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Clinical Judgment of Pain in the Non-Verbal Child at the PICU- A Phenomenographic Study

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Introduction

Benner [1] points out that the deepest motif of caring is alleviation of pain and avoidance of suffering. Nurses possess a unique position to alleviate their patient's pain, based on their clinical judgment. However, as shown by Ramelet et al. [2], nurses and pediatricians do not have sufficient knowledge about how severe or critically illness affect children's signs of pain, despite extensive research on pain and pain alleviation in hospitalized children [2-4]in the last decade. Limited knowledge might be one of the contributing factors in children still experiencing pain when they shouldn't [5, 6]. According to Olmstead, Scott, and Austin [7] empirical evidence points in the direction of the nursing role, as well as nurse's knowledge and attitude, hindering pain alleviation. This paper elucidates and describes aspects of knowledge embedded in the actual clinical judgment process occurring in close relation with the child at the PICU (Pediatric Intensive Care Unit).

Clinical Judgment

Clinical judgment is an amalgam of knowledge, skills, practical reasoning and perceptual acuity that is context based and situational [8]. The judgment of a particular situation is based on emotions and knowledge comprised by the nurse, guiding the response taken [8]. This is contrary to the clinical reasoning process, which is described as emotion free – a logical, argumentative process that reaches a rational conclusion [9]. In the PICU, nurses have in an interview study been found to perceive expressions of pain as changes in the measurable parameters, perceived muscular tension, and altered behavior [10]. Their perceptions can be viewed as their first grasp of pain expressions in their situated clinical judgment process. How they then make decisions and apply their knowledge depend on how they think and transfer knowledge into actions [11,12]. According to Enskär et al. [13] nurses fail to take a multidimensional approach towards pain alleviation and needs to develop communication and collaboration around the child. Twycross [14] argues that one of the clinical problems of pain recognition is to be found within education, failing to educate nurses' to recognize pain in the clinical setting. This supported by Gimbler-Berglund et al. [15], who found nurses articulating difficulty while assessing pain in young children. Exploring nurses' clinical judgment process carries an opportunity to improve care of patients in pain.

The Clinical Complexity

Nurses lack of engagement in or respect for the child, as well as contextual factors, are directly related to children's needless suffering [7]. Also, younger children's social abilities to communicate suffering are limited [16], as well as their ability to locate, define and describe pain [17]. A child in pain might feel stress and agitation, feelings that are interrelated, subjective and difficult to separate. Their respective levels may well change during the healing process. This adds to the complexity of choosing an appropriate pain assessment strategy that accurately captures the sign of the child's pain at the time of investigation [2, 13, 18]. Also in clinical practice nurses must act instantaneously and make multi dimensional judgments of the patient's needs based on the perceived condition [19].

Pain assessment scales that are validated for the PICU relies on expert nurse's opinions for facilitating the sedation level and pain in ventilated children [20-23]. The validated pain assessment scales are validated for acute pain, mostly on young children (1-13 months) [20], or by assessing few children [23]. Also the scales address the intensity of the child's pain, not the severity or duration. In contradiction nurses tend not to rely on models or methods that ignore context or emotional and individual experience; they prefer to interpret specific aspects as meaningful as they are engaged in a situation. Judgments are based on recognizing subtle changes, turning points or transitions in the patient [8,24]. Research [25] puts forward that context and culture influences health-care professionals' perception and decision-making surrounding children's pain. Nurses' pain assessment is also affected by routines in the organization, cooperation between co-workers and the child's behavior, as well as the experience and knowledge of both the individual nurse and her colleagues [15].

