

Diagnostic radiographers' experiences when interacting with the custodians of paediatric patients presenting for general radiographic imaging

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Abstract

Introduction: Radiographic imaging of children presents several complexities, one of which includes their reliance on an adult to take care of them. Literature reports on investigations that focused on interactions of healthcare professionals with children and their parents or guardians in the healthcare setting, but little is known about radiographers' interactions with different custodians of paediatric patients. This study sought to explore and describe the experiences of radiographers with the different custodians of paediatric patients and assess how these custodians contribute to the outcomes of radiographic examinations.

Methods: A qualitative, exploratory descriptive design was undertaken. Purposive sampling was used to select 25 radiographers from four health institutions in the Tshwane region of South Africa. Semi-structured interviews, audiotapes and field notes were used to collect data. Qualitative content analysis was used to analyse the transcribed data.

Results: The following three themes emerged, namely; a) communication with different custodians, b) a radiographer's role in suspected physical abuse (SPA) and c) radiographers' responsibilities and associated radiation concerns.

Conclusion: Radiographers experienced different communication and interaction challenges in the imaging department with various custodians of paediatric patients. These impacted service deliveries. The paediatric patient's reaction in the imaging room might further affect the interaction between the radiographer and the custodian.

Implications for practice: There is a need for further studies that explore the concerns that radiographers have regarding their limited role in SPA. In addition, the study also adds to increasing awareness of both health professionals and the general public on radiation protection and safety.

Keywords: Paediatrics; Radiography; Custodians; Suspected physical abuse; Nurses; Communication

Introduction

The imaging of children is complex because they rely on an adult to take care of them.¹ When imaging adult patients, the radiographer-patient relationship is simple because it involves two adults. In contrast, young patients are complex and the radiographer has to deal with a patient and a custodian, which sets paediatric imaging apart from adult examinations.^{2,3}

Children are known to have short attention spans and usually sensitive to strangers and unfamiliar environments.² Radiographic examinations usually require children to be relaxed and to remain still to obtain satisfactory image quality with the lowest possible radiation dose. However, many children find the imaging department environment to be stressful and intimidating, often viewing the machines as frightening.⁴

Hardy and Boynes reported that imaging of paediatric patients is complex because young children have very little understanding of illness.¹ When examining children, radiographers first have to gain the trust and cooperation of the child, a process which is often time consuming and may be further complicated by the condition of the child, who may be very ill or in pain. The custodian of the child plays an important role in helping to keep the child relaxed and still, so that good quality images can be obtained.⁵ The radiographer must consider the radiation protection of both the child and the custodian.⁶

Custodians accompanying children can be classified either as 'lay people' or healthcare professionals. Ideally, the presence of a custodian should assure the safety and security of the child.⁷ Brask and Birkelund also maintain that a custodian should assist during the examination, and the presence of a custodian should confirm the professional conduct of the radiographer during the examination.⁸ Despite the potential advantages of having a custodian, the anecdotal evidence is that, as practicing radiographers, the presence of a custodian might hinder the success of an examination, resulting in a repeat examination. Ehrlich and Coakes described how custodians, especially parents, tend to direct their fears towards radiographers, preventing radiographers from doing their work.⁹

Studies investigating interactions in the imaging department primarily focus on the patient and parent's perspective of care while being examined.¹⁰⁻¹⁴ Very few studies have described how radiographers perceive the complex triadic relationship, where they rely on a guardian to serve as

a point of contact between them and the patient. The complex triadic relationship between custodian, patient and radiographer is further complicated in suspected physical abuse (SPA) cases as well as cases where language barriers exist. Paediatric patients are therefore classified as vulnerable.⁵

To provide the best imaging service for paediatric patients, there is also need to understand radiographers' experiences when interacting with custodians of paediatric patients. The question that this study attempted to answer was, "what are the experiences and views of radiographers' regarding the role played by custodians to paediatric patients that are referred to imaging departments?" The term custodian is used in this study to refer to a person accompanying the patient to the imaging department, and includes; parents, guardians, nurses, porters and social workers. The paediatrics patients referred to in this study are five- years- old and younger.

Methods

This study followed a qualitative exploratory descriptive design. This design allowed the researchers to provide an in-depth exploration of diagnostic radiographers' experiences of interactions with custodians of paediatric patients.¹⁵ The aim of the study was to explore the views and experiences of radiographers when interacting with different custodians who accompany paediatric patients and how they contributed to successful radiographic examinations.¹⁶

Settings

The study was conducted at three public hospitals and one private hospital in the Tshwane region of South Africa. The selected hospitals each had an imaging department that performed general paediatric imaging examinations. The researchers also had the premise that radiographers in private hospitals were likely to have different experiences to radiographers practicing in public hospitals, hence one private hospital was included in the study. This helped to ensure varied accounts of the experiences of radiographers.

