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Original Article

Knowledge, Practice and Beliefs of Pediatric Nurses about Pain

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ABSTRACT

Aim: Pediatric nurses play a crucial role in the assessment and management of a child's pain. The main purpose of nursing care is to eliminate pain and improve the quality of life. The aim of this study was to evaluate the knowledge, practice and beliefs of pediatric nurses about pain.

Materials and Methods: The current study using a descriptive research design included 102 pediatric nurses working at Akdeniz University Hospital who agreed to participate in the study. Data were collected using a questionnaire developed by the researchers via a face to face interview method also by the researchers.

Results: Approximately half of these pediatric nurses (40.2%) are in the 20-29 age group, 51% are married and 80.4% are bachelor's degree holders. In this study, 56.9% of the nurses stated that they did not receive any education about pain and 51% stated that they had insufficient knowledge about the evaluation of pain. Although 67.6% of these nurses state that they have a pain scale in their clinics, 65.6% of the nurses in our study group do not know the name of the scale. Although pain is subjective, only 68.6% of the nurses believed that the child/mother had expressed the pain and 22.5% stated that the cause of the pain was always an illness. In the study, 88.2% of nurses stated that analgesia should not be given before the onset of pain.

Conclusion: It is very important to make in-service training programs for pain which is considered as a vital finding. It is recommended that nurses increase their level of knowledge to counter false beliefs/practices about pain. It is hoped that the results of this study will be a reference for the development and updating of nursing education, curricula and clinical training.

Keywords: Belief, knowledge, pain, pediatric nurse, practice

Introduction

Pain is one of the most common experiences, especially in children due to trauma, disease or various medical interventions (1). The International Association for the Study of Pain defines pain as an unpleasant sensory and emotional experience from actual or potential tissue damage or described in terms of such damage (2). It is stated in the literature that children are exposed to many painful interventions such as bleeding from the heifer from the newborn period, vaccination, arterial and venous interventions and so on (3-9). Unmanaged pain can have long-term physiological and psychological consequences, such as increased susceptibility to depression, lower quality of life, reduced independence, and decreased functioning in the activities of daily living (10-14). What a child remembers about previous painful events plays a vital role in his or her anticipation of, and response to, future pain (15). Pain relief and pain management are important to a child's normal

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growth and development. Nurses in particular have a very important place among other health professionals in the evaluation and management of pain (10,16). Nurses play a crucial role in the assessment and management of a child's pain, because they are the health care professional spending the most direct time with the child (17,18). Moreover, children have an ethical right to pain relief (19). Nevertheless, pain is not effectively managed by nurses due to insufficient information about pain, a demanding workload, a lack of a team approach, and communication problems (20,21). The American Academy of Pediatrics and American Pain Society attribute the lack of effective pain management to myths and insufficient knowledge of caregivers and an inadequate application of knowledge (22). Nurses' professional knowledge about pain and pain management is often described in terms of an absence or a lack of knowledge (23,24).

Inadequate pain assessment can lead to underestimation and undertreatment of pain in the pediatric population (25). In one study, it was determined that pediatric surgical nurses did not have enough knowledge about infants' pain assessment (26). Eti Aslan and Badır (27) have determined that nurses do not have sufficient knowledge about the nature, mechanism, evaluation and management of pain, and that they have false beliefs and misconceptions. In another study, a large proportion (96%) of nurses stated that they did not always believe the patient who told them about their pain and about half (47%) of these nurses stated that they did not follow up the behavior of the patients who could not express their pain (28). In another study, 95% of nurses stated that they did not know about any scale used to assess pain (29). Akin and Durna (30) stated that there was poor agreement between the symptoms indicated by the patients and the nurses. As a result of these studies, it is thought that nurses do not have adequate knowledge, experience and equipment concerning pain. Effective pain management includes pain screening, assessment (ongoing assessment and reassessment), diagnosis, documentation (timely and appropriate), treatment (pharmacological and non-pharmacological interventions), and continuous evaluation of care (31). Additionally, current recommendations for pain assessment in infants/children include the use of reliable, valid, sensitive, and developmentally appropriate tools that include both physiologic and behavioral indicators of pain (26). It is very important that pediatric nurses determine the cause, type, and severity of the child's pain, factors that reduce and increase pain, and do not have the wrong beliefs and thoughts about the pain. Therefore, the aim of this study was to evaluate the levels of knowledge, practices and beliefs regarding pain of nurses working at pediatric clinics and policlinics.