Clinical judgment of pain in the Pediatric Intensive Care Unit

As discussed above there is limited knowledge on how nurses actually judge pain [26]. And the Pediatric Intensive Care Unit (PICU) is pointed out as a context where clinical judgment of pain is especially problematic [27]. This due to the problem of differentiating pain from expressions deriving from other origin than pain [28], as well as to children's inability to express their pain verbally or behaviorally as they may be intubated, sedated, or because of other cognitive, emotional or situational factors [29]. Another contributing factor to the severity of judging pain is related to the fact that few pain assessment scales are validated specifically for the PICU [23], and none of them that takes into account the whole complexity of investigating pain in younger children [30]. This leaves nurses in an unsecure situation when perceiving and judging the child's' expressions of pain. Marton [31] points out that how a phenomenon (e.g. pain) is percieved affectes subsequent behaviour (e.g. decision making). To improve clinical judgment of pain in pediatric patients it's important to understand nurses' clinical judgment of pain. This can become a foundation on which to construct meaningful teaching interventions supporting practicing nurses' in further developing judgment skills.

Aim

The study departs in clinical nurses' every day practice as it aims to

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explore nurses' perspectives (i.e., their expressed experience, opinions) on clinical judgment of pain in critically ill non-verbal children in the PICU.

Method

The context of the study

This is part of a larger project where nurses' pain management in critically ill non-verbal children is focused. This part was carried out at a university hospital PICU in Stockholm, Sweden. The children's division consists of 160 beds; the PICU holds eleven beds serving critically ill children, premature to 18 year olds. Patients have different life-threatening conditions, in different development stages, quite often combined with various forms of respiratory problems. Care is conducted in many specialties, such as surgery, medicine, neurosurgery, trauma and infection. Physicians and nurses with a variety of specializations are engaged in everyday care. The PICU has a recommended tool for pain assessment as well as a pain protocol.

Participants

The interview group consisted of seventeen registered nurses (thirteen women and four men), all with some sort of specialist training such as intensive care, pediatrics, or the older form of advanced training that rendered competence within both anesthesia and intensive care. All interviewees worked professionally as registered nurses, and had been in the profession for between five and thirty-two years. Their PICU experience varied between three months and twenty-eight years, with a mean of fourteen years. All had experience in caring for children prior to their employment at the PICU, and it could therefore be expected that they would have knowledge of pain cues. The enclosure criteria for participation in the study were: registered nurse in Sweden; specialist training in intensive care; pediatrics or the older form of advanced training that rendered competence within both anesthesia and intensive care. The informants were all selected through a convenience sample where the researcher recruited informants through information about the study at workplace meetings. Interested nurses then approached the researcher and all of the interested nurses' where included in the study. All of the nurses completed the interviews. The researcher was also available at the ward outside of scheduled meetings for questions and further information.

Design

In this study the qualitative method of phenomenography has been applied. Phenomenography is a research approach designed to answer questions about how people make sense of their experience. It also discerns and describes qualitatively different ways of perceiving phenomena in the surrounding world [31, 32]. To experience something, people have to discern its structural and referential aspects. Which means that they discern something from its context and how this part is linked to the whole, which is linked to the referential aspect? When people see both the parts and the whole of something they understand the meaning [31]. Marton [32] made a distinction between first-order perspective and second-order perspective. In the first-order perspective the interest lies within how something really is. In the second-order perspective the interest primarily focuses how phenomena are perceived. How people perceive the specific situation depend on the qualitatively different ways in which various phenomena in, and aspects of, the world around them are experienced, conceptualized, understood, perceived and apprehended. Marton [33, 34]states that in a phenomenographic study it is not the phenomena itself, but the content of human conceptions about a phenomenon that is of interest. Nurses' conceptions and experiences of the clinical judgment of pain comprise the second order perspective.

