Nurses’ competence in pain management in children

GUNILLA LJUSEGREN
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Gunilla Ljusegren
To my family
Summary in Swedish

Sjuksköterskans kompetens i vården av barn med smärta.


Det övergripande syftet med denna avhandling var att beskriva sjuksköterskans professionella kompetens i vården av barn med smärta. För att nå syftet tillfrågades 42 sjuksköterskor i en enkät om kunskap om och attityder till smärta och smärtbehandling, vidare intervjuades 21 sjuksköterskor om sina erfarenheter i mötet med barn med smärta.

Resultatet visade att sjuksköterskorna hade goda kunskaper om och positiv attityd till smärtlindring hos barn. Det var viktigt att tro på barnet som hade smärta, men smärta som fenomen är komplext och svårfångat. I situationer när barnet hade en klar medicinsk diagnos med fysisk smärta och när barnet uppvisade ett förväntat smärtmönster var sjuksköterskorna trygga i sitt arbete. Men i situationer när barnet, trots alla ansträngningar, inte svarade på smärtbehandlingen som förväntat, upplevde sjuksköterskan känslor av otillräcklighet, rädsla och övergivenhet och kände misstro mot barnet.

Abstract

Introduction: It is a well known fact that children suffer from pain due to treatment and procedures in health care and historically, their procedural pain due to medical treatment has been undertreated and under-recognized. Children’s understanding of pain and their ability to express their feelings depend on their stage of development and the nature and diversity of their prior pain experiences. The goal of pain management is to reduce pain, distress and anxiety, and the nurse is the key person to help and support the child in pain. Nurses’ professional competence form the foundation for pain management procedures, and there is a need to investigate whether the care and procedures nurses perform for children in pain lead to desired outcomes.

Aim: The overall purpose was to describe nurses’ competence in pain management in children. The specific aims were to

- identify and describe knowledge about and attitudes to pain and pain management
- identify factors influencing pain management in children and
- describe nurses’ experiences of caring for children in pain.

Methods and material: Forty-two nurses participated in a survey on knowledge about and attitudes to pain management in children, and 21 nurses were interviewed about their experiences from caring for children in pain. All the data were analyzed using approved methods of analysis.

Results: The results showed that the nurses had good knowledge about and positive attitudes to pain management in children. Collaboration with physicians was considered important in providing children with sufficient pain relief. Parents were regarded as a resource, and the nurses described communication with parents as important. The nurses’ own experience led to a better understanding of the children’s situation.

The nurses stated that pain is a subjective experience and that if a child says he or she is in pain they should be believed. Pain was seen as a complex phenomenon, and the nurses had difficulty distinguishing between pain of different origins. In predictable situations, when the child had a clear medical diagnosis with physical pain and the child’s pain followed an expected pattern, the nurses trusted their knowledge and knew how to act. On the other hand, in unpredictable situations, when the child did not respond to the treatment despite all efforts, this created feelings of insufficiency, fear and abandonment, and even distrust.

Conclusions: The conclusions of this thesis are that pain management in children is a challenge for clinical nurses in unpredictable situations. Professional competence in nursing deals with both personal abilities and the organization. Reflective practices and dialogues with colleagues would improve nurses’ work satisfaction, and guidelines and better routines would improve nurses’ pain management when caring for children.

Key words: Nurses, competence, children, pain
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Jönköping, May 2011

*Gunilla Ljusegren*
Original papers

The thesis is based on the following papers, which are referred to by their Roman numerals in the text:

**Paper I**


**Paper II**


**Paper III**


The articles have been reprinted with the kind permission of the respective journals.
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Introduction

My interest in children in pain started a long time ago during my work as an anesthetic nurse at a pediatric clinic. Now that I am a teacher in the field of pain and pain management I struggle, not with the knowledge of the phenomenon of pain, but with how to teach nursing students to perform good pain management in clinical settings. The Convention on the Rights of the Child emphasize that the best interests of children must be the primary concern in making decisions that may affect them. All adults should do what is best for children (Hammarberg, 2006). Nordic Association for sick children’s needs, NOBAB, states that children have a right to continuity, preparation, information, codetermination, respect and integrity in health care (NOBAB, 2005). It is the health care professional’s duty to fulfill this goal by helping and supporting the child in pain. Children in pain are vulnerable, and caring for them presents a great challenge. From previous research it is known that children often suffer from pain due to treatment and procedures in health care (Enskär & von Essen, 2008). This licentiate thesis is based on three papers concerning nurses’ competence when caring for children in pain. Within this framework, the results will be described as pain management from the perspective of nursing competence.

Background

Pain

Pain is not merely a bodily experience; it is a phenomenon that is modulated by physical, psychological, social, cultural and spiritual factors. Melzack (1973) define pain based on stimuli, a fixed stimulus-response relationship. It can also be defined by an outcome, as an abnormal reaction to a stimulus. It is a subjective experience and is therefore unique to each individual; each person’s experience of pain is different. The International Association for the Study of Pain (2011) defines pain as an unpleasant sensory and emotional experience from actual or potential tissue damage or described in terms of such damage. This definition comprises both physical and emotional aspects of pain. It is also applicable to children as it takes into account the possibility that the sensation of pain may change as the child grows older. It is also important to keep in mind that, given the same circumstances, pain will feel markedly different from person to person. Regardless of type, pain does not occur within a vacuum but rather within a whole person with many facets (Salanterä, Lauri, Salmi, & Helenius, 1999).

McCaffery (1979) offers a somewhat different definition of pain, stating that “pain is whatever the experiencing person says it is and exists whenever he says it does”. This definition is useful in highlighting the subjective side of pain, but cannot be used to describe children’s pain; children may not be able to report whether or not they are experiencing pain if they are too young to understand what is happening, having no prior experience of pain. If the nurse ignores any of these facets when caring for the child
patient in pain, she may significantly contribute to the patient's suffering (Salanterä, 1999).

**Pain in children**

Historically, children’s procedural pain due to medical treatment has been undertreated and under-recognized (Blount, Piira, Cohen, & Cheng, 2006; Enskär & von Essen, 2008). Pediatric oncology patients have reported pain from treatment and procedures as a greater problem than pain from the malignant disease itself (Karling, Renström, & Ljungman, 2002). Children judge the strength and unpleasantness of pain in relation to the types of pain they have already experienced. Their understanding of pain and their ability to communicate this understanding is dependent on their developmental level and the nature and diversity of their prior pain experiences. Infants do not even have the words to say that they are in pain, and slightly older children may be reluctant to say that they are in pain because they might be afraid of the consequences of such a notion (McGrath, 1989). Neither can children describe or locate their pain, perhaps because they do not have as extensive vocabulary as adults (Salanterä, 1999).

A child’s pain is plastic and complex. The main source of pain perception is the emotional thoughts that arise from the pain signals and the experience of pain when a nerve signal is received in the brain. Even in infants who are exposed to painful procedures such as heel-prick blood sampling, there is a risk for negative short- or long-term effects (Chambers, Craig, & Bennett, 2002; Craig, 1989; Eriksson & Gradin, 2008).

Many factors can intervene, however, to alter the sequence of nociceptive transmission and modify the child’s pain. Factors like age, sex, cognitive level, previous pain, family education level and culture can differ as situational factors like expectations, control and relevance as well as emotional factors like fear, anger and frustration can vary dramatically depending on the situation or context (Nilsson, Finnström, & Kokinsky, 2008).

Also, behavioral factors include a variety of specific behaviors that occur in response to pain or influence the expectation of pain. Generally, the more overtly distressed a child is the stronger the pain is, and the more fearful and anxious the child is the stronger and more unpleasant is the pain evoked by treatment or disease (McGrath 1989).

Children’s nurses’ pain management practices continue to fall short, with children still experiencing moderate to severe pain. Children are still enduring unnecessary pain, partly due to misconceptions like the idea that children do not feel as much pain as adults do or that an active or sleeping child cannot be in pain. Assessment and management of pain in children are difficult, and present a particular challenge for nurses partly due to children’s different levels of maturity and development (Abu-Saad & Hamers, 1997; Manworren & Hayes, 2000; Twycross, 1998, 2010; Woodgate & Kristjanson, 1996).

**Nurses’ pain management in children**

The goal of pain management should be to reduce pain, distress and anxiety to keep children from developing a fear of health care (Weisman, Bernstein, & Schechter, 1998; von Baeyer, Marce, Rocha, & Salmon, 2004). Not all nurses are clear about this goal, however; there is evidence that some nurses believe that some degree of pain is to be expected and accepted during hospitalization (Hamers, Abu-Saad, Halfens, & Schumacher, 1994; McGrath, 1989; Woodgate & Kristjanson, 1996).
What a child remembers about previous painful events plays a vital role in his or her anticipation of, and response to, future pain (von Baeyer, et al., 2004). Satisfactory pain relief is necessary, but not always possible. There is a need for effective combinations of non-pharmacological and pharmacological interventions in conjunction with procedural and postoperative pain. Effective pain management could reduce the harmful and longstanding negative effects of medical and surgical procedures (von Baeyer, et al., 2004).

Acute pain in children is often reduced with analgesic and sedative drugs, and a combination of pharmacological methods and voluntary coping strategies is often the most successful strategy (Blount, et al., 2006). Cognitive distractions are techniques that shift attention away from the pain experience (Pölkki, Laukkala, Vehviläinen-Julkunen, & Pietilä, 2003), and behavioral distractions are mainly defined as interventions based on behavioral science, with the purpose of changing children’s behavior in fearful situations. Coping strategies like distraction and imagery may be effective, alone or in conjunction with pharmacological interventions. Cognitive and behavioral distractions are both techniques that draw attention from the pain experience to more enjoyable activities (Howard et al., 2008; Nilsson, Finnström, Kokinsky, & Enskär, 2009).

Pain is not purely a biological entity, and neither is it purely of psychogenic origin. If a child complains about pain the examiner should not question whether the experience is real or psychosomatic, organic or functional, but should instead ask how the pain began and what factors are maintaining and enhancing it. There are individual, family and cultural, and environmental factors that may contribute to the severity of the pain, and acute pain can become chronic if certain issues are not addressed (von Baeyer, et al., 2004). Knowledge of how to support the child and parents during a painful procedure allows staff members to facilitate more helpful interaction in the treatment room and to model more appropriate coping behaviors (Blount, et al., 2006).

Pain measurement in children is difficult. In infants the most frequently used indicators have been heart rate, occurrence of crying, analysis of facial responses, assessment of respiration and bodily movement. Some of these measures require equipment, and therefore their clinical utility in nursing practice is questionable (Nilsson, Kokinsky, Nilsson, Sidenvall, & Enskär, 2009; Pigeon, McGrath, Lawrence, & MacMurray, 1989).

**Competence**

**Nurses’ competence**

Definitions of competence in the nursing literature have drawn on definitions from other disciplines (Worth-Butler, Murphy, & Fraser, 1994). The need to more specifically define competence has also been discussed in the nursing literature; the concept is not clearly defined, and has been described as both a broad and a narrow concept (Benner, 1984; Cowan, Norman, & Coopamah, 2005; Fitzpatrick, While, & Roberts, 1993). Competence is a generic ability that transfers across settings and situations, and concerns the ability to perform effectively on different occasions and in different contexts. The Swedish National Board of Health and Welfare (Socialstyrelsen, 2005) defines it as “the ability and will to perform a task by applying knowledge and skills”. The concept has also been used as an outcome criterion for effective education, coping and development (Benner, 1984; Nagelsmith, 1995; Worth-Butler, et al., 1994). On the other hand, professional competence concerns how a task is assessed and measured but also involves formal
knowledge, abilities and attitudes in relation to the task identified. Nursing performance can be defined as a set of broad competencies that can be developed through nursing training programs and be observed in the practice of experienced nurses (Ellström, 1992).

Both Nagelsmith (1995) and While (1994) discussed the difficulties associated with defining competence and noted that there are various interpretations of the term. It can be defined as the performance of behavior, such as the possession of knowledge and skills. A more holistic interpretation is that competence includes the possession of knowledge, skills, attitudes and the ability to perform according to a prescribed standard. Being a nurse means being subject to certain more or less well articulated expectations from others; in the pediatric clinical setting the nurse is an expert, educator and consultant (Furaker, 2008). Interpersonal understanding is the most important characteristic of good nursing competence, and that incompetence among nurses primarily derives from a lack of thoroughness and self-control. Good nursing can be defined as certain qualities such as possessing social and clinical competence, providing information, satisfying basic needs, and participating in decision-making when caring for a hospitalized child (Zhi-xue, Luk, Arthur, & Wong, 2001). A child needs to have a close relationship and collaboration with his or her nurse (Enskär & von Essen, 2000). Hedberg (2005) holds that nursing competence is assumed to have an impact on how decision-making and communicative activities are carried out.

In trying to understand competence in nursing practice a more holistic, integrative and context-specific perspective on competence must be considered. This perspective incorporates ethics and values, reflective practice, context-specific knowledge and skills as elements of competent performance, and includes the therapeutic caring relationship (Meretoja, Leino-Kilpi, & Kaira, 2004). Accordingly, competence is achieved through a process in which knowledge and skills are combined with the attitudes and values required in a particular context to perform according to a prescribed standard. Trust, caring, communication skills, knowledge and adaptability are identified as attributes of competence, along with certain emotions and values. Competence is manifested by empowering people, building relationships, facilitating knowledge development, making clinical judgments and taking action on behalf of people (Girot, 1993; Nagelsmith, 1995; Ramritu, Ramritu, & Barnard, 2001). Nurses play a key role as advocates for children in decisions about their health, and their competence is of particular interest in pediatric care. 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 (Barnsteiner, Richardson, & Wyatt, 2002; Hallström & Elander, 2005).