Research Questions

- What are the knowledge levels of pediatric nurses towards pain?
- What are the applications of pediatric nurses towards pain?
- What are the pediatric nurses' beliefs towards pain?

Materials and Methods

This was a descriptive study conducted in the pediatric clinics and polyclinics of Akdeniz University Hospital in Antalya, Turkey from February to April 2018. A total of 136 pediatric nurses were working in the pediatric clinics and polyclinics in Akdeniz University Hospital in 2018. Akdeniz University Hospital is the biggest and the most developed education hospital in the Mediterranean region in the southern part of Turkey. The hospital offers high quality and specialized treatment/care services to neonates, infants and children throughout the region as well as being a teaching hospital. Since the hospital has a large staff/patient capacity and a training center, this hospital was chosen for this research. Five hundred and twenty-nine physicians and 785 nurses were working in Akdeniz University Hospital in 2018. A total of 136 pediatric nurses were working in the pediatric clinics and polyclinics in Akdeniz University Hospital in 2018. Of the 136 pediatric nurses working in the pediatric clinics and polyclinics of the hospital, 34 did not answer the questionnaire because they were on vacation or on sick leave, or because they did not wish to, while 102 answered it, corresponding to 75% of the entire team.

In this study, two measures were used: 1) the Participant Demographic form which consisted of 14 questions about the nurses' age, sex, years of experience, educational background, publications followed related to their profession, and knowledge about pain assessment in clinics; and 2) the Pediatric Nurses' knowledge levels, practices and beliefs regarding pain which was developed by the researchers in accordance with the literature (13,14,16,26-29,32).

The questionnaire was tested on 15 pediatric nurses including the supervisor nurses in a pilot study before administration. These 15 pediatric nurses were asked about the comprehensibility of the questionnaire questions, the ease of answering and the ability of the questions to represent such a topic. The questionnaire was replicated

separately for each individual and they were asked to review the questionnaire and note their opinions in writing. The opinions and suggestions of the 15 nurses who were piloted were taken. In this way, it was attempted to obtain the reliability and the content validity of the questionnaire. The results of the pilot study were evaluated by the researchers. The participants found the questionnaire quite competent and understandable. In this pilot study, it was determined that the questions could be understood, and no changes were made. The nurses included in the pilot study were included in the study because there was no question which was not understandable after the feedback from the nurses.

The pediatric nurses were informed about the objectives and content of the study. The data of the research were collected by the researchers using a face-to-face interview method. The questionnaire took approximately 20 to 30 minutes to complete.

Ethical Considerations

After obtaining permission to conduct the study from the Akdeniz University Hospital administration, we obtained ethical approval from the Ethics Committee of Akdeniz University Non-invasive Clinical Trials (approval number: 70904504/81, date: 26.02.2018). Oral and written consent of the pediatric nurses was obtained after reading an informed consent document.

Statistical Analysis

Data were analyzed using SPSS (20.0) for Windows software. Statistical significance was established at an alpha level of 0.05. Descriptive statistics (frequency and percentage, standard deviation, mean) for the variables are given in Table I. Data were analyzed statistically by the chi-square test and/or the Fisher exact test to calculate the differences between proportions. Bonferroni Correction test was performed in binary comparisons and α=0.017 was taken.

Results

Sample Characteristics

The study demonstrated that 97.1% of the pediatric nurses are women, 40.2% are in the age range of 20-29 years, 51% are married and have children. 80.4% of the nurses have bachelor's degrees and only 7.8% have a post-graduate degree. 37.3% of nurses have a total working period of 0-5 years. More than half (74.5%) of the nurses follow scientific publications related to nursing and attend congress/seminar activities (81.4%). 56.9% of the nurses stated that they did not receive any education about pain, and 51% stated that their knowledge about the evaluation of pain was insufficient. Although 67.6% of the nurses say that they have a pain scale in their clinics, 65.6% of the nurses did not know the name of the scale (Table I).

