Original Article

Nurses' strategies for managing pain in pediatric units: A qualitative study in Iran

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Abstract

Context: Pain management is one of the main clinical challenges that health-care jobs encounter with it. The nurses play a pivotal role in providing pediatric pain management.

Aims: This study was conducted to determine nurses' strategies for managing pain in pediatric units in Iran.

Settings and Design: This qualitative study was conducted with a content analysis approach at one teaching hospital in Amirkola Children's Hospital in Babol, Iran.

Materials and Methods: Data were collected from 16 nurses, using semi-structured interviews during the year 2015–2016. The inclusion criteria were the nurses with at least 3 years of work experience in children's departments. Sampling was purposeful with maximum variation. Immediately after each interview and recording, the content was transcribed using Word software. Interviews were individually conducted in the hospital nurses restroom.

Statistical Analysis Used: Data analyzed by conventional content analysis method simultaneously data collection based on five steps of Granheim and Lundman. To ensure the accuracy and reliability of data were used according to Lincoln and Guba's criteria.

Results: The data analysis showed that the main them was nurses' undeveloped clinical judgment. The contents included sixth subthemes such as "incomplete investigation of the presence and severity of real pain," "priority to pain pharmacological actions," "inadequate understanding of nurse to the time and lack of analgesics," "nurse's inadequate attention to the conditions of the use of nonpharmacological and pharmacological interventions," "inappropriate assignment of nonpharmacological pain to the mother," and "incomplete evaluation and record of pain relief."

Conclusions: Nurses use the strategy of underdeveloped clinical judgment to manage pain in pediatric units. Due to this determined fact, it is necessary to design a practical model for improving the clinical judgment of nurses in pediatric pain management.

Keywords: Child, Nurses, Pain management, Qualitative research

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INTRODUCTION

The American International Pain Association states that the pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage".[1] The nurses reported pain signs in 50% of the pediatrics, which were detected during clinical procedures.[2] Pain management and assessment are an essential part of nursing care in patients.[3] The optimal management of pain in children is initiated by examination, next pharmaceutical and nonpharmaceutical interventions are used based on the children's condition after identifying the type and effective factors, then the effectiveness of the methods is evaluated.[4] The rapid and accurate evaluation, along with the implementation of the best intervention, leads to the optimal pain management in children.[5] Nonoptimal pain management results in the prolonged admission to the hospital, readmission, patients' dissatisfaction with medical care[6] and increase of health-care costs.[7] Clinically, the role of a nurse in caring for the patient's pain is unique because the nurse spends more time with the patient.[8] Although nurses have a prominent role in the pain management of the patients, many find it challenging.[9] The pain in hospitalized children is one of the main and important concerns of the health team in most parts of the world.[10] Inadequate pain relief depends on many factors such as patients' worry and fear of painkillers, lack of knowledge, and appropriate attitude toward an effective management of pain as well as disability of health-care careers in the assessment and adequate treatment of pain.[11] Eight challenging areas identified in pediatric pain management including nurses' limited theoretical knowledge and inadequate skills, nurses' attitudes and beliefs, organizational barriers, characteristics of parents and children, professional noninteractive communications, ambiguous role of nurses in pain management, no participation of parents or children in the process of pain management and lack of local patterns.[12] One of the important aspects of the knowledge gap is especially the pediatric pain assessment skills, the basic knowledge and principles of pharmaceutical interventions for pain (dosage, performance, and side effects of analgesics).[13] Nurses should understand and interpret the pain and integrate their experience with nursing knowledge when caring for a patient.[14] Therefore, nurses constantly should make a decision on pain assessment and management. The effective management involves predicting the decision-making process that extends through knowledge on pain and its control.[15] A study shows that nursing experience and associated factors; organization and unit culture influences decision-making; education; understanding patient status; situation awareness; and autonomy.[16] The study of pain and the use of pharmaceutical and nonpharmaceutical pain relief methods are the professional tasks of the nurse.[17] Patients have the right to receive the treatment and care for relieving or reducing the pain.[18] Studies have shown that nurses' experiences of pain management are context-based, and organizational culture affects pain management of clinical nurses, insofar as social context of each ward influences pain assessment methods used by them.[19] The qualitative study method is usually used for describing a phenomenon when there are limited numbers of relevant theories or research.[20] There are few qualitative studies regarding nurses' strategies for managing pain in pediatric units. This study was conducted since no studies have been done so far to explain nurses' strategies for managing pain in pediatric units in Iran.