Competent behavior not only entails being able to act correctly, but also to understand the ongoing situation. To interpret an ongoing situation, employees need time to think about what has to be done and to communicate about how to plan, monitor and solve problems at work (Eraut, 2004).

Competence is regarded as the attributes a nurse has that allow her to fulfill her performance in working with children in pain, transferred from a model developed by Klemp and McClelland (1986). In this thesis, these attributes include specialized knowledge in pediatric nursing; abilities, both physical and intellectual; traits such as energy level and certain personality types; motive or need states that direct the nurse toward desired behavior patterns; and finally a self-image that reflects the role a nurse sees herself in and her view of how effective she is in this role.
Nurses’ competences in pediatric care include:

- Professional knowledge
- Abilities
- Individual characteristics
- Motive of the work
- Self-image

Figure 1. Nurses competences in pediatric care

Caring for a child in pain is described as competence including professional knowledge related to the roles of general or specialized knowledge of use in an occupation and abilities to accomplish nursing activities, individual characteristics of the nurse, motive of the work and self-image.

**Nurses’ competences in caring for children in pain**

Knowledge is neither solely subjective nor objective but rather both, which means that the subject and the object are internally related. Knowledge is thus both personal and collective, experienced partly by the individual and partly beyond the individual (Marton & Booth, 1995). Knowledge is assumed to be relational and to involve the continual interrelationship between thoughts, experience and a phenomenon (Svensson, 1997). It is further defined as fact (knowing that), understanding (knowing why), skills (knowing how) and familiarity with (knowing what) (Granberg, 2004).

In her studies, Salanterä (1999; 2000) found that individual characteristics such as age, education, experience, place of work and field of expertise did not have a significant effect on nurses’ attitudes, but also suggested that nursing students have strong motives and attitudes regarding pain and dealing with it already before attending nursing school.

Having knowledge about pain as a phenomenon, the physiology of pain as well as pain management in children is important in nurses’ daily activities on the ward (Salanterä & Lauri, 2000; Twycross & Powls, 2006). The nurses’ professional knowledge about pain and pain management is often described in terms of an absence or a lack of knowledge, and serves as an explanation for deficient pain management (Salanterä & Lauri, 2000; Twycross, 2010; Twycross & Powls, 2006; Van Hulle Vincent & Denyes, 2004). Twycross (2008) found that the perceived importance of pain management tasks appeared to bear little relationship to the abilities in practice. In a study the nurses rated different tasks, with e.g. ascertaining previous experience of pain receiving a high rating, but they did not ask the patient about previous pain experienced in the situation. Also, most of the nurses regarded physical indicators as important in pain management, but in this aspect as well there was a lack of congruence between perceived importance and practice. Communicating with children and parents about the children’s pain was rated as highly critical by all participants. Nurses sometimes communicate with the children, but at times with the parents instead. Poor communication with parents and knowledge deficits regarding children’s pain management on a nurse’s part can create obstacles in her ability to perform effective pain management. Sometimes, nurses have expectations
that require parents to have a level of knowledge they do not possess (Jacob & Puntillo, 1999; Simons & Roberson, 2002).

Nurses generally underestimate the amount of pain experienced, and pain assessment and subsequent decisions to medicate are inconsistent with what is known about the experience of pain in childhood (Romsing, 1996; Twycross, 1998). Also, some nurses have a low self-image and negative feelings about pain medication, causing them to postpone the administering of analgesics as long as possible (Hamers, et al., 1994). The underestimation of pain can partly be explained by Atkinson (1996), who found that nurses often believe there is a set amount of pain for a given procedure and give doses of analgesia corresponding to this belief, no matter what the patient says.

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 (Vincent, Wilkie, & Szalacha, 2010). 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. Also, the documentation of pain care is unsystematic and does not support the continuity of care (Hamers, et al., 1994; Lauri & Salantera, 1995).

In Salanterä’s study (1999), nurses’ attitudes to pain management were mainly positive, but it is not enough for a nurse to have a positive attitude to pain management; she should also have a positive motivation and self-image regarding different aspects of pain. A nurse’s professional competence and knowledge form the foundation for the pain management she provides. How and why do nurses care for children in pain, and what actions do they take? And will these actions lead to the desired outcomes? These are questions that need to be answered.

**Aim**

The overall purpose was to describe nurses’ competence in pain management in children. The specific aims were

- to identify and describe knowledge about and attitudes to pain and pain management
- to identify factors influencing pain management in children and
- to describe nurses’ experiences of caring for children in pain.

**Methods**

**Design**

This study is based on a quantitative and qualitative design. One argument for using different methods in a study is that they are complementary and can enrich the outcome of the study (Polit & Beck, 2012). The purpose of Paper I was to investigate the knowledge base and attitudes related to children in pain. This purpose was best addressed through a quantitative design (Polit & Beck, 2012). Nurses from three countries participated in an international collaboration, though in this study only the
Swedish nurses are dealt with. The aim of Paper II was to describe factors influencing nurses’ pain management in children, and in Paper III the aim was to describe nurses’ own experiences of caring for children in pain. In Papers II and III, a qualitative design was required (Holloway & Wheeler, 2010) (Table 1).

### Table 1. Overview of studies in the thesis

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<th>Participants</th>
<th>Design</th>
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<tr>
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<td>Factors influencing pain management in children</td>
<td>21 registered nurses from a pediatric department</td>
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<tr>
<td>III</td>
<td>Nurses’ experiences of caring for children in pain</td>
<td></td>
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### Quantitative methods (Paper I)

#### Participants

In Paper I, all 56 nurses working at two pediatric oncology departments in Sweden were invited to participate. They were registered nurses who had been working with children with cancer at the hospital for at least one year. Forty-two (23+19), 73% of the nurses agreed to participate; in answering the questionnaire they gave their informed consent to participate in the study (39 females and two males). Of the 42 participants, 30 were specialized in pediatric care and had been working 6.36 (md) years in pediatric oncology care. The largest group (n=18) (44%) were between 25 and 35 years of age. Twenty-one nurses (51%) had children of their own.

#### Data collection

A questionnaire designed by Salanterä (Salanterä, et al., 1999) was used, and consisted of a demographic data sheet and questions divided into nine topics. In this study, data from the following five topics are used: Attitudes to children in pain (18 items), Knowledge about physiology (9 items), Knowledge about pain alleviation (6 items), Knowledge about pain medication (23 items), and Knowledge about the sociology and psychology of pain (13 items). The items were expressed as statements with which the participant was
to agree or disagree, and the predetermined response alternatives were presented on a five-point Likert-type scale: “Agree”, “Agree to some extent”, “Don’t know”, “Disagree to some extent” and “Disagree” (Salanterä, et al., 1999).

Translation is difficult in cross-cultural research, but is necessary in order to formulate the items in a questionnaire so that the meaning of each item is the same in the target culture after translation as it was in the original. The translation thus needs to preserve the underlying meaning of the original wording rather than the exact wording. Decentered translation involves the possibility of the modification of items. The most respected translation process for achieving semantic equivalence is back-translation (Brislin, 1970), in which a researcher prepares material in one language and asks a bilingual to translate it into another (target) language. The questionnaire used in Paper I was originally designed in Finnish and was then translated into English when published. A second bilingual then independently translates the material back into the original language. In this study the questionnaire was translated from English into Swedish by a professional translator, after which the Swedish research group went through the items and searched for compliance with language and significance for professional nurses.

Prior to the main study a pilot study was conducted, including 47 pediatric nurses. The participants agreed that the items were important and relevant. The distribution and collection of the questionnaires along with the information sheet was performed by a nurse employed at the pediatric oncology department, with the respondents from the pilot study excluded. The questionnaires were numbered and the key list was stored by a responsible person. Despite a reminder, 15 of the invited nurses did not answer the questionnaire.

**Data analysis**

In Paper I the data gathered from the questionnaires were coded according to Salanterä’s manual by the three members of the research group (Holaday, Salanterä, Lauri, Salmi, & Aantaa, 1999). The data were transformed so that high value (e.g., 5) was interpreted as a higher level of knowledge or positive attitude to pain management. Consequentially, a low value (e.g., 1) was interpreted as a low level of knowledge or a negative attitude to pain management. The ranking alternatives were combined so that “Agree”/“Agree to some extent” represented a high level or positive attitude to an item and “Disagree to some extent”/“Disagree” represented a low level of knowledge or negative attitude to pain management. The data were then entered into the SPSS statistical software. To get an overall picture of the nurses’ attitudes and knowledge, the data were analyzed using descriptive statistics and expressed as frequencies, means and percentages.

**Validity and reliability**

The validity and reliability of the questionnaire have been established in other studies (Salanterä & Lauri, 2000; Salanterä, et al., 1999). The research group judged the appropriateness of each item and determined whether the instrument sampled the relevant content of importance (Streiner & Norman, 2003). The homogeneity of items measuring views and knowledge was tested using Cronbach’s alpha coefficient (0.70) and the Kuder-Richardson 20-test for the dichotomous knowledge scores on non-
pharmacological and pharmacological pain management (0.69) by Salanterä (1999). The reliability of the items in this study was analyzed using Cronbach’s alpha coefficient on all five topics; this included 69 items (alpha value 0.75) – 18 items measuring views on/attitudes to children in pain (alpha value 0.50) and 51 items measuring knowledge (alpha value 0.70).

Qualitative methods (Papers II and III)

Participants

For the interviews in Papers II and III, registered nurses on a pediatric ward at a county council hospital in Sweden were invited to participate. The inclusion criterion was a minimum of one year of working experience on the ward. A convenient sample of 21 interviews were conducted. The nurses who were interviewed gave their informed consent by agreeing to contribute. Ten of the respondents were younger than 44 years of age and had nine years (md) of professional pediatric practice. The professional practice in the age group 45- >55 (n=11) was 24 years(md). Five of the respondents with a postgraduate education in pediatric nursing also had a postgraduate education in other specialties (midwifery, intensive care, continence service and medical and surgical care). Two respondents who had a general nursing education had been working for six and 42 years respectively.

Data collection

Papers II and III were based on the same semi-structured interviews. The opening questions were inspired by Olson et al. (1998) who designed a study that could be regarded as having been influenced by the critical incident technique. Thus, the nurses were asked to tell about positive and negative experiences and the long- and short-term consequences in their professional work when encountering children in pain.

A letter was sent to the nurses with an invitation to participate in the study. The letter explained the purpose of the study and provided information that the interviews would be audio-taped. The opening interview questions were clarified so that the nurses could prepare themselves, and it was stated that participation was voluntary and that the nurses were guaranteed confidentiality. They could refuse participation in the project and withdraw without consequence. The respondents filled in a demographic sheet after the interviews. The interviews were conducted and transcribed by two researchers, both with experience with and knowledge about pain and pain management in children. The interviewers had no working or personal relationship with the respondents. The interviews were tape-recorded, and in order to reduce the risk of bias in the coding procedure a co-assessor independently coded the transcriptions.

Twenty nurses were interviewed in conjunction with their working shift, and one was interviewed at her home. The interviews lasted approximately between 25 and 45 minutes and took place in a room that provided good conditions for conversation, and the dialogues were conducted in a relaxed atmosphere. Many of the nurses had difficulty remembering important incidents, but when they talked about pain management in general they remembered one incident after the other. Some of the negative incidents they remembered had happened years ago, while events with a more positive outcome had happened more recently.
Data analysis

Papers II and III are based on the same interviews and analyzed from two different points of view when looking for nurses’ experiences of caring for children in pain.

Paper II

The aim of Paper II was to identify factors influencing nurses’ pain management for children. The analyst looked for statements related to significant situations in which the nurse was caring for a child in pain and the outcome was negative or positive. The analysis method used was content analysis, suggested by Krippendorf (2004). The abstraction from the text to the categories followed a working model according to Graneheim and Lundman (2004), with each incident being identified as a meaningful unit. The meaningful units were then condensed and coded and the codes were combined into categories and subcategories. The categories answered the question “What?”. Eventually, four categories and 13 subcategories were identified on a manifest level, according to Krippendorf (2004), and were presented in descending order.

Paper III

The aim of Paper III was to describe nurses’ experiences of caring for children in pain. The data were analyzed using qualitative content analysis according to Krippendorf (2004) in a latent manner. In this analysis the researcher wanted to determine what the nurses did when caring for the children and which feelings the different situations created in the nurses. The analysis in this paper was inductive: trying to make sense of the findings through discovering patterns, categories and themes in the collected data (Creswell, 2007). Initially, the text was read and reread in order to obtain an overall view of the data and interactions, events and activities that emerged and corresponded with the aim of the study were noted in the margin. Secondly, the notions were grouped into subcategories, which were given suitable headings based on their content. Subsequently, the subcategories were either reduced or expanded as new aspects were detected. The third phase was to code the subcategories into categories, and finally two main themes emerged.

Trustworthiness

The trustworthiness of qualitative research analysis needs to be established; it exists when the study’s findings represent reality (Holloway & Wheeler, 2010; Lincoln & Gruba, 1985). The concepts of credibility, transferability and dependability have been used to describe various aspects of trustworthiness (Holloway & Wheeler, 2010) suggested that these concepts should be seen as intertwined and interrelated. Dependability evaluates the degree to which data change over time; this includes an evaluation of how the researcher changes his or her interpretation during the analysis. Credibility deals with how well the data and processes of analysis address the intended focus, selection of context, participants and approach to gathering data. In this study nurses of various ages, genders
and working experience contributes to a richer variation in phenomena. When analyzing
the data, the researcher should be careful to avoid using overly broad meaning units,
which carries the risk that they will contain various meanings, as well as overly narrow
units, which may result in fragmentation. Another critical issue for achieving credibility is
how well categories and themes cover data, as well as the question of how to judge the
similarities within and differences between the categories. In order to achieve credibility,
examples of quotations from the transcribed text were used. In Papers II and III, one
researcher performed the first part of the analysis and a senior researcher then reviewed
the different steps of the analysis. The audit objective of this review was trustworthiness.
To facilitate transferability it is important to give a clear and distinct description of context,
selection and characteristics of the participants, data collection and process of analysis,
but it is up to the reader to determine whether or not the findings are transferable to
another context (Graneheim & Lundman, 2004; Patton, 2001).