Interview

Data was obtained through semi-structured interviews, with the aim of capturing as many nuances and descriptions as possible of the specific study area (cf.[31]. This is a common data collection method within phenomenography [31]. The interviewer did not seek "correct" or "appropriate" responses from the informants, but instead viewed each informant as unique and as a bearer of personal and specific experience; this required certain openness. By striving for a climate of transparency, the informants were given the opportunity to delineate and define the content. It was also important to be sensitive to the experience that each informant had of how pain can be expressed and limited. The interviewer was attentive both to what was said and to how it was said. The interviews followed the path described by Linder [35], with each interview beginning with a predetermined question of an open nature and then following a semi structured interview guide to ensure that the study area was covered. The interview guide were thematic in it's structure, and started with a brief discussion about what a critically ill child was considered to be: (here) a child with a life threatening condition, between two and six years of age; non-verbal due to intubation, or due to other origin as the severity of the sickness or that the child has no strength or will to communicate with words; only sounds like moaning or other non-verbal expressions. Thereafter, the informants were asked to give an example of a judgment situation as judgment occurs in the context of a particular situation [8]. Following, questions regarding possible ways to clinical judge pain in a specific situation were posed. Further on, the interviews focused on three themes: exploring expressions of pain; clinical judgment of pain; and clinical knowledge development of pain. The questions for this study were put forward to explore the nurses' conceptions of the theme clinical judgment of pain. The clinical judgment is recognized as constructed with emotions and knowledge mutually constitutive [8]. Questions were, for example: "can you describe how you judge pain in critically ill children?", "how do you reason when judging pain in critically ill children"? "Is their something special with the judgment of pain in this ward, do you think"? Follow-up questions to explore the answers could be: "From what you told me, how does…?", "Can you elaborate on what you just said?", "What do you mean by… ?", "What is your purpose with…?". In the interview situation, considerable emphasis was focused on letting nurses articulate their view of clinical judgment of pain. In order to make it clear what the nurses tried to convey the interviewer checked her interpretations with the informants and got them confirmed [31]. The interviews exploring all three themes lasted approximately one hour and were taped and later transcribed verbatim by the first author.

Analysis

Perspectives on how to clinically judge pain were analyzed according to the principles of phenomenograpy [32]. The phenomenographic data analysis comprises seven steps described by Sjöström [36] and Dahlgren and Fallsberg [37].

Starting with familiarization; to get acquainted with the text in detail. Then condensation; where the most significant statements in each interview were selected. The third step was comparison; significant statements were compared to identify sources of variation or agreement. The fourth step *grouping*; descriptions with similar condensed content were assigned to groups of preliminary classification. The fifth step articulating; the essence of each group was described in a preliminary category. The sixth step labeling; each

category was named with an expression that captures the essence of the understanding. In the seventh step contrasting; categories obtained were compared with regard to levels of understanding expressed by the informants at a meta level. According to Marton, people's qualitatively different ways of experiencing a phenomenon represent a more or less comprehensive understanding of the phenomena. These differences can be ordered hierarchically in comparison with established knowledge about the phenomenon [31]. The categories in this study were hierarchically ordered and labeled A, B, C, starting with the most elaborated understanding as judged by experts in the field. This "negotiating consensus" is a process performed in the phenomenographic approach to replace an interjudge reliability test. Depending on the understanding presented, concepts with elaborated answers comprising at least three important components related to clinical judgment of pain were sorted into category A. Less elaborated concepts with two important components were labeled B and the concept with one important component were labeled C. The first author analyzed the data, and discussed the analysis with the co-authors and experts in the phenomenographic method. Grouping and articulating were repeated several times.

Ethical considerations

There are a number of ethical considerations connected to interviewing as a data collection method: whether interviews are the best way to elicit information on the area of interest, how the interviews should be performed, when and where the interviews should take place, and whether there is a possibility that the interviewees will be negatively affected by the process. On the other hand, a researcher who shows interest in one's personal professional experiences and listens to one's own personal narrative could also be seen as positive. Permission to conduct the study was obtained from the ethical committee at the Karolinska Institute 20031205 and the Head of Clinic at the clinic concerned. All informants gave informed consent to participate and were informed that they could cease participation at any time, without stating a reason. Research ethical guidelines have been accurately followed.

Findings

All informants regarded clinical judgment of pain as one of their most important responsibilities in nursing and a prerequisite for pain alleviation. However most informants explained that they did not use the recommended assessment tool, claiming to have embraced the contents of the tool and therefore did no longer need it in practical care. There was also an issue about the inflexibility of the tool to be readily adapted in a busy setting or individualized for a specific child or situation.

