Radiography 25 (2019) 178–185

Contents lists available at ScienceDirect

Radiography

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

Review article

Image interpretation by radiographers in South Africa: A systematic review

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ARTICLE INFO

Article history:
Received 31 July 2018
Received in revised form
13 December 2018
Accepted 17 December 2018
Available online 2 January 2019

Keywords:
Task-shifting
Role extension
Radiographer reporting
Red dot system
Scope amendment

ABSTRACT

Purpose: To determine the current knowledge on the accuracy, experiences, influence of training, and potential impact on patient management of image interpretation/reporting by South African diagnostic radiographers.
Key findings: The majority of reviewed studies focussed on determining the accuracy of radiographers' ability to interpret radiographic images of the skeleton, chest and computed tomography scans of the head. One focussed on exploring and describing the reporting experiences of radiographers and medical practitioners. The findings of the studies cannot be generalised to all diagnostic radiographers in South Africa but are similar to reports within the international literature.
Conclusion: The findings of this South African focused review are comparable to the international literature. Formal image interpretation by radiographers can significantly contribute in clinical practise regarding patient management. Policymakers should develop appropriate educational programmes. They should start discussing the role boundaries of radiographers that take up this role in the clinical environment.

Introduction

There is a two-tiered health system in South Africa that comprises public and private sectors, respectively. The former serves more than 80% of the population. The government is moving towards implementing a national health insurance system (NHI) similar to the national health service (NHS) in the United Kingdom (UK). The South African health system is faced with a quadruple burden of disease: HIV/AIDS and tuberculosis (TB); high maternal, neonatal and child morbidity and mortality; a rising burden of non-communicable disease; and high levels of trauma and violence.[1] Compounding this is the great disparity between the available healthcare professionals and the workload burden they face; an increasingly universal problem.[2] Taking into account radiology services alone, currently there is a universal shortage of radiologists to handle the practise changes effectively brought about by technological advances of various digital imaging modalities. This leaves many radiographic images unreported, or there are delays in reporting surpassing international guidelines of what is regarded acceptable reporting time parameters.[3–7] Lack of reporting of radiographic images can contribute to ineffective patient diagnosis, management or even misdiagnosis and/or mismanagement of patients.[5,7] Hence it is not unreasonable to argue that there is an ethical obligation for policymakers to find new alternatives to traditional practises to ensure that patients receive quality healthcare services and that mortality and morbidity rates are reduced by managing patients appropriately. Even more so with the envisaged implementation of the NHI in South Africa, which would need more health professionals to provide these healthcare services to the population, since the availability and use of resources were found to have a direct effect on the quality of healthcare services provided.[8]

One way to counter and alleviate the burden crippling the healthcare system relative to radiology, is that of radiographer-led immediate image interpretation and reporting or commenting. This is because the current red dot system used in South Africa is

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https://doi.org/10.1016/j.radi.2018.12.012
1078-8174/

voluntary and non-specific, which fails to guide clinicians in making more definite clinical decisions in diagnosing, managing and treating patients. Hence, a more definite strategy should be utilised.

Globally, the growing body of evidence, based on empirical studies, attests to the fact that radiographer-led reporting and/or image interpretation contributes positively to patient management, decreases patient waiting times and costs, and ensures patient safety.[9–11] Findings show that radiographers can detect abnormalities on radiographic images comparable to radiologists, and better than other health professionals in the absence of a radiologist; however, evidence shows that intensive education and training pertaining to image interpretation and reporting is required in order for radiographers to produce reports of optimal accuracy, sensitivity and specificity.[12–16] Lancaster and Hardy[17] explored the opportunities and barriers that exist in terms of the implementation of image interpretation and reporting by radiographers. Opportunities pertained to improving professional profile and greater professional contributions to decision-making in the patient management pathway. In contrast, the identified barriers included lack of time, rapid advancement of technology, lack of confidence and education and training. It was concluded that although radiographers have a general positive attitude towards radiographer reporting, they felt that it should not be made compulsory for all radiographers to take on this role.[17]