Ethical considerations

When conducting research, accepted ethical guidelines and rules must be considered
(World Medical Association, 2000). The papers in this thesis, were approved by ethics
committees in Gothenburg (Paper I) and Linköping (Papers II and III). The principles,
namely the rights to be informed, to withdraw, to not be harmed, to be researched, and
to confidentiality and anonymity, were considered (Williamson, 2007).

Participants need to understand what they are participating in so that they can give their
consent. Informed consent is the process of ensuring that research participants are fully
aware of what the study involves, and freely agree to take part (Gerrish & Lacey, 2006).
To gain access to participants, we asked the head of the clinic for permission to perform
the study (Papers I-III). Then, the respondents were given an invitation letter containing
information on the purpose of the study and why these particular nurses had been
chosen. For Papers II and III, the respondents were informed about their right to
withdraw without consequence to the nurse personally or in his or her work capacity.
The researchers informed the participants that the interview would be audio-taped and
guaranteed the informants confidentiality. Information was also provided about where
and when the interviews were planned and who would conduct them (since the
researchers were known at the clinic).

The questionnaires were distributed on the wards via the head of the nursing department;
these nurses also provided information and answered questions about the questionnaire.
Through filling in the questionnaire, the respondents gave their informed consent to
participate in the study, but they also had the right to refuse to complete the
questionnaire. The nurses were asked their opinions (about pain and pain management)
and could choose not to answer for any reason. All respondents were informed that the
results of their answers would be published in scientific articles.
Results

Nurses’ knowledge about and attitudes to children in pain (Paper I)

Paper I evaluated nurses’ knowledge about and attitudes to children in pain. The results cover five topics: Attitudes to children in pain, Knowledge about physiology, Knowledge about pain alleviation, Knowledge about pain medication and Knowledge about the sociology and psychology of pain.

According to the questionnaire key, Attitudes to children in pain and Knowledge about physiology had the highest scores of correct answers, and the lowest score was recorded for Knowledge about pain medication. For the distribution of scores among the topics, see Table 2.

Table 2. Topics, number of items and correct answers according to the questionnaire key, in descending order

<table>
<thead>
<tr>
<th>Topic</th>
<th>Items (n)</th>
<th>Correct answers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes to children in pain</td>
<td>18</td>
<td>86</td>
</tr>
<tr>
<td>Knowledge about physiology</td>
<td>9</td>
<td>86</td>
</tr>
<tr>
<td>Knowledge about the sociology and psychology of pain</td>
<td>13</td>
<td>79</td>
</tr>
<tr>
<td>Knowledge about pain alleviation</td>
<td>6</td>
<td>74</td>
</tr>
<tr>
<td>Knowledge about pain medication</td>
<td>23</td>
<td>56</td>
</tr>
</tbody>
</table>

On the topic Attitudes to children in pain, 97% of the nurses answered that a child who is crying and says he or she is in pain is to be believed. All the nurses answered that it was important to get the parents involved in the treatment of pain in children. On the other hand, 34% of the nurses agreed to perform minor procedures without pain alleviation.

On the topic Knowledge about physiology, 100% of the nurses answered that acute pain is a warning that something is threatening the human body. The second highest correct answer scored (97.5%) was “It is difficult for children to identify the exact location of internal pain”. The lowest corrected answer scored on this topic (58.5%) was “The most common reason for the need to increase painkiller dosage in cancer treatment is the progression of the illness and the pain involved”.

On the topic Knowledge about pain alleviation, 85% of the nurses answered that it was necessary to use other methods of pain alleviation in addition to medication. The item “The parents’ presence usually alleviates the pain experienced by children” was rated as correct by 88%. The item rated as correct by the lowest percentage (35%) was “Using the child’s imagination is an effective way of alleviating mild pain”.

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On the topic Knowledge about pain medication, the nurses’ answers were distributed over the whole range of alternatives. The highest correct answer scored (97%) was the item “Paracetamol is well-suited for the treatment of pain in children” and the lowest (19%) was “Long-term opioid medication almost always causes physiological dependence in child patients”.

The fifth topic was Knowledge about the sociology and psychology of pain, with 97% of the nurses agreeing with the item “Children receiving no treatment for pain have more difficulty coping with pain situations than those who have received treatment”. Also, 85% agreed with the item “It is difficult to distinguish between pain and fear in children”. The lowest correct answer scored was the item “Children can sleep even if they are in severe pain”, with 32% of the nurses ranking this item as correct.

Factors influencing pain management in children (Paper II)

In the analysis of the interviews, four categories emerged; Co-operation, The children, The organization and The nurses.

Table 3. Presentation of the results in categories and subcategories

<table>
<thead>
<tr>
<th>Categories</th>
<th>Subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-operation</td>
<td>The nurses’ co-operation with physicians</td>
</tr>
<tr>
<td></td>
<td>The nurses’ co-operation with parents</td>
</tr>
<tr>
<td></td>
<td>The nurses’ co-operation with children</td>
</tr>
<tr>
<td>The children</td>
<td>The behaviour of the children</td>
</tr>
<tr>
<td></td>
<td>The children’s diagnosis</td>
</tr>
<tr>
<td></td>
<td>The age of the children</td>
</tr>
<tr>
<td>The organisation</td>
<td>Prescriptions</td>
</tr>
<tr>
<td></td>
<td>Routines</td>
</tr>
<tr>
<td></td>
<td>Time</td>
</tr>
<tr>
<td></td>
<td>Support</td>
</tr>
<tr>
<td>The nurses</td>
<td>The nurses’ experience</td>
</tr>
<tr>
<td></td>
<td>The nurses’ knowledge</td>
</tr>
<tr>
<td></td>
<td>The nurses’ attitudes</td>
</tr>
</tbody>
</table>

In the category Co-operation, collaboration with physicians was seen as most important in providing children with satisfactory pain relief. The parents were a resource, especially when there was a problem with the pain assessment. Also, the nurses described their relationship with the children as a facilitating factor both for the pain management and in helping the child to understand the origin of the pain.

In the category The children, observing the children’s behavior was described as a way to assess pain. There were situations when it was obvious that the child was in pain but on other occasions it was difficult to judge, especially when the child tried to not to show the pain they were experiencing. If the child had a diagnosis that was usually associated with pain, it was easy for the nurse to give good pain relief through analgesics. The age of the child was of importance; the pain experienced in older children was harder to ignore compared to pain in younger children.
In the category *The organization*, the nurses said that if there were general prescriptions for medication this was better than administering analgesics when needed. The nurses mentioned lack of routine as an obstacle to facilitating pain management. Lack of time was another obstacle to pain management, if there was a shortage of staff and a heavy workload on the ward. The nurses mentioned the pain clinic as a resource, providing consultants and back-up, when problems arose.

Finally, in the category *The nurses*, the nurses said that their own experience made it easier for them to understand the children’s situations. And the way the knowledge about a child was shared among colleagues made pain management easier. The child had the right to pain relief but the nurses did not regard pain assessment as important, instead relying on what they noticed and taking action. A nurse’s lack of knowledge was highlighted, especially when the pain had no clear physical cause or when the child had impairments that could affect his or her behavior.

**Nurses’ experiences of caring for children in pain (Paper III)**

Two main themes emerged from the analysis process: *Experiences from predictable situations* and *Experiences from unpredictable situations*. Table 3 presents the results in themes, categories and subcategories.

Table 4. Presentation of the results in themes, categories and subcategories

<table>
<thead>
<tr>
<th>Main theme</th>
<th>Category</th>
<th>Subcategory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiences from predictable situations</td>
<td>Self-confidence</td>
<td>Knowledge about pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning by reflection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trust my experience</td>
</tr>
<tr>
<td></td>
<td>Ability to act</td>
<td>Responsibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Observation</td>
</tr>
<tr>
<td>Experiences from unpredictable situations</td>
<td>Feelings of insufficiency</td>
<td>Fear</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Powerlessness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Abandonment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Distrust</td>
</tr>
</tbody>
</table>
In *Experiences from predictable situations* the analysis showed that the nurses were prepared to face predictable situations and had **Self-confidence** and **Ability to act** when the child had a clear medical diagnosis with physical pain, and when the child’s pain followed an expected pattern. In **Knowledge about pain**, the nurses trusted their knowledge and stressed that pain is a subjective experience and that if the child said he or she was in pain this was to be believed. Pain was seen as a complex phenomenon, and it was regarded as difficult to distinguish between physiological, psychological and spiritual pain. Expressed in *Learning by reflection*, in predictable situations the nurses had confidence in their actions and in retrospect felt satisfied. The nurses reflected on their own attitudes to children, parents and colleagues. There were situations in which they felt they had acted inadequately and the outcome had not turned out as planned. This made them uncomfortable, but as they learned more about themselves as well as about children’s reactions, their reasoning about pain changed. In *Trust my experience*, the more experienced nurses stated that the children in pain provided information if the nurse was alert and receptive. These nurses also stated that they had to take the initiative and plan for the pain management. Work experience and life experience were seen as important aspects in dealing with pain management, and the more experienced nurses felt compassion for their less experienced colleagues. Among the novice nurses, pain management could be seen as a journey involving trial and error. They said they had to ask the child and the parents about the child’s perceived pain. It was difficult to accept that they lacked experience; they did their best but this was not enough. In **Responsibility**, as long as the child showed pain expressions in line with the nurse’s expectations, the nurse was in control and could act. The nurse felt a responsibility to assess the child’s pain, although assessment tools were not frequently used; it was easier to observe and ask the child about the pain. Communication with the parents was important, and the nurses strove to work in collaboration with them. Good communication with the parents solved many problems. In **Observation**, the nurses took action based on their observations. They stressed the importance of listening and watching all children. Crying could be a sign of pain, but it was not easy to distinguish between pain and fear. One method of assessing pain was to observe the child and rely on the nurse’s own intuition, but the nurses said it was not easy to make decisions based upon observation.

In *Experiences from unpredictable situations* the analysis showed that when a child did not respond to the treatment despite all effort this created **Feelings of insufficiency**, labeled **Fear** and **Powerlessness**. In these situations the nurses also expressed feelings like **Abandonment** and even **Distrust** the children. In **Fear**, the nurses felt a fear of the child’s anxiety and fear of death, and sometimes did not dare to ask about the child’s emotional status because they did not know how to cope with the situation; they observed that the child was in a poor psychological state but chose to ignore it. The nurses hesitated to go into the child’s room, and were relieved when he or she was discharged. Before a working shift, the nurses would think about the child and the stressful situations that might occur. This made going to work unpleasant. In **Powerlessness**, the nurses felt powerless when painful procedures had to be performed and the child cried; they felt they were harming the child. They also felt this way when they had to administer pain medication to the children although they knew it would not relieve the pain. If the pain was not of a physiological origin, the nurses felt even more frustration and powerlessness. In **Abandonment**, the nurses felt abandoned due to a lack of guidelines for facilitating pain management. Unwritten rules made the less experienced nurses insecure. Sometimes, the nurses felt ignored by the physicians because they had to wait a long time for prescriptions. In **Distrust**, the nurses were skeptical when a child did not express pain in the way the nurses expected; for instance, some children could exaggerate
their pain. The nurses allowed themselves to be suspicious, and questioned children when the symptoms did not correspond with the patient’s activities. It was a good strategy to allow the child to experience some pain, it was preferable to wait and see before acting.

Discussion

Methodological considerations

Triangulation is a process by which the same phenomenon is investigated from different perspectives. It is believed that triangulation can improve validity and overcome the biases inherent in a single perspective (Holloway & Wheeler, 2010). In this thesis, inter-method triangulation of the concept of nurses’ competence was used. To get as much information as possible about the nurses’ competences, both quantitative (in Paper I) and qualitative approaches (in Papers II and III) were used.

To investigate nurses’ knowledge and attitudes, a questionnaire on knowledge about and attitudes to children in pain was chosen. This instrument was designed on the basis of Salanterä’s (1999) study as well as her literature review. It has been used by Salanterä (1999) and Salanterä & Lauri (2000). The nurses in the pilot study found the questionnaire extensive, tiresome and somehow like a test; however, even taking these facts into consideration the questionnaire was valued as useful, adequate and highly appropriate.

New knowledge is continuously developing, the formulation of the items could have been unclear or confusing, and there could also have been mistakes in the translation of the questionnaire. The members of research group, who are familiar with the area of knowledge, estimated each item by placing them all in dichotomies based on current knowledge, to minimize the problem of “old” knowledge and assumptions. A few questions were difficult to interpret and the right answer was difficult to determine, e.g. “The most common reason for the need to increase pain killer dosage in cancer treatment is the progression of the illness and the pain involved” and “Long-term opioid medication almost always causes physiological dependence in child patients”. These items could also have been misinterpreted by the respondents, which could be seen as an explanation for the low correct answer rate.

The reliability was tested using Cronbach’s alpha coefficient, which was acceptable in all topics except Attitudes to children in pain. It can be discussed whether the relatively low numbers of items measuring these attitudes demonstrate the nurses’ attitudes; also, the nurses’ wish to give “correct” or suitable answers could explain the relatively low value.

In Paper II and III, semi-structured interviews were conducted. All the interviews started with an opening question, the same for all the participants. This made it possible to ask further questions about the phenomenon in focus. As the interviewee is the only one who decides how he or she will respond to a question in a semi-structured interview, this results in more in-depth knowledge in an area that otherwise would probably not emerge.

