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The understandings, experiences and attitudes of diagnostic radiographers regarding forensic radiography as part of their daily practice working in South Africa

L.A. Gower [a,*], G. Lovric [a], N.P. Nkosi [b], N. Mountford [c], N. Ndlovu [d]

[a] Department of Radiography, Faculty of Health Sciences, University of Pretoria, Tshwane, South Africa
[b] Kalafong Tertiary Provincial Hospital, Klipspringer Road, Atteridgeville, 0008, South Africa
[c] Capital Radiology, 1162 Cnr Grosvenor St &, Pretorius St, Hatfield, Pretoria, 0028, South Africa
[d] Dr Jackpersard and Partners Inc Midlands Specialist Private Hospital, Pietermaritzburg, KZN, 3201, South Africa

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ABSTRACT

Introduction: The Health Professions Council of South Africa recognises forensic radiography as an aspect of the diagnostic radiographer's scope of practice. In contrast, the International Association of Forensic Radiographers asserts that forensic imaging should be voluntary and undertaken only by radiographers who have received formal training in the field. This study aimed to explore diagnostic radiographers' understanding, experiences, and attitudes towards forensic radiography as encountered in their daily practice.

Methods: A purposive sampling method was employed to recruit radiographers who were knowledgeable about forensic radiography through their daily practice. Participants were required to have performed forensic radiographic imaging on both living and deceased individuals and to have practised in either the public or private clinical sectors. Semi-structured interviews were conducted with 17 consenting diagnostic radiographers via the online platform Microsoft Teams. Thematic analysis was performed using an inductive approach.

Results: Four distinct themes emerged; Learning and understanding forensic radiography; Practicing forensic radiography; Emotional and psychological responses; Attitudes and motivation.

Conclusion: Findings highlighted the complex and emotionally demanding nature of this domain, which intersects clinical and legal responsibilities. Variability in knowledge and preparedness was evident, influenced by limited undergraduate exposure, informal on-the-job learning, and inconsistent institutional support. While many radiographers valued contributing to justice, others reported apprehension and emotional distress, especially when imaging deceased individuals.

Implications for practice: These findings underscore the need for structured education, standardised forensic protocols, and psychological support to prepare radiographers for the complexities of forensic imaging. Formalised postgraduate training and maintaining voluntary participation are critical to building professional competence and resilience in this demanding field.

Introduction

Forensic radiography is an emerging field that supports medico-legal investigations by providing imaging services for both living and deceased individuals.[1] International Association of Forensic Radiographers (IAFR), in collaboration with the College of Radiographers in the United Kingdom (UK), developed guidelines to assist radiographers and radiologic technologists involved in forensic imaging.[2] In South Africa, the Health Professions Council of South Africa (HPCSA) regulates the radiography scope of practice and defines forensic radiography as falling within the scope of diagnostic radiography.[3] A later HPCSA revision in 2023 expanded the scope to include forensic imaging in hospitals and radiology clinics.[4] The Society of Radiographers of South Africa (SORSA) compiled national forensic radiography guidelines in 2003 at the request of the HPCSA's Radiography and Clinical Technology board.

* Corresponding author. Private Bag X20, Hatfield, 0028, South Africa.
E-mail address: luzyl.gower@up.ac.za (L.A. Gower).

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These guidelines addressed health and safety in mortuaries, handling of human tissue, and medico-legal considerations.[5]

Comprehensive training is recommended by the IAFR to equip radiographers with critical thinking skills and specialist medico-legal knowledge, including testifying as expert witnesses, health and safety in mortuary settings, handling human tissue, and mental health support when undertaking forensic examinations.[2,6–8] A postgraduate qualification has also been proposed in South Africa to provide expertise in minimally invasive autopsies, paediatric forensic imaging, and advanced techniques.[9] Historically, South African universities offered Diagnostic Radiography as a three-year diploma/degree with limited forensic imaging content. Since 2016, this transitioned to a four-year professional degree.[10] One university offers forensic radiography as a 12-credit elective, while others have included it as a chapter in broader modules.[11] No formal postgraduate forensic radiography programmes currently exist in South Africa.

