Review Article

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Challenges and Practical Solutions for Pain Management Nursing in Pediatric Wards

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ABSTRACT

BACKGROUND AND OBJECTIVE: Pain management is one of the most important indicators for nursing care quality. Pain management is still ineffective and inadequate in pediatric wards. Therefore, in this study, we aimed to evaluate pain management nursing in pediatric wards and suggest practical solutions with regard to pediatric pain control.

METHODS: In this review article, Iranian (i.e., MagIran, Iran Medex, Irandoc, and SID) and international (i.e., Medline, Google Scholar, Google, and Science Direct) databases were searched, using the following keywords and their Farsi equivalents: "pain management", "pediatric", "nurse", "barriers", and "hospital". Among 4064 studies, 51 relevant articles, published during 1994-2015, were retrieved and reviewed in this study.

FINDINGS: In total, eight challenging areas were recognized in pediatric pain management, which are as follows: limited theoretical knowledge and insufficient skills of nursing staff, nurses' personal beliefs, organizational barriers, characteristics of parents and children, lack of professional interaction, ambiguous role of nurses in pain management, lack of parental involvement or children's participation in pain management, and scarcity of local models for pain management.

CONCLUSION: By identifying nursing challenges and proposing practical solutions (e.g., modifications in organizational structure), we hope to take a major step towards removing barriers against pediatric pain management.

KEY WORDS: Pain Management, Children, Hospital, Nurse, Challenge.

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Introduction

The International Association for the Study of Pain recognizes pain as an unpleasant feeling and an emotional experience, associated with actual or potential damage to tissues (1). Additionally, 81% of hospitalized children report medium to severe levels of pain (3).

Failure in pain management results in patient's anxiety, reduced communication, sleep disturbances, impaired mobility, loss of appetite, restless, decreased quality of life, and high costs of healthcare provision and hospitalization (4). The long-term consequences of pain in children include predicted fear of future procedures due to previous traumatic experiences, sensitivity to pain in the future due to changes in the nervous system in response to pain, reduced effectiveness of opioids, difficulty in understanding the procedures, and needle phobia (5).

Improper pain management leads to increased length of hospital stay and healthcare costs (6). Pain management is in fact an important part of healthcare services (7). Proper pain management in children starts with pain assessment. The treatment plan is proposed after determining the type of pain and the effective factors. pharmacologic and non-pharmacological interventions are applied, based on the patient's condition, and then, the effectiveness of these methods is assessed (8). Generally, effective pain management minimizes children's negative physiological and behavioral responses, shortens the duration of ventilation and oxygen therapy, induces weight gain, improves the treatment process, and reduces the length of hospital stay in pediatric populations (9).

Nurses play a key role in pediatric painmanagement (10). All members of healthcare teams believe that nurses make a significant contribution to the process of pain assessment and management (11). Nurses are constantly required to make decisions regarding pain assessment and control, i.e., they need to pass judgments on patients' level of pain and their need for analgesics. Therefore, anticipating the decision-making process is part of effective management, which can be improved by gaining further knowledge about the methods of pain management. The importance of pain management as the core of nursing care has been highlighted in nursing practice (12). This professional responsibility leads to the improvement and professional autonomy of nurses. Pain management is one of the most important rights of children and one of the priorities in treatment; in fact, complete pain management is regarded as a moral issue (13).

Nurses are responsible for pain prevention and alleviation (14,15) and are the most important members of healthcare teams, with a unique opportunity to assessment, identify, and assess pain management strategies; in fact, pain assessment and management are of great significance in nurses' professional role. Although nurses are required to play an active role in pain management, few studies have confirmed the realization of this goal (16). Therefore, in this study, we aimed to conduct a comprehensive review of national and international studies on pain management nursing in pediatric wards and propose practical solutions.

Methods

This study was performed in three stages, according to the method proposed by Broome and Whittemore: literature search, data evaluation, and data analysis (17, 18). Various national databases including SID, MagIran, Iran Medex, and Irandoc, as well as international databases such as Medline, Google, Google Scholar, and Elsevier, were searched, using the following keywords (and their Farsi equivalents): "pain management", "pediatric", "hospital", "nurse", and "barriers". These keywords were often used separately or in combination.

