of clinical exposure in integrating knowledge and skills.²⁶ Participants also noted that

circumcision performed in the early neonatal period may affect the infant's adaptation process, particularly in relation to feeding, jaundice monitoring, and weight changes. This is consistent with evidence emphasizing the importance of the first 24 to 48 hours for neonatal adaptation.²⁷ Early circumcision may therefore complicate aspects of nursing follow-up.

Although a direct causal relationship between circumcision and jaundice was not established, nurses reported that early procedures could complicate monitoring in practice. This finding should therefore be interpreted as reflecting participants' clinical perceptions rather than evidence of a direct causal effect of circumcision on neonatal jaundice. In this context, evidence emphasizing the importance of responsive caregiving during infancy supports the need for care practices that remain attentive to infants' individual needs and developmental well-being.²⁸ Therefore, decisions regarding the timing of neonatal circumcision should be considered within the broader context of individualized neonatal care. Some participants perceived neonatal circumcision as beneficial under appropriate clinical conditions. However, evidence comparing neonatal and childhood circumcision indicates that complication profiles may vary according to age and type of complication.²⁹ However, most emphasized the importance of individualized assessment based on the infant's clinical condition.

Institutional policies and procedures were generally perceived as adequate and functional, supporting safe and organized care delivery. Evidence from neonatal care settings suggests that structured quality-improvement approaches can contribute to improving care practices and overall quality of care.³⁰ However, variations across institutions may influence both care practices and perceptions of adequacy.³¹ While some nurses did not perceive a need for additional national regulation, others emphasized the importance of standardization.

Participants suggested improvements in areas such as bleeding monitoring and family education. These suggestions align with evidence highlighting the importance of early detection of complications in neonatal circumcision.³² Pain management and bleeding monitoring were identified as key challenges, as neonates cannot verbally express pain, requiring reliance on behavioral and physiological indicators.³³ Bleeding, particularly within the first hours, was also described as a major concern, consistent with existing evidence.³⁴

From a perioperative nursing perspective, the findings demonstrate that neonatal circumcision care extends beyond the surgical procedure itself. Nurses described responsibilities related to preparation for the procedure, pain assessment, maintenance of neonatal stability, postoperative monitoring, early recognition of bleeding and infection, and family education. These findings highlight the continuity of nursing care across the perioperative trajectory. Because neonates cannot verbally communicate pain or discomfort, systematic assessment during the immediate postoperative period is particularly important. Strengthening nurses' competencies in neonatal pain assessment, complication recognition, and postoperative monitoring may therefore contribute to safer perioperative care.

Overall, the findings indicate that neonatal circumcision care is shaped by multiple factors, including clinical experience, training, institutional practices, and care organization. Addressing these factors may contribute to improving both the quality of neonatal care and the professional support of nurses.

Implications for Pediatric and Perioperative Nursing Practice

The findings suggest several implications for pediatric and perioperative nursing practice. Structured education focusing on neonatal pain assessment, postoperative monitoring, early recognition of bleeding and infection, and family education may strengthen nurses' competence in neonatal circumcision care. Standardized perioperative care pathways

tailored to the specific physiological and developmental needs of neonates may reduce variation in postoperative monitoring, pain management, and discharge education. Pediatric and neonatal nurses have an important role in maintaining continuity of care before and after the procedure, monitoring neonatal stability, and supporting families throughout the care process. In addition, effective communication among pediatric and neonatal nurses, pediatric surgeons, anesthesia professionals, and operating room teams may facilitate continuity of perioperative care and timely recognition of complications.

Limitations

This study has some limitations. The findings are based on self-reported experiences of nurses and may reflect subjective interpretations. In addition, participants were recruited through snowball sampling from neonatal care settings, which may limit transferability to other institutions and clinical contexts. As a qualitative descriptive study, the aim was to achieve in-depth understanding rather than statistical generalization. Furthermore, only nurses' perspectives were included; future research involving parents and other healthcare professionals may provide a broader view of neonatal circumcision care.

Conclusion

This study highlights the important role of nurses across the perioperative care trajectory of neonatal circumcision, including clinical assessment, pain and complication monitoring, family education, and interprofessional coordination. Nurses' perceived competence was influenced by clinical exposure, training opportunities, and institutional practices. Variations in postoperative monitoring, pain assessment, family education, and institutional protocols indicate areas in which more standardized and practice-oriented approaches may be beneficial. Strengthening perioperative nursing education, developing consistent care protocols, and enhancing interprofessional communication may contribute to safer and higher-quality neonatal circumcision care.

Ethical Approval and Consent to Participate

The study was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained from Istanbul Gelisim University Ethics Committee on November 29, 2024 (Decision No: 2024-19-51). Participants were informed about the purpose of the study, procedures, voluntary participation, confidentiality, and their right to withdraw at any time. Written informed consent was obtained from all participants. All data were anonymized, stored securely in encrypted digital format, and accessed only by the research team.

Informed Consent

The nurses were informed about the purpose and methodology of the study, verbally and in writing.

CRedit Authorship Contribution Statement

Meltem Aslan: Writing – review and editing, Writing – original draft, Supervision, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Aydın Nart:** Writing –review and editing, Writing –original draft, Methodology, Formal analysis, Data curation. **Bengisu Akoğlu:** Writing – review and editing, Writing – original draft, Formal analysis, and Data curation.

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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