Participants

The qualified and experienced radiographers from the selected hospitals were invited for individual interviews.¹⁷ Radiographers who were currently registered as independent practitioners with the Health Professions Council of South Africa (HPCSA) were included. Students and

radiographers who were registered for community service were excluded because they had less experience in paediatric imaging.

Data collection

Semi-structured individual interviews were conducted. These allowed for some flexibility in the manner in which questions were asked. Supplementary questions were asked, which included probing questions to obtain more information and to clarify responses where necessary.^{18,19} The following questions were asked; “share their experience of interacting with the custodians of paediatric patients”, “elaborate on the different types of custodians to paediatric patients that they had encountered and state whether the custodians contributed to the examinations”, “elaborate on experiences with custodians who accompanied paediatric patients who were victims of suspected physical abuse”, “share their experience on how they managed encounters in which there were language barriers and how this impacted their examination” and lastly “share their experiences on concerns about how different types of custodians may influence radiation exposure and how they, the radiographers, address these concerns?” Additional notes and reflexive notes were taken.²⁰ The sites at which the data were collected were given alphabetical codes A, B, C and D. The participants were given a numerical code as will be shown in the results.

Data analysis

The resultant interview transcripts were analyzed using content analysis which allowed for the identification and reporting of patterns that arose from the data. A qualitative inductive approach was used to identify segments that were responsive to the research question and objectives. This was done for each question.^{21,22} The interview transcripts were line numbered to enable easier reference. The researchers read and reread all the transcripts to get a general sense of the information. Once the segments were identified and reviewed, they were given a corresponding code.^{21,23}

Data collected from different research sites was taken as a whole since the responses received seems to be similar. Since more than one coder was involved, the researchers ensured the consistency of coding using the constant comparative method.²⁴ Each researcher coded, analysed and interpreted the data separately. The researchers then compared the interpretations to establish the credibility of the coding, to check on selective perception and highlight any blind spots in the

data analysis. In the first cycle of coding, descriptive coding and in vivo coding were used. In the second cycle of coding, pattern codes were used to identify categories.²⁵

To ensure the trustworthiness of the study, the researchers adhered to scientific guidelines for ensuring credibility, transferability, authenticity, confirmability and dependability as confirmed by Lincoln and Guba, while observing reflexivity during the research process.²⁰ Triangulation of site and sources of data were used to allow diversity among participants and to gain insight into the multiple ways in which the data could be perceived. Triangulation also helped to establish credibility.^{15,26,27}

The data were also strengthened through prolonged engagement with the participants during interviews, external checks and ongoing member checking. The researchers kept an audit trail of the data collection process and every step of data analysis to provide rationale for further decisions and to ensure that the researchers remained impartial and bias-free while interpreting the narratives.^{26,27}

Ethical considerations

Data collection commenced after the Faculty of Health Sciences Research Ethics Committee of the University of Pretoria (reference no. 503/2018) approved the study. The identities of the hospitals and participating radiographers were anonymised and confidentiality was maintained throughout. Each participant consented to the study before being interviewed, and consented to audio-recordings of the interviews. The ethical principles of respect for autonomy, non-maleficence, beneficence and justice were adhered to throughout the study.

Results

25 radiographers participated in the study. Following the content analysis process, the following results are presented according to six categories, which are; interacting with different custodians, reactions of paediatric patients in the imaging room, language as a communication barrier, patients with SPA, responsibilities of a radiographer as well as radiation dose and associated concerns. Further inferences and interpretation of data resulted in three themes emerging, namely; a) communication with custodians, b) a radiographer's role in SPA and c) radiographers' responsibilities and associated radiation concerns. The process of content analysis as described by

Zhang and Wildemuth, ends with reporting of findings which is followed by discussion and interpretation of themes.²²

Discussion and interpretation of themes

The three themes are discussed and interpreted in relation to the research objectives which were; a) to describe the various custodians that accompany paediatric patients and the contribution that these different custodians make to the outcome of the general radiographic imaging examinations and b) to explore the experiences of radiographers interacting with custodians to paediatric patients presenting for general radiographic imaging in hospitals in Tshwane district.

Theme 1: Communication with custodians

This theme addresses the first research objective and is discussed according to the first three categories.

Interacting with different custodians

The participants described the different custodians were either coming from the outpatient departments or from the wards. Outpatient paediatric patients were usually accompanied by parents or family members. Inpatient paediatric patients were usually accompanied by nurses, porters and caretakers, sometimes together with the parents. Patients who were victims of SPA were usually accompanied by social workers. Radiographers agreed that parents were more cooperative when it comes to assisting with examinations.