All the interviews were conducted successively, and the nurses participated on a voluntary basis. It can be argued that additional participants would have resulted in more data being available, which would probably have enriched the analysis (Holloway &
Wheeler, 2010). Two well prepared researchers with knowledge about caring for children in pain, but with no personal relationship to the interviewees, conducted the interviews. Kvale & Brinkmann (2009) argued that semi-structured interviews demand knowledge about the topic.

The opening questions were stated in the information letter to give the nurses time for preparation before the interviews. It can be discussed whether it was correct not to request their signature to indicate informed consent. Legally, it makes no difference whether participants sign a form to indicate their consent, if they give consent orally: “A consent form is a record, not a proof that genuine consent has been given” (Long & Johnson, 2007, p. 72). In this case it can be assumed that the nurses knew what they were consenting to as they were familiar with the research process. The culture of a ward cannot be ignored, and as all interviews took place on the same ward this may has affected the outcome. If nurses from different wards and different pediatric clinics had participated, the stories would probably have been more diverse.

The reliability of the analytic work is based on the trustworthiness of the data compilation and interpretation (Polit & Beck, 2012). The collected data were used for two analyses, described in Papers II and III, and the research group discussed the conceptions in a positive, reflective and systematic manner during the analysis process. It could be seen as a disadvantage that there were two interviewers, but on the other hand the discussions between the interviews helped to minimize sources of errors, such as ways of probing and encouraging in the interview situation.

The question in focus, to tell about positive and negative experiences when encountering children in pain, engaged the nurses. In the interview situation the nurses had the choice to tell about situations they had been in, but also to leave out situations they did not want to tell about. The interviewers noted that it was easier for the nurses to tell about negative situations if these situations had occurred years ago.

Qualitative research cannot be replicated in the same way as quantitative research, and understanding is of more importance. The relationship between researcher and participants in the research is unique and can never be completely replicated. It is the researcher’s responsibility to be as open as possible about how the research project has been implemented (Holloway & Wheeler 2010). Despite the methodological difficulties described above, it would seem possible to transfer and generalize the results to other nurses who care for children in pain or who are in other nursing situations.

Discussion of the results

The aim of this thesis was to describe nurses’ competence in pain and pain management, and to gain a deeper understanding of their experiences of caring for children in pain. In this thesis, caring for a child in pain can be described as involving competence including professional knowledge related to the role, more specifically defined as general or specialized knowledge of use in an occupation, and abilities to accomplish nursing activities, the individual characteristics of the nurse, the motive of the work and the nurse’s self-image. The results of Papers I, II and III will be discussed based on these concepts, modulated from the work of Klemp and McClelland (1986) as this adds a better understanding of the concept of competence in the specific context of pediatric care.
Professional knowledge and abilities

The nurses had good knowledge about the physiology and features of pain. In the analysis it was found that they had factual knowledge about pain and pain management, or consider that they do (Papers II and III). This is not surprising, as there has been a focus on pain management in nursing education in recent decades. The overall message has been to believe what the patient says and act based on this (McCaffery, 1979). The nurses actually stated this in Paper III, but in familiar situations they had doubts as to whether the child was to be believed. In several studies (Ameringer, 2010; Ely, 2001; Salanterä, et al., 1999; Twycross, 2010), the main findings have been that the nurses lack knowledge and that their education in pain management must improve. This is not the impression the results in this thesis give, however, although the nurses showed a lack of knowledge in specific questions such as when they suggested that a child could sleep even if he or she was in severe pain (Paper I). The nurses stated that it was difficult to differentiate between pain, fear and anxiety in observing a child’s behavior (Paper I). A child in pain can escape the painful experience by withdrawing or going to sleep (McGrath, 1989).

The nurses relied more on the child’s medical diagnosis than on what the child said, and if the child’s behavior did not correspond with the pain he or she reported experiencing the nurses chose to ignore this. However, it was harder to ignore pain in older children compared with small children (Paper II). In Paper III the nurses argued for the benefit of good pain management, but offered few suggestions for how to accomplish it. None of the nurses argued for the importance of taking a pain history or using relevant pain assessment tools; they observed the child’s behavior and assessed the pain based on their observation. Twycross (2008) found similar results in her study: despite the high importance attributed to taking a pain experience history or using pain assessment tools, this did not appear to be done in practice. Nonetheless, there is evidence in the literature that what children fear most is pain from treatment and procedures (Enskär & von Essen, 2008; Nilsson, Finnström, et al., 2009). One-third of the nurses in Paper I had carried out minor procedures without pain alleviation, and there was a vagueness regarding whether the goal of pain management was total pain alleviation (Paper III). In her study, Idvall (2004) found a discrepancy between what the nurses considered realistic to carry out and what they actually thought they had effectuated for their patients.

Nilsson & Kokinsky et al (2009) emphasized the importance of non-pharmacological pain alleviation methods. In Paper I the nurses answered that it was necessary to use other methods of pain alleviation in addition to medication, but in neither Paper II nor III were there any descriptions of situations in which the nurses actually did this.

Individual characteristics

That which distinguishes a good nurse has been discussed, and each generation has to adapt its guidance on best practice for nurses, relating it to the changing context in which pediatric care is provided (Rush & Cook, 2006). In Paper II, the nurses stated that it was important to maintain a relationship with children and their parents and also to ask children about their pain experience (Paper III). Characteristics such as being helpful, giving emphatic reassurance, being honest, establishing friendship and building trust were mentioned by the nurses as important in children’s pain management. Brady (2009) and Nilsson (2009) came to the same conclusions in their studies.
The virtue of co-operating with physicians was ranked highly by the nurses; this was most evident in Paper II. In both Papers II and III, the nurses stressed the importance of co-operation and communication with parents as they were seen as key persons in the success of the pain management for their children. It can be argued that the parents have to take too much responsibility for their sick child in the hospital. The demands on parents are not always congruent with their desires and capacity (Kästel, 2008), and nurses use different patterns of action when encountering parents (Söderbäck, 1999). There is a need for open and distinct communication adjusted to each family, and the desirable scenario is consensus with mutual respect and understanding. Being collegial and collaborative are features that characterize a good nurse-physician relationship (Kramer & Schmalenberg, 2003). In Paper III, the nurses mentioned that they had to be loyal to what the physician prescribed and collaborative in connection with painful procedures, even if the nurse found it hard to stand by and watch.

**Motive of the work**

The motive and need for taking care of children in pain was strong. Especially in Paper III, it was shown that the nurses felt a responsibility and willingness to do the best for the child. In predictable situations the nurses felt comfortable and prepared, and trusted their experience. Unpredictable situations, in which there was no medical diagnosis or when the child was in pain despite all efforts by the nurse, caused moral distress; the nurses felt fear and powerlessness. These feelings affected the pain management in a negative way. Zuzelo (2007) suggested that nurses experience moral distress in a variety of clinical practice areas. Pergert, Ekblad, Enskär, & Björk (2008) reported that when nurses’ professional preparedness was overridden by overwhelming emotional expressions they tended to resolve the situation by retaining their professional composure.

Enskär (2011) found that a pediatric oncology nurse should have knowledge and should also be able to translate this knowledge into clinical nursing activities. High social ability and an ability to cooperate with children, parents and colleagues were necessary if they were to succeed in their job. The nurses in this study understood the value the children place in being comforted, and stressed the importance of listening to and watching all children (Paper III). Arman (2007) wrote that the suffering of a patient implies an ethical demand and that an openness to this demand on the part of the caregiver can be seen as loyalty to what cannot be forced.

**Self-image**

In line with Casey, Fink, Krugman, & Propst (2004) in their study, the less experienced nurses (Paper III) felt a lack of confidence in skill performance and clinical knowledge. The struggle between dependence and independence was evident. They felt alone with their responsibility and verbalized feelings of “guilt” and “frustration”. The less experienced nurses looked for guidelines, role models and support from other colleagues. Andersson, Cederfjäll, Jylli, Nilsson Kajermo, & Klang (2007) also found that responsibility and the management of daily and rapidly changing situations were of concern for newly graduated nurses. The nurses in this thesis felt fear, powerlessness and abandonment in unpredictable situations, and these feelings were mostly stated by nurses with long working experience (Paper III). This may be the case due to the more
experienced nurses’ self-awareness and analysis of their feelings and knowledge, which are crucial in the reflective process (Atkins & Murphy, 1993).

The nurses relied on their intuition when trying to meet the children’s needs, whereas others expressed their insecurity and distrust in the encounter with the child in pain (Paper III). According to Benner (1984) intuition is a quality that distinguish the expert nurse from the novice nurse. Benner’s (1984) well known five-step model can be used to explain the nurses’ professional stages, but does not provide an answer to how intuition is acquired or what the relationship between internal and external criteria and intuition is (Lynetham, Parkinson, & Denholm, 2008). Cantrell (2007) proposed that the art of pediatric oncology nursing practice ought to be evident in care activities that the nurse provides within the therapeutic relationship that is steeped in nursing presence. The novice nurses in this thesis felt that pain management could be seen as a journey of trial and error, while the more experienced nurses took the initiative and planed the management. It was not stated that the nurses were aware of their professional identity. According to Cantrell (2007), many expert nurses report that they have made the transition to an expert nurse without cognitive awareness; expert practice had simply become part of their professional identity. Interpersonal aspects of nursing care must be valued equally with other aspects of professional competence and skill in pain management. Effective pain management involves more than asking “How much does it hurt?”, at the expense of attention to the promotion of well being and the reduction of suffering (Forte, 2001).

**Clinical implications**

In this thesis it has been shown that the nurses have theoretical knowledge about and compassion for caring for children in pain. The results indicate that nurses need to be empowered in their self-image to be able to advocate for the child in pain. The nurses also need to take a multidimensional approach to the assessment of pain, which should include discussions about pain and the goal of the pain management with the child and the parents, as well as using no-pharmacological pain management strategies. The nurses’ communication skills need to be further developed. This includes elaborate collaboration with physicians as well as other professionals around the children.

A permissive culture on the ward will help nurses optimize the work around the children, allowing the nurses to implement their theoretical knowledge into practice, which will in turn support the less experienced nurses. Guidelines for pain management including assessment scales validated for children’s different needs must be implemented, and actions must be taken in accordance with the measurement.

In summary, strengthening nurses’ professional development, reflection, individual and as a group, could enable them to develop their professional competence. In reflection activities, nurses will become aware of what they want to achieve as professionals and individuals. This will form a basis for dialogue between colleagues, which is necessary for the development of competence.
Conclusions

The conclusions of this thesis are:

- Pain management in children is a challenge for the clinical nurses in unpredictable situations.
- Factors that influence professional competence in nursing deal with both personal abilities and the organization.
- The nurses have fairly good knowledge about and a positive attitude to pain management, but there is a lack of congruence between their knowledge and practical pain management.
- Reflective practices and dialogues with colleagues are not practiced on a daily basis but would contribute to improving the nurses’ work satisfaction.
- Guidelines, planning and better routines would improve the nurses’ pain management.
References


Arman, M., & Rehnsfeldt, A. (2007). The "Little extra" that alleviates suffering Nursing Ethics, 14(3), 372-386


FOCUS

Attitudes to and knowledge about pain and pain management, of nurses working with children with cancer: A comparative study between UK, South Africa and Sweden

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Abstract Pain is among the most common effects of cancer and its treatment. Children and young people with cancer often consider pain from procedures and treatment to be the worst aspect of their illness.

This study aimed to i) identify and describe knowledge and attitudes to pain and pain management amongst nurses working with children with cancer and ii) compare the perspectives on pain and pain management of nurses from UK, South Africa and Sweden.
106 nurses working with children with cancer in UK, South Africa and Sweden completed Salanterä’s (1999) questionnaire on nurses’ attitudes to pain in children. Nurses had good levels of knowledge and positive attitudes to pain management, with Swedish nurses’ having higher levels of knowledge and a more positive attitude to pain management than nurses from UK or South Africa. A high level of knowledge was correlated to a more positive attitude to pain management. Knowledge levels need to be improved to ensure more positive attitudes to pain management, especially for nurses in South Africa. Swedish nurses’ level of knowledge about non-pharmacological pain management strategies has scope for improvement. British nurses may need to focus more on the sociology and psychology of pain.

**Key words**  child, cancer, pain, attitude, knowledge, culture

**Introduction**

Each year in UK there are approximately 1700 children under 15 years diagnosed with cancer (UKCCSG 2005). In Sweden 250 children under 15 years are diagnosed each year, with the most common type of cancer being leukaemia (Epidemiologiskt Center 2002). The pattern of malignant neoplasms in black children in South Africa differs from that of other African countries, but is similar to that reported from developed western countries (Lancaster et al., 1999). Over the past 35 years, paediatric oncology in all three countries has gone through remarkable changes, from over 75% of children diagnosed with cancer dying in the 1970’s to now, when, with the best treatment, over 75% can be cured (Eden 2005).

A diagnosis of cancer in a child leads to an intensive regimen of treatment, which can last for many years and involve many hospitalisations, with distressing and painful procedures. The most common symptoms, which children with cancer complain about are pain, depression and fatigue (Patrick et al., 2003). In a study by Hedstrom et al., (2003), pain resulting from procedures and treatments was the most frequently mentioned complaint, and Enskar et al., (1997) reported that anxiety about having pain was the problem most often reported by children with cancer in their study. Indeed, Ljungman et al., (1996) commented that pain due to treatment and procedures was a greater problem than pain due to the malignant disease itself.

**Definitions of pain**

McCaffery (1972) defined pain as whatever the experiencing person says it is, existing wherever he or she says it does. Pain has also been defined by International Association for the Study of Pain (IASP) as an unpleasant sensory and emotional experience with actual or potential tissue damage, or described in terms of such damage (IASP 2005a).