This lack of structured training in the historical and current radiography curriculum raises concerns about radiographers' preparedness to meet the HPCSA's expectations for the provision of forensic imaging services. The HPCSA (2023) guidelines emphasise that radiographers performing post-mortem forensic imaging must be appropriately educated and trained to ensure the integrity, authenticity, and medico-legal admissibility of images produced during forensic investigations.[3,4] This study aimed to explore diagnostic radiographers' understanding, experiences, and attitudes towards forensic radiography in line with HPCSA expectations.

Methods

This study followed a qualitative exploratory descriptive design, seeking to explore and describe diagnostic radiographers' lived experiences, understandings, and attitudes regarding forensic radiography as part of their daily practice.[12]

The research team comprised qualified diagnostic radiographers with varied clinical and academic experience. The main author holds a Master of Science degree in forensic radiography and lectures in diagnostic and forensic radiography. She was not actively involved in the data collection or analysis but contributed to the conceptual framing, writing, reviewing, and editing of the manuscript to ensure that the interpretation aligned with current forensic radiography principles and professional standards.

The second author is a lecturer in diagnostic radiography and radiation therapy and served as the supervisor of the research team, providing academic and methodological guidance throughout the study. The other co-authors were registered Honours students at the time of the research and were concurrently practising as diagnostic radiographers in both public and private healthcare sectors. Their dual roles as students and practitioners offered valuable contextual insight into the realities of forensic radiography in clinical settings.

Reflexive discussions were held throughout the research process to acknowledge how the researchers' professional roles, experiences, and assumptions might influence the interpretation of data. Efforts were made to ensure that the findings authentically represented participants' voices and experiences rather than the researchers' preconceptions.

Participants, recruitment and sampling

Non-probability purposive sampling was primary sampling strategy, with participants recruited via a social media advertisement targeting diagnostic radiographers working in both the public and private sectors within the Tshwane metropolitan area. South Africa is a country recognised for broad diversity. In this exploratory study, it was assumed that focusing on a small geographic area could provide a description of forensic radiography practice against which practice in other regions can be compared where the social, group, power and cultural dynamics might differ. Only radiographers willing to participate and share their perspectives on forensic radiography in daily practice were recruited, to explore their understanding, experiences, and attitudes toward the topic. Two radiographers initially responded to the social media advert. Due to limited initial responses, snowball sampling was then employed to facilitate the recruitment of additional eligible participants.[12] Student radiographers and those completing community service (<1 year of experience) were excluded. In total there were 17 diagnostic radiographers consented to participate in this study.

Data collection

Individual semi-structured interviews were conducted between 14 April 2023 and 21 July 2023, and data collection ceased once data saturation was achieved. Data saturation was reached when no new themes, ideas, or insights emerged from the interviews, and the information provided by participants became repetitive and confirmed previously collected data.[12] After analysing the final few interviews, the researchers determined that additional interviews were unlikely to contribute new understanding to the study objectives.

Prior to the interviews, participants were requested to familiarise themselves with the HPCSA: Scope in Radiography[3] to orient them to the topic of the study. Interviews were audio recorded using Microsoft Teams®, which offers real-time transcription capabilities. An interview guide was used to maintain reliability and comparability of responses.[12] To explore diagnostic radiographer's understanding of forensic radiography questions such as '*What is your understanding of forensic radiography? Where and how did you come to develop your understanding of forensic radiography?* And probing question such as *'What theoretical training have gained with regards to forensic radiography?'* To examine their experiences of forensic radiography in routine clinical practice "*What is your professional experience of forensic radiography within your daily radiography practice?"* was asked. Lastly to investigate their attitudes toward practicing forensic radiography in alignment with the HPCSA scope of practice for diagnostic radiography each participant was given the opportunity to evaluate the scope of practice before the interview and the following question was asked: *What are your feelings about forensic radiography being part of your radiography scope of practice?*

