Children's Anxiety, Pain, and Distress Related to the Perception of Care While Undergoing an Acute Radiographic Examination

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ABSTRACT: **Visiting the hospital is likely a frightening experience for a child, and going through a radiographic examination has been reported as both distressing and painful. More knowledge from the children's perspective is needed on this subject, however, and thus, the aim of this study was to investigate children's anxiety, pain, and distress in conjunction with an acute radiographic procedure and whether these factors can be related to the perception of care. A mixed method design was used to analyze data from 110 participants between 5 and 15 years of age, who were examined in a Swedish radiology department. The quantitative findings showed anxiety, pain, and distress to be a concern during a radiographic examination. Significant correlations were obtained between anxiety and pain as well as between anxiety and distress. In addition, also the qualitative findings showed pain and the waiting time to be concerns. Regardless of the quantitative findings, however, children of all ages were satisfied with the care performed in the periradiographic process, perceiving the examination as supportive and geared to their needs. Robust assessment of anxiety, pain, and distress is imperative when interacting with children in acute examination situations to avoid both negative short-term and long-term consequences. (J Radiol Nurs 2014;33:69-78.)**

KEYWORDS: **Radiographic examination; Children; Anxiety; Pain; Distress; Care.**

INTRODUCTION

For a child, going to the hospital may be a frightening and sometimes even painful experience. Children undergoing a radiographic examination express anxiety, resulting from a combination of pain, fear of an unknown environment, and uncertainty surrounding the consequences of the examination itself (Björkman, Almqvist, Sigstedt, & Enskär, 2012).

Although both anxiety and pain are subjective and personal experiences, influenced by the child's developmental stage and memory of prior medical procedures, age is still the most frequent proxy of development, although it should generally be considered a rough estimation. Berde and Wolfe (2003) and Duff (2003) argue that anxiety is closely associated with the perception of pain; and distress combines anxiety and pain in a behaviorally indistinguishable way. For children especially, it can be difficult to avoid feelings of anxiety and distress, even in medical procedures that might seem minor to an adult. To the child, a seemingly benign examination may be experienced as rather distressing (von Baeyer, Marche, Rocha, & Salmon, 2004).

The short-term effects of children's distress may influence the performance of medical procedures, resulting in a lack of cooperation, fear, and crying (Alexander, 2012). Also, given that memory is an active process, a distressing

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1546-0843/$36.00

http://dx.doi.org/10.1016/j.jradnu.2013.12.003

or painful procedure may cause negative long-term effects that can influence subsequent procedures. Children, who develop negative memories of such procedures, may tend to experience more pain and distress during later procedures throughout life. Even painful experiences from early infancy may influence a child's reactions to future events, including lower tolerances for pain, greater emotional distress, and an avoidance of future situations likely to elicit pain (Rocha, Marche, & von Baeyer, 2009; Stinson, Yamada, Dickson, Lamba, & Stevens, 2008; von Baeyer et al., 2004). A long-term consequence may, thus, incur future avoidance of medical care and possibly develop into phobic reactions (Noel, McMurtry, Chambers, & McGrath, 2010).

A registered radiographer in Sweden plays an important role when meeting the patient in the periradiographic process, working with the technical equipment to perform the best available diagnostic material, and while simultaneously involving the patient in an appropriate way to accomplish these goals (Andersson, Fridlund, Elgán, & Axelsson, 2008). When the patient is a child, considering the developmental level to facilitate a suitable and caring approach is incredibly important. This can be accomplished by involving the child's individual preferences, for example, amply meeting the child's needs and guiding the child through the examination (Mansson & Dykes, 2004). To succeed in this process, the child must, as a requisite to feeling comfortable and less distressed, place confidence in the radiographer (Björkman, Almqvist et al., 2012). In addition, the child's perceptions impact the level of comfort versus distress and, accordingly, the interactions during the medical procedure itself. Furthermore, the way a child processes information varies between individuals and between developmental stages (McGee, 2003), which should thusly be taken into consideration.

Children's anxiety, pain, and distress have been studied throughout a variety of procedures in multiple contexts within health care (Johnston, Bournaki, Gagnon, Pepler, & Bourgault, 2005; Nilsson, Kokinsky, Nilsson, Sidenvall, & Enskär, 2009). However, little research has been conducted in this regard, within the rather technical context of a radiology department (Alexander, 2012; Chesson, Good, & Hart, 2002), which is often not tailored to meet the needs of children (Mathers, Anderson, & McDonald, 2011). Nevertheless, 20% of Swedish inhabitants are children, and figures from the National Board of Health and Welfare show that children seek health care for acute conditions to an even greater extent than adults (Socialstyrelsen, 2011). Many of these conditions may require a radiographic examination: a considerable part of examinations performed within a radiology department are accordingly with children. However, most radiographers in Sweden are not specialized in pediatrics, which underscores the importance to further investigate children's anxiety, pain and, distress while undergoing a radiographic examination in order for the radiographer to gain more knowledge and understanding of how these factors can be seen in relation to the care being performed.

AIM

This study aimed to investigate children's anxiety, pain, and distress during an acute radiographic procedure and assess whether these factors can be related to the child's perception of care.

METHOD

An exploratory study was conducted, using a mixed method design of concurrent type, merging quantitative and qualitative data to provide a comprehensive analysis. Both forms of data were collected simultaneously, and the various analysis results were integrated into the interpretation of the overall results (Creswell, 2009).

Sample and Setting

Participants were recruited from 5 radiology departments throughout Sweden: 3 that perform examinations with adults and children (classified as "adults' departments" in this study) and 2 that specialize in child examinations (classified as "children's departments" in this study). Inclusion criteria were Swedish-speaking children between ages 5 and 15 years. The data collection was gathered across 4 months, and participants were a convenience sample, drawn from consecutive referrals for an acute radiographic examination, performed with conventional X-ray, for an injury of the upper or lower extremities.

The study included 110 children (Table 1), who matched the inclusion criteria: 40 were examined in an adults' department and 70 in a children's department. The age distribution is seen in Figure 1. No records were documented regarding the number of potential participants who declined involvement in the study.

Procedure

One or more of the authors who were informed of the procedure for data collection visited each of the radiology departments involved in the study and informed the radiographers who were appointed to gather data to advise them of the procedure to follow.

Upon arrival at the radiology department, children matching the inclusion criteria were verbally informed of the study by an appointed radiographer; in tandem with the escorting parent, they were asked for participation. The meaning of "participation" was explained in