Pain has not only a physical dimension, there is also an emotional and psychological component and each person’s experience is different, and, even given the same set of circumstances, the pain will differ markedly from person to person (Wall et al., 2006). The cause of the pain will not predict how much pain is experienced, and each child will react individually with regard to coping, tolerance and response, as well as to the treatment aimed at relieving the pain.
Pain in infants and children
Until recently, it was thought that the infant did not feel pain because of an immature nervous system (IASP, 2005b). Now, however, there is little doubt that neonates and infants feel pain or more specifically react to noxious stimuli with distress indicative of pain.

The child in pain is often misunderstood due to nurses’ misconceptions about their level of maturity and development (IASP, 2005b). There are many factors influencing nurses’ pain management in children such as the nurses’: knowledge, experience, and attitude, the child’s: behaviour, diagnosis and age, the organisation’s: prescriptions, routines, time and support, and the nurses’ cooperation with: doctors, children and parents (Gimbler Berglund et al., 2006).

Nurses’ knowledge and attitudes to pain in children
When investigating the knowledge base of Finnish nurses \( (n = 256) \), Salentera et al., (1999a) found that there were gaps in their knowledge with regard to both pharmacological and non-pharmacological pain management in children. The amount of education and the areas of expertise of the nurses were significant influences on their knowledge scores, indicating that there was a clear need for further education. Simons and Roberson (2002) also found that that nurses lacked knowledge regarding pain in children. This study suggested that the nurses were not aware of their lack of knowledge. Pederson and Parran (1997) found no correlation between the nurses’ level of knowledge and their attitudes to pain and in a second study Salanterä (1999b), investigating the attitudes of Finnish nurses \( (n = 303) \) to children in pain, found that the attitudes of the nurses did not hinder effective pain management, but there were some misconceptions. Much of this work has been completed in different countries at different times; so, a study was designed in which three countries collaborated. The three countries in this study were linked in educational endeavours.

Aim
The aim of this study was to identify and describe the knowledge and attitudes to pain and pain management among nurses working with children with cancer in three countries: UK, South Africa and Sweden.

Research questions:

- What knowledge and pain management attitudes do nurses working with children with cancer have, and is there any correlation between them?
- Are there any differences between the three countries in knowledge or attitudes?
- Which variables account for greater knowledge or more positive pain management attitudes?

Method
Settings
UK
In UK the National Health Service is financed by public funds. Infant mortality is 5.3 per 1000 live births during the first year of life (National Statistics, 2005). Nursing
is a regulated profession with training being at diploma or degree level for three years at university. Initial registration in children’s nursing is offered at many universities.

**South Africa**
Both the government and the private sector primarily provide health care in South Africa, although the majority of the people utilise the public services. The infant mortality rate is 45.4 deaths per 1000 during the first year of life. In South Africa, the South African Nursing Council (SANC) regulates nursing. The training programme for nurses lasts for four years and is offered by both nursing colleges as a diploma course and by universities as a baccalaureate degree.

**Sweden**
Swedish health care is a public responsibility, financed primarily through taxes levied by county councils and municipalities. Infant mortality is 3.4 deaths per 1000 in the first year of life. For highly specialised care, such as cancer, the county councils co-operate in six medical care regions. Nursing is a regulated profession in Sweden where the training programme for nurses requires three years at University.

**Sample**
The respondents were 106 (102 female, 4 male) nurses from UK, South Africa and Sweden. They were registered nurses who had been working with children with cancer in hospital for at least one year.

- In UK, all registered children’s nurses working with children at two paediatric oncology departments in Cardiff (Wales) \((n = 45)\) and Bristol (England) \((n = 45)\) were approached. Forty-four (20 from Cardiff and 24 from Bristol) of them participated (49%).
- In South Africa, all registered nurses working on the paediatric oncology wards at the two main hospitals in Pretoria were asked to participate in the study \((n = 55)\). Although 30 (54%) questionnaires were returned, only 21 of them could be used in the analysis (38%).
- In Sweden, all 56 nurses working at the two paediatric oncology departments in Gothenburg \((n = 37)\) and from the paediatric department at the University of Health Science in Linköping \((n = 19)\), were asked to participate in the study. Forty-one \((23 + 19)\) of them participated (73%).

The demographic variables of the subjects are presented in Table 1.

**Instrument**
A search for a suitable instrument was conducted. There was no suitable Swedish instrument found and, although a few instruments in English were found, none of them included all aspects considered desirable. Therefore, the Salanterä (1999) instrument on knowledge and attitudes to pain in children was chosen, even though it had to be translated several times. This instrument consists of nine sections with a total of 127 items. The sections are listed in Table 2.
The questionnaire concludes with three open ended questions about education received, needed and literature read in the previous two years. The response format is a five-point Likert-type scale using Agree, Agree to some extent, Don’t know, Disagree to some extent and Disagree. The instrument was designed on the basis of Salanterä’s (1999) study and on her literature review. It was revised by a group of experts and tested among nursing students (n = 85) (Salanterä and Lauri, 2000) and on 303 Finnish nurses (Salanterä, 1999; Salanterä et al., 1999a and 1999b).

Table 1  Demographic variables of respondents

<table>
<thead>
<tr>
<th></th>
<th>Sweden (n = 41)</th>
<th>South Africa (n = 21)</th>
<th>UK (n = 44)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RN</td>
<td>11</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Specialized in Paediatric care</td>
<td>30</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td><strong>Year since graduation:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (sd)</td>
<td>11.90 (9.08)</td>
<td>13.00 (8.60)</td>
<td>11.84 (8.75)</td>
</tr>
<tr>
<td>Range (in years)</td>
<td>1–35</td>
<td>1–28</td>
<td>1–32</td>
</tr>
<tr>
<td><strong>Years in paediatric oncology:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (sd)</td>
<td>7.56 (6.36)</td>
<td>5.76 (4.19)</td>
<td>4.55 (5.61)</td>
</tr>
<tr>
<td>Range (in years)</td>
<td>1–22</td>
<td>1–14</td>
<td>1–20</td>
</tr>
<tr>
<td><strong>Age (years):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>26–35</td>
<td>18</td>
<td>1</td>
<td>17</td>
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<tr>
<td>36–45</td>
<td>10</td>
<td>8</td>
<td>13</td>
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<tr>
<td>46–55</td>
<td>9</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>&gt;56</td>
<td>3</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Gender:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>39</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>—</td>
<td>2</td>
</tr>
<tr>
<td><strong>Children (number):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>20</td>
<td>2</td>
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<td>1</td>
<td>4</td>
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<tr>
<td>5</td>
<td>—</td>
<td>1</td>
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</tbody>
</table>

Table 2  Sections in the questionnaire (only sections A to E reported in this paper)

<table>
<thead>
<tr>
<th>Section</th>
<th>Topic</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Views to children in pain</td>
<td>18</td>
</tr>
<tr>
<td>B</td>
<td>Physiology</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>Pain alleviation</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>Pain medication</td>
<td>23</td>
</tr>
<tr>
<td>E</td>
<td>Sociology and Psychology of pain</td>
<td>13</td>
</tr>
<tr>
<td>F</td>
<td>Pain assessment instruments and methods</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Non medication methods of pain alleviation</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Documentation of pain management</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Self assessment of knowledge and abilities</td>
<td></td>
</tr>
</tbody>
</table>
Data collection
A research group in each country collected the data. As a pilot study, prior to the main study, Salanterä's (1999) questionnaire was translated into Swedish and distributed to 47 paediatric nurses in Sweden. The nurses included in the pilot study found the questionnaire somewhat extensive, but not too time consuming and agreed that the items were important and relevant. Therefore, in this study the whole questionnaire was used (alpha value 0.89). The questionnaire was translated into English and piloted with 4 Registered Children's Nurses working with children with cancer in the UK. Small changes were made to two questions for clarity.

In this paper, only the data analysis from the first five sections (A–E), about knowledge and views of pain in children is presented. This included 69 items (alpha value 0.75). The first three authors reviewed the questionnaire and agreed that 18 items in section: (A) measured attitudes to pain management (alpha value 0.50) and 51 questions measured knowledge (alpha value 0.70). The knowledge items were in the four sections; (B) Physiology of pain (9 items), (C) Pain relief (6 items), (D) Pain medication (23 items) and (E) Sociology and psychology of pain (13 items).

Data analysis
The data were analysed using SPSS for Windows software. The coding in this study was done strictly according to Salanterä’s key. The data were transformed so that a high value (i.e. 5) is interpreted as a higher level of knowledge or positive attitude to pain management. Likewise a low value (i.e. 1) is interpreted as a low level of knowledge or a negative attitude to pain management.

Descriptive statistics were computed for demographic variables as well as for attitudes and knowledge. Wilcoxon two-sample test and Kruskal–Wallis ANOVA were used to test significance between attitudes, different knowledge sections and demographic variables. Spearman’s correlation coefficient was used to seek the correlation between attitudes to pain management and different categories of knowledge. A logistic regression test was performed with ‘pain management attitudes’ as the dependent variable and education, age, experience in paediatric oncology, country and level of total knowledge as covariate variables (Kirkwood, 1988).

Results
Attitudes to pain management and differences between the countries
Overall, the nurses (n = 106) scored quite highly on attitudes to pain management (mean 4.21, sd 0.37). On three of the 18 items, the nurses had a very high score (mean > 4.7) those items are shown in Table 3. The item with the lowest mean value was: It is acceptable to carry out minor procedures, such as taking blood samples, without the use of painkillers. This item was also the lowest ranked item by all three countries.

When looking at the attitudes of nurses in the three countries Swedish nurses had a more positive attitude to pain management (p < 0.001) than nurses from the other two countries, see Table 3.

In ten of the 18 items in section (A) on attitudes to pain management, there was a significant difference (p < 0.05) between the three countries with five of the ten items having a significance level of p < 0.001. Sweden had the highest value; UK had the second and South Africa the lowest value. The five items were: Children normally tolerate pain better than adults do (x² 17.85), It is acceptable to carry out minor procedures, such as blood samples,
without the use of painkillers ($x^2 = 16.15$), Parents tend to exaggerate their child’s pain ($x^2 = 17.88$). The level of pain suffered by a child can easily be established by giving him placebo medication ($x^2 = 23.99$) and The parents’ presence usually alleviates the pain experienced by children ($x^2 = 18.86$). On one item Sweden had the lowest value; In the treatment of pain in children, other methods of alleviating pain are needed in addition to medication ($x^2 = 8.70$, $P < 0.05$).

### Levels of knowledge and differences between the countries

Nurses in Sweden had a higher level of knowledge compared with nurses from UK and South Africa. In all three countries, knowledge about Physiology of pain was higher than knowledge about the other three categories (Pain medication, Pain alleviation and Sociology and psychology of pain). In Sweden and UK, knowledge about Pain relief was the lowest. In South Africa Pain medication had the lowest level of knowledge among the nurses (Table 4).

For the two categories, Physiology of pain and Sociology and psychology of pain, Sweden had the highest level, UK the second highest and South Africa the lowest. In the category, Pain medication, Sweden and UK had more or less the same level of knowledge and South Africa a lower level. In the category, Pain relief, no differences between the countries were seen (Table 4).
Knowledge of the physiology of pain

Physiology of pain was the category that had the highest level of knowledge compared with the other three categories (Table 4). A very high level of knowledge in the category Physiology of pain (mean > 4.5) was reported for three of nine items. The item: The sensation of pain is transmitted to the brain via the nervous system, had the highest value in all three countries. On eight of the items in the category Physiology of pain, a significant difference between the countries was seen. There is no visible pattern and all three countries have the highest level of knowledge in some items as well as the lowest values in other items. Of those eight items, five had a significance level of $p < 0.001$. In three of them nurses from UK ($n = 44$) had the highest level. Those were; Children under 2 years of age feel less pain than children over two years in similar situations ($x^2 = 20.90$), Acute pain is a warning that something is threatening the human body ($x^2 = 15.69$) and The neurological development of children under one month of age is still incomplete and therefore they have no sensations of pain ($x^2 = 18.57$). On one item nurses from Sweden ($n = 41$) had the highest level, this was; Chronic pain in children is not easy to ascertain on the basis of changes in vital functions because those functions do not always react to chronic pain ($x^2 = 16.92$). And on one item nurses from South Africa ($n = 21$) had the highest level of knowledge, this was; The most common reason for the need to increase painkiller dosage in cancer treatment is the progression of the illness and the pain involved ($x^2 = 18.57$).

Knowledge of pain medication

In the category, Pain medication, nurses from Sweden and UK had more or less the same level of knowledge. Nurses from South Africa had a lower level of knowledge regarding pain medication (Table 4). There was only one item with a mean value > 4.5, this was for the total group of nurses; Paracetamol is well suited for the treatment of pain in children.
Five items had a mean less than 3.0. The lowest mean was on the item; Long term continuing opioid medication almost always causes physiological dependence in child patients (2.72, sd.1.55). In comparing the three countries, a difference was seen on 18 items. The lowest level of knowledge was seen on two of the items among the Swedish nurses, on three items among the nurses from UK and on 13 items in South African nurses.

Knowledge of Pain relief
In the category, Pain relief, the level of knowledge for the nurses was comparatively low (Table 3). Moreover, no item had a mean greater than 4.5, (Table 4). On two out of the six items a difference between the countries were seen. Nurses from South Africa had higher awareness that; Cold compresses only help if they are placed upon the painful area, compared with nurses from Sweden and UK ($x^2$ 12.02, $p < 0.01$). The Swedish nurses rated Rocking a child in one’s arms alleviates pain higher than nurses in UK and South Africa ($x^2$ 15.51, $p < 0.001$)

Knowledge of the Sociology and psychology of pain
In the category Sociology and psychology of pain, the Swedish nurses had a higher level of knowledge than nurses from UK and South Africa (Table 4). In this category, no items had a mean greater than 4.5, the items with the highest and lowest means are shown in Table 5. In eight of the 13 items, there were differences between the countries. In six of those eight nurses from Sweden had the highest level of knowledge.