[A3] "...The ones that are more willing to help and also I think because they wanted to see what is happening with their child, are the ones with outpatients. The ones that are like the parents or siblings or guardians of the patient..."

Many parents who present to the imaging department are unaware of what is expected of them or their child.²⁸ Such lack of knowledge may affect the parent's comfort levels. Many parents may struggle to deal with their child's discomfort, whilst also having to act on behalf of their child.²⁸ Radiographers in this study agreed that parents trying to assist in positioning their child may hinder the examination. Radiographers also described instances where parents cancelled the procedure because of the manner in which the child was being handled. Some parents were concerned that a

particular position would hurt their child. Ehrlich and Coakes further explained that dealing with families could be difficult because people deal with the anxiety of illness differently.⁹

[A4], "...The parent actually decided to stop X-ray being done on a child because she was feeling like the way we... the way she supposed to hold the child is uhm might cause harm to the child."

[D2] agreed, "...sometimes some they are very sensitive to an extent when you try to position a child like this and then you find maybe the mother thinks you are hurting the child..."

For an examination to be successful, health team members need to work together with mutual respect and balance. Team members from different professional backgrounds may struggle to achieve successful interdisciplinary collaboration when healthcare professionals show territorial tendencies.²⁹ Radiographers in this study had mixed views regarding custodians who were nurses. All the radiographers agreed that the absence of effective interprofessional communication may hamper the delivery of imaging services to paediatric patients.

[C3] "...So yes the nurses. I don't know. I feel like they are a bit better handling the baby because they know what hurts the baby and what doesn't hurt the baby ..."

[B3] "...it's easier when it's somebody who's an employee of the hospital because you can use medical terminology as they understand you..."

Radiographers felt that inexperienced, junior nurses were unaware of radiographers' expectations for assistance. As a result, radiographers expressed that they would prefer to have a fellow radiographer assisting them rather than coerce an unwilling custodian.

[C5] "...So I prefer to hold the baby myself so I will know that I will get a perfect X-ray that I will be satisfied with..."

Some participants felt differently, especially in public sector hospitals where interprofessional tensions were rife. Radiographers who participated in this study often felt undermined by other health professionals, resulting in radiographers being territorial. This caused negative interactions with nurses, who then transferred these negative interactions to junior radiographers forming a

vicious circle. In 2014, Strudwick and Day noted that while radiographers worked well together as a team, there appeared to be territorial boundaries when it came to working with other professional groups.³⁰

This was expressed by [D5] “...*The professionals tend to think they know better than you, especially with this pride and all that between professions.*”

[B1] “...*the nurses it’s like a problem. It’s like you are sort of giving them they feel like we are giving them instructions ...*”

Radiographers described mixed experiences when interacting with porters. Some radiographers described porters as being helpful while other porters tended to abandon patients without assisting. Although radiographers agreed that the level of cooperation depended on the personal qualities of the custodian, some radiographers agreed that cooperation improved if there was good communication before and during the examination.

[C3] “...*Okay. If you tell them in the beginning, this is what I expect from you, they are more likely to cooperate and will perform better...*”

Reactions of paediatric patients in the imaging room

Radiographers in this study acknowledged the imaging of paediatric patients to be challenging. Radiographers further explained that when a child became hysterical, parents became frustrated and mispositioned the child. Repeating the examination resulted in unnecessary radiation exposure to the paediatric patient. For many children, the imaging department can be stressful and intimidating, with machines that they might view as frightening.¹³ This in line with radiographers’ experiences.

[A8] “*New environment, big machines. The child is scared. But the parent doesn’t make an effort to make the child comfortable or maybe the child cries because even the mother is handling the child in a different way that is not used to.*”

[C1] “*the child will also be hysterical and starting to kick and crying and then it’s not easy. It takes more than expected sometimes, the duration of maybe*

expecting to take an X-ray in two minutes, but then sometimes it can take 10 minutes.”

Young children are usually comforted by having their parents close by.¹⁴ Custodians' involvement in assisting the radiographer in positioning and also calming the paediatric patients to cooperate for the examination is indubitable. Björkman et al, said parents being involved went a long way towards mitigating the child's anxieties and distress thus improving the cooperation of the child for the examination.¹¹ However, at times the presence of custodians also has a negative impact on the examination.

[C4] “...the child does not really voluntarily want to be um X-rayed because they are more attached to their parents and they don't want to cooperate. And that's one of the major problems when parents do accompany children to the X-ray department.”