MATERIALS AND METHODS

This qualitative study was conducted with a content analysis approach. Participants were 16 nurses working in different departments of the Amirkola Children's Hospital in Babol, Iran, during 2015–2016. A purposive sampling was used to start the interview. The data collection process was continued until data saturation in the last three interviews. The inclusion criteria were the nurses with (a) at least 3 years of work experience in children's departments, (b) adequate experience (with questions from participants) in pain management, and (c) willingness to cooperate in research. Interviews were individually (face-to-face) conducted in the hospital nurses restroom. The interview lasted between 45 and 60 min. The semi-structured interview was started by questions such as "what do you do to control the pain of your patients? What made you use this method? What and who has affected the choice of this method? and What has been the result?" and then, it was continued based on the answers to deepen the interview and explore the interactions, with exploratory questions such as "Please more explain and what do you mean by saying this?" The data gathering was continued until the data were repeated, and no new data were available (information saturation). In the last three interviews, the same previous information was repeated, and the data collection was completed. Data collection and analysis were done simultaneously during 12 months between 2015 and 2016. The MAXQDA10 software was employed for the transcription and classification of codes.

Data analysis was performed simultaneously with data collection. Granheim *et al.* have suggested the following steps for analyzing the content of qualitative data: (1) transcribe the entire interview immediately after each interview, (2) read the whole text to comprehensively understand its content and determine the meaning units and primary codes, (3) abstract the meaning units and primary codes, (4) classify the same primary codes in the

more general categories, and (5) determine the main theme of the categories.[20] Immediately after each interview and recording, the content was transcribed using Word software. After the interview transcription, the content was read several times to obtain a general understanding of the nurses' sayings in line with the research purpose. Primary codes were extracted and categorized based on similarities and differences.

Rigor

To ensure the accuracy and reliability of data, four criteria namely credibility, confirmability, dependability, and transferability were used according to Lincoln and Guba's criteria.[21] To increase data credibility in this study, prolonged engagement and participants review strategies were employed. The prolonged engagement with participants (for 2 years) was performed by researcher through long-term on-site observation of pain management by nurses. After the coding process, the transcribed interviews were returned to the participants to ensure the accuracy of codes and interpretations. To control the conformability of data, the opinions of two research team members, who were experienced in qualitative studies, were used. Discussions on disagreed codes and categories were continued by research team members until the clarity of subject and consensus was achieved. To check the dependability of data, the obtained categories were given to three nurses, not the participant in the study, to confirm data fit. To check data transferability, sampling was done with a maximum variance of nurses to have a wide range of study subject.

Ethical considerations

After the approval of study proposal by the Ethics Committee of Tarbiat Modares University (No: 52/6582), permission was obtained to initiate research. Prior to participation, study objectives and interview methods were explained to the participants. In addition, participants were assured of confidentiality terms and were allowed to refuse or leave the study at any time. Written informed consent was obtained from all the participants for interviews and recordings.

RESULTS

Totally, 16 nurses (12 with BSc and 4 with Master of Pediatric Nursing, 4 and 12 were single and married, respectively), aged 29–49 years with the work experience of 5–24 years old were participated in the current study. Nurses from different departments (5 internal, 4 surgery, 3 intensive care unit, and 5 emergency) of the children were selected. The analysis of the participants' experiences showed that nurses manage the pain with underdeveloped clinical judgment in pediatric units [Table 1].