Differences in knowledge and attitudes related to working experience, education, age, or own children
The nurses with the most experience in paediatric oncology had higher levels of knowledge in the category Pain medication ($x^2$ 6.83, $p < 0.05$). The same group of nurses also showed more positive attitudes ($x^2$ 7.83, $p < 0.05$). Nurses who specialized in paediatric care had higher knowledge scores in the category Pain medication ($x^2$ 4.46, $p <0.05$) compared with the other participants. In the category Sociology and psychology of pain, the nurses in the oldest age group had the highest level of knowledge compared with the nurses in the youngest age group who had the lowest level of knowledge ($x^2$ 10.543, $p < 0.05$). Whether the nurse had children of their own or not did not make any difference to knowledge and attitudes.

Table 5  Correlation between attitudes and knowledge ($n = 106$)

<table>
<thead>
<tr>
<th></th>
<th>Attitudes</th>
<th>Total knowledge</th>
<th>Physiology</th>
<th>Pain medication</th>
<th>Pain alleviation</th>
<th>Sociology/psychology of pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>1</td>
<td>0.46***</td>
<td>0.38***</td>
<td>0.40***</td>
<td>-0.11</td>
<td>0.37***</td>
</tr>
<tr>
<td>Total knowledge</td>
<td>0.46***</td>
<td>1</td>
<td>0.59***</td>
<td>0.80***</td>
<td>0.28**</td>
<td>0.81***</td>
</tr>
<tr>
<td>Physiology of pain</td>
<td>0.38***</td>
<td>0.59***</td>
<td>1</td>
<td>0.25**</td>
<td>0.17</td>
<td>0.37***</td>
</tr>
<tr>
<td>Pain medication</td>
<td>0.40***</td>
<td>0.80***</td>
<td>0.25**</td>
<td>1</td>
<td>-0.02</td>
<td>0.48***</td>
</tr>
<tr>
<td>Pain alleviation</td>
<td>-0.11</td>
<td>0.28**</td>
<td>0.17</td>
<td>-0.012</td>
<td>0.1</td>
<td>0.08</td>
</tr>
<tr>
<td>Sociology and</td>
<td>0.37***</td>
<td>0.81***</td>
<td>0.37***</td>
<td>0.48***</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>psychology of pain</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

* = $p < 0.05$

** = $p < 0.01$

*** = $p < 0.001$
Correlation between levels of knowledge and attitudes to pain management

The results showed that a high level of knowledge correlated with positive attitudes to pain management. The three categories of knowledge—Physiology of pain, Pain medication and Sociology and psychology of pain—all correlated with positive attitudes to pain management. The category Pain relief had no significant correlation with pain management attitudes (Table 5).

Variables related to pain facilitating attitudes

The variables education, age, experience in paediatric oncology, country and total knowledge score were compared with attitude, using a logistic regression analysis. The analysis showed that the only explaining variable related to positive pain management attitudes was level of total knowledge ($B = 5.18, p < 0.001$).

Discussion

The aim of this study was to identify and describe knowledge and attitudes to pain and pain management among nurses working with children with cancer. In this study the nurses had a fairly good level of knowledge as well as positive attitudes to pain management. Furthermore, the study indicates that a high level of knowledge was correlated to, and the only predicting factor for, more positive attitudes. Pederson and Parran (1997) found no correlation between the nurses’ level of knowledge and their attitudes to pain. But the results in this study show a clear correlation between a high level of knowledge and a positive attitude to pain management. The results from this study could be interpreted that a way to achieve more positive attitudes is to increase the knowledge level among the nurses. On the other hand, Salanterä (1999) investigating the attitudes of Finnish nurses ($n = 303$) to children in pain found that negative attitudes in nurses did not hinder effective pain management.

Older nurses and those with longer working experience seemed to make a greater contribution in the nursing care of children in pain. Those nurses had more positive attitudes to pain management and a higher level of knowledge about sociology and psychology than the other nurses. In contrast, Salanterä (1999) found nurses’ age, education, experience, place of work and field of experience had no effect on their attitudes.

The importance of parental participation in nursing care has been well documented (e.g. Ashop-Shields, 2002; Kristensson-Hallström and Elander, 1994). In the present study, the item regarding the importance of parent’s participation was very highly rated in all three countries. On another item, also related to parental participation, nurses from South Africa had a lower level of awareness. In Sweden and UK children in hospital almost always have their parents present, whereas in the South Africa parental participation is not as common. Although nurses in South Africa acknowledge the need for parents to be with children during hospitalisation, reality dictates otherwise.

Children with cancer considered pain from medical procedures to be the worst thing about having cancer (Enskär et al., 1997; Hedstom et al., 2003). Therefore, the results from this study are notable. The nurses from all three countries believe that it is acceptable to carry out minor procedures, such as taking blood samples, without any pain medication.

Research has shown that pain assessment is necessary and the responsibility of each nurse (e.g. McCaffery, 1994; Twycross, 1998). However, nurses do not assess children’s
pain often enough (Jacob and Puntillo, 1999). Therefore, it is pleasant to find, in this study, that the nurses were aware of the importance of pain assessment.

In this study, the nurses had good levels of knowledge. Nurses with special training in paediatric care had higher levels of knowledge. Other studies have also found a correlation between levels of knowledge and education. Salanterä et al., (1999b) investigated the knowledge base of Finnish nurses, and found that education level and area of expertise were significant influences on knowledge. Simons and Roberson (2002) found that nurses lacked knowledge regarding pain in children and they were not aware of it.

In both the categories, Pain medication and Physiology of pain, nurses had high levels of knowledge, especially nurses with a special training in paediatrics or nurses with a longer working experience. This was seen in the groups of nurses from Sweden and UK.

Among the nurses in this study there was little knowledge about non-pharmacological methods of pain relief. However, it is known that several of the methods inhibit pain sensation, and psychological methods are effective in reducing anxiety and fear (McCaffery et al., 1998; Kokinsky and Thornberg, 2003). In a study by Pölkki et al., (2003), factors hindering nurses’ use of non-pharmacological methods in children were investigated. They found five hindering factors –

- nurse’s insecurity,
- beliefs regarding parental roles/children’s ability to express pain,
- heavy workload/lack of time,
- limited use of pain relief methods and
- work organisational model/patient turnover rate.

These could be the explanatory factors for the low level of knowledge about non-pharmacological pain management. Another explanation could be that there is confusion between the use of unsafe and ineffective complementary methods and the use of evidence based non-pharmacological treatment. In this study, the nurses from Sweden and UK had low levels of knowledge in the section Pain relief. An explanation of the results could be that nursing education in UK and Sweden are focused more on medical pain management and less on the non-pharmacological methods. For example, since EMLA became available in Sweden in 1985 nurses have relied on EMLA as the single method of pain management for minor procedures such as taking blood samples from children. It may be that pain relieving methods such as distraction, relaxation, and guided imagery are used less today.

Some results in the category Pain relief indicated high levels of knowledge. Those were related to play-therapy, distraction and imagination. Psycho educational preparation (Li et al. 2006), distraction (Piira et al. 2006) and imagery have been described as effective in relieving anxiety or pain (Huth et al. 2004).

**Recommendations for nursing care, education and research**

Specific recommendations for British nurses are related to the areas of sociology and psychology of pain. A way of improving the nurses’ attitudes and knowledge about sociology and psychology could be by educational programmes as part of the specific training for paediatric nurses.

It could be concluded that in South Africa improved attitudes and knowledge are needed. An educational programme on pain and pain management is therefore recommended in order to improve attitudes. Howell et al. (1996) has described a fruitful program to utilize pain management techniques in paediatric care. This study points out
that positive pain management attitudes are correlated to the level of knowledge about pain relief.

In Sweden the most obvious need is to investigate why nurses do not consider different pain relief methods when caring for children in pain. It would be interesting to interview nurses about their attitude and knowledge related to non-pharmacological pain management. Also, studies on the precise education to promote the use of non-pharmacological methods are needed. Those five promoting factors identified by Pölkki et al. (2003) could be useful in designing an intervention programme. An educational programme on non-pharmacological pain management interventions should be established. Also, nursing practice using non-pharmacological pain management techniques must be evidence based to a larger extent than today.

Methodological considerations

One problem when comparing different countries is that the nurses’ education, responsibility, working conditions, and so on could differ greatly between the countries. In some aspects, such as education and age, there was a difference between the three groups of nurses. How these differences affected the results is unknown.

Sending out a standardised questionnaire was appropriate because of the numbers of participants. There were also other advantages such as the data collection allows anonymity and some of the respondents might fill in the questionnaires at home, while others may have done so on the ward. The limitations of the study arose from the measurement instruments. First, the instrument was translated from Finish to English by the constructor of the instrument. The English version was used in UK and in South Africa, but in Sweden the instrument was translated from English to Swedish, which may have introduced further ambiguity.

Secondly, it is not quite clear whether some of the items are related to knowledge or attitudes. Three of the authors sorted the items into two categories, knowledge and attitudes. The inter-rater reliability was 91%, and the conclusion was drawn that the concepts of attitudes and knowledge could be used.

Thirdly, according to the constructor of the instrument (Salanterä, 1999), there is a right and a wrong answer to each of the items. Questions arose during the study whether an attitude can be considered right or wrong, therefore in this study ‘the right attitude’ is labelled as a more facilitative attitude to pain management. When it comes to knowledge, a right or wrong response is more accurate. As new research and new

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**Key points**

- Nurses in UK, South Africa and Sweden have good levels of knowledge and positive attitudes to pain management.
- A high level of knowledge is correlated to a more positive attitude to pain management.
- For British nurses a focus on the sociology and psychology of pain may be needed.
- For South Africa nurses’ levels of knowledge need to be improved to ensure more positive attitudes to pain management.
- For Swedish nurses’ level of knowledge about non-pharmacological pain management strategies have scope for improvement.
knowledge occur the instrument key may need to be revised. In some of the questions where many of the participants had a wrong answer according to the key it might have been that the knowledge had already changed related to new research.

Because of the numbers of items a Likert scale may have simplified the respondents’ task of replying. For questions about attitudes a Likert scale is appropriate. However, when it comes to knowledge the use of a Likert scale could be questioned.

Ethical approval
In all three countries the relevant Local Research Ethics Committees gave ethical approval for the study.

Author contribution
Karin Enskär was responsible for the study design, preparation of the data and the primary author and together with Gunilla Ljusegren and Ingalill Gimbler Berglund responsible for the Swedish part of the study. Nicola Eaton and Rosemary Harding were responsible for the British part and Joyce Mokoena, Motshedisi Chauke and Maria Moleki were responsible for the South African part. All authors contributed in writing the manuscript.

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References
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Piira T., Hayes, B., Goodenough B., von Baeyer C.L. (2006) work with children in pain as a nurse anesthetist. As a lecturer at the School of Health

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Factors influencing pain management in children

Abstract
Aim: To identify factors that influence nurses’ pain management in children.

Method: A qualitative design was used. Twenty-one nurses working in one paediatric department were interviewed using semi-structured interviews. Data were analysed by means of content analysis.

Findings: The way nurses manage pain in children is affected by factors such as co-operation between nurses and physicians and between nurses and patients, children’s behaviour, routines in the organisation, and the experience and knowledge of nurses.

Conclusion: Pain management in children could be improved through increased co-operation between nurses, physicians and parents. Planning time and good routines could facilitate pain management. Education about pain management and children’s pain behaviour might also improve nurses’ ability to manage pain in children.

According to a declaration by the special interest group for children of the International Association for the Study of Pain (IASP 2005), pain relief is a human right. However, relief of acute post-operative pain and pain from other causes remains problematic (McGrath et al 2000, Perquin et al 2000, Karling et al 2002). A consequence of inadequate pain relief is unnecessary suffering for children (Taddio et al 1997). Nurses are key to effective pain management in children (Hamrin 2002), but studies have shown that nurses’ knowledge, experience and attitudes can create barriers to effective pain management (Manworren 2000). In a study where nurses’ knowledge about pain management and attitudes to pain were compared with nurses in Sweden, Britain and South Africa, Enskär et al (2007) found that Swedish nurses had comparatively good knowledge of pain and its management.

Method
The aim of this qualitative study was to describe factors influencing nurses’ pain management in children. All nurses working in a paediatric ward in a middle-sized hospital in Sweden were sent a letter with information about the study inviting them to participate. They were assured confidentiality and the possibility to withdraw from the study at any time.

All nurses who gave their consent were interviewed with the exception of those with less than one year of experience on a paediatric ward. Permission to do the interviews was granted from the head nurse and the director of the clinic and the study was approved by the research committee at Gothenburg University.

Interviews were taped and transcribed verbatim. Open-ended questions were used such as ‘Relate a situation where you were caring for a child in pain that has been significant for you, where the outcome was negative or positive.’ Many of the nurses had difficulty in remembering incidents, but talking about pain management in general prompted them to remember one incident after another.

Data from interviews with 20 nurses were analysed using content analysis (Graneheim and Lundman 2004). After reading through the transcripts certain incidents were identified as analysis units. Table 1

<table>
<thead>
<tr>
<th>Meaningful units</th>
<th>Analysis units</th>
<th>Code</th>
<th>Factor</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>He didn’t listen to us we are the ones with experience of children. She had</td>
<td>He (the physician)</td>
<td>The physician didn’t</td>
<td>Co-operation with the physician</td>
<td>Co-operation</td>
</tr>
<tr>
<td>to be in pain for far too long</td>
<td>didn’t listen</td>
<td>listen</td>
<td></td>
<td></td>
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</tbody>
</table>

Key words
- Children
- Pain
- Pain management

This article has been subject to peer review. To find related articles go to the archive section of www.paediatricnursing.co.uk
provides an example of this analysis process.