Each participant recruited was assigned to one of the researchers for a one-on-one interview. Once the first three interviews were completed and transcribed, the transcriptions were shared between the researchers who independently checked the accuracy of the transcriptions, thereby giving each the opportunity to immerse themselves in all three interviews.[14] Each independently coded the transcriptions using the process of holistic coding as described by Saldanah.[14] The researchers then convened to discuss their interview experiences, their judgement of the accuracy of the transcriptions, and to compare and discuss their holistic coding.[13,14] This process was repeated in five more cycles until 17 participants were interviewed and it was decided that data saturation had been reached.[14] Interviewees were not given an opportunity to check the accuracy of the transcripts. Transcripts were checked independently by each of the researchers.

The duration of the interviews ranged from 2 minutes to 30 minutes. Although one interview lasted less than 3 minutes, it contained relevant data aligned with the study aims. The

participant provided concise but conceptually rich responses illustrating key themes (understanding of forensic radiography, experience with deceased imaging, and attitude toward specialisation). Therefore, the interview was retained as it contributed to data saturation and thematic confirmation. Credibility was achieved through data triangulation between the three researchers who independently conducted and reviewed interviews and cross-checked the transcriptions against the audio recordings. Ethical approval for this study was obtained from the University of Pretoria, Faculty of Health Scienceees Research Ethics Committee (697/2022). Informed consent was obtained from all participants prior to the commencement of the interviews.

Data analysis

A thematic-discourse analytic framework was applied to identify recurring patterns within participants' language while remaining attentive to how their descriptions reflected professional meanings and contextual realities. An inductive analytic process guided the development of themes, allowing patterns to emerge from the data rather than being shaped by pre-existing theory. The analysis focussed on semantic meanings, capturing participants' explicit accounts and surface-level interpretations without inferring deeper ideological assumptions. The epistemological position was essentialist/realist, assuming that participants' words could be taken as genuine representations of their experiences and practice contexts.[13]

Data familiarisation began with repeated reading of the verbatim transcripts to identify meaningful text segments capturing participants' understandings, experiences, and attitudes towards forensic radiography. In this study, holistic coding was used during the initial coding phase to capture the overall sense of each interview transcript, allowing broad patterns, key ideas, and contextual meanings to be identified before more detailed, line-by-line and pattern coding was undertaken.[14] Once the first round of coding was completed, more detailed second round coding was undertaken by the researcher group to use pattern coding to develop the categories and themes to describe the "what" and the "hows" related to the participants' understandings, experiences and attitudes towards the practice of forensic radiography.[14]

Through iterative comparison and refinement, related categories were clustered into preliminary sub-themes, which were subsequently reviewed, collapsed, or expanded into overarching themes that best represented patterned meaning across the data set.[14] The coding framework therefore evolved through several analytic layers; codes → categories → sub-themes → final themes; ensuring a clear, transparent progression from raw data to conceptual interpretation, while attending to participants' language and meaning-making in line with a thematic-discourse analytic approach which was operationalised in the Results section.[13]

The analytic work was collaborative. The research team held peer-debriefing sessions, reviewed one another's coding, and refined the codebook through consensus discussions to enhance analytic rigour and maintain consistency.[12–14] MAXQDA® software supported the organisation, comparison, and management of codes and emerging themes. Although the study applied recognised qualitative principles of rigour and transparency, it did not formally adhere to a specific qualitative reporting guideline such as COREQ.

Results

17 participants were interviewed between the three researchers. One participant withdrew from the interview process, and their data was excluded from the results. The average duration of professional experience of the participants is 6.3 years. 56.25 % of the participants are employed in the public sector. Transferability was promoted by providing rich descriptions of the participants' context and experiences.[15] Participant quotations have been lightly edited for clarity and readability without altering meaning.