When asked to elaborate on their clinical judgment of pain, the informants revealed three qualitatively different main categories: (A) Knowledge orientation, (B) Investigating orientation (with sub categories Conflict evasion and Participation) and (C) Practical orientation (with sub categories Personal experience, Confirmation and communication). The characteristics of these three categories of orientation can be classified as three levels of understanding. The most elaborated level, level A, contains judgment orientations represented in all categories (A, B, C). Level B contains judgment orientations from both category B and C. The last level C contains only orientations from category C.

Knowledge orientation: The Knowledge orientation (A) is oriented towards seeking coherence in evidence emanating from the specific child. The nurse relates to her own experiential knowledge of children with pain, embeds the parents' specific knowledge on their child's pain cues and mirrors these toward theoretical knowledge on pain, forming a complex judgment process.

The causes of different pain expressions are in this category crucial to the judgment. If no relation between cause and expression is found, the expressions are excluded as deriving from pain and viewed as something other than pain. The category focuses on causality of pain, which builds on theoretical and experiential knowledge. The deliberation in the clinical judgment is emphasized. The quote shows the linkage to causation:

The child screaming (making such an expression) is not enough, I have to have other causes, the child must have had surgery, and the child must have… I have to have a focus somewhere it has to have /…/ there has to be a reason for the child to possibly be in pain /…/ from there on I can look for other things that comply to this theory, I have to be able to find other things (i, 13)

The context around the child and current events is also considered indicative in the judgment process. The signs of pain showed by the child must be linked to events or the context and cannot consist of one sole observation. Crying expressions in non-verbal children is not always considered a sign of pain if the child for some reason has been disturbed, if the crying expression rapidly subsides and at the same time can't be linked to other expressions of pain. How different signs of pain are interconnected and interpreted guide the nurses in their clinical judgment and are then crucial for the outcome of the judgment.

Investigating orientation: The Investigating orientation (B) focuses on the specific child's pain and the nurses' experiential knowledge. Collaboration with parents is significant in way of gaining insight into the child's past history and current developmental status. The orientation accordingly consists of responsiveness to the parents' (or guardians') experience and their knowledge of their child's pain behavior, described in two sub categories, Conflict evasion and Participation.

Conflict evasion

This sub category shows how parents' perceptions of their child's pain dominate the judgment process, how nurses accept parents' perception of their child's pain as significant and act accordingly. Child and parents are by these nurses perceived as a coherent unit. Talking to one part, parent or child, is used consciously as a "pain assessment tool", as the quote below highlights:

if the parent says that it isn't in pain and I feel that it is, no the other way around /…/ that is the hardest situation I think, because you then might find yourself in a conflict with the parents./…/ you then have to find some sort of middle ground /…/ you might administer paracetamol or some morphine or something like it. It doesn't feel really right /…/ you then do it for the parent's sake (i, 14)

By accommodating the parent's wish and sometimes administering analgesics on the parent's initiative, the relation between nurse and parents won't be at risk. A conflict between them can be seen as an obstacle in the relation to the child and consequently complicate the clinical judgment.

Participation: The other sub category shows the perception of the parent as a bearer of experiential knowledge of the child. It is considered vital making parents understand and participate in decisions. If the parent's experience differs from the nurse's she discusses to make him or her understand and rely on her clinical judgment. Participation determines if analgesics should be administered or not. The nurses also

disclose that children transfer their experiences to the parent through diminutive signs only the parent can interpret. The parent is perceived to be able to mirror the child's feelings and vice versa, highlighted by this quote:

They (parents) recognize how they (the child) react and they (parent) know when there is something they don't recognize so to speak (i, 18)

Practical orientation

In category (C) informants were not able to elaborate on the clinical judgment of pain and expressed a weak understanding regarding factors and conditions that are considered specifically contributing to pain *per se*. Characteristics of this orientation is how nurses formulate ideas about the situation the child is in, relying on comparing the current situation with experience of similar situations or exemplar cases rather than focusing on the specific child in the specific situation. The informants rely on gut feeling and intuition. Informants often describe the process in terms of "I refer to my feeling" or "I refer to my own experience" or "I refer to a typical situation ".

