



Nurses' experiences of prehospital care encounters with children in pain

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ABSTRACT

Background: Pain relief in children is a complex issue, partly an ethical dilemma and due to a lack of nursing competence. There are few studies regarding prehospital care encounters with children in pain.

Aim: The aim of this study was to describe nurses' experiences in prehospital care encounters with children in pain and the specific related challenges.

Method: This study has a qualitative design. Eighteen Swedish nurses participated in three focus group interviews analysed using qualitative content analysis.

Findings: The findings consist of a theme, "A challenge to shift focus and adjust to the child", and three categories describing prehospital care encounters with children in pain: "Being receptive and focusing on care," "Developing a trusting relationship," and "Providing professional nursing care." Caring for children in pain was stressful for the nurses. The nurses described how they had to shift focus and used different methods to build trust, such as playfulness, making eye contact, attracting curiosity, and using the parents to create trust. The also had to adjust to the child regarding dosages and materials.

Conclusion: Nurses has to be practically, mentally, and theoretically prepared to care for children with prehospital pain. It is essential to evaluate the administration of adequate pain relief to children, and more evidence-based knowledge is necessary concerning the different modes of administering pain-relieving drugs to prehospital children.

1. Introduction

Pain is a common reason why parents seek prehospital emergency care for their children. Paediatric pain is often caused by some form of trauma such as accidents or burns. Nurses with prehospital paediatric care encounters report that the experiences can be multifaceted and stressful [1].

Swedish patient law emphasises children's best interests considering their attitudes about care and treatment when they are patients [2]. This also means understanding their perspectives in prehospital care [3].

Paediatric pain relief is a complex issue, partly an ethical dilemma and sometimes results in inadequate nursing competence. Prior research found that children have not always received adequate pain relief in prehospital care [4–6]. Young children especially have not received adequate analgesia care [5]. Inadequate pain relief has an immediate impact on nursing. If pain is overwhelming, it is difficult to communicate with the child to devise (depending on the age) possible interventions. Face scales are self-assessment tools using several faces

that show gradual facial expressions ranging from the happiest feeling to the saddest. Children choose the face that best suits their emotional state [7].

Assessing children prehospital is a challenge because of their physiological and psychological differences from adults [8]. Nurses should advocate for their patients' rights, including the right to pain relief [9,10]. It is ethically challenging to investigate the treatment of paediatric prehospital pain, so it is important to highlight nurses' experiences of prehospital care encounters with children. To our knowledge, there are few studies on the management of paediatric prehospital pain in Sweden. This paper is the first study in a larger project that aims to assess the care of children in ambulances (ChiA).

1.1. Aim

The aim of the study was to describe nurses' experiences of prehospital care encounters with children in pain and specific related challenges.

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2. Method

2.1. Design

This study has a qualitative, descriptive design and data was collected with focus group interviews and analysed with inductive qualitative content analysis, which means that the analysis remained close to the text and was conducted without preconditions. Qualitative research permits in-depth study of important factors [11].

2.2. Participants and procedure

In Sweden, registered nurses (RNs) can work in prehospital care in ambulances. Some regions prefer that RNs obtain additional specialised training to become ambulance nurses; however, this is not mandatory. One of the stations was located close to a ski resort with high frequency of injuries involving sports. The other two stations were located in cities with trafficked highways, railways and densely populated suburbs (many children living under the age of 18y). The routines regarding pain treatment for children was similar at the three ambulance stations. Permission to carry out the study was obtained from the managers of three ambulance stations located in the middle of Sweden. The researchers visited the three stations and administrated letters to the RNs with information about the study, a request to participate and a response envelope. All nurses (n = 42) at the three ambulance stations whom meet the criteria for inclusion were invited to participate in the study. Criteria for inclusion was to have experience of working in prehospital care for two years, experience of encounters with children in pain (ages 0–18 y), and to speak fluent Swedish. Upon receiving response letters, the researchers arrange a time for focus groups interviews at the stations. A total of 18 RNs (7 women and 11 men) participated in three focus groups and two individual interviews. Two individual interviews was added because an additional fourth focus group was planned but due to high work load only two RNs was able to participate in individual interviews.

The focus group interviews were carried out at the ambulance stations. To ensure different characteristics and variation, participants was selected with variations in education, work experience, gender, and family (that is, children of their own). Eight RNs had a bachelor degree in nursing including paediatric care in general but longer experience of prehospital care. Ten RNs had special certificate (in ambulance, intensive, anaesthesia, and/or public health) including pediatric care in some form. However, education of assessments of pain in children were sparse. The RNs experience in ambulance care ranged from two years to 36 years. Sixteen of the RNs were parents or grandparents.