Language as a communication barrier

Majority of the participants agreed that language barriers with the custodians are challenging and some say language barriers are frustrating. Communicating with custodians of paediatric patients is complex especially when a language barrier exists between the radiographer and the custodian. In this study, radiographers mentioned that language differences compromised their ability to offer guidance to custodians. This is common in the Tshwane district of South Africa, which has diverse cultures, ethnicities and languages.

It was further found that radiographers were unable to provide proper instructions to custodians if there was a language barrier, delaying or necessitating a repeat examination. Levin also described such interactions as being frustrating.³⁶

[B3] “...I have had cases where I would need to only do a piece of everything because we just couldn't make each other understand... So for me personally if I know that I'm going to repeat because I can't get the instruction across, I choose rather not to do it.”

Some radiographers were concerned about the effect of such misunderstandings on the diagnosis and management of the patient.

[B1] “...you end up taking an X-ray without the proper positioning. As a result, it impacts their diagnosis and the management...”

Language differences in healthcare are also globally recognised as a communication barrier to quality health service delivery.^{31,32} Health care professionals might use linguistic code switching, that is, using a few key terms in the patient’s language to interact with patients or custodians. In addition, healthcare professionals often resort to non-verbal communication to convey their intended message.^{33,34,35} Most radiographers agreed that they would try to find an interpreter otherwise, they would communicate with custodians using non-verbal gestures. In some cases, custodians were unable to follow the verbal and non-verbal instructions given by the radiographer, making their presence in the imaging room unproductive.

[A5] “...sign language or if I need to do some sort of breathing instruction or something like that I would say for example breathe in and I would actually breathe in with them and breathe out...”

Theme 2: Radiographers role in SPA

This theme addresses the second research objective and is discussed in relation to the fourth category

Patients with suspected physical abuse (SPA)

Radiography is an indispensable tool in the diagnosis of child abuse. The diagnosis of SPA depends on radiological imaging, as well as on clinical and social findings. In this study, most radiographers were aware of SPA, found the topic disturbing. and a few had encountered such cases. A number of radiographers had never been in a situation where they suspected SPA. Radiographers mostly encountered child abuse cases. In such cases, radiographers described the custodians as being reticent to share information relating to the clinical history of the patient. Radiographers described having to use tactful communication without placing guilt on the suspect to obtain information from the custodian.

[A1] “...so you have to communicate in a way to sort of let them know that it's safe for them to talk to you and then you can find out exactly what happened with the baby.”

[C2] "...she was completely in denial about what happened to her. About her child, she didn't want to tell us what happened. And she wasn't very helpful...So like it was like she didn't really want to be there."

Davis and Reeves maintain that the potential of the radiographer's role in cases of child abuse has not been fully explored.^{37,38} During examinations, radiographers are best placed to observe how children relate to their custodians and if the custodians are reticent to provide a sufficient clinical history. At times, the parent or guardian may be the abuser or protect the abuser.³⁹ In this study, radiographers noticed that certain custodians withheld information or gave incorrect details of the patient's injuries. Custodians may have withheld information to protect the alleged abuser who is usually close to the custodian, or as was noted in this study, the abuser accompanies the patient.

[A1] "...two different stories all at once. Parents are there but you cannot seem to tell what's the truth and what's not the truth..."

[A8] "...I came across one case where I saw that the child had wounds as like cigarette burn. So I asked the mother what happened. She said no the child was just playing then she doesn't know what happened. But I couldn't believe it because she could not say more. But I could see that that was unusual..."

Some radiographers encountered cases where the child had been sexually abused. In most of these cases, the mother or social worker usually accompanied the child. Radiographers mentioned that the alleged abusers were sometimes the mother's partner. Most of these mothers were apparently in denial about the situation, with some not being sympathetic towards their child.

[B3] "...from what it seemed to me the mother wasn't really believing what was being said about the child's injuries. I could see the way she was talking to the child ..."

Davis and Reeves further explain that radiographers frequently undress patients before radiographic examinations and may recognise the clinical manifestations of SPA.³⁷ Radiographers in this study reported suspicious markings on children's bodies. In these cases, the radiographers made incident reports which included how the patient interacted with their custodian as well as the details that were given by the custodian in relation to the injury.

Theme 3: Radiographers responsibilities and associated radiation concerns

This theme addresses the second research objective and is discussed according to the fifth and sixth categories.