In the first stage, the titles and abstracts (if necessary) of 4064 papers were reviewed, and 248 articles were retrieved via literature search. In the second stage, the manuscripts were studied, and 197 articles were removed from the analysis due to the study environment (outside the hospital) or their focus on challenges other than the challenges of pain management nursing. Finally, 51 national and international articles, published during 1994-2015, were included in the study. The inclusion criteria were as follows: 1) access to the full manuscript; 2) review articles and quantitative or qualitative studies; 3) attention to pediatric pain management; 4) national and international studies; and 5) evaluation of the barriers and challenges of pediatric pain management. No time limitations were considered in our study. In case the complete manuscript was unavailable or the challenges of

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pediatric pain management were studied outside the hospital environment, the studies were excluded from our analysis. In the analysis stage, the gathered data included the name of the author(s), year of publication, study objectives, main concepts of the study, methodology, research environment, validity of the study, and reliability. The data were organized in files and used as raw information. No interpretations were made by the researchers during data collection, and the original phrases quoted by the authors were documented.The reliability of our analysis was approved by two researchers, who independently analyzed the data. Also, the researchers approved the results of the analysis and resolved the conflicts by consensus.

Results

In a study by Ghazanfari et al., the most effective barrier against pain management was nurses' inadequate knowledge about non-pharmacological methods of pain relief (19). According to a study by Parvizi et al., the majority of nurses had not participated in any educational courses on non-pharmacological methods of pediatric pain management; also, no in-service training courses were held for the nurses. The major problems of nurses in the use of non-pharmacological methods were as follows: environmental issues, lack of equipments, lack of motivation, occupational issues, extended work shifts, low income, work overload, limited time of nurses, and resistance by physicians and nurses (20). In a study by Allahyari et al., the major problems in the dimensions of personnel management, education, environment/facilities, and motivation were respectively as follows: "limited time of nurses and disproportionate number of nurses and patients", "unavailability of pain assessment tools in pediatric wards", "lack of children's toys and games for pain relief", and "nurses' dissatisfaction with working shifts and working hours" (21).

Overall, for effective pain management, use of valid tools for pain assessment is crucial. According to a study by Varvani et al., nurses' knowledge about pain evaluation was poor, moderate, and sufficient in 20%, 60%, and 20% of cases, respectively (22). According to a study by Twycross et al., barriers against pediatric pain management were related to the personnel, children, parents, and the involved organization. Personnel-related barriers were nurses' personal judgment and fear of giving excessive doses of analgesics (or inadequate amounts of opioids). Organizational barriers included personnel shortage, lack of age-appropriate pain assessment tools, and absence of pain flowcharts and facilities for distracting children. Barriers related to children and parents included children's age and culture, exaggerated pain, and parental interference. This study showed the need for communication among nurses, children, and parents (23).

Albertyn et al. showed that factors such as insufficient education, language barriers, and cultural differences hamper the process of care provision. Pain management is mostly affected by the beliefs, culture, and outlook of healthcare personnel (24). As reported by Twycross, analgesics are prescribed for children as soon as they experience pain. Moreover, nurses avoid regular pain evaluation and overlook the use of non-pharmacological methods for pain relief. Overall, methods of pain management are affected by various factors such as nurses' professional culture and the prevalent culture in the ward (25). Based on a study by Polkki et al., factors hindering the use of non-pharmacological methods for pain management are as follows: nurse's insecurity, beliefs regarding parental roles/child's ability to express pain, heavy workload/lack of time, limited use of pain alleviation methods, and work organizational model/patient turnover rate (26).

In a study by Namnabati et al., three major themes were extracted: 1) organizational barriers (lack of authority over the use of some medical interventions, inadequate equipments, unavailability of opioids, and imbalance between workload and the number of patients); 2) limitations related to children's characteristics (e.g., age, behavior, and gender); and 3) barriers related to the nature of the disease and treatment (11). Today, in various parts of the world, different models are employed for pain management, which have different characteristics, based on the cultural structure of organizations and the underlying configuration. Among these models, we can refer to the Prescription patterns of pediatric pain management by Habich and colleagues. In this model, stages of pain management include

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assessment, intervention, and evaluation, based on a rotational approach (8). In the mentioned model, assessment is the first stage and the most important part of pain management. Pain assessment is a constant process, which is based on QUEST (i.e., question the child, use a pain-rating scale, evaluate behavior and physiological changes, secure parental involvement, take the cause of pain into account, take action, and evaluate the results) (8). The stages of QUEST are based on an organized approach for pain examination. Farhani et al. successfully employed this method for the empowerment of nurses in pediatric pain assessment (27).