2.3. Data collection

The interviews were carried out in three focus groups and two individual interviews between February 2017 and June 2017. An interview guide was created that consisted of five core questions Table 1. Follow-up questions were asked, such as: “Can you give an example?” and “What were you thinking then?” The interview guide and the technique had been tested in a pilot interview, which was not included

Table 1

The core questions in the interview guide.

1. Can you tell me about your prehospital experiences concerning care encounters for children with pain?
2 Tell me, what do you do if you know that you will be allocated to children with assumed pain? (Do you act differently?)
3. Are there any difficulties in pain relief for children?
4. Can you tell me how you assess pain in children? (Different ages?)
5. What medications and forms of administration do you use for children's pain relief?

in this study. The interviews were conducted by three of the authors. All of the interviews were recorded digitally and then transcribed verbatim. They lasted between 40 and 50 min [11]. All interviews were conducted in Swedish and translated into English during the analysis.

2.4. Data analysis

The interviews were analysed using a qualitative content analysis as described by Graneheim and Lundman [12]. The analysis was conducted via the following steps: First, the interviews were read through several times to get a sense of the content. Second, the text was divided into meaning units (that is, one or more sentences related by their content), condensed, and abstracted. Third, the abstracted meaning units were abstracted into codes. Finally, the codes were compared and sorted into categories and subcategories based on similarities and differences Table 2). All of the authors returned to the original text to confirm the subcategories, categories, and theme. Finally, all authors discussed the analysis and agreed on the findings.

2.5. Ethical considerations

This study conformed to the principles outlined in the Helsinki Declaration [13] to promote good care and do no harm. Prior to the interview, written and verbal information about the study were given and written informed consent was obtained from all participants. The participants were guaranteed confidentiality and an anonymous presentation of the results. The larger project, ChiA (including this study), has ethical approval (Dnr 2017/222-31).

3. Findings

The findings shows an overall theme *A challenge to shift focus and adjust to the child* and three categories *Being receptive and focusing on care*; *Developing a trusting relationship* and *Providing professional nursing care*. The theme describes how RNs experience of adapting to children when children where patients, adjusting their interaction with the child and the parents, and also shifting focus from the adult setting in terms of dosage and materials (Table 3).

3.1. Being receptive and focusing on care

The participating nurses had an increase in stress when there was a call to a child with presumed pain. The stress boost was mostly due to inadequate experience because calls to children rarely occurred. The nurses handled this internal stress by being receptive and focusing on care.

3.1.1. Structuring the practical work

The nurses reported being better able to care for children in pain if the team had prepared in advance. One way to handle internal stress was to structure the practical work. The nurses discussed how to plan for the encounter and decided who would be responsible for the child's care and who would deal with the parents. The nurses also said if they knew there was a child with pain involved, they often prepared by reviewing guidelines for the situation and drug dosages. The nurses prepared for treating children with more urgency than adults. It was important to know and understand paediatric medication doses, which often was difficult due to lack of experience expressed by a nurse in focus group 1.

“You do not have the same routine to take care of children, you do not meet children seven days a week, like adults ... but children are not like little adults anyway, they are something else that requires extra supervision of the doses .. and other things and that is a stress factor.. “ (Nurse in focus group nr1)

Table 2
Example of the analysis process.

Meaning units	Condensed units	Codes	Subcategories	Category	Theme
You look at how the child seems to feel ... I also use the clinical glance, has the child calmed down or not? What kind of person is in front of me? What is fear and what is pain?	Observe how the child seems to feel. Use the clinical glance; has the child calmed down or not? What is fear and what is pain?	To observe the child To have a clinical glance To reflect To assess	To do a proper pain assessment	Providing professional nursing care	A challenge to shift focus and adjust to the child

Table 3
An overview of the findings.