Pediatric Nurses' Pain Assessment

When the pain assessment methods of pediatric nurses were examined, 21.6% of the nurses stated that they were evaluating the patients' behavior and 2.9% of the

Table I. Socio-demographic characteristics of pediatric nurses

Characteristics		**n**	**%**
Gender	Female	99	97.1
	Male	3	2.9
Age	20-29	41	40.2
	30-39	36	35.3
	40-49	22	21.6
	50-59	3	2.9
	>60	0	0.0
Marital status	Married	52	51.0
	Single	50	49.0
Has at least one child	Yes	52	51.0
	No	50	49.0
Educational status	Vocational school of health	7	6.9
	Associate degree	5	4.9
	Bachelor's degree	82	80.4
	Post-graduate	8	7.8
Experience as a nurse in years	0-5	38	37.3
	6-10	23	22.5
	11-15	16	15.7
	16-20	10	9.8
	>21	15	14.7
Nursing congress/Seminar participation	Yes	83	81.4
	No	19	18.6
Training on pain	Yes	44	43.1
	No	58	56.9
Is she/he competent about pain?	Yes	50	49.0
	No	52	51.0
Does the clinic have a pain scale?	Yes	69	67.6
	No	33	32.4

nurses evaluated the pain from the verbal expressions of the patients. In addition, a large majority (75.5%) of the nurses stated that they considered all the features (verbal expression, behaviors, verbal expression of the parents, doctor notes) when assessing pain. Table II shows the two-and-three comparison of the pain assessment methods of pediatric nurses.

Pediatric Nurses' Knowledge and Beliefs about Pain

Although pain is subjective, only 68.6% of the nurses believed that the child/mother had expressed the pain and 22.5% stated that the cause of the pain was always an illness (Table III). In this study, it was determined that nurses who were married (x^2=5.145, p=0.023), who were educated about pain (x^2=6.253, p=0.017) and who had a higher level of education (x^2=7.036, p=0.047), answered more "true" to the statement that "if the child/mother says there is pain, then there is pain". In addition, it was determined that nurses who participated in scientific congresses responded more "wrong" to the statement that "the cause of baby's/child's pain is always a disease" in this research (x^2=6.798, p=0.004).

Nearly half (49%) of the nurses said that "preterm infants are not more susceptible to pain than term infants" (Table III). In this study, it was determined that nurses who participated in scientific congresses (x^2=6.261, p=0.041) and who received education about pain (x^2=7.067, p=0.032) answered more frequently "true" to the statement that "preterm infants are more sensitive to pain than term infants". In addition, it was determined that nurses who had a working time of 0-5 years (x^2=13.861, p=0.045) and who had a higher level of education (x^2=21.667, p=0.000), responded more "wrong" to the statement that "preterm infants did not develop pain perception".

In this study, 47.1% of the nurses stated that "if the child is asleep, there is no pain". In this study, 37.3% of the nurses stated that "the unconscious child's pain cannot be assessed" (Table III). It is determined that nurses who are in the 20-29 age range (x^2=13.311, p=0.020), who are married (x^2=7.567, p=0.020), who have a higher level of education (x^2=13.223, p=0.017) and who received education about pain (x^2=6.831, p=0.032), answered more frequently "true" to the statement that "assessing the muscle tone of the child gives information about the pain". It was determined that nurses who have a working period of 0 to 5 years responded more correctly to "true" than those who worked for 6 to 10 years in the phrase "pain is a vital finding" (x^2=17.996, p=0.005).

Discussion

The management of pain depends mainly on the implementation of the nursing process through assessment planning, intervention, and evaluation (33). However, in one study, it was determined that nurses lack knowledge about pain and pain control in children. Additionally, it was determined that the nurses did not use any pain assessment scale and that they did not know about the scales used in the evaluation of pain (29). Asadi-Noghabi et al. (14) carried out a study entitled "Neonate pain management: what do nurses really know?". It was found that the nurses had poor performance regarding the assessment, measurement, and relief of pain. In this study, a low level of knowledge about pain management was observed, implying an inadequacy in nursing practice in the assessment and management of pain. Nurses should acknowledge the significance of pain and should improve their professional attitudes and knowledge in order to gain control over pain through a multidisciplinary approach and to prove the crucial and inevitable role of nurses in such a team (27). To accomplish this, pediatric nurses need to expand their knowledge, use appropriate assessment tools and techniques, anticipate painful experiences and intervene accordingly, use a multimodal approach to pain management, use a multidisciplinary approach when possible, involve families, and advocate for the use of effective pain management in children (22). It is very important to improve the knowledge and awareness of nurses on pain and pain management. Therefore, in this study, the knowledge levels, practices and beliefs of the pediatric nurses towards pain were evaluated.