Cultural background influences the validity and accuracy of pain assessment tools in a specific culture (28). Selection of pain assessment tools should be in accordance with children's age, cognitive level, inabilities, type of pain, and pain severity (29). Intervention is the second stage of pain management. In fact, pain examination aims at proposing a unique plan by the use of pharmacological or non-pharmacological interventions. It should be noted that the participation of patients and their families in the pain management plan is essential (8).

Evaluation is the final stage for assessing the effectiveness of pain management strategies. Reevaluation should be performed 30 to 60 minutes following each intervention. The purpose of this stage is to reach a pain score of less than four and ensure patient satisfaction with pain management (8). The model proposed by Habich has disregarded the impact of care providers' cultural beliefs on children's perception of pain and behaviors and has overlooked the strategies, which are traditionally used for pain relief in many cultures. In addition, no significant difference has been reported in the satisfaction of patients or their families before and after the implementation of these guidelines (8).

Pain Assessment as a Social Transaction was proposed by Voepel-Lewis et al. in 2012. In this model, various factors have been taken into account in the process of pain assessment, including the patient's experience, pain outcomes, nurse's assessment and judgment about the patient's pain, demographic factors affecting the patient's description of pain (e.g., gender), underlying and situational factors (e.g., type of procedure and patient's previous and recent experiences), and mental/social factors (e.g., children's anxiety in describing their pain and the culture of their families). On the other hand, factors such as parental involvement, patient participation, work environment, and organizational issues, which affect nurses' decisions regarding pain relief interventions, have been disregarded in the model by Voepel-Lewis.

In addition, this model is applicable in only one stage of pain management (i.e., pain assessment) and does not encompass intervention and evaluation (30). This model has never been applied in Iran and has no applicability in our country.The model of Knowledge Use in Pain Care (KUPC) was conceptualized by Latimer and colleagues. This model consists of four major components, which are as follows:

1) Organizational factors, i.e., opportunity (increased access to knowledge and practical skills), information (exchange of information between nurses and physicians), resources (expert personnel, facilities, and equipments), and support (nurses' perceptions of their autonomy in making clinical decisions)

2) Nurses' characteristics (e.g., experience, full-time jobs, BSN degree, critical thinking skills, empathy, and physical and mental health of nurses)

3) Patients' characteristics (high or low intelligence, age, and communicative abilities)

4) Sociopolitical context (i.e., organizational policies, guidelines for accreditation, and professional associations).

It should be mentioned that the KUPC model is neither complete nor comprehensive and can only expand our understanding of some factors which may affect pain management; this model also requires assessment in the setting (31).Another proposed model for pain management is the staffing model, which was proposed by Hall et al. by focusing on managerial attitudes towards pain management. This model assesses patient satisfaction by changing the organizational structure and increasing the workforce. The staffing model considers the role of nurses to be equal to other members of healthcare teams and puts an emphasis on the role of experts in different stages of pain management.

However, this model requires significant financial resources and workforce. In fact, it can be only applied in centers, which have the required resources and the financial capacity (32).

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Discussion

Based on the findings of the present study, one of the major barriers against pain management is nurses' inadequate skills and knowledge with regard to the use of analgesics, non-pharmacological methods, pain assessment, and pain physiology. Due to insufficient knowledge, nurses cannot accurately assess the level of pain, and therefore, they cannot use their knowledge in practice (33).

Lack of knowledge among nurses is identified as the most important barrier against pain management (34). A study in Turkey indicated nurses' insufficient knowledge about pain management and the need for additional educational courses (35). Therefore, insufficient knowledge of nurses about pain management and lack of instructions on clinical pain control can affect the process of pain management (36).

In addition, nurses' beliefs and viewpoints about pain management are among other barriers against pain management. Nurses' personal judgments, perceptions, and assumptions play a key role in pain management (37). There are still misconceptions about pediatric pain management. Many care providers believe that children cannot remember their pain and are highly susceptible to opioid dependence (38). In fact, healthcare providers believe that they can more accurately determine the level of pain in children (38).

The opinions and beliefs of nurses about the low priority given to pain than others, including the other roles(33). Sometimes, use of different pain assessment tools is dependent on nurses' opinions (11). Moreover, diagnosis, severity of condition, and type of surgery have various effects on nurses' perceptions of pain in children (39). All these factors can change the response of care providers to children's description of pain (40).

