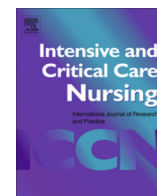




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Research article

“Keeping pace according to the child” during procedures in the paediatric intensive care unit: A grounded theory study

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ABSTRACT

Objective: The goal was to explore how nurses interact with children in the paediatric intensive care unit during potentially painful procedures.

Research methodology/design: This was a qualitative research study that used grounded theory approach. Data were collected through participant observation and interviews. Nurse–child interactions were observed and recorded during potentially painful procedures performed by nurses. Following observation of a procedure, nurses were interviewed about their intentions, feelings and emotions during the procedure.

Setting: The study took place in a seven-bed paediatric intensive care unit in an academic teaching hospital in Japan.

Findings: Children’s acceptance of a procedure was induced by nurses’ pacing, particularly in a pattern of “keeping pace according to the child.” Such pacing involved soothing the child, explaining what was being done to the child at each step and acknowledging the child’s emotions. All of these child-centred procedures provoked cooperation from the children even during painful procedures.

Conclusions: Our study suggests that a collaborative practice approach, in which nurses use a series of calming tactics, might improve children’s perceptions of painful procedures.

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Implications for Clinical Practice

- To attain child patients’ cooperation or reduce their pain during painful procedures, a child-centred care provision pattern—which is care that responds to the child’s actions or reactions and paces the procedure according to the child—is more effective than a nurse-centred care provision pattern when the procedure is less invasive, not urgent, and the child shows endurance.
- To provide child-centred care, nurses should consider the conditions under which the potentially painful procedure is being performed, and then initiate various actions in response to the child’s status.
- Child-centred care involves not only matching the child’s pace, but also choosing appropriate procedural techniques while considering the benefits for the child.

Introduction

Critically ill children admitted to the paediatric intensive care unit (PICU) may experience painful procedures which lead to traumatic experiences (Ward-Begnoche, 2007; Carnevale and Gaudreault, 2013). Moreover, the effects of traumatic experiences can persist following a child’s discharge, resulting in mental health complications such as post-traumatic stress disorder (Nelson and Gold, 2012). Children who have been admitted to a PICU are likely to report that their subsequent quality of life is lower than before admission and when compared with normative paediatric populations (Buysse et al., 2008; Knoester et al., 2008; Colville and Pierce, 2013).

In response, many recent studies have focused on the manner in which painful procedures are administered in the PICU. Most of these studies discuss a single aspect of care provision, such as how to reduce pain (Koller and Goldman, 2012; Lee et al., 2014) or how to use sedatives or analgesics effectively (Czarnecki et al.,

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2011; Staveski et al., 2014). In real life, however, nurses are expected to gather information relevant to both their patients and the surroundings in order to provide a multifaceted approach to care that adapts to each situation (Tanner, 2006; Simmons, 2010). We have found no previous studies that used a more holistic and broad perspective on mitigating pain during PICU procedures. More information on the interactions between nurses and children during painful procedures is still needed.

During admission to the PICU, a child may be in an unstable condition, and sedative medication is often administered (Crawford and Dixon, 2012). Many intensive care procedures are invasive and painful. Daily care in the PICU, such as positioning and bed bathing, can also generate pain (Baptiste, 2007). Nurses are responsible for many of these intensive and daily care procedures, and it is thus important to explore how nurses themselves perform such procedures. Therefore, this study aimed to explore how nurses in a PICU interact with their child patients during potentially painful procedures.

Methods

Aim

To explore how nurses interact with children during potentially painful procedures in the PICU.

Setting

This study was conducted in the general PICU of an academic teaching hospital in Japan. The PICU had seven beds and admitted children up to 15 years of age. The staffing ratio was one nurse to two patients, and nurses were required to have at least one year of nursing experience before working in this PICU.