Theme 1: learning and understanding forensic radiography

Formal undergraduate training

Participants reported varying degrees of formal exposure to forensic imaging during their undergraduate studies. For most, this exposure was limited to theoretical modules, with little or no practical training.

> *During my undergraduate training, forensic content formed part of the image recording module as a dedicated chapter, where we were taught what to expect in forensic cases and what to do, and not do, in practice.* (Rad 7)

A few described their training as insufficient or non-existent:

> *No, they do not mention forensic radiography in tertiary* [undergraduate], *forensic cases we were never taught, we never thought it was required of us*. (Rad 6)

Some participants recalled learning about medico-legal documentation considerations, while a few gained limited clinical experience imaging deceased infants:

> *"Our images are legal documents and must be good enough for court, with correct patient details and markers"* (Rad 16)

> *As students, we did a lot of babygrams and women that had miscarriage*[s]. *I think that kind of trained me on what was to come*. (Rad 3)

Some were given the impression during their training that forensic imaging is not something relevant to general radiography practice.

> *"During my undergraduate training, we were taught that diagnostic radiographers should not perform X-rays on deceased patients. I understood that such cases should be managed by forensic services, where dedicated radiographers perform those examinations, as it was presented to us as a specialised area of practice.* (Rad 9)

Views were shared that imaging of the deceased should be a recognised sub-specialty, allowing radiographers to choose whether to undertake such work.

> *Overseas forensic radiography is a speciality, and I feel they should bring that to South Africa"* (Rad 6)

Informal and experiential learning

Knowledge and skills in forensic imaging was acquired post-undergraduate qualification through on-the-job experience. Supervisors and colleagues provided ad hoc support in planned forensic cases undertaken in general radiology departments:

> *We didn't have training.* [The] *first time, our supervisor was around,* [so] *she showed us how to do it. I wouldn't say it was*

training, but it's easy to do forensic patients so as long as you know [how] *to scan*. (Rad 10)

There were situations where participants unexpectedly gained knowledge and skills involved in a forensic radiography case during routine diagnostic radiography practice.

Once I had to do a child, where they said the child was dead. This child they suspect a lot of healed bruises. And the parents, could not account for them, so they just check if there are any broken ribs that had healed on their own or any other broken bones, so they were just making a follow up kind of study. (Rad 12)

Others gained knowledge alone through professional seminars, and reading professional guidelines:

With continuous professional development you tend to broaden your understanding and I heard this from the seminar that [was] *actually forensic* [related], *it's all about providing evidence, providing evidence can be for the demise of the diseased or it can be for, for all, for those who are alive*. (Rad 14)

Before reading the guidelines, I would say I had never come across one [forensic radiographic examination], *but after reading the guidelines I can confidently say I've done actually a number of them*. (Rad13)

Theme 2: practicing forensic radiography

Imaging the deceased

Participants shared varied experiences in imaging deceased individuals. Some described technically demanding cases involving violent deaths in the absence of set protocols:

They needed to determine the number of bullets and entry and exit wounds, but we had no protocol. As a result, we started developing a departmental forensic imaging protocol to guide when and who should perform these examinations. (Rad 12)

Radiographers often encounter uncertainties regarding case presentations, including not knowing in advance when they are required to image the deceased in a general radiology department:

I was caught off guard because they phoned to say there was a patient but never explained anything. When I arrived, the patient was covered, and when I opened it, I realised the patient had died. I assumed the X-ray would be cancelled, but the doctor told me to proceed, and I had to try to understand why we were doing it. (Rad 8).

Imaging the living for medico-legal purposes

There was acknowledgement by some participants that all imaging should be considered potentially medico-legal, given that any set of images could later be required in a legal context. They recognised that high image quality and meticulous documentation was critical for legal admissibility:

There's a lot of pressure on us as radiographers because a patient's compensation can depend on the quality of the X-rays. (Rad 11).