In this category nurses' perceptions of how to perform sufficient pain alleviation is validated through the outcome of the chosen intervention. The enactment in the clinical judgment is emphasized. Knowledge is gained over time from an individual's own clinical experiences.

Personal experience: This sub category focuses on the judgment emanating from how the nurse mirrors self-experienced pain and personally progressed knowledge of pain (gained by experiencing similar diagnosis or similar situations). Focus lies on the nurse's own identification of the child's situation. Considered painful, the expression of the child's pain is related to the informant's own experience or her expectation of pain, highlighted by the following quotes:

When I was a child I myself was hospitalized /…/ one must have a confidence /…/ to say if they are in pain or not (i, 14)

One understands that it hurts by looking at that belly, if I had had one I would have been in pain (I, 2)

Confirmation: The other sub category emphasizes how nurses perceive whether they have judged signs of pain "correctly" or not. Focus lies on the outcome of actions taken and is based on confirmation, a "receipt" of the judgment being correct. Highlighted as follows:

Sometimes you can test also to give a single dose of morphine, thereby you see if the child calms down. You then get an evidence of it being pain or not (i, 6)

The nurses see the judgment and the result of an intervention as one single unit. Frequently the absence of pain is confirmed after pharmaceutical intervention. The child becoming calm and content is a common confirmation on successful clinical judgment and treatment of pain.

Communication: This sub category emanates from an experience that feelings are conveyed through communication and that a common feeling of pain or non-pain forms clinical judgment of pain. The parent or the caretaker perceives a feeling of how the child communicates pain non-verbally. The following quote highlights the category:

Sometimes you might step in and say, oh, this is something we have to take care of immediately, it's just a feeling (i, 16)

The experience suggests that there are something "more" than what is objectively distinguishable and that this "more" is perceived as communication of pain, even though the nurses is unable to verbalize what's included in the feeling of sharing a feeling. The following quote highlights the feeling nurses strive for:

It might be a calm respiration. If they are intubated, they aren't lying and breathing towards the respirator but have a responsive breathing. They may lie comfortably, supported by cushions, it looks calm, yes it looks peaceful (i, 5)

The feeling is built on experiential knowledge and the absence of pain is perceived as a communicated feeling of calm and well-being.

Discussion

All of the nurses considered pain alleviation to be one of the most important aspects of nursing. Even so our finding revealed a remaining problem of nurses' adherence to using validated pain assessment strategies in the every day care, leaving the child at the mercy of the individual nurse's judgment. The finding also contributes to the understanding of the variation in nurses' clinical judgment process of non-verbal children in the PICU as it uncovers the thinking strategies of the clinical judgment process that precedes the intervention. Nurses are in their judgment process guided not only by knowledge and perceptions of pain, but also by various methods of obtaining information and reliance on different sorts of referential bases. Furthermore nurses attend to the child's pain with different understanding and preparedness to use their experiential as well as theoretical knowledge in the clinical judgment process.

To achieve pain alleviation requires an accurate judgment Ramelet et al. [2], as well as a routinely used and validated pain assessment tool and a pain protocol [4]. However most of the nurses in this study claimed to have embraced the contents of assessment tools into their knowledge and accordingly didn't have one at hand when judging pain. Letting their clinical judgment of pain vary in perspective of discovering the child's pain, which reveals how they think and use their knowledge in practice [12]. According to Marton [32] being able to distinguish between phenomenon (e.g. expressions of pain) in order to understand the intrinsic meaning and differences from other expressions is important. However findings show how some of the nurses' focused on the situation itself rather than the child in the situation.