Responsibilities of a radiographer

While radiographers are responsible for producing quality images, they are also responsible for ensuring the safety of the imaging department. Radiographers in this study mostly communicated with custodians to clarify how to position the patient and how they were examining the patient. Communication is at the heart of any interaction between patients and healthcare professionals. Radiographers need to be empathetic and have receptive communication skills when tending to paediatric patients and their custodians.^{28,40-42}

[A1] “There's a lot of things that could happen simply because there was lack of communication. But if we communicate beforehand, I find that it gets easier with interaction with that kid. If I tell the mother or the sister the doctor coming with kids this is what you need to do. Okay. You need to hold the baby right. You need to make sure that you keep the baby still”

Radiographers also highlighted on the importance of communicating to custodians in a professional way.

[A1] “Professionalism is also very important. You don't want to say okay aah and talk as if you are talking to a friend You should be professional about it.”

While the radiographer carried out their responsibility of communicating the risks and benefits associated with the radiation exposure, healthcare professionals were less accepting of the explanation.

[D5] “The nurses think they're better than you. The doctors think they are better than you. But this is your profession. You know better than them.”

Strudwick and Day also described that when nurses or social workers accompanied paediatric patients, interprofessional collaboration among professionals was jeopardized.³⁰ Occasionally, members from different professional backgrounds struggle to find common ground.²⁹

Radiation dose and associated concerns

When tending to paediatric patients, radiographers have to address custodians' concerns about radiation through effective benefit-risk communication. Most radiographers gave reassuring explanations about radiation exposure and proper immobilization so that custodians were not scared away.

[B1]” the people who are not in the medical field, especially ladies they do see signs and then some they have heard aah I heard it causes cancer. You explain to them you know you have to get a certain amount to get cancer. Like we are here. We are working. We work with it every day. We take measures to protect ourselves and they can.”

In contrast, other studies have described radiographers as not been capable of communicating benefit risk information to parents or guardians.⁴¹ Benefit-risk communication with parents can be challenging due to the general public's limited knowledge of radiation, associated cancer scare and the fear of infertility. Studies show that parents are mostly concerned with cancer risk due to exposure to ionising radiation.²⁹ In this study, radiographers mentioned that imaging department informative signs tend to scare patients even though they are meant to be educational. Female patients tend to believe that radiation will make them infertile and even terminate pregnancy.

[B3] “...they obviously think if you say to them pregnant mothers are not allowed, they would go to the extreme first. They think that it would hurt the baby or them...”

In this study, radiographers noticed that the health literacy level of custodians influenced the understanding of benefit–risk communication. Overall, radiographers felt that custodians such as parents, siblings and guardians were more cooperative as compared with nurses which was much more difficult.

Portelli et al. described that most radiographers provided information about the benefits of a requested examination but were reticent to explain the potential risks.⁴¹ In this study, radiographers felt committed to explaining the risk of radiation so that parents cooperate rather than being frightened away.

[C1] “...we need to educate and have you know readily available information like on the, in the X-ray department in the waiting area. Brief information to let them know that you know, there's a risk of radiation exposure involved doing different examinations so that the, especially the non-medical staff should understand...such information would be helpful in case somebody is concerned...”

Participating radiographers further described most nurses accompanying paediatric patients as knowing what was expected of them, but some nurses were not willing to help. Nurses would leave the vicinity in an effort to avoid radiation exposure resulting in the radiographer being left without assistance for the examination.

[A1] “... they might all be pregnant all of a sudden when you say you need to hold the baby. ...It's hard to communicate especially with the nurses because they think no I really know this, you can't make me hold ten times...”

[B3] “...I get frustrated because the nurses and the doctors are sending a very clearly pregnant mother with her older child to the X-ray and without a nurse or somebody else to explain to help maybe immobilize the child or whatever...”

This in line with a study A study conducted in South Africa, in a northern Gauteng state hospital, described most nurses as having limited knowledge about radiation safety, could not identify radiosensitive organs in the human body and did not know the radiation-safe distance.⁴³

[B1] “... to do a mobile then once you enter everybody is like running away and then those are not just escorts, people they are our colleagues even nurses and doctors... you can't be oozing radiation just by walking...”

Conclusion

The researchers explored and described the lived experiences of radiographers in four hospitals in the Tshwane region of South Africa. The findings in each hospital were very similar. This was contrary to the initial premise that public and private sector hospitals would yield different results. The research findings showed that custodians are valuable. Participating radiographers expressed different experiences and challenges when communicating with custodians and interprofessional

tensions between nurses and themselves. This does not dispel the need for custodians to paediatric patients. Radiographers also described that paediatric patients' reactions to the intimidating imaging environment may affect the interaction between custodians and radiographers. The research findings can be used to identify gaps and improve interprofessional collaboration when performing radiological examination. In addition, considering the high rate of abuse against children and women as reported in South Africa and globally, further research on radiographers' role in SPA will be worthwhile.

Conflict of interest statement

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