Theme	A challenge to shift focus and adjust to the child		
Categories	Being receptive and focusing on care	Developing a trusting relationship	Providing professional nursing care
Subcategories	Structuring the practical work Preparing mentally	Adjusting to the child Understanding the parents' needs	Proper pain assessment Administering pain relief to children

3.1.2. Preparing mentally

The preparation time depended on the length of the ambulance trip. Some of the nurses said that it often took time to reach a patient. Others said that they sometimes arrived not knowing a child was involved. If possible, in addition to structuring their practical work, nurses gathered their thoughts to be mentally prepared. Paediatric care was taken seriously, and the nurses provided professional and safe patient care by preparing mentally and understanding the doses of pain medication before arriving. One nurse said that she would “sharpen up” mentally when children were involved. Others described how they prepared for the worst and discussed different possible scenarios with their colleagues. Mental preparation helped reduce their internal stress, which was significantly higher with children. The nurses needed strength to arrive at the scene and directly step into an authentic professional role to calm children and their parents. At the scene they had to act as confident and competent professionals who regularly experienced similar circumstances;

“I can say I have to prepare myself during a trip to a severely ill child ... because first of all, I have a noticeably higher rate of stress ... depending on the nature of the alarm, of course ...if it's a prior one and a bad case with a child involved, so to speak, then it is stressful” ...“I must really try to gather my thoughts and have a mental preparation for how I should work directly in a place when arriving ..I have to show that this sort of thing is what I do every day; I am competent and it will be all right, I will take care of you.”(Nurses in focus group nr 3)

3.2. Developing a trusting relationship

The nurses stated that caring for children in pain was a multifaceted challenge that relied not only on medication. The prehospital situation also required the nurses to develop a trusting relationship with the children and their parents.

3.2.1. Adjusting to the child

The nurses said that when they arrived and met the child, it was important to adjust to the child and his or her specific needs. This meant that they not only needed to observe the child's vital signs, but also had to develop trust. The nurses said that they initiated the encounter by observing, sitting at eye level with the child, and trying to attract his or her attention. It was essential to adjust communication methods to suit the child's age and cognitive status. It was also

important to speak directly to the children slowly, loudly, and clearly. Depending on the child's age, the nurses might use a toy to distract the child and encourage the parent to help the child feel safe.

“I have to establish contact so I can get close to the child; you have to learn to meet at their level. First of all, I learned to kneel or on the floor so that we reach the same eye level. I've learned to ask questions so that the child understands me. Also, I've learned to meet the child and show that I'm a kind person and not a threat. How I do it depends a bit on what kind of child I have in front of me. If I have a child who does not even want to look at me, I may start with talking to Mom and Dad.”(Nurse in focus group nr 1).

3.2.2. Understanding the parents' needs

During encounters with children in pain, it was essential to understand and manage the parent's needs. The parents were an important resource for a successful caring encounter, but the children were the first priority. The parent could help by sitting close to the child and “interpreting” in some cases to express the information with the parent's words so the child could easily understand. The nurses reported how they tried to create a calm environment by describing to both the parents and child what they intended to do before they did it, and it was important to always be honest if something was going to hurt. Some parents tried to calm the children. For example, when the nurse introduced a peripheral venous catheter (PVC), the parents might say the procedure would not hurt. However, according to the nurses, this type of understatement was never good. This reduced the nurses' confidence, which can complicate care. If the child was older, the nurse could let him or her make their own decisions, giving the nurses more confidence. Sometimes one of the nurses connected better with the child, which caused the nurses to change their roles.

However, the parents' capabilities of managing this sort of situation varied. In some rare cases, the parent had to be separated from the child, as their fear made the child more insecure and worried. One nurse said that it could be comforting for the parent if they were given a specific task to help the child, taking the focus off their own fears.

“On the best of days, we are two ambulances when there is a child involved ... then we are four people, which makes an opportunity to designate one person to take care of hysterical parents ... “

“Yes, I agree, but spontaneously, I would say that the primary focus is always the child. Parents will be secondary ... So, parents fall a little bit away. You get some kind of tunnel vision if there are few nurses in a place. It's the child and nothing else just then... until the child is stable ... then you can take care of the parents.”(Nurses in focus group nr 2).

3.3. Providing professional nursing care

One important and challenging part of the paediatric pain prehospital care encounter was providing professional nursing care with suitable interventions. This included performing a proper pain assessment and administering pain relief suitable for the child.

3.3.1. Proper pain assessment

The nurses said that visual analogue scales (VAS) were rarely used

because they were perceived as a blunt instrument for assessing children's pain. They said that the facial scale was more commonly used when caring for children. However, the nurses often assessed the child's pain using the clinical glance and vital parameters, examining behaviour and pain provocation. The pain experience is personal and differs depending on the child. Some of the nurses found it easier to assess toddlers' pain as they have a clear and similar pain expression, unlike teenagers. Teenagers have completely individual experiences of pain and express it in various ways. The nurses often used the parents to help them interpret the child's pain, since they could best evaluate their child. Language could be an obstacle for the nurses, and assessing pain when the parents did not speak Swedish was difficult. Babies and toddlers were often assessed just by their screams.