According to the results of the research, a large majority of pediatric nurses are females. The population studied

Table II. Pain assessment of pediatric nurses

Pain assessment methods of nurses	n	%	x^2	p value
a. Verbal expression	3	2.9	Binary comparison* - a-b=x^2: 14.44 p<0.001 - a-c=x^2: 68.45 p<0.001 - b-c=x^2: 30.556 p<0.001 Triple comparison (x^2: 86.88, p<0.001)	
b. Behaviors	22	21.6		
c. All (verbal expression, behaviors, verbal expression of parents, physician's notes)	77	75.5		

*Bonferroni Correction was done and α=0.017 was used for bilateral comparisons

here consisted exclusively of women, as explained by the fact that the nursing profession still is almost exclusively a female profession, as also is reported by others (34,35). When analyzing time of service, we noted that 37.3% of the nurses had been working in the pediatric clinics for less than 5 years. In addition, the vast majority of nurses (80.4%) have a bachelor's degree with while only 7.8% have a post-graduate degree. Pediatric nurses need to be highly educated and experienced in pediatrics to provide higher quality care. Nurses play a key role as advocates for children in decisions about their health, and their competence is of particular interest in pediatric care. A nurse who is not sufficiently informed about pain will also have insufficient experience in assessing and managing the pain of their patient. In this study, 56.9% of the nurses did not receive any education about pain and 51% stated that their knowledge about the evaluation of pain was insufficient. In several studies, the main findings have been that nurses lack knowledge and that their education in pain management must improve (24,26,32,36-38). In one study, it was determined that only 56.2% of the nurses understood physiologic pain symptoms and 58.8% understood behavioral pain symptoms in newborns (36). Related to education, nurses lacked clinical education in pain assessment. Lack of pain education can affect pain management in children. Ekim and Ocakcı (38) found that pediatric nurses in Turkey need more education about pain management. Education programs for pediatric pain management should include the assessment of pain according to the child's developmental level and the approach to the child and their family when the child is in pain.

According to the results of this study, only 68.6% of the nurses stated that they believed the pain expression of the child/mother. Additionally, it was determined that nurses who are married, who receive education about pain and who have a high level of education believe more about the pain of their patients than the other nurses. Self-report is the most important indicator of the existence and intensity of pain for child patients (22,15). It is essential to master the specific knowledge required to assess, plan, implement and evaluate nursing interventions as well as cooperate with the child and his or her parents (39,40). Nurses sometimes communicate with the children, but at other times with their parents instead. Poor communication with

Table III. Pediatric nurses' knowledge and beliefs on pain

Knowledge and beliefs about pain	True	False	I do not know
The age and developmental level of the child should be considered in the evaluation of pain.	95.1	4.9	0
Pain is a vital finding.	70.6	25.5	3.9
If the child/mother says there is pain, then there is pain.	68.6	31.4	0
Babies/children feel pain less than adults.	15.7	82.4	2.0
Preterm infants did not develop pain perception.	27.5	71.6	1.0
Preterm infants are more susceptible to pain than term babies.	43.1	49	7.8
The cause of the baby's/child's pain is always a disease.	22.5	77.5	0
Assessing the muscle tone of the child gives information about pain.	70.6	23.5	5.9
The response to pain varies according to the age of the child.	93.1	6.9	0
Restlessness is an indication of pain.	86.3	12.7	1.0
Pain can be assessed at any age using scales.	90.2	9.8	0
There is no pain if the child is sleeping.	47.1	50	2.9
Pain affects the feeding of the baby/child.	97.1	2.9	0
Pain does not affect the vital signs of the baby/child.	11.8	88.2	0
Pain increases the child's heart rate.	99	1.0	0
Pain reduces the rate of the children's respiration.	19.6	80.4	0
Children who are unconscious can also be evaluated for pain.	51	37.3	11.8
Pain assessment should be performed with the patient.	95.1	4.9	0
Analgesics should be given before the onset of pain.	8.8	88.2	2.9
Some children can sleep because of excessive pain.	49	50	1.0