In South Africa, image interpretation and reporting by radiographers have yet to be formalised. Currently, the only formalised education and training exposure students get in the four-year undergraduate professional degree relates to mainly pathological conditions and, to a lesser extent, normal variants and in-depth pattern recognition. The statutory body is currently reviewing the regulations defining the scope of the profession of radiography to include, amongst others, formal image interpretation and comment by radiographers with the proviso that such radiographers undergo postgraduate training. The current statutory regulations stipulate that a radiographer who performed the examination can provide a voluntary, verbal opinion to the referrer.[18] This does not account for shift changes and patient handover, which by implication could have consequences for the continuity of care of the patient as well as the willingness of radiographers to provide voluntary opinions on radiographic images to aid clinicians' decisions.

This systematic review, therefore, aims to determine the current, empirical body of knowledge available on the accuracy, experiences, influence of training, and (potential) impact, on patient management of image interpretation/reporting by diagnostic radiographers in South Africa. To the knowledge of the authors this is the first study of its kind focused on a South African context. Such a report is an important step to inform current policy developments, as a systematic review can provide an overview of evidence available in the field and identify gaps needing to be addressed to inform evidence-based practise or validate current practises, since an emerging profession such as radiography has a legal obligation to rationalise the conduct and behaviours of its practise.[19]

Methods

The following healthcare-related databases were searched for literature, without a restriction on the year of publication: Biomed Central, Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and PubMed. An additional manual search was conducted on Google Scholar to ensure that all relevant literature was sourced through the accessible means by the researchers. The keywords used to facilitate the search were variations of: radiographer, reporting, effectiveness, experiences, impact, image interpretation, training and South Africa. Also used was Boolean logic operators 'OR' and 'AND' to ensure that a sufficiently focussed search was done, but at the same time not unintentionally excluding potential literature that could possibly meet the eligibility criteria.[20]

Articles were included in this review if they were original English language research articles conducted in South Africa. The main participants/respondents had to be radiographers in each study, but other healthcare professionals could have also been participants/respondents in addition to radiographer participants/respondents. Furthermore, the studies had to focus on the following: accuracy, experiences, perceptions, influence of training, and (potential) impact on patient management of image interpretation/reporting performed by diagnostic radiographers; for any imaging modality. Lastly, image interpretation or reporting by radiographers could also have been referred to as the red dot system or detecting abnormalities. Exclusion criteria were non-research-based and non-English language articles, and if the main participants/respondents were health professionals other than radiographers.

The main author (RVDV) conducted the literature search, reviewed the titles and abstracts, removed duplicates, and identified papers that met the eligibility criteria. The second author (WtHB) conducted an independent review of the identified papers to ensure that they met the eligibility criteria. A consensus meeting was held, and both agreed that the identified papers met the eligibility criteria. Thereafter, both did an independent critical appraisal of the identified papers. Critical appraisal was conducted using two different tools due to the heterogeneity of the research designs of studies included in this review.

The critical appraisal skills programme (CASP) checklist for making sense of qualitative research was used for one qualitative study; it was the only qualitative study included in this review.[21] The quality assessment of diagnostic accuracy studies (QUADAS) critical appraisal tool was used for quantitative and mixed-method studies; they all assessed radiographer accuracy pertaining to image interpretation and comment.[22] The CASP tool checklist has 10 questions and the QUADAS tool checklist has 14 questions. All the questions on both tools had three options, *'yes'*, *'can't tell'*/*'unclear'* and *'no'*. If the answer to a question on the checklist of each tool was *'yes'*, the article scored 1 for that aspect; if an answer to a question was *'no'* or *'can't tell'*/*'unclear'* the article scored 0 for that aspect. In some articles comprehensive descriptions were not given for all aspects, but if mentioned the article scored ½ for that aspect.

If an article had a CASP score of <6, or a QUADAS score of <9, the article was excluded from the review, as the researchers wanted to use strong evidence to present the current South African perspective on image interpretation and reporting by radiographers. They held a consensus meeting to reach agreement with regard to the critical appraisal of the articles and to determine a final score allocation (Table 1). The final score was determined after each had provided background and a rationale of how they came to their score, as well as discussing any disagreement between them until consensus was reached.