Based on our analysis, the following organizational barriers can affect pain management: personnel shortage, nurses' work overload, insufficient time (26, 37), inadequacy of prescribed analgesics, lack of age-appropriate assessment tools for pain in children, lack of pain flowcharts, scarcity of proper tools for distracting children (37), imbalance between work load and number of patients, nurses' lack of authority over some medical interventions, unavailability of opioids (11), and nurses' lack of access to Policies and guidelines on clinical pain management (36,41). The role of nurses in pain management is ambiguous. Pediatric nurses play an important role in pain assessment and interventions. In fact, proper pain management can be realized after pain assessment, since understanding the patient's level of pain is a suitable strategy for speeding up the process of intervention (42). Overall, nurses play an important role in pain management, accurate pain assessment, selection of suitable interventions, and evaluation of pain control (35).

Many nurses believe that they are not trained for pediatric pain management. In fact, courses at nursing training centers have not prepared them for this important task (43). This is due to the fact that autonomy over the use of non-pharmacological interventions, which can be part of nurses' responsibility, has been disregarded (44). Based on a previous study in Iran, a pain control committee in the organization can be effective in empowering nurses in pediatric pain management (45).

A study by Shad showed that application of non-pharmacological interventions by nurses can significantly decrease the level of pain among patients (46). The characteristics of parents and children are among other barriers against pain management. These characteristics include children's age and culture, exaggerated pain, malingering pain, parental interference, parents' meddling in children's response to questions, and negligence in informing nurses about the patient's pain (37). In fact, many children deny pain because of their fear of punishment or injection (38).

Differences in children's gender and behaviors can affect the signs and behaviors related to pain (11). In fact, noisy children or who had parents who intervened frequently receive more analgesics, compared to quiet children or those with passive parents (39). Moreover, pain is more frequently reported among girls (42). Pain assessment in children, especially infants and newborns, is difficult, since they cannot verbally describe the severity of their pain (11). In other words, age is an important factor in pain assessment. In this regard, in a previous study, children younger than 24 months of age received lower doses of paracetamol, compared to older children (39). The results of the present study suggested the poor relationship between nurses, parents, children, and other members of healthcare teams. Today, fundamental

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changes have been made in the attitudes towards clinical care, and more attention has been paid to the involvement of patients in the treatment process. Therefore, interaction and communicative skills are important factors in pain management (47). Communication with healthcare providers regarding clinical treatment plans improves the feeling of control in patients and underscores the positive effects of interaction with nurses (48). Lack of time causes damage to interpersonal nurse with the children and parents (47). In fact, poor relationship between physicians and nurses and ineffective interaction with the members of healthcare teams can cause delays in the process of pain management (36,41,49).

Lack of participation by children and parents in the process of pain management is another barrier against pain management, despite the importance of parental involvement and its positive effects on children's adjustment with stress during hospital stay (50). Nurses should encourage parents to stay with their children and provide special training on therapeutic interventions, child care, and use of non-pharmacological interventions (51).

Parents should aid nurses in the process of pain management. They can distract children by playing games or talking to them (37). Moreover, American Academy Of Pediatrics has put an emphasis on the presence of parents during painful procedures as an essential component of health care (52). The participation of parents is beneficial for both children and families. In fact, if the parents are adequately informed, they can play a key role in pain management (53). The results of the present study indicated that clinical models on pain management are insufficient. Nurses require clinical models to attain the required skills for effective performance and improve the quality of care (54). Overall, the most important challenges of pediatric pain management were nurses' limited theoretical knowledge, insufficient skills, personal beliefs and attitudes, organizational barriers, characteristics of parents and children, lack of professional communication, ambiguous role of nurses, lack of participation by children or parents in the process of pain management, and scarcity of local models on pain management.

It is recommended that the following factors be taken into account in the design of pain management models: attention to pediatric pain management in nursing educational programs, especially by including subjects on non-pharmacological methods for pain control; continuous educational courses for nurses on pain management (especially pain assessment) and non-pharmacological interventions; training courses for parents on non-pharmacological interventions; involvement of parents in pediatric pain management; attachment of the pain assessment checklist to the vital signs monitoring sheet and reporting the results during each shift; providing proper tools for distracting children; establishing a nursing committee for pain control at hospitals; and attention to the organizational dimension (i.e., improving the workforce, designing local models of pain management, and including cultural features in pain management models in pediatric wards in Iran).

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