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Original research article

Nurses' perspective on procedural pain in children

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ABSTRACT

Purpose: The aim of the study was to determine the perception of painful invasive procedures in child patients such as venipuncture and parenteral drug administration from a nurse's point of view.

Design: A quantitative cross-sectional study.

Methods: The sample consisted of 50 pediatric nurses with the mean age of 38.54 ± 10.55 years and an average clinical practice duration of 16.44 ± 12.05 years. A self-designed questionnaire was used to collect empirical data. Based on the weighted arithmetic mean, descriptive statistics as well as evaluation of importance, feasibility of nursing interventions and nurses' competence/capability were used for the data analysis.

Results: The highest values were achieved in the importance of nursing intervention rate – with an average of 87.54 ± 7.24, the average of nurses' competence/capability rating was 78.5 ± 9.31, and the rate of feasibility of nursing intervention was on average 72.60 ± 11.71.

Before nursing intervention, nurses attributed the highest importance to "parenting education – nursing performance, preparing a child for medical procedures" (94.5%), which achieved the highest competence/capability (87.0%) and feasibility (80.5%). During the interventionist's procedure, nurses attributed the highest significance to "performing intervention with a good performance technique" (93.0%), which also achieved the highest competence/capability (90.5%). After nursing intervention, the nurses attributed the highest significance to "commending a child for being brave during intervention" (96.0%), "providing physical and psychological comfort for a child" (95.5%) and "parenting education for follow-up care" (95.5%). These nursing interventions also achieved the highest rating (both in terms of competence/capability and feasibility).

Conclusion: Despite the extensive increase in scientific knowledge, information, and effective evidence-based strategies for procedural pain management, their application to clinical pediatric practice is missing.

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Introduction

Time-limited duration of somatic pain and mental discomfort, the cause and source of which is related to diagnostic or therapeutic techniques is defined as procedural pain. The pain-inducing interventions can be divided according to the intensity of discomfort and perceived pain, which is described as mild, moderate and severe. In this context, an individual perception of pain must be respected [1]. Children admitted to hospitals often undergo painful invasive interventions that are a part of their treatment [2]. The venipuncture; the insertion of a peripheral venous cannula in connection with parenteral drug administration and vaccination are the most common causes of pain in connection with pediatric invasive procedures [3,4]. The above mentioned invasive procedures are characterized as causing mild pain in terms of intensity of discomfort and perceived pain, but they are a significant stress factor for child patients during their hospitalization [1,2,5]. The cumulative effect of painful experiences can result in adverse psychological outcomes, not only for pediatric patients but also for their parents. They may develop fear and anxiety associated with invasive medical procedures [6].

The assessment of procedural pain in children and its management has been the subject of several research studies over the last decade. The results or the findings of these studies are reflected in several clinical guidelines [7,8]. The goal of procedural pain management in children is to minimize their pain, distress and anxiety. The most effective approach is a multimodal approach that combines pharmacological and non-pharmacological interventions [9].

Nursing interventions associated with procedural pain in children can be divided according to several criteria. One of the procedural pain management approaches maintains the comfort of the child during three distinct phases of an intervention carried out before, during and after the invasive medical procedure [8]. Other pain management strategies recommend the division of nursing interventions into categories: environmental (reducing noise and light, maintaining a peaceful environment during medical interventions to minimize the number of painful procedures), physical (the use of kangaroo care, non-nutritive sucking, breastfeeding during acute painful procedures, etc.), pharmacological (24% sucrose, local anesthesia, opioids, topical and general anesthesia) and psychological interventions which were recommended for children over 3 years of age (distraction, for children over 4 years this is slow deep breathing, blowing, tactile stimulation) [7].

The pain perception in a child can be affected by a number of determinants that can be divided into factors from the point of view of a child, procedural factors and previous experience of pain. Another classification considers different procedure-specific factors. Some pain response determinants are fixed (age, sex), some are changeable over time (pain sensitivity, pain coping style, anxiety) and some are modifiable during the procedure (procedure environment, parental presence, parent and staff behavior, preparation, use of pharmacologic and non-pharmacologic methods for pain management) [10].

The aim of the study was to assess the importance, competence/capability and feasibility of nursing interventions in children from the perspective of nurses in the context of procedural pain in invasive medical procedures such as venipuncture and parenteral drug administration.

Materials and methods

A self-designed questionnaire was used to collect empirical data. The questionnaire focused on nursing interventions related to venipuncture and parenteral drug administration. The interventions were divided into three main areas – before, during and after medical procedures. The authors drew on a systematic review of clinical recommendations for acute procedural pain in child patients in clinical pediatric practice by Lee et al. [7] and on the clinical recommendation of Plummer and Twomey [8]. The questionnaire contained 34 items (nursing interventions), each of which was assessed for evaluation of importance, nurses' competence/capability and feasibility. For each item, a 5-point Likert scale was used (1 – no importance/competence/capability/feasibility, 2 – low importance/competence/capability/feasibility, 3 – moderate importance/competence/capability/feasibility, 4 – high importance/competence/capability/feasibility, 5 – the highest importance/competence/capability/feasibility). In the context of our study, the notion of importance estimated the significance the nurses attributed to their interventions; the notion of competence/capability was a subjective assessment of nurses' ability to perform the intervention, and the term feasibility expressed the assessment of medical procedure in terms of real clinical practice from the nurse's perspective.

The research questionnaire included demographic questions such as age, education, workplace, and length of nursing practice. Concerning design, it is a quantitative cross-sectional study.

The total research sample consisted of 50 nurses. The criteria of purposive sample (deliberate sampling) of the research study were: nurses working in pediatric workplaces at the University Hospital in Martin, Slovakia with at least one year of work experience and willingness to cooperate (nurses working in neonatal workplaces were not included in the study). The mean age of the respondents was 38.54 ± 10.55 years (min. 20 years, max. 60 years). The sample consists of 33 university graduate nurses; 9 nurses with higher secondary education and diploma, and 8 nurses who have completed secondary education. The average clinical practice duration of the nurses was 16.44 ± 12.05 years. 70 questionnaires were distributed and 50 questionnaires were returned for a response rate of 71% that were forwarded for final processing. Empirical data collection was carried out from January to March 2016.

For statistical analysis of empirical data, we have used Microsoft Excel tools, and methods of descriptive statistics such as arithmetic mean (M) and standard deviation (SD). Based on the weighted arithmetic mean, percentage of importance, competence/capability = feasibility (%) was calculated with the intention to clarify the results.

Results

Table 1 lists the results of the assessment of nurses' interventions related to procedural pain in child patients in

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