After the critical appraisal, data extraction was performed on the articles that met all the criteria for inclusion into the analysis. Data extraction was undertaken using a self-developed template using MS Excel (Microsoft Corp, Redmond, WA) by the main author (RVDV). The second author (WtHB) confirmed that all details relevant to the aim were extracted.

Results

The literature search results are summarised using the preferred reporting items for systematic reviews and meta-analyses (PRISMA) flowchart (Fig. 1).[23] A total of 892 articles were

Table 1
Content focus and critical appraisal scores of the articles included in this systematic review.

Authors	Year of publication	Content focus	Critical appraisal tool used	Score of researcher 1	Score of researcher 2	Consensus score of both researchers
Brandt, Andronikou, Wieselthaler, Louw, Kilbron, Dekker, Bertelsman & Dreyer	2007	Accuracy	QUADAS	12	12	12
du Plessis & Pitcher	2015	Accuracy	QUADAS	11	11	11
Gqweta & Naidoo	2014	Accuracy	QUADAS	10	10	10
Hazell, Motto & Chipeya	2015	Accuracy and Impact of training	QUADAS	11	11	11
Hlongwane & Pitcher	2013	Accuracy	QUADAS	10	11	11
van de Venter, du Rand & Grobler	2017	Experiences	CASP	9.5	9	9

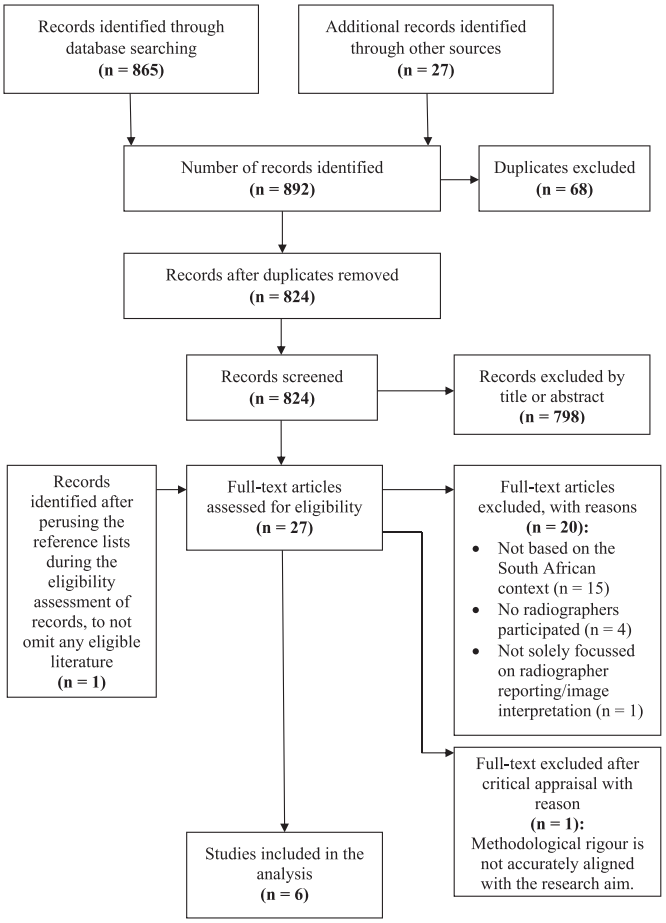

Figure 1. Summary of searching for literature to include in the analysis using the PRISMA flow chart (2009).

retrieved during the literature search. After removing all the duplicates and applying the eligibility criteria to the abstracts, titles and full-texts resulted in seven (n = 7) articles remaining for review. These seven articles were critically appraised. Six (n = 6) had a CASP/QUADAS score greater or equal to six or nine, respectively. The remaining article was excluded as it did not meet the CASP/QUADAS score cut-off for inclusion. Hence the quality of the articles included in this review were high (mean QUADAS score = 11 ± 0.7071; mean CASP score = 9). The levels of evidence included in this study ranged between levels IV (n = 4), V (n = 1) and VI (n = 1). Table 2 provides a summary of the articles analysed.[24–29]