Nurses' undeveloped clinical judgment included sixth subcategory such as "incomplete investigation of the presence and severity of real pain," "priority to pain pharmacological actions," "inadequate understanding of nurse to the time and lack of analgesics," "nurse's inadequate attention to the conditions of the use of nonpharmacological and pharmacological interventions," "inappropriate assignment of nonpharmacological pain to the mother," and "incomplete evaluation and record of pain relief."

Nurses' undeveloped clinical judgment

This theme reflects nurses' ignorance or inability in appropriate and comprehensive choice as well as in the proper use of pain control methods for children. Although they will try to differentiate true from false pain, they have unilateral attitude (medicinal) and pay less attention to care approaches because the nonmedical care methods have not been formalized in the system when encountering with the

Table 1: The process of developing the "Nurses' undeveloped clinical judgment" theme

Main theme	Category	Subcategory
Nurses' undeveloped clinical judgment	Incomplete investigation of the presence and severity of real pain	Search and incomplete certainty of the pain presence
		Applying and evaluating differential diagnosis of pain
		One-dimensional pain intensity scale
	Priority to pain pharmacological actions	Step-by-step actions of pain relief
		Predominant culture of medication consumption
	Inadequate understanding of nurse to the time and lack of analgesics	Nurse's inadequate attention to the analgesic contraindications
		Nurse's misunderstanding about analgesic indications before or after painful procedures
	Nurse's inadequate attention to the conditions of the use of nonpharmacological and pharmacological interventions	Nurse's inadequate attention to the conditions of the use of nonpharmacological and pharmacological interventions
		False attention to the time conditions of the use of nonpharmacological interventions
	Inappropriate assignment of nonpharmacological pain to the mother	Use of heating and cooling appliances to relieve pain by the mother
		Use the senses to reduce pain by the mother
		Use of different methods of thought distraction to relieve pain by the mother
	Incomplete evaluation and record of pain relief	Child's behavior change as pain relief symptom
		Relaxation of the mother and child as pain relief symptom
		Only record the pharmacological actions

pain and its control. Therefore, they pay more attention and tend to the drug injection and its documentation.

Incomplete investigation of the presence and severity of real pain

For searching and relative certainty of the pain presence, nurses understand the pain more through general appearances such as face changes, behavioral reactions, and child's position.

"The younger kids with their restlessness are crying and bouncing all the time as well as their face is flushed and red; therefore, I can see the pain of the child"(Nurse 2).

Nurses, after examining the pain apply diagnostic actions such as medication, placebo, thought distraction, or other nonpharmacological interventions to differentiate true from false pain when the behavior and appearance of the child do not match with his/her pain complaints according to the diagnosis of the disease.

"A child with diagnosis of appendicitis in the surgical ward complained of pain, but his face was flushed and he was not restless. I noticed the malingering pain of the child so I added distilled water into the serum. After a while, his mother said that his pain was lessened" (Nurse 12).

After relative certainty of the pain presence, the nurses assess the severity of the pain based on the loud noise and severe behavioral reactions such as screaming, understand the severity of the child's pain and use or do not apply other methods such as pain assessment tools.

"It's not yet time to use a specific tool for measuring the pain intensity, indicating the pain value" (Nurse 3).

Pharmacological priority in the process of pain relief

Nurses, after incomplete certainty of the pain presence, prioritize the pharmacological pain relief and use the medications to relieve the pain after giving him/her a short opportunity. Using nonpharmacological methods to control the pain is not so common. The predominant culture of relieving pain is pharmacological interventions due to the lack of nursing forces so that the drug is used to control the minor pain.

"I usually give the child acetaminophen. If there is no an order, I'll give the resident a chance to do it and reduce the child's pain sooner" (Nurse 5).

The written form of physician's P. R. N. order for using the analgesics in the patient's record prevents the nurse from trying to assess the pain and carry out the nonpharmacological interventions in the child.

"In younger children, I usually do not wait and use painkiller based on physician's order because of their severe restlessness and crying" (Nurse 8).