Participants performed imaging on living patients in trauma and assault cases which were potential legal cases:

And then I had another case of a teenage girl that had been assaulted and raped. She was still living, and I had to do basically a polytrauma examination on her. It was on-going investigations as well and those x-rays were going to be used in the court of law. (Rad 1)

Participants demonstrated a proactive approach by submitting suspicious X-rays for formal radiological interpretation and engaging collaboratively with radiologists and social workers to determine the need for further investigation.

"We could actually point out a few things on the X-ray [for instance] *some callus formation on the bones. This was a young patient,* [so we suggested] *that a radiologist from one of the nearby big hospitals review the images. We took the X-rays there for a report, and, surprisingly, the radiologist's report suggested possible child abuse."* (Rad 14)

Theme 3: emotional and psychological responses

Emotional impact

Participants described a range of emotional responses, including anxiety, sadness, and distress, which were often linked to the direct viewing of the deceased body. These feelings were heightened when the body was badly damaged, such as in cases involving severe trauma or dismemberment. The emotional impact seemed lessened when the deceased remained fully covered or sealed in a body bag:

Emotions cause? Yeah, even, mentally, cause you replayed the image of the deceased person in your head. Sometimes, you can actually still see them in your mind, so emotionally and mentally, it takes a toll on the person. Like I'm saying, not everyone is actually built to handle that for some people, Yeah, they cannot handle it at all. (Rad 10)

Imaging deceased infants was particularly traumatic. One participant had shared an extreme traumatic response to having to image a deceased infant:

"Imaging a deceased infant was extremely traumatic for me. I completed the imaging but could not return to the room afterwards, and my colleague had to remove the body from the scanner. I requested to go home and was traumatised for a long time." (Rad 6)

Coping mechanisms

Personal resilient spirit was evident in the following quotes:

You need to brace on and be strong and continue to work. (Rad 14)

The whole process is traumatising for us radiographers but you need to be bold and go in there and do all the stuff because you are not just working with the patient, you are working with a corpse. (Rad 5)

Some were able to cope when provided with professional help:

I think you adjust to it after a while, and we had debriefing situations, and they were counsellors for us to speak to, but after a while, you know, in general, most cases you, you do get used to it." (Rad 7)

A need for anxieties and emotional discomfort to be acknowledged by colleagues and management was requested:

"When a deceased person comes for a forensic scan, they are often not in a good state [decomposed], *and not everyone can handle that. I feel that only people who can handle the pressure of doing such studies should be allowed to do them."* (Rad 9)

Everybody should get that training and those who have more interest in that should be appointed as radiographers who do post-mortem. But of course, alternate or get turns to do it. Otherwise, to be honestly, it's quite, an ambivalent feeling you know it's a mixed feeling (Rad 13)

Theme 4: attitudes and motivation

Positive attitudes

Several participants found forensic imaging professionally stimulating and meaningful, highlighting their contribution to justice:

Exhilarating or refreshing to know that you've helped someone. A family member learns more information and help about the closure of a loved one's passing because you're radiation [radiographer] *with the X-rays that you took of the deceased patient helped in a certain degree of determining what happened to the patient and bring some closure.* (Rad 11)

But it's a very interesting field to work in and I'm very grateful that I got that experience because I think it's made me a better diagnostic radiographer overall. And yeah, I really learned a lot. (Rad 7)

For some, the experience sparked curiosity about potential career pathways in the field.

… it was an interesting experience and it triggered some interest to know like is there any, you know, available jobs for this or whatever? (Rad 15)

Negative attitudes

There was some reluctance and resistance, particularly concerning deceased imaging:

The HPCSA is not specific enough for me. The way I understand it, they were not really specific enough to say the term medico-legal broadly covers a wide range of scenarios and situations that can come into the radiology department. Yes, I do agree that a radiographer should have the skill to acquire images. But I don't agree with that [having to imaging the deceased] *…. You get compensated because right now, I feel like it's a form of abuse.* (Rad 6)

Strong opinions were expressed that imaging of the deceased should be undertaken in X-ray departments with appropriate X-ray equipment rather than general X-ray departments.