Ethical approval

This study, part of a larger research study of JSPS KAKENHI [Grant number. 15H05089; Program PI. Shigeo Saiki-Craighill], was considered high risk due to the vulnerability of the participants. Therefore, we obtained support from the nursing and medical managers of the hospital, together with full ethical approval from the institutional review board of the authors' university (2014-12) and the participants' hospital (2014-0483). Written informed consent was obtained from the nurses and from the parents of the children.

Participants

A purposive sample of children admitted to the PICU were enrolled. Children who were expected to die within one week of admission were excluded. A nursing manager assessed the potential child participants and then explained the study to the children's parents. If the parents were interested in having their child participate, the principal investigator (PI) contacted the parents directly to obtain a signed written consent form for participation. In addition, the PI informed all the nurses in the PICU about the study and obtained signed written consent from about two-thirds of the nurses before the study began. One-third of the nurses declined to be involved, but agreed to collect data in situations where they themselves were not included in the observations. Data were collected only in situations where both the child's parents and the nurses separately had provided prior permission.

The PI observed seven procedures consisting of six children involved in procedures that were expected to possibly cause pain for the child because of the level of invasiveness. The children's

ages ranged from three years to five years, there were three boys and three girls. Only one child was intubated. All of the children received sedatives and analgesics. The children's diagnoses were atrial septal defect, fulminant myocarditis, neuroblastoma, and craniosynostosis including the duplication. The procedures involved eight registered nurses in the PICU who had worked at that PICU for periods ranging from several months to 20 years. All participants were anonymised, using the abbreviations Child A (through Child F) and RN1 (through RN8).

Data collection

Data were collected by the PI via participant observations and unstructured interviews. Participant observation was selected as the main method for this study as it allowed the PI to observe interactions between nurses and the children they were caring for during painful procedures. The painful procedures observed included removal of the central venous catheter, aspiration and bed bathing. For each procedure, the interactions between the nurses and the child were recorded as field notes from an observer's viewpoint; if permission had been obtained, the interactions were also audiotaped. After each participant observation, the PI conducted additional unstructured interviews with the nurses to assess their feelings and emotions during the interactions. Interviews with the nurses were also used to confirm the PI's interpretations and the accuracy of the written descriptions.

Grounded theory approach calls for saturation to determine a sample size, and theoretical sampling was used to help identify the next purposive set of children and procedures (Strauss and Corbin, 1998). Saturation was judged by richness and interpretability, and these were ascertained by constant comparison. Some similar data from the larger research project were used to complement our constant comparison.

Data analysis

Data analysis was performed via Strauss and Corbin's grounded theory (1998). Grounded theory provides an approach for defining a phenomenon as a flow of processes resulting from the interrelationship of meanings (symbols) that are generated from actors' perceptions, actions, and interactions with subjects (Strauss and Corbin, 1998; Corbin, 2013; Saiki-Craighill, 2016). Grounded theory is underpinned by symbolic interactionism (Glaser and Strauss, 2006), which holds an underlying assumption that social changes are constructed by social interactions and processes. In addition, awareness of structure (conditions), process (actions/interactions), and consequences (outcomes), which is called as a paradigm, is thought of as a key factor for understanding the dynamic and evolving characters of events (Strauss and Corbin, 1998; Corbin, 2013; Saiki-Craighill, 2016).

This study used grounded theory to explore how nurses interact with children during potentially painful procedures in the PICU. The steps for analysis based on grounded theory include the following: create texts through field notes and recordings; read the texts carefully; categorise the descriptions based on the meaning of the content; extract the lowest abstracted concepts; provide properties and dimensions, where properties define unique characteristics of concepts, and dimensions are positions that can be placed in regard to corresponding properties (dimensions are determined by comparisons); name each section using properties and dimensions (labelling); organise labels into categories using comparisons; and characterise categories by properties and dimensions (Strauss and Corbin, 1998; Saiki-Craighill, 2016).

Following these preliminary steps, a paradigm defined as structure composed by a set of conditions, actions/interactions, and consequences is used to explore a phenomenon's structure. Then

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