A population of 88 participants (n = 88) was involved in the studies included in this review, of which 76 (n = 76) were radiographers. The non-radiographer participants were medical doctors (n = 12). There was great variation in the clinical experience of participants' in the six studies included in this review (range 2–30 years). Similarly, the studies' respective sample sizes also varied. For example, the study by Brandt et al.[24] had the smallest sample size of participants (n = 2); the study by Gqweta and Naidoo[26] had the most participants (n = 41). The majority of the studies (n = 5) were conducted in the last six years.[25–29] Half of the studies (n = 3) were conducted in the Western Cape Province.[24,25,28] One study was conducted in each of the respective provinces: Eastern Cape,[29] KwaZulu-Natal,[26] and Gauteng.[27] All studies (n = 6) were undertaken in public sector healthcare establishments.[24–29] Four studies (n = 4)[24,25,27,28] were purely quantitative by design. One (n = 1) was a mixed-method,[26] and one (n = 1) was qualitative.[29] Although Gqweta and Naidoo[26] used a checklist, they qualitatively thematised the written comments about the radiographic findings in describing the abnormality.

The anatomical area and imaging modalities of focus in the studies predominantly focused on projection radiography of the musculo-skeletal system (n = 3),[25,27,28] followed by projection radiography of the chest (n = 1),[26] and computed tomography of the brain (n = 1).[24] In terms of patients' ages, half of the studies (n = 3) focussed on both adult and paediatric patients[25,27,28]; one study (n = 1) only focused on adults[26]; and one focused on paediatrics (n = 1).[24] The study by van de Venter et al.[29] did not focus on a specific anatomical area, imaging modality or patient age. It instead focussed on the experiences of radiographers and medical practitioners regarding reporting of after-hours trauma radiographic images.

Considering the test banks of radiographic images used, great variation was also noted, with the largest test bank consisting of 369 (n = 369) radiographic images, and the smallest of 10 (n = 10). Table 1 provides an overview of the content focus of each study included in this review.[24–29]

Accuracy of image interpretation and comment by radiographers and the influence of training

Five studies (n = 5)[24–28] had accuracy determination of image interpretation by radiographers as a focus. One study (n = 1) included medical doctors as participants and compared their performance with that of radiographers.[25] One (n = 1) included the influence of training on accuracy.[28] Furthermore, two studies (n = 2) required participants to provide a written report/comment to describe the radiographic findings using correct terminology.[26,27] Participants in the study by Hazell et al.[27] were required to state the abnormality present and its location. Whereas the study by Gqweta and Naidoo[26] required participants to do the following: state whether the image was normal or abnormal; describe the abnormality; state the location of the abnormality; and state the mostly likely diagnosis based on the radiographic appearances. These responses were then thematised into partial (incomplete) descriptions, absence of descriptions, use of appropriate

Table 2
Article characteristics included in the review.

Authors	Year	All participants (n)	Radiographer participants (n)	Non-radiographer participants (n)	Radiographs used in the study (n)	Reference standard (n)	Patient type (n)	Anatomy of focus	Imaging modality	Context of study	Research design	Level of evidence
Brandt, Andronikou, Wieselthaler, Louw, Kilbron, Dekker, Bertelsman & Dreyer	2007	2	2	n/a	100 (95)	consultant radiologist (1)	Paeds (100 (95))	Brain	CT	1 Public sector, tertiary paediatric hospital in the Western Cape province (WCP)	Prospective, quantitative	IV
du Plessis & Pitcher	2015	17	9	8	40	consultant radiologist (3)	Paeds (10) Adults (30)	Appendicular skeleton	Plain film	1 Public sector, accident & emergency unit in the WCP	Prospective, quantitative	IV
Gqweta & Naidoo	2014	41	41	n/a	10 (9)	consultant radiologist (3)	Adults (10 (9))	Chest	Plain film	Public sector health stablishment in a specific district of KwaZulu-Natal province	Mixed-Methods	V
Hazell, Motto & Chipeya	2015	9	9	n/a	100	consultant radiologist (1)	Paeds and Adults	Appendicular) and axial skeleton (Spine & pelvis only)	Plain film	Public sector hospitals in the Gauteng province	Single group pre- and post-test, quantitative	IV
Hlongwane & Pitcher	2013	9	9	n/a	369	consultant radiologist (1)	Paeds (64) Adults (190)	Appendicular skeleton and Axial skeleton	Plain film	1 Public sector, regional hospital in the WCP	Retrospective, quantitative	IV
van de Venter, du Rand & Grobler	2017	10	6	4	n/a	n/a	n/a	n/a	n/a	2 Public sector after-hours trauma units, Eastern Cape province	Qualitative – exploratory, descriptive, contextual	VI