"I think you hear how the little child screams and so on. You can recognise the type of scream. Whilst it gets more difficult, I think, when you get to teenagers and some older children. There can be a lot of difficult assessments with teenagers"(Nurse in focus group nr 2).

3.3.2. Administering pain relief to children

When it was necessary to administer intravenous pain relief to children, the nurses described great precaution and insecurity. This occurred because doses of medicine are dependent on a child's weight, and the parents were not always sure of their child's weight. So the nurses devised a strategy, "better to be safe than sorry," which often resulted in doses that were too low. In addition, due to transportation conditions, paediatric pain relief was sometimes used sparingly due to the nurses' uncertainty. The nurses said that they lacked real knowledge of the effects of pain drugs on children. The nurses were willing to learn about medications and said they often administered drugs they felt were safe but not always those recommended by the guidelines.

The nurses also found that it was sometimes complicated to administer pain relief to children; for instance, it was difficult to detect the blood vessels of young children. Children may also fear pain when inserting a needle into a blood vessel or be afraid of the overall situation. Some nurses said that intranasal drugs were much better for children. This solved many problems such as finding small blood vessels in terrified children in pain. Several participants described how they used nasal drugs as a first dose of pain relief, which often diffused the situation, and the child had almost instant pain relief. This nursing intervention described as a key to successful paediatric care. Other nurses who did not use intranasal drugs described experiences when they had to hold a child down in order to administer a PVC to provide pain relief. These situations were traumatic to the child as well as to the parents and caused the nurses a great deal of stress.

The nurses said that the pain intensity also affected the mode of administration of paediatric pain relief and the distance to the hospital affected the choice of administration.

"... Nowadays we don't always have to hurt the child by inserting a PVC ... since we have the intranasal technique. And then it could be so anyway, that I have to insert this ... It hurts and can be messy ... They are chubby at a certain age ... it is often difficult to find the vessels..."(Nurse in focus group nr 3).

4. Discussion

4.1. Methodological considerations

This study had a qualitative design, so the nurses' experiences are not generalisable [14]. However, the same approximate results were found in all interviews, with some variations depending on the nurses' experience. The focus group interviews had 18 participants, implying a large amount of collected material that was sufficiently comprehensive to meet the aim of the research; this also strengthened the study's

credibility as it collected varied stories and there was a greater chance of identifying different perspectives on the studied phenomena [12]. The material seemed saturated after two focus group interviews, which indicated that enough participants were interviewed. Afterward, one last focus group interview was conducted to strengthen the saturation. The study participants' ages, work experience, and genders differed in order to create variation, reveal patterns, and obtain a better overall picture of the studied phenomena. The analysis was initially conducted by the author MRH and two MSc students, while the final analysis was performed by the authors MRH; BE, LJ, and MH, who also read and structured the final approval. The research team had different areas of competence that governed their own preconceptions. To strengthen the trustworthiness, the interviews were transcribed verbatim. The reader also can assess the trustworthiness by viewing Table 2, which shows the analysis from data to categories [14]. To further strengthen the study's credibility, the nurses' statements were used in the findings section because quotes together with findings provide increased credibility, according to Graneheim and Lundman [12].

Two of the authors had previous experience in prehospital care: two were paediatric nurses and one was a critical care nurse. The authors engaged in robust debate to avoid study prejudice. The authors sought reflexivity throughout the entire research process. Although the Nordic countries have a similar prehospital care guidelines, recontextualisation of the findings is possible.

4.2. Discussion of the findings

Nurses' experiences of prehospital care encounters with children in pain and the specific challenges related to these situations, were described in the overall theme "A challenge to shift focus and adjust to the child". The theme described how RNs experienced child-encounters challenging where they had to shift from their normal mode (adult patient).

The findings identified the nurses' preparations when they on their way to the emergency location. They then focused and structured the practical work, going through material and guidelines.

They also gathered their thoughts in order to prepare mentally for what they might encounter. This was important practical and mental groundwork that enabled the nurses to be present in their roles acting confident and competent when arriving at the emergency location.

Medication was not the only important factor in caring for children in pain. The nurses used different methods *adjusting to the child* to develop trust, such as playfulness, making eye contact, attracting curiosity, and involving the parents. Nordén, Hult, and Engström [15] highlighted parental involvement in their children's care as an important method of creating children's safety and trust.