Inadequate understanding of nurse to the time and lack of analgesics

After pharmacological priority in the process of pain management, the nurses pay no attention to choose the right time for painkiller injection, delay the use of analgesics in the early night shifts despite having the order under the pretext of regulating the sleep time of a child and usually do not use any analgesics or special action before or after painful procedures.

"I give the child some painkiller at 12 p.m. for the baby will comfortably sleep at 6 a.m. so both mother and her child become calm" (Nurse 6).

Nurses usually use no analgesics or special action before or after painful procedures.

"I do not give the child painkillers before and after the lumbar puncture (LP) at all, I rarely do it for LP" (Nurse 12).

Nurse's inadequate attention to the conditions of the use of nonpharmacological and pharmacological interventions

Nurses use nonpharmacological interventions sometimes before or after giving a painkiller or at intervals between two painkillers to prevent its excessive consumption while the nonpharmacological interventions should be used as the first step in relieving the child's pain. Nurses only use analgesics before the onset of aggressive procedures in a particular situation such as bad-tempered and unsedated children, lack of child's cooperation, the presence of difficulty in implementing a procedure, and preventing from damage to the surgery area.

"When the children are restless and it is possible to harm us and themselves, I sedate them using Chloral Oral Solution" (Nurse 7).

"After Apotle injection, if the patient declares that I have a pain, I use thought distraction until the next dose" (Nurse 10).

Inappropriate assignment of nonpharmacological pain to the mother

Nurses should have the necessary knowledge about nonpharmacological pain control methods such as

decreasing environmental stimuli, use of proper devices and techniques, thought distraction and so on, but this task is assigned to mothers without adequate training due to the lack of nursing force despite the knowledge and understanding of the effects of these methods.

"Owing to the lack of nursing force, I cannot handle the patient and tell his/her mother to perform the nonpharmacological interventions while doing other tasks" (Nurse 9).

Incomplete evaluation and record of pain relief

Considering the behavior change like relaxation of the mother and child, nurses evaluate the pain without the direct examination of the child by asking a question from his/her mother. Most evaluation is assigned to the mother owing to the lack of nursing force, and ultimately, the child's pain is only judged based on recording the pharmacological actions.

"After the pain relief interventions, I ask her/his mother what the condition is, better or not?" (Nurse 11).

The vast majority of nurses declared that there are no rules for recording the nonpharmacological activities of the pain. Therefore, nurses briefly document only pharmacological actions in the nursing report due to the lack of time.

"If I use other methods like nonpharmacological one to reduce the pain, I often do not record due to the lack of nursing force" (Nurse 5).

DISCUSSION

Nurses use undeveloped clinical judgment to manage the pain in neonatal units. This theme includes sixth subthem such as "incomplete investigation of the presence and severity of real pain," "priority to pain pharmacological actions," "inadequate understanding of nurse to the time and lack of analgesics," "nurse's inadequate attention to the conditions of the use of nonpharmacological and pharmacological interventions," "inappropriate assignment of nonpharmacological pain to the mother" and "incomplete evaluation and record of pain relief."

A qualitative study in Canada conducted on senior nursing students' clinical judgments in pain management and identified four judgment themes, including intention to treat pain, making sense of assessment data, intervening for the patient comfort, and communicating with others. The Numeric Rating Scale (NRS) was used by most nursing students to describe the pain intensity in their patients, but the patient's score was not applied as the base for therapeutic intervention. They recorded the symptoms of pain behaviors of the patient in their evaluation. Nonpharmacological interventions were used before the onset of pharmacological interventions or as a complement to the pharmacological method. In general, senior nursing students' clinical judgments were poor in pain management.[22] The results of their study are consistent with ours. Participants of both studies paid some attention to patients' behavioral responses to ensure their pain. Although the students used NRS (unlike the current study) to determine the severity of pain, it could not be as a base for doing the pharmacological and nonpharmacological interventions due to the low nursing ability in decision-making for pain management. In addition, in the present study, nurses' clinical judgment in pain management was undeveloped and incomplete. In the study of Samuels *et al*., senior nursing students' clinical judgments were poor in pain management, too. In the current study, nurses rarely used the pain assessment tools due to the undeveloped clinical judgment. The most commonly used method for understanding the pain is to pay attention to appearances and behavioral responses of the child.