radiological terms, vague descriptions and/or inaccurate descriptions. The reference standard used was mainly the report of a single consultant radiologist (n = 3).[24,27,28] Two studies used a consensus radiologist report of three consultant radiologists (n = 2).[25,26] The accuracy of the participants was assessed using a variety of methods and are depicted in Table 3 together with the subsequent overall results.[24–28] The results reveal that South African radiographers, without formal training in image interpretation and reporting, interpret images with relatively high accuracy, but do not necessarily provide a full and accurate written account of the radiographic findings. Furthermore, the study by Du Plessis and Pitcher[25] demonstrated that radiographers interpret radiographic images with a greater degree of accuracy compared to medical doctors (i.e. general physicians working in the accident and emergency setting). In addition, Hazell et al.[27] showed that training does positively impact on radiographers' ability to interpret radiographic images and to provide a written account of the radiographic findings.

Experiences of image interpretation and commenting by radiographers

Only one study focussed on the experiences of radiographers pertaining to image interpretation.[29] The study also included medical doctors as participants. This was a qualitative exploratory, descriptive and contextual study that utilised semi-structured, in-depth interviews to gather data from 10 participants: six radiographers (n = 6) and four medical doctors (n = 4) (i.e. general physicians working in the out-of-hours accident and emergency setting). The radiographers alluded to the fact that the statutory regulations defining the scope of the profession are the main barrier to interpretation of radiographic images. Another challenge mentioned relates to lack of radiologists to report on radiographic images and lack of senior medical doctors to help junior doctors with interpretation out-of-hours. Radiographers therefore assist when they are asked to in order to reach a possible diagnosis in lieu of facilitating appropriate patient management. However, radiographers did perceive a power imbalance with medical doctors. This perception makes radiographers reluctant to aid medical doctors with image interpretation. Contributing factors to these challenges experienced by radiographers are their self-perceived lack of confidence and feelings of not being adequately trained, as well as being held liable for mistakes. Being mindful of the challenges experienced by radiographers they suggested formal training as a solution, and, by implication amendment of the regulations defining the scope of the profession of radiography to include formal image interpretation and reporting by radiographers. Medical doctors in this study affirmed the preceding assertion by radiographers; they both agreed that collaboration between radiographers and medical doctors related to image interpretation does benefit the patient in the end.

Potential impact of radiographer-led image interpretation and reporting in the clinical environment

The conclusions of the studies (n = 6) in this review allude to the fact that adequately trained radiographers in South Africa can play a significant role in image interpretation, by providing immediate written interpretations of radiographic examinations, to facilitate positive patient outcomes in the clinical environment.[24–29]

Discussion

A contextualised systematic review was performed with a focus on the South African context. Six (n = 6) high quality articles that

Table 3
Methods used to assess participants' accuracy and overall results.

