Radiography 21 (2015) 258–263

Contents lists available at ScienceDirect

Radiography

journal homepage: www.elsevier.com/locate/radi

An observational study based on the interaction between the paediatric patient and radiographer

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ARTICLE INFO

Article history:
Received 27 September 2014
Received in revised form
24 November 2014
Accepted 5 January 2015
Available online 22 January 2015

Keywords:
Anxiety
Alleviate
Fear
X-ray

ABSTRACT

Background: The practice of paediatric radiography requires a completely different skill set to that of adult radiography. Often, obtaining a paediatric patient's cooperation is the most difficult aspect of the role. Ensuring that a child cooperates for the examination can make positioning easier, thereby potentially providing a more diagnostic image.
Aim: The aim of this study was to observe the interaction between the paediatric patient and the radiographer and to uncover techniques used by the radiographer to help alleviate any fear or stress that the child might have had.
Method: A direct observational method was conducted, after both the radiographer and the child's guardians provided full written consent. The actions of the radiographer and resultant reactions from the child were recorded on an observational checklist designed for paediatric examinations.
Results: Seventy-nine patients aged between three months to fifteen years and thirteen radiographers with no specific paediatric training other than experience were observed. Examinations observed included lower limb, upper limb, pelvis, abdomen and chest projections. The data gathered were the result of radiographer actions when interacting with both happy and sad children.
Conclusions: Successful methods of alleviating a child's fear and anxiety whilst in the X-ray room included the use of child friendly equipment such as colourful lead protection and posters on the wall, a simple explanation of what the equipment is before moving it, offering rewards such as stickers and praise and showing the child their image after the examination. When time was short and the workload was high, it was observed that radiographers were less likely to spend time calming the child down and instead were more focused on completing the examination as quickly as possible.

Introduction

It is well known that the practice of paediatric radiography requires a completely different skill set to that of adult radiography, as the radiographic examination of a child is not the same as that of an adult.[1] It requires a specialised knowledge of paediatric pathologies as well as an awareness of the child's level of cognition, comprehension and communication.[1]

The objective of this study was to examine the relationship between the radiographer and paediatric patient. A good interaction can lead to the patient becoming more confident in the staff conducting the examination, thereby becoming less anxious and more relaxed.[2] When anxiety is decreased, children have been found to be more cooperative with medical procedures.[3] These outcomes are in keeping with the Statutory Instrument No. 478 (2002)[4] which states that doses "shall be kept as low as reasonably achievable consistent with obtaining the required diagnostic information, taking into account economic and social factors."

This dosage stipulation is especially important in children, as children are considerably more sensitive to the carcinogenic effects of ionising radiation than adults.[5] Although the radiation dose for a single procedure may be low, paediatric patients often receive repeated examinations over time to evaluate their conditions, which could result in a relatively high cumulative dose.[5] This is shown in a study based on multiple diagnostic X-ray examinations to monitor scoliosis. It was shown that there was an increased mortality from breast cancer associated with an increasing radiation dose following multiple examinations.[5] It is therefore crucial that radiographers do everything possible to limit the need for repeat exposures, thereby keeping the paediatric patient's dose as low as reasonably achievable.

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http://dx.doi.org/10.1016/j.radi.2015.01.001
1078-8174/

Method

The research carried out was inductive and employed a qualitative approach to understand how certain groups (in this case radiographers) behave in a clinical situation (the interaction with the paediatric patient) in an effort to achieve a more complete understanding of this interaction.[6] The data were gathered by means of a non-participant, direct observational method in the X-ray rooms of the tertiary referral paediatric hospital sampled. When a research question involves what actually happens in a hospital environment rather than a patient's perception of what happens, direct observation is the best method of data collection.[7] The notes gathered during observational research are likely to be highly detailed and highly descriptive[8] thereby justifying direct observation as a suitable method. In this case, the researcher was a non-participant who simply observed what occurred during the interaction between the radiographer and patient. An observational checklist (Appendix A) was designed for the purpose of recording what interactions were taking place. This checklist was created by the researcher following their literature review, with assistance from a former radiology service manager of a paediatric hospital with over twenty years experience. Therefore, the checklist had a high level of validity given its backing of both the literature and substantial radiographic experience.