Benner [38, 39] and Benner Tanner and Chesla [8] stresses that the nurse's judgment process will vary according to her knowledge, and Benner Tanner and Chesla (p. 200) [8] puts forward that clinical judgment refers to the ways "in which nurses come to understand the problem, issues, or concerns of patients, to attend to salient information, and to respond in concerned and involved ways". It is only within category (A) that nurse's knowledge about children's pain behavior seems to be consciously applied and related to the specific child. The clinical judgment process is clearly conscious and connected to the intended outcome, alleviation of the child's pain. When clinical judgment of pain derives from category (B) nurses actively seek to discover and alleviate the child's pain but narrow their clinical judgment process to stretch for specific knowledge about the child they care for. This requires the parent's involvement in the judgment process. Sometimes a good relation and the trust that follows upon it are considered so important that parent's indication of pain alone will spur action. The most naïve clinical judgment process derives from (C) where nurse's own perception of the situation the child is in guides the judgment process. When the intervention is done and a positive response is perceived, the judgment process seems to stop.

The findings reveal that the sick children in the PICU are left in the hands of the individual nurse's judgment and skills. Nurses to some extent rely on theory surrounding pain assessment scales, rather

than using scales in practice to alleviate pain. This might be related to the fact that there is no assessment scale that comprises the whole complexity of pain in the PICU [28]. Benner [24] and Benner Tanner and Chesla [8] points out difficulties for nurses to rely on guidance that not takes context or emotional and individual experience difficult in consideration. She argues that nurses rather turn to recognizing subtle changes, turning points or transitions in the patient when clinically judging a patient's condition. This might explain why nurses find it more relevant to learn the assessment scale theory and not base judgment solely on an assessment scale. Since the child's' alleviation of pain is dependent on the outcome of the judgment process, it is of importance to reflect on, unfold and discuss the implications that the knowledge orientation underpinning the process has for the desired outcome, pain alleviation. The findings also raise questions of how nurses develop clinical knowledge about pain in the PICU and what perspectives they focus in the nursing process.

Limitations of the Study

Given the relatively small sample and the difficulty in differing discomfort of other origin than pain, it can't be certain that informants only judged pain. However, they were asked to elaborate on their experience of clinical judgment of pain. Interest lies in how the judgment process of pain is experienced by the nurses, rather than whether they perceive pain in a "correct" or "incorrect" way or whether they use pain assessment tools or not. The study was carried out with nurses from only one PICU, reflecting the situation in just this ward, but comparisons with findings from other studies does suggest that there are similar conditions elsewhere [7].

Another problem might be that informants can be limited in their ability to verbalize what they perceive their clinical judgment builds on. Other methods could have been used, and nurses at several hospitals could have been interviewed, but this might have provided less in-depth information. Nevertheless, nurses have problems differentiating pain from other constructs such as agitation and anxiety that need different treatment. This area needs further investigation. The judgment process is a continuing interplay between child, parents and nurse [40], who implicates that the perspective taken in the nursing situation might have implications for the outcome. However, further research on this area is needed.

Conclusions

This study reveals a remaining problem with nurses adherence of using pain assessment tools, as well as highlighting that the clinical judgment process has direct implications for how nurses take contextual factors, the child's condition and the parents' perceptions into consideration when judging the severity and intensity of a child's pain, and in extension, the child's pain alleviation. The findings focus how utterly important it is, as suggested by Olmstead et al. [7], to facilitate transition of research knowledge of pain into daily care, which is key for unresolved pain to be eliminated.

How to Apply Findings into Nursing Practice

The findings impresses the importance to focus on and follow up the implementation of evidence based pain assessment routines to alleviate children's pain. Also the finding highlights the need of aiming towards nurses' awareness of how their judgment process directly affects the alleviation of pain. There is a never-ending need for nurses to improve knowledge of their patients' discomfort and pain and finding ways of applying theoretical and experiential knowledge in everyday care. Their clinical judgment process needs to become facilitated in order to develop into a multidimensional judgment. Developing a learning organization within the clinical practice, in close collaboration with academia, is proposed to systematically facilitate this.

We argue that the PICU transcends to a learning organization together with the nursing educations. A continuous learning will facilitate the quality of the individual nurse's cognitive as well as skill development of the nursing process. This is not done in spare time at the ward; it calls upon a close collaboration between academia and the children's department in an organized way.

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