The findings of the study Twycross *et al*. showed that the pain assessment strategies used include: pain assessment tools, behavioral cues, and physiological cues. Some, but not all, nurses use pain assessment tools. In an interview study, three out of 10 nurses reported using pain assessment tools but indicated they were not used routinely.[23] The results of their study are consistent with ours.

Like our study, Ljusegren *et al*. did not apply the pain assessment tools and found the pain based on observation and asking the child about the pain.[14] Similar to our study, the findings, a literature review showed that pain assessment tools were inadequately used, that children's behavioral cues were misinterpreted, and that there was inconsistency in the documentation of pain scores.[24]

Our study showed that nurses, due to the undeveloped clinical judgment, prioritize the use of pain pharmacological actions, and the predominant culture of relieving pain is medication consumption in the Pediatric Departments in Iran.

In the study of Ljusegren *et al*., the nurses reported that the pharmacological treatment is the only method to treat the pain.[14] The nurses administered the analgesics when the child complained of the pain. They neither routinely assess the child's pain, nor regularly apply the nonpharmacological methods of pain relief.[23] Physician's P. R. N. order for using the analgesics prevents the nurse

from trying to examine and assess the pain and using the nonpharmacological interventions in the child. The same as our study, the findings of Ghazanfari *et al*. showed that nursing staff would prefer to administer the analgesic drugs if necessary.[17]

Another strategy for nurses is "inappropriate assignment of nonpharmacological pain to the mother." Nurses learn the nonpharmacological methods of the pain control based on experience, but this task is left to the mother without informing the parents about its importance, necessity, and method due to the lack of nursing force. Like the current study, Chng *et al*. have illustrated that parents need more information and knowledge about pain management, and teaching the nonpharmacological interventions to parents improves the pain relief strategies in children.[25] Another aspect of nursing underdeveloped clinical judgment is "incomplete evaluation and record of pain relief." Nurses evaluate the pain without the direct examination of the child by asking a question from his/her mother, and finally, the child's pain control is only judged based on the documented pharmacological actions.

Documentation relating to pain remains a challenge. Overall, the quality of the documentation was poor. In one chart audit carried out in the UK, 72% of children (n = 175) had a pain score recorded, although a quarter of children did not have a score recorded in the first 24-h postoperatively.[23] Pain assessments were not always recorded with documentation tending to focus on the medications given.[26]

Nurses can make correct decisions on the effect of pharmacological or nonpharmacological interventions and on the follow-up of the pain management process through the pain reassessment[27] which is consistent with ours.

There was a need to explore strategies that help nurses understand pediatric pain management and adjust the care plan accordingly.[23]

CONCLUSIONS

The findings of the present study have indicated that the nurses manage the pain in Pediatric Departments using undeveloped clinical judgment strategies, that is, they cannot manage the children's pain in a desirable and effective manner. Therefore, considering this process and the underlying reality discovered and explained, it is necessary to design a functional model for improving the clinical judgment of nurses in the pain management of the Iranian children.

Limitation

Regarding nursing care plan in Iran, child care is most often done by female nurses; therefore, noninvolvement of male nurses may drop some aspects of pain management that relate to nurse's unknown gender. The involvement of male nurses in future studies is recommended to explain the barriers of pain management in pediatric wards.

Conflicts of interest

There are no conflicts of interest.

Authors' contribution

Parvin Aziznejadroshan was the main investigator and contributed to the development of the study concept and design, acquisition of data, analysis, and interpretation of data and drafting of the manuscript. Fatemeh Alhani supervised the study and contributed to the development of data collection, analysis, and interpretation of data and revision of the manuscript. She also provided administrative, technical, and material support for this study. Eesa Mohammadi was the advisor of the study, contributed to the analysis and interpretation of data, and prepared and revised the manuscript. Ali Zabihi helped write of the manuscript. All authors read and approved the manuscript.

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