Four categories and 13 factors were identified as influencing nurse management of pain in children; Table 2 lists these and indicates the number of statements that were identified in each category or factor. Examples are given below of these statements in each of the 13 factors.

**Factors: co-operation**

**Co-operation with physicians:** The nurses talked about the importance of good cooperation with physicians in providing children with satisfactory pain relief.

‘We talked about it and the child was prescribed Ibuprofen. It was very effective.’

The nurses talked about how they could get the physicians to listen to them.

‘Sometimes it is all about presenting arguments that are rational and speak for themselves so that the doctors understand.’

The nurses also talked about unsuccessful co-operation with physicians.

‘He didn’t listen to us. We are the ones with experience of caring for children. The child was left in pain for far too long.’

**Parents’ co-operation:** The parents were an asset, especially when there was a problem with pain assessment, which was common in children with disabilities. There were also descriptions of situations when the co-operation with parents wasn’t successful.

‘A patient hadn’t received any pain medication since the night before because his parents didn’t think he was in pain. But there was something bothering him so he needed some paracetamol.’

**Child’s co-operation:** The nurses described their relationship with the child as a facilitating factor in pain management.

‘If you see a patient for a weekend, you become more committed to them and to how they may experience pain.’

Nurses described how their relationship with each child helped in understanding the origin of the pain.

‘I realised there were social problems that were difficult for her, as well as other factors apart from the physical pain.’

**Factors: the children**

**Children’s behaviour:** Children’s behaviour was described as a way to assess pain. Sometimes the nurses interpreted the children’s expression of pain without difficulty.

‘One could see that the child did not move like a normal, healthy baby. There was something hindering his movements even though he didn’t cry.’

At other times the nurses talked about difficulties in judging from the child’s behaviour whether they were in pain.

‘The hardest was that the child might have been in great pain but continued playing in an attempt not to show it, as if they were “deluding.”’

**The child’s diagnosis:** The nurses said that it was easy to give good pain relief to children with a diagnosis that usually was associated with pain.

‘One child had a cancer tumour in the leg and you understood that she was in a lot of pain. So on this occasion the injection of Ketobemidon helped very well.’

**The child’s age:** A difficulty with assessing pain in small children was described and also how much easier it was to ignore procedure pain in small children.

‘One can’t talk a small child into it… you just have to hold the arm and insert it (the vein catheter).’

While talking about older children it was harder to ignore their pain.

‘Then there are the older children …you can’t hold them, so you have to wait and sedate them.’

**Factors: the organisation**

**Prescription:** The nurses said that when there were prescriptions for pain medication it facilitated pain management.

‘He had the general prescription, it is better because then it is given regularly. When it is prescribed as needed it happens that it goes too long between times given.’

**Routines:** Lack of routine was mentioned by nurses as an obstacle. When a certain routine had to be followed it facilitated pain management.

‘Counting on the morning staff to give it… didn’t happen, in this situation, and the child was in pain.’

‘At times he thought it was very good, but at other times he didn’t like it as much, but in some way it helped to structure our work.’

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**Table 2**

<table>
<thead>
<tr>
<th>Categories (number of statements)</th>
<th>Factors (number of statements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-operation (62)</td>
<td>The nurses co-operation with physicians (34)</td>
</tr>
<tr>
<td></td>
<td>The nurses co-operation with parents (21)</td>
</tr>
<tr>
<td></td>
<td>The nurses co-operation with children (7)</td>
</tr>
<tr>
<td>The children (59)</td>
<td>The behavior of the children (40)</td>
</tr>
<tr>
<td></td>
<td>The children’s diagnosis (10)</td>
</tr>
<tr>
<td></td>
<td>The age of the children (9)</td>
</tr>
<tr>
<td>The organisation (52)</td>
<td>Prescriptions (20)</td>
</tr>
<tr>
<td></td>
<td>Routines (15)</td>
</tr>
<tr>
<td></td>
<td>Time (11)</td>
</tr>
<tr>
<td></td>
<td>Support (6)</td>
</tr>
<tr>
<td>The nurses (36)</td>
<td>The nurses’ experience (14)</td>
</tr>
<tr>
<td></td>
<td>The nurses’ knowledge (12)</td>
</tr>
<tr>
<td></td>
<td>The nurses’ attitudes (10)</td>
</tr>
</tbody>
</table>
Time: Lack of time was described as an obstacle in pain management, for both procedural pain and pain from other causes.

‘If there is a lot to do on the ward and a shortage of staff, you may not have time, yes you even forget to ask.’

‘It might happen that you have to insert an intravenous catheter without numbing the site... if you are to be done in time, lack of time.’

Support: Resources at the pain clinic were described as facilitating pain management.

‘And it almost always works and back-up... the pain nurse, pain clinic and the anaesthesiologist who always comes even when there is the slightest problem.’

Factors: the nurses

Nurses’ experience: The nurses talked about their own experiences of pain and their experience of working with children in pain. Their own experience made it easier for them to understand the children’s situations and it made them choose a certain mode of treatment.

‘Like Ibuprofen, I know that is a wonderful medicine so I believe in it myself (have used it with good result).’

Nurses’ knowledge: Lack of knowledge about pain management was highlighted, especially when the pain didn’t have a clear physical cause.

‘It was so much more than physical pain and I think that was hard, just to get the other part, since we don’t really know how to deal with it.’

Nurses also said that lack of knowledge about how certain impairments could affect the children’s behaviour could be an obstacle to pain assessment and pain management.

‘Later I understood that this wasn’t right, wasn’t a normal behaviour. It was lack of knowledge about this the impairment this child had that affected the pain expression.’

The way the knowledge about a child was shared among colleagues eased the assessment and therefore pain management.

‘My colleague had told me about a child who was easy to deal with, therefore I interpreted it as pain when he was like that.’

Nurses’ attitudes: Nurses’ attitudes that children had the right to pain relief appeared to facilitate pain management. But when pain assessment was not seen as important it was an obstacle.

‘Well you don’t see pain assessment as important... you might, as a nurse, think that you in some way notice the pain and treat it, but it is not visible in the same way.’

Discussion

The way the nurses described factors affecting pain management in children could be seen as on a continuum, with good pain management at one end and poor at the other. Frequent statements were made about the nurses’ co-operation with physicians: they turned mainly to the physicians for advice about pain management. Stein (1967) described the interaction between nurses and physicians in ‘The Doctor-Nurse Game’, where nurses and physicians interact in such a way that the authority of the physicians is never questioned. In situations where co-operation was not successful it could be said either the physician or the nurse did not know how to play the game.

Woodgate and Kristjanson (1996) described the importance of co-operation between parents and nurses. In our study, nurses said they were helped with pain management in situations where co-operation with the parents was successful, but where it was not pain relief was delayed. Although the interviews did not identify the extent to which nurses used pain assessment tools, they did talk about the children’s behaviour as a way of assessing the pain. Children have different ways of expressing their pain such as exercise, moving around, or rest and sleep (Pölkki et al 2003). They use many diverse strategies to manage pain so it can be difficult to assess their pain from their behaviour. It could be assumed that if the nurses had used correct pain assessment tools they would have been easier to manage the pain. The continuum idea also applies to the organisational factors, as the nurses spoke about lack of prescriptions for analgesics as an obstacle for good pain management. This problem was described by other researchers who reported that nurses talked about feelings of frustration, powerlessness and hopelessness while caring for children, specifically when they were not able to get prescriptions of analgesics (Woodgate and Kristjanson 1996, Ely 2001, Ely (2001) van Hulle and Denyes (2004).

Planning for pain management with time, structure and support helps nurses to manage pain. They described experiences in their work with children that had led to a deeper understanding...
and changing of strategy. The nurses also spoke about learning from each other to increase their knowledge; those who believed that children had the right to good pain management saw this attitude as helpful.

Limitations of the study
Many of the respondents had difficulties at first in recalling incidents even though they had received the questions in advance. However, during the interview most respondents remembered one incident after another. The study was carried out with nurses from one hospital, so it only reflects the situation there. Comparison with findings from other studies does, however, suggest that there are similar conditions in other hospitals. Other methods such as a questionnaire could have been used to widen the sample to several hospitals but this would have provided less in-depth information. The aim of the study was to describe factors influencing nurses’ pain management in children, which is why a qualitative approach was preferred.

Conclusion
Nurses’ management of pain in children is affected by many factors. From the incidents related it was apparent that children were sometimes in pain longer then necessary because of lack of co-operation between physicians and nurses. Barriers to good co-operation may relate to hierarchical structures in the organisation or could be to do with characteristics of the individuals. The question arises as to how co-operation between nurses and physicians can be improved. Another obstacle to good pain management was nurses’ inability to interpret the children’s pain behaviour. Education about pain assessment and children’s pain behaviour might improve nurses’ ability to manage pain.

Organisational factors such as lack of time and lack of routines also affected nurses’ ability to manage pain effectively. It is not satisfactory that pain management can be forgotten because of poor routines or thoughtless scheduling of procedures. Implementing better routines and planning to ensure there is time for pain management is the responsibility of all nurses caring for children. PN

Acknowledgement
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References
Nurses experiences of caring for children in pain

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Abstract

Aim The aim was to describe nurses’ experiences of caring for children in pain.

Background Earlier studies showed that nurses are key persons in pain management and there is a need to focus on nurses’ own experiences of caring for children in pain.

Method Semi structured interviews were accomplished with twenty one nurses in one paediatric clinic. The data were analyzed by means of content analyses.

Results The interviews suggested that when the child’s pain followed an expected pattern and they complied with treatment the nurses trusted their knowledge and felt comfortable. On the other hand in unpredictable situations the nurses felt fearful, powerless, abandoned and distrustful.

Conclusion The nurses were comfortable in predictable situations but if the situation was unpredictable the nurses felt that they lost control over the situation.

Implications for Nursing Management During working shifts it could be preferable for the nurses to work in pair, that may reduce the feelings of abandonment. Pain assessment tools and guidelines for pain management should be introduced in the daily work and systematic reflection could be used for nurses’ professional development.

Key words: Children, Experiences, Nurse, Pain, Reflection
**Introduction**

Pain perception is a highly subjective experience. Melzack & Wall (1996) stated that the pain experience depends on the meaning of the situation, cultural learning and the environment. The amount and quality of pain perceived is also determined by previous experiences, memories, context and the ability to understand the cause of the pain and to grasp the consequences. McCaffery (1972) defined pain as whatever the experiencing person says it is, existing whenever he or she says it does. Nurses have to understand and both interpret and integrate the patient experience with their own nursing knowledge when caring for the patient in pain.

**Background**


Amongst others Gimbler Berglund et al (2008) stated that nurses are key persons in the pain management and children’s pain is recognized as a source of emotional challenge to clinicians. Nagy (1998) found that nurses who were exposed to patients with severe pain also perceived challenges to their images of themselves as alleviators of pain. The interdependence of welfare of patients in pain and the nurses who care for them is also likely to contribute to the occupational stress, especially if the nurse loses her sense of personal control over her practice. According to Bryne et al (2001) clinicians’ interaction with patients in pain have tended to focus on communication skills whereas there is a need for more detailed knowledge about how emotional mechanism can impair communication. Emotional behaviour should be understood in terms of the way the nurses interpret challenging events, rather than the objective properties of those events (Nagy 1998).

Nurses must be knowledgeable about pain and pain management especially when working with children. There is a common but potentially erroneous assumption that all nurses have the same basic knowledge about pain that influences clinical practice (Michaels et al 2007). A study by Enskär et al (2007) showed that compared to nurses from United Kingdom and South Africa, Swedish nurses had a higher level of knowledge and a more positive attitudes to pain management. Explorations of nurses’ experiences is necessary in order to understand the structure and rationale for the pain management process. It is often stated that the decision-making is based on intuition not on rational and analytical thought processes (Tanner 1987), but in later studies it has been suggested
that (expert) nurses use both intuitive and analytical elements when they make decisions (Hedberg 2005). Twycross (2006) argued in a literature review that the results focusing on decision making are contradictory. Nurses have to make accurate clinical assessment during a working shift. Lauri and Salantera (1995) argued that nursing skills differentiate the more experienced nurses from the less experienced and Benner (1984) suggested that experience and knowledge are major factors in improving nursing outcomes. Individuals have their own perception of pain and there are a number of factors which influence nurses’ perceptions of their patients’ pain. There is a need to focus more on nurses’ own experiences to bridge the gap between the nurse and the child in pain in order to provide efficacious pain management.

Aim

The aim of the study was to describe nurses’ experiences of caring for children in pain.

Method

A qualitative approach was adopted in order to explore nurses’ experiences when caring for children in pain (Holloway & Wheeler, 2010).

Participants

Registered Nurses working during the last year at a paediatric clinic (n=32) in the south of Sweden were invited through a letter to participate in the study. Those who accepted were contacted and time for the interview was set. Twenty one nurses gave informed consent and took part in the interviews.

Ten of the respondents were younger than 44 years and had 9 years (md) of professional paediatric practice. Median value of professional practice in the age group 45- >55 was 24 years. Five of the respondents with postgraduate education in paediatric nursing had also postgraduate education in other specialities (midwifery, intensive care, continence service and medical and surgical care). Two respondents who had a general nursing education had worked for 6 and 42 years respectively.

Table 1 in here

Data collection

Face-to-face individual interviews were conducted by two of the authors (GL and IGB). The interviews took place in a separate room in conjunction with the respondents’ working shift and lasted approximately 25 to 45 minutes. The taped interviews were transcribed verbatim.
Twenty interviews were analyzed. One interview was excluded due technical problems with the tape recorder so it was impossible to hear.