Authors	Methods used to assess accuracy	Overall accuracy	Overall specificity	Overall sensitivity
Brandt, Andronikou, Wieselthaler, Louw, Kilbron, Dekker, Bertelsman & Dreyer	• Prescribed tick sheet • Hardcopy CT films of the head. • Tick off whether normal or abnormal and identify abnormality. • Test bank had 100 images but 5 excluded Identification whether examination is normal or abnormal • Radiographer 1 • Radiographer 2 Identification of significant abnormalities • Radiographer 1 • Radiographer 2 Identification of insignificant abnormalities • Radiographer 1 • Radiographer 2	 89.5% 89.5% 75% 48.6% 62.5% 37.5%	 91.3% [95% CI 83–99%] 82.6% [95% CI 72–94%] 86.8% [95% CI 76–98] 44.7% [95% CI 29–61] 88.2% [95% CI 77–99] 23.5% [95% CI 9–38]	 87.8% [95% CI 79–97%] 96% [95% CI 90–101%] 61.6% [95% CI 45–78] 52.9% [95% CI 36–70] 39.5% [95% CI 24–55] 50% [95% CI 34–66]
du Plessis & Pitcher	• Digital radiographic images of the appendicular skeleton – standard diagnostic-quality radiology workstations • Accident and emergency setting • 30 s to evaluate each image • Participants did not receive the clinical history • Indicate whether an abnormality is present on an image or not. • Test bank had 40 images • **Results:** • Radiographers • Medical doctors	 81.5% 67.8%	 65.0% 65.5%	 86.3% 68.7%
Gqweta & Naidoo	• PA CXR digitally projected • Each session 60 min • 5 min per image to evaluate and interpret • No clinical history provided • Prescribed reporting template provided • Test bank 10 images	79%	71%	83%
Hazell, Motto & Chipeya	• Hardcopy musculoskeletal films used • 50% abnormal • Prescribed data sheet used • Answers assessed as correct, partially correct or incorrect. • 90 s to view each image • Used educational intervention • Test bank had 100 images	Pre-test 71.04% Post-test 78%	Pre-test 59.62% Post-test 70.34%	Pre-test 83.73% Post-test 87.28%
Hlongwane & Pitcher	• Trauma setting • Assessed presence or absence of red-dot and correlated with presence or absence of fracture • Digital images on radiologist workstation • Musculoskeletal images • Test bank had 369 images	Not calculated	99.6%	74.4%

met the inclusion criteria were identified in terms of describing the available current, empirical body of knowledge that focussed on the accuracy, training, experiences and impact that image interpretation by mainly radiographers. Two studies (n = 2) included medical doctors as participants. Although the studies provide valuable contextual information, their respective sample sizes were small thus their findings cannot necessarily be generalised to the wider South African radiographer population. The studies were conducted in four of the nine South African provinces. These studies, together give a consensual image, albeit limited, across these four geographical areas regarding the impact that radiographer-led reporting can have in the clinical environment pertaining to image interpretation and reporting. The studies included in this review are skewed to four out of nine provinces because other South African studies did not meet all the inclusion criteria for of this systematic review, or their focus was not entirely on image interpretation. For example, the following studies by Williams,[30] Kekana et al.,[31] Gqweta.,[32] and Williams.[33]

Given the context of the individual studies, the methodology used, participants included, and imaging modality focussed on, one should account for possible confounding variables that may have influenced the results of the various studies. Literature recognises that reader variability (e.g. knowledge, practise, context, concentration, optical illusion), technical errors (positioning, exposure, collimation, artefacts), perception errors (distortion, edge enhancement, structured noise and visual overload) and analysis errors (over or under-interpretation, bias, lack of information) impact on an individual's ability to interpret an image.[34,35] The authors consider the following to have impacted on the accuracy results presented in the various studies: the vast range of experience of the participants in the various studies (between 2 years and 30 years); the small sample size of participants; and some test banks. Three studies (n = 3) accounted for being representative of the patient types that would be encountered in the various contexts in which the studies were done. However, the study by Gqweta and Naidoo[26] only used a test bank of ten (n = 10) postero-anterior chest radiographic images. It is argued that this test bank number is not sufficient to be representative of a true clinical setting. Similarly, the study by Hazell et al.[27] used a test bank that was more experimental in nature as opposed to a true representative sample of the clinical setting. The anatomical (body) area included in each study may also have impacted on the accuracy of radiographer interpretation. A similar finding was found in a 2006 systematic review done by Brealey et al.[36] The participants in all of the studies (n = 6) reviewed did not have postgraduate education or specific training that focussed intensively on image interpretation and reporting. The authors therefore do not consider this to be a confounding variable that should be considered. In addition, the terms image interpretation and reporting seem to be used interchangeably, yet they are different. All the studies (n = 6) focussed on preliminary image interpretation and triage opposed to providing formal, final written report. It therefore appears that there is a need for a consensus on the content meaning of these concepts in the South African radiography system. A grey area in literature is the interchangeable use of the red dot system, image interpretation and reporting when determining radiographer accuracy. This needs clarification to set the boundaries for radiographer role progression in the realm of image interpretation to not cause either intrusion on another professional's scope or role confusion. The Society and College of Radiographers (SCoR) notes that medical image interpretation by radiographers in the UK includes a report of the findings as an endpoint.[37] Given this view of the SCoR, it would be appropriate in the South African context to adopt such a definition for the envisaged amendment of the statutory regulations defining the scope of diagnostic radiographers in South Africa.