As children are considered to be a vulnerable group given their inability to provide informed consent due to their age, written consent was obtained prior to every examination from the guardians of the child. All in-patients were excluded from the study, as were patients with serious injuries/conditions as deemed by both the radiographer and researcher prior to the examination taking place. This decision was made following justification of the X-ray request, which had this clinical information documented. This was detailed in the ethical application form and was executed to minimise any extra stress that being observed may afflict on both the parents and the patient. If the researcher witnessed any unsafe or dangerous practice during the course of their research, they would report it immediately to the radiological services manager. Ethical approval was sought from the tertiary referral hospital's ethical committee. Following full ethical approval of the proposed research, a pilot study was conducted on fifteen paediatric patients to assess the observational checklist and ensure it contained all likely occurrences as well as providing a good indication of the best vantage point for the observer. The age range observed was from nine months to twelve years. The examinations observed included the upper and lower limb, chest and pelvis. The radiographers working in the general department were a convenience sample (i.e. those working a routine shift from 9 to 5 in the department that day) and were all asked to sign a consent form prior to the commencement of observation. The radiographers were informed of the aims of the study but were not shown the observational checklist. The radiographers were also informed that the study was to be anonymised and that their participation was completely voluntary. If a radiographer did not consent, they were not observed for any examinations that they performed.

The data collected were qualitative in nature and were manually entered into an electronic spread-sheet using Microsoft's Excel programme. This was updated after every observational session, as this is considered best practice.[9] Coding has a central role in qualitative research,[9] so the researcher manually coded the data, drawing from the most common aspects that were observed. Analysis was made clearer and easier to achieve by manually coding the tags (most common aspects that were observed). The resultant mind map that was created using these tags is shown in Fig. 1 below.

One limitation that must be considered when discussing the observational process is the possibility of the "Hawthorne Effect". Any change introduced into a working environment will result in increased productivity.[10] This was particularly relevant to this study as it was a direct observation of radiographers at work. There was a significant possibility that, because they were being observed, the radiographers would enhance their work rate. In this study, there was a possibility that they would communicate more with the patient to achieve a more relaxed environment than they would

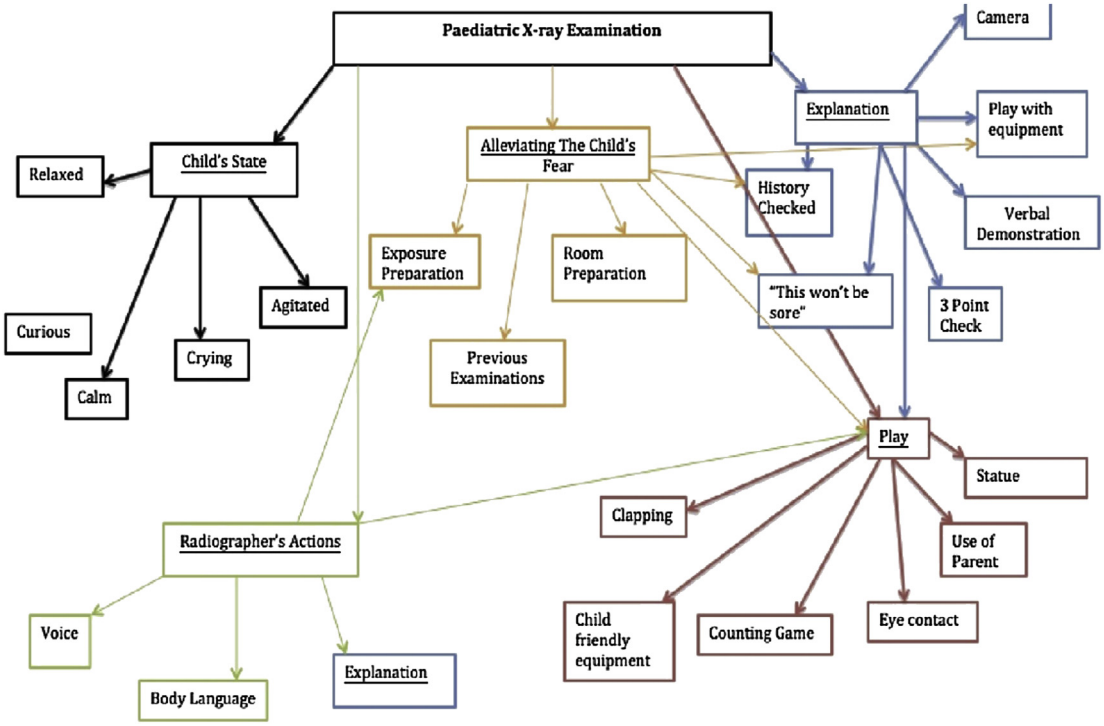

Figure 1. Mind map created following data analysis.