parents and knowledge deficits regarding children's pain management on a nurse's part can create obstacles in their ability to perform effective pain management (41,42). The nurses' communication skills need to be further developed. Nurses do not communicate adequately with children and their families due to busy working hours. Additionally, nurses do not take the time to evaluate vital signs such as pain. According to our results, 22.5% of the nurses stated that the cause of the pain was always a disease. According to this finding, when the doctor diagnosed the disease and determined the pain, the nurses evaluated the pain. Bergman (43) and Wang and Tsai (44) relate similar findings; in both studies, nurses reported that reliance on physicians' orders for pain care was a major barrier. In Wang and Tsai's (44) study, nurses said that they should be able to design a pain care regimen for patients based on immediate postoperative assessments instead of having to wait for the physicians' assessments and orders. For these reasons, it is thought that nurses are only interested in the orders of doctors without worrying about the evaluation and management of pain. Additionally, in our study, nurses who participated more in scientific congresses stated that the cause of pain was not only related to a disease. Therefore, it is very important for nurses to have the necessary knowledge and skill level in the evaluation of pain and to use their caregiver role independently from the doctor.

Nurses might fail to assess children's pain accurately, and assess pain mainly by observing a child's behavior and changes in his or her physiology (45). In this study, 37.3% of the nurses stated that pain cannot be evaluated in children who are unconscious. Rose et al. (46) found that nurses were significantly less likely to use behavioral assessment tools with non-verbal patients, thereby missing critical pain cues and experiences. Pain measurement scales are rarely used, and when they are used, nurses sometimes do not know how to interpret them and thus intervene inappropriately, leading to inadequate pain relief. In this study, 67.6% of nurses stated that they had a pain scale in their clinics, but 65.6% of nurses did not know the name of the scale. In one study, it was determined that one-half of the nurses did not have knowledge about pain scales (26). Although it is emphasized that pain assessment tools are important, these scales are not given importance in practice (47). The absence of standard pain assessment tools and the inability of nurses to use these scales constitute the two most important obstacles in the management of pain. In a study by Van Niekerk and Martin (48), nurses rated the information they received about pain management during workplace programs as poor, feeling that they required significantly more in-depth information during their initial education. For this reason, nurses are required to receive in-service training on pain and pain assessment scales. The results of our research have revealed that education about pain is necessary. According to the results of this study, it was determined that those nurses who were married, educated and educated about pain in the 20-29 age group were more concerned about muscle tone in order to evaluate the pain of the children compared to the others.

Although it is important for pediatric nurses to learn about pain, the content and continuity of education is also very important as pediatric nurses' false beliefs about pain cannot be corrected with a single educational session. Additionally, some studies (49,50) suggested that pediatric nurses are not using their theoretical knowledge in practice. The evaluation and management of pain should be continuous in school education programs and clinical training. Nevertheless, pain is a neglected topic in the educational programs of both nurses and physicians (51). In this study, approximately half of the nurses (49%) stated that "preterm infants are not more sensitive to pain than term infants". According to the results of this study, it was determined that those nurses who have a higher level of education, who received training about pain and who participated in scientific congresses had fewer false beliefs about pain. Therefore, in order to change these false beliefs, it is very important to make in-service trainings and to update the information continuously in clinical settings. We also think that ongoing education programs developed by official institutions may improve the knowledge level about pain management in nursing.

Study Limitations

We consider that this study is limited by the inclusion of a small number of nurses. This could be seen as a bias, perhaps, selection bias or analysis bias or measurement bias; however, we do not believe that this invalidates the findings.

Conclusion

It is considered that the results of this study will be a reference for the development and updating of nursing education, curricula and clinical training. Moreover, the low level of knowledge of nurses about pain scales indicates that nurses need education regarding this issue. It can be said that this situation is a reason for future training activities. Finally, pediatric nurses who advocate for improved pain management in children need stronger and more persistent information about pain.

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Ethics

Ethics Committee Approval: We obtained ethical approval from the Ethics Committee of Akdeniz University Non-invasive Clinical Trials (approval number: 70904504/81, date: 26.02.2018).

Informed Consent: Oral and written consent of the pediatric nurses was obtained after reading an informed consent document.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: V.A.C., Ş.Ç., E.E., Design: V.A.C., Ş.Ç., E.E., Data Collection or Processing: V.A.C., Analysis or Interpretation: V.A.C., Literature Search: V.A.C., Ş.Ç., E.E., Writing: V.A.C., Ş.Ç., E.E.

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