The opening questions were: “Please describe one or more peak experiences you have had when nursing children in pain” and “Please describe one or more nadir experiences that you have had when nursing children in pain” (Olson et al. 1998). During the interview, probing was used in order to encourage the nurse to respond to the questions as comprehensively as possible.

Data analyses
Data was analyzed by content analysis according to Graneheim and Lundman (2004). In order to avoid interpretation in the process of analyzing the textual data and to ensure credibility a dialogue with co-researchers was maintained. To maintain confidentiality in the process the transcripts were coded by first author (GL) in collaboration with the last author (KE). Core units were identified and sorted into sub-categories, which were clustered into categories which finally formed two main themes. Hereafter the authors traded data (Holloway & Wheeler, 2010) in order to review and confirm the themes and to achieve trustworthiness.

Ethical considerations
Ethical approval for the study was given by the Ethics Committee of Linkoping University, Sweden. Potential participants were informed that participation was voluntary and that data reported was used in a confidential manner. The participants gave their verbal informed consent to participate in the interview since they accepted to attend the interviews. They were also informed that they could withdraw at any time during the interview.

Findings
During the analysis it emerged that the nurses were prepared to meet predictable situations when the children had a clear medical diagnose with physical pain and the circumstances were well controlled. The nurses trusted their knowledge and knew how to act. Yet if the situation was unpredictable the nurses didn’t seem to take control. The nurses felt fearful, powerless, abandoned and protected themselves by distrusting the patient; see Table 2 for a presentation of the themes, categories, subcategories and examples of quotations.

Table 2. in here.
Experiences from predictable situations

Self-confidence
Knowledge about pain and pain management contributed to the nurses feeling confident and by reflecting on situations they learned more and could trust their experience.

Knowledge about pain

Knowledge about the nature of pain and how pain appeared within the child became obvious for the nurse when she was alongside children in pain. The respondents had confidence in their knowledge and knew about pharmacological treatment. They underlined that pain is a subjective experience and if a child expressed that they were in pain the nurse had to believe them. The nurses had to show the patient respect and confirm their feelings.
Pain was seen as a complex phenomenon, both an emotional experience and a sensory stimulus. It could occur with a variety of physical and psychological signs, but also without any observable signs. For that reason it was difficult for the nurse to distinguish the differences between physiological, psychological and spiritual pain.

Learning by reflection

In predictable situations the nurses had confidence in their actions and looking back they felt satisfied with their actions. They reflected on their attitude towards the children, parents and colleagues and they talked about past situations. Looking back, there were situations in which the nurses felt they had acted inadequately and the outcome didn’t turn out as planned. Those situations made them feel uncomfortable.
The nurses noticed that they had learned about themselves as well as about their patients’ reactions. As they gained more knowledge about pain and pain management their reasoning about pain changed.
Trust my experience

Work experience as well as life experience was important when dealing with pain and pain management. The nurses had learned how important pain management was for the patients and said that the patients in pain provided information if the nurse was alert and receptive. Among the novice nurses, pain management could be seen as a journey with trial and error. The more experienced nurses felt compassion for their less experienced colleagues. On the other hand, novice nurses’ did their best to meet the patient’s basic needs but felt that they failed due to lack of experience, which was difficult for them to accept. The novice nurses had to ask the patient and the parents about the child’s perceived pain. A more experienced nurse realized that she had to take initiative and plan for the pain management. They said that they knew what children’s pain was about and they also compared their own pain experience with the children’s and said that they understood.

Ability to act

Pain alleviation was a concern for nurses and they felt responsible for controlling the child’s pain. When nursing the child they observed and took actions.

Responsibility

When the patient showed pain expressions which were in line with the nurses’ expectations, they demonstrated control over the situation and an ability to act. They carried out basic nursing activities and did their best to explain what was going on. If the communication with the parents was easy to establish many problems were solved and the nurses strived to work in collaboration with the parents. The nurses felt responsibility to assess the children’s’ pain. Assessment tools were not frequently used even if there were scales available on the ward. It was easier to ask the child about the pain.

Observation

The nurses observed the child and from these observations made their decisions to take action. They said it was important to listen and to watch all children, but especially those who were quiet. If a child cried it could be a sign of pain. But, on the other hand, it was not easy to distinguish between
pain and fear. One method to assess pain was to observe the child and rely on intuition but it was not easy to take decisions based upon observation.

Experiences from unpredictable situations

Feelings of insufficiency
When the children didn’t respond to the treatment, despite all efforts, the nurses felt unsatisfactory. This created feelings of fear and powerlessness. The nurses felt abandoned and even distrusted the children.

Fear
The nurses said they couldn’t handle the reaction to the psychological and spiritual pain in the child nor in the parents. They admitted that they felt fear for the child’s anxiety and fear of death and they did not know how to cope and support the child. Sometimes the nurses didn’t dare to ask about the child’s emotional status because they feared the answer. They observed that the child was in a bad psychological state but chose to ignore it. The nurses noticed how their own mood had an impact on the children and their parents. If the nurse felt fear or if she was composed made a difference when communicating with the child. Sometimes, the nurses hesitated to go into the patient’s room and they were relieved when the child was discharged. Before a working shift, the nurses were thinking beforehand about the patient and the stressful situations that might occur. This made them feel unpleasant about going to work.

Powerlessness
It was hard for the nurses to see the child suffer and yet be incapable of doing something about it. In situations when painful procedures were carried out or when the child was crying the nurses felt powerless. It was difficult to assess pain in children who suffered from physical and cognitive disabilities and it was easy to mix-up with other symptoms. When procedures had to be carried out, i.e. put in intravenous line, the nurses felt that they did harm to the child. The nurses stated that they still had to administer the medication though they knew it was insufficient and wouldn’t relieve the pain. The nurses didn’t know how to act when the child didn’t respond to the treatment despite all efforts; this created frustration within the nurses. If the pain was of other origin than physiological
the nurses felt even more frustration and powerlessness. Those feelings were the most difficult to cope with when nursing a child in pain.

**Abandonment**

Unpredictable situations affected the pain management in a negative way. The nurses felt abandoned due to lack of guidelines in facilitating pain management. The novice nurses blamed themselves for lack of knowledge; they said it was their own responsibility to catch up. Unwritten rules made the novice nurses insecure. If they had to wait for a long time to get prescriptions they felt ignored by the physicians. It was hard to face the child knowing that there was no or little help to give.

**Distrust**

The nurses were sceptical when the child didn’t express the pain in the way the nurses expected. Their experience was that they sometimes had to question the patient. They said they had to be suspicious, and it was necessary to question the child before deciding on treatment since there were patients who exaggerated their pain. The respondents also said that it was a good strategy to allow the patient to experience some pain and they distrusted the patient when symptoms didn’t correspond with the patient’s activities. Under those circumstances they found it preferable to wait and see before acting. This attitude was an accepted way among colleagues to handle the situation.

**Discussion**

It is important to pay attention to children in pain. Nursing a child in pain is described as an emotional challenge to clinicians and requires knowledge as well as good communication and observational skills in order to make accurate clinical decisions (Salanerä et al 1999). The respondents in this study were all employed at the same department, which might be seen as a limitation and a bias, as the culture of the particular department may reduce generalisability. During the interviews interruptions occurred, which was a stress factor for the participants as well as for the interviewer. The result showed that the nurses had good knowledge about pain and pain management in general. As long as it was in predictable situations the nurses trusted their knowledge about pain, which is in line with earlier study by Enskär et al (2007).
To move from a novice to an expert in nursing Benner (1984) suggested that the nurse needs to have role models, guidelines and support from other colleagues to be successful. This study suggests that the novice nurses didn’t have sufficient support from their colleagues and they felt left on their own. This finding might suggest a particular existing culture on this specific ward. Sjöström (1995) reported that the less experienced nurses, in contrast to the more experienced, had to ask their patients about pain. The more experienced nurses said they knew what it looked like for a patient to be in pain, a finding replicated here.

In Sweden parents are involved in the care of their sick child as they know their child and the child’s reactions. According to Power and Frank (2008) parents wish and expect to participate in their child’s care and Corlette and Twycross (2006) stated that parents should be involved in the decision-making process but there is a lack of communication. The nurses in our study considered the parents as a source of information but parents’ participation could sometimes be an obstacle for the nurse when needing “access” to the child. Children with physical or cognitive disabilities were demanding to care for and the nurses felt powerless when they could not communicate directly with the child. To conduct nursing activities was seen as an important part of the pain management and as long as the nurses had a good communication with the physicians and the pain-management team at the hospital they found pain management an easy task. Gimbler-Berglund et al (2008) showed that good cooperation with the physicians was a key factor in pain management.

In unpredictable situations it was obvious that the nurses had overwhelming feelings of powerlessness, fear and abandonment. When the child didn’t respond as the nurses expected they distrusted the child. Good knowledge about children’s cognitive development together with good knowledge in nursing care would probably minimize those feelings. Pergert et al. (2008) reported that when the nurse’s professional preparedness was overridden by overwhelming emotional expressions that they tended to resolve the situation by protecting their professional composure. They used strategies such as controlled expression, escape/avoidance, distancing and rationalizing. The nurses in this study gave the patients the prescribed pain medication but since they rarely included the patient in the assessment they actually didn’t know how much pain, or pain relief, the child perceived. The fact that the nurses hardly ever used pain assessment tools made the situation even worse. This was also found in a study by Simmons and Macdonald (2004) who showed that almost two-thirds of nurses in a tertiary referral centre did not have the preference for a pain assessment tool but agreed that the introduction of such a tool would improve the documentation.
Reys (2003) also argued that there is a need for education on choosing appropriate pain assessment scales in relation to the child’s age and development.

In our study, the nurses reported utilizing pharmacological treatment as more or less the only method to treat the pain. Pölki et al (2001) found that emotional support, helping with daily activities and creating a comfortable environment were used routinely, whereas the cognitive – behavioural and physical methods were less known and used. In our study, nurses didn’t recognize daily nursing activities or emotional support as complementary pain management strategies. Pölki et al (2003) also concluded that paediatric patients’ surgical pain relief in the hospital was affected more by the nurses’ personality than by work – related factors and the characteristics of the child.

We found that the nurses were afraid and felt distrust when dealing with unpredictable situations, something which be taken into consideration in their training. If the nurses had the opportunity to talk about their working situations and were able to express their feelings and attitudes about pain and pain management it would strengthen their ability to deal with these stressful situations.

**Conclusion**

This study showed that the nurses were prepared to take care of children in pain in predictable situations, they trusted their knowledge and knew how to act. But if the situation was unpredictable the nurses felt fearful, powerless and abandoned and sometimes protected themselves by distrusting the child’s pain. One strategy to meet the unpredictable situations could be to have expert nurses as role models for the novice nurses might be a possible strategy, provided that the more experienced nurses keep up their clinical and theoretical competence. Routine use of pain assessment tools and guidelines for pain management might further improve pain management. Another strategy to bridge the gap between theory and practice is by using systematic reflection on practice.

**Key messages**

- During working shifts it could be preferable for the nurses to work in pair, that may reduce the feelings of abandonment.

- More experienced nurses need to support their less experienced colleagues to achieve best pain management for each child
- Pain assessment tools and guidelines for pain management could help the nurses in the daily work.
- Systematic reflection may help to bridge the gap between theory and practice and support professional development among nurses.

Table 1. Demographic variables and years of experience

<table>
<thead>
<tr>
<th>Age</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-5</td>
</tr>
<tr>
<td>26-34</td>
<td>2</td>
</tr>
<tr>
<td>35-44</td>
<td>3</td>
</tr>
<tr>
<td>45-54</td>
<td></td>
</tr>
<tr>
<td>55-</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
</tr>
</tbody>
</table>
Table 2. Presentation of the results with themes, categories, subcategories and examples of quotations.

<table>
<thead>
<tr>
<th>Main theme</th>
<th>Category</th>
<th>Subcategory</th>
<th>Examples of quotations in the subcategory (years of paediatric experience)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiences from predictable situations</td>
<td>Self-confidence</td>
<td>Knowledge about pain</td>
<td>“Before we didn’t know that infants could feel pain....” (12 yrs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning by reflection</td>
<td>“Looking back I should have acted differently...” (13 yrs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trust my experience</td>
<td>“We all gain experience which we can take onboard to meet the next situation....” (30 yrs)</td>
</tr>
<tr>
<td>Ability to act</td>
<td>Responsibility</td>
<td></td>
<td>“We have the intention to assess the pain via VAS scale....” (3 yrs)</td>
</tr>
<tr>
<td></td>
<td>Observation</td>
<td></td>
<td>“...One is observing, asking depending on the child’s age.... it happens that it doesn’t work but it usually works.....” (3 yrs)</td>
</tr>
<tr>
<td>Experiences from unpredictable situations</td>
<td>Fear</td>
<td></td>
<td>“When coming to my evening shift I was anxious that the treatment would not work....” (4 yrs)</td>
</tr>
<tr>
<td></td>
<td>Powerlessness</td>
<td></td>
<td>“.... it was hard to her being so sad and be in such pain.... and she asked for help and i did the best I could but it was not enough”(11 yrs)</td>
</tr>
<tr>
<td></td>
<td>Abandonment</td>
<td></td>
<td>“I felt that I was thrown into a situation when nursing cancer children and I felt it was expected that I should have knowledge... and one could not say: I can’t handle the situation... you want to be competent and handle everything....”(30 yrs)</td>
</tr>
<tr>
<td></td>
<td>Distrust</td>
<td></td>
<td>“I learned during nursing courses that I always had to believe in what the patient said, but I have to allow myself to be suspicious and actually query. I think we are to careful to question especially children”(35 yrs)</td>
</tr>
</tbody>
</table>
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