Normally, like the one encounter that I had was during a night shift, they wanted an X-ray on [a deceased patient]. *Since we didn't know what to do, we refused, saying that we were not supposed to perform that examination. Such cases should rather be handled in the forensic department, since I have seen that many forensic departments have Lodox machines for deceased patients."* (Rad 9)

Discussion

This study revealed that diagnostic radiographers in a single metropolitan area hold varied and sometimes limited understandings of forensic radiography. While participants generally recognised its medico-legal purpose, many associated it exclusively with imaging of the deceased, overlooking its application in cases involving the living, such as trauma, assault, or non-accidental injuries. This inconsistency reflects broader ambiguity within South African practice, where the HPCSA scope of profession includes medico-legal imaging but does not clearly distinguish between ante-mortem and post-mortem contexts. Similar gaps in understanding have been reported internationally, suggesting that radiographers' knowledge of forensic radiography is often shaped by informal learning and workplace exposure rather than structured education.[16,17] These findings underscore the need for clearer professional definitions and curriculum integration to align radiographers' conceptual understanding with their legal and clinical responsibilities.

Participants identified significant gaps in forensic radiography education. Most reported limited undergraduate exposure, often restricted to theoretical concepts. Brief introductions to medico-legal documentation were insufficient to prepare them for practice, and some were taught that imaging the deceased was beyond their professional scope, reinforcing a divide between clinical and forensic roles. Similar trends were noted in Nigeria, where radiographers gained forensic skills through informal mentorship and on-the-job experience due to a lack of structured training.[16] Furthermore, in Korea, radiographers lacked forensic knowledge despite recognising its importance.[17]

Radiographers need to understand the imaging of every living patient is a potential medico-legal case.[2,7,18] They are meant to be observant for referrals and patient clinical presentations that are suspicious for medico-legal implications.[2,7] They should be able to follow the correct record-keeping and produce appropriate imaging views when patients are referred specifically for known medico-legal purposes.[2]

The imaging of the deceased remains contentious in terms of who should undertake the procedure, that is, whether it falls within the duties of all diagnostic radiographers or should be reserved for specially trained forensic radiographers.[19,20] The IAFR recommends forensic radiographers (examining the living and deceased) be state-registered professionals with postgraduate education or recognised competence.[2] Continued professional development (CPD) activities and forensic guidelines for living and deceased, were frequently cited as key learning tools, though self-directed learning could not fully replace formal training.[7] In this study questions also persist where imaging should occur, in general x-ray departments or specialist facilities attached to the mortuary. The conundrum when there is neither specialist training in place nor specialist facilities, the general radiographer is confronted with having to undertake imaging.[21,22] In Ghana, fear of cadavers, inadequate training, and inexperience contributed to reluctance in forensic practice.[22] Furthermore, in Australia, radiographers viewed forensic imaging as outside their scope without training and support.[21] A system needs to be in place to train and mentally prepare radiographers to undertake imaging of the deceased, given that it is part of their scope of practice.[23]

This study revealed that radiographers have unknowingly performed forensic examinations when imaging the living. There appeared to be an absence of standardised protocols for managing imaging of the deceased in radiology departments. Without clearly defined protocols, this cannot be reliably achieved.[1,2,7] Participants reported situations where they were called for mobile imaging and only discovered on arrival that the patient was deceased. Multidisciplinary protocols are essential to ensure both radiographers

and referring practitioners adhere to legal and ethical requirements in such cases.[2] Proper preparation would enable radiographers to complete necessary documentation, preserve evidence integrity, and approach the examination with mental readiness, thereby ensuring high-quality imaging as required by the HPCSA.[3,7,23]