Providing open and honest communication and information about the child's condition also leads to increased security and trust in both parents and children. Ayub, Sampayo, Shah, and Doughty [16] described the importance of prehospital emotional family support. Support in terms of empathetic comfort, maintaining a calm demeanour, and paying attention to the entire family makes them feel involved in the prehospital care of a child. When a nurse shows *understanding for parents' need* to know what is happening and helps by clarifying the situation, prepares for what may occur, the parents feels included, and this creates a positive first impression of the ambulance staff. The nurses believed that when parents were with their children, they felt involved in their care. The findings showed the importance of the parents' presence, which was confirmed by O'Connell et al. [17].

Nurses reported parents as a helpful resource, in providing professional care and pain assessment of children of different ages and capabilities, especially in young children.

In addition, pain scales describes as a tool, and Lord et al. [6] reported that young children and children with cognitive disabilities need scales customised to their behavioral skills in order to do pain assessments.

Various strategies have attempted to improve the assessment and management of paediatric pain, including a systematic approach to applying different standards for pain assessment and relief. This requires the use of evidence-based guidelines and education to increase the knowledge and skills of nurses who encounter children prehospital [6]. According to Rajasagaram et al., parents and nurses could cooperate regarding the assessment of children's pain levels, and nurses allocated significantly lower pain scores based on their judgement of a child's pain compared to the children and parents' estimations [18].

The ambulance environment may seem chaotic for a child, with disturbing noise and inadequate light, making it more difficult to obtain a satisfactory pain assessment before arriving at the hospital [3]. When assessing pain in children, the participating nurses said that pain scales were not very effective prehospital, and therefore rarely used. Bendall, Simpson, and Middleton [19] also found inadequate prehospital pain assessment scoring instruments tailored to the age of children. Observing a child's behaviour and obvious visible injuries is important for the assessment of their prehospital pain. Our findings indicate that the evaluation of parameters such as heart rate, respiratory rate, and blood pressure also helps to determine pain, but these is affected by other factors such as anxiety, fever, and medication [cf.3]. Lack of appropriate pain estimation scales in younger children has been shown to contribute to inadequate pain relief [20].

Some of the participating nurses used intranasal drugs as a quick and easy way to provide comfort and pain relief to a child and then continued intravenous medication. Prior research on nurses, parents, and children confirmed that intranasal pain relief alleviated worry, pain, and discomfort during different procedures. Ljungman et al. [21] found that intranasal pain relief led to less concern about minor procedures, such as PVC insertion, making the entire experience easier for children, parents, and nurses. Galinski et al. [20] found that pain relief such as nasal administration may increase the use of prehospital pain treatment. According to Murphy et al. [22], intranasal administration for children can increase the effects of pain treatment because it quickly and easily alleviates pain.

Our findings indicate that prehospital nurses seem to have less knowledge about the acute care and medication of children. The nurses reported that inadequate specific competence in paediatric care made the prehospital assessment of children more difficult. Learning to use and manage drugs in a safe way seems to be challenging for nurses in different settings. Haggstrom et al. described a method of addressing this challenge using collegial and lifelong learning in a supportive environment where failures were also addressed; this seems vital for improving care encounters with children with prehospital pain [23]. Seid, Ramaiah, and Grabinsky [24] found major differences in the quality of prehospital child care; the opportunity to practise paediatric skills during training was rarely provided and depended on how many "child alarms" the ambulance staff attended. The study revealed that ambulance nurses lacked the proper equipment for children of different sizes, and their ability to use the equipment was inadequate. There are implications for policy and practise since inadequate pain management persists. Courses or self-completed educational packages, preferably with an interactive element, are necessary for improvements in paediatric pain management [25].

5. Conclusions

It is important to support nurses in prehospital care and minimise their stress in relation to paediatric pain management. Nurses must be present and mentally, practically, and theoretically prepared for any scenario. More paediatric training should be included in specialised courses and at the workplace as a part of lifelong learning. The training should also include opportunities for reflection and discussion regarding the experiences the nurses have about pain management for children. This should be a part of the professional development for nurses as well as improving the care. Simulation exercises with

paediatric manikins once or twice a year for all prehospital nurses is a possible solution. In order to obtain evidence-based knowledge we need to proceed with research on different modes of administering pain-relieving drugs prehospital, and evaluate the effect.

These findings illustrate a respect among nurses for administering pain relief for children, regardless of the form, leading to low doses of analgesics in children and the risk of insufficient pain relief.

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Conflict of interest

The authors declare no conflicts of interest.

Ethical approval

The study was approved by the Regional Ethical Review Board, Umeå, Sweden (Dnr 2017/222-31).

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