A significant finding of this study was the profound emotional impact radiographers experienced when imaging deceased individuals, particularly infants. Participants described these encounters as distressing and, in some cases, traumatic, with several recalling lingering images and difficulty returning to work immediately after such examinations. Many adopted a "soldiering on" approach to cope, while others sought counselling or peer support. This emotional strain highlights the lack of structured psychological support within clinical departments. Similar experiences have been reported internationally, where radiographers involved in forensic and mass fatality imaging exhibited post-traumatic stress symptoms.[8] These findings underscore the importance of institutional support mechanisms, such as debriefing and rotation systems, recommended by the Society of Radiographers (2014).[24] Ensuring that participation in forensic imaging remains voluntary, as participants in this study advocated, may further safeguard practitioners' psychological well-being, echoing the recommendations of Walsh et al. (2004), Davis and Reeves (2005), and Smith et al. (2022).[20,21,25]

In this study, positive attitudes towards forensic radiography aligned with Davis and Reeves' (2005) findings, where radiographers felt a duty to serve patients or bereaved families.[25] Contributing to justice was described as rewarding, fostering self-accomplishment and higher productivity.[26] However, radiographers compelled into this role often develop negative attitudes, particularly if untrained or uncomfortable with such work. Imposing emotionally distressing examinations without proper training risks resistance and dissatisfaction. IAFR recommends that radiographers undertaking forensic imaging should be trained and participation remain voluntary.[2]

Conclusion

It demonstrated that forensic radiography is a complex and emotionally demanding domain that intersects clinical and legal responsibilities. The findings revealed significant variability in radiographers' knowledge and preparedness, often shaped by limited undergraduate exposure, informal on-the-job learning, and inconsistent institutional support. While many participants recognised the value and professional fulfilment of contributing to justice, others expressed apprehension and emotional distress, particularly in cases involving deceased individuals.

Limitations of the study

This study was limited to radiographers in the Tshwane metropolitan area of South Africa and provides a narrow view of forensic radiography in South Africa and does not reflect the broader national context. Furthermore, purposive and snowball sampling enabled the recruitment of radiographers with direct experience in forensic imaging, these methods may have introduced selection bias, as those with stronger opinions or greater interest in the topic may have been more inclined to participate. Although the study adhered to recognised principles of qualitative rigour, it did not formally align with a specific reporting framework, which may be viewed as a limitation. Perspectives were limited to diagnostic radiographers, excluding insights from radiologists, forensic pathologists, and legal professionals.

Recommendations

The use of the term "forensic radiography" needs to be clarified in terms of whether imaging of the living or the deceased is being referred to.

These insights underscore the urgent need for structured education, clear forensic imaging protocols, and robust psychological support mechanisms to ensure radiographers are adequately prepared to perform their roles competently and confidently imaging of the deceased. Establishing formalised postgraduate training, while maintaining voluntary participation in forensic imaging, would be an important step towards fostering resilience and professional excellence in this emerging field.

Greater clarity in the HPCSA scope of practice regarding forensic imaging is required. Although guidelines exist, questions remain around the *"who, where, and how"* of implementation. While specialisation remains the ideal, particularly in line with international practice, the South African context especially within resource-limited government hospitals necessitates the development and implementation of clear management strategies for conducting imaging of the deceased within general hospital settings.

Follow-up quantitative data collection is recommended to support and strengthen the findings of this study, providing broader generalisability and enabling comparison across different healthcare settings and radiographer populations.

Ethics approval and consent to participate

Ethical approval for this study was obtained from the University of Pretoria, Faculty of Health Sciences Research Ethics Committee (reference number 697/2022).

Written informed consent was obtained for anonymised patient information to be published in this article.

Availability of data

Data required for this study may be made available by the author(s) upon reasonable request.

Author contributions

LAG: Writing Reviewing and Editing.
GL: Supervision.
NN: Conceptualisation, Methodology, Formal Analysis; Investigation.
NM: Conceptualisation, Methodology, Formal Analysis; Investigation.
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Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used ChatGPT in order to assist with spelling and grammar. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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