Keeping the preceding contextual information in mind let us then turn our focus to the results themselves and their comparability to the international body of knowledge. One study revealed that radiographers interpret radiographic images more accurately compared to medical doctors.[25] This finding supports a similar finding in three UK-based studies where radiographers performed statistically higher than the participating nurse practitioners and casualty doctors in both plain film and head computed tomography.[12,38,41] The overall accuracy of radiographers in the studies included in this systematic review demonstrates that the findings are similar to international studies in which radiographers also did not have previous formal postgraduate training in image interpretation.[28,16,39] Studies also allude to the fact that the levels of accuracy demonstrated by radiographers are comparable to consultant radiologists when considering plain film radiography and head CT.[24,40,41] The growing recent body of evidence in South Africa, and internationally, in terms of the impact of training on the accuracy of radiographers' image interpretation also demonstrates a definite enhancement of accuracy of radiographers following training.[27,41–43] Considering plain-film chest radiography, a recent study by Woznitza et al.[14] demonstrated that radiographers who undergo appropriate postgraduate education and training can interpret chest radiographs to similar accuracy levels of radiologists.

The only qualitative South African study in this systematic review provides important knowledge that highlights potential barriers and opportunities regarding image interpretation by radiographers in South Africa as well as the benefits that collaboration between radiographers and medical doctors in the trauma setting have pertaining to patient management.[29] This qualitative study is in accord with findings in international studies.[17,44,45]

In summary, considering the reviewed international evidence and its comparison with the limited findings of the South African knowledge base on image interpretation and commenting by radiographers, it appears that there are similarities. The main theme that the reviewed literature illuminates is that radiographers taking on the formal image interpretation role must be adequately and appropriately trained to make a significant contribution within clinical practise. In addition, effective use of available resources in a resource-constrained environment, such as the South African healthcare system, is a more cost-effective alternative to traditional practises. It is therefore not unreasonable to argue that similar initiatives implemented in the NHS in the UK could potentially be beneficial within the South African context. This argument is placed within the context of a shortage of public sector human resources in the South African healthcare system. Such a shortage has resulted in many unreported radiographic examinations as indicated above.

Limitations and their impact on the study

The studies included in this review are only primary research with radiographers as the main participants. There are however other studies in South Africa as well as non-research sources on the topic of focus. The arguments and findings are however similar to the findings of the studies in this review.[30–33] In addition, one study was excluded from the review because it had a CASP score less than six and this study, although conducted in the primary healthcare context, reports on similar experiences to the study by van de Venter et al.[29] The inclusion of English-language articles only with radiographers as main participants with other health professionals as ancillary participants could have resulted in other studies being excluded that may have provided more information on the topic at hand. Perhaps more importantly is the fact that the few studies conducted thus far in South Africa are generally very

small and therefore only limited generalisable inferences can be made from them to the greater South African and international radiographer populations. Therefore, inferences were made being mindful of this and are confined to the context.

Recommendation and conclusions

The body of knowledge in South Africa on image interpretation by radiographers is very limited and skewed to four of the nine geographical provinces. Therefore, no generalisations are possible. There are similarities between the South African and international literature. Similar interventions implemented in the NHS may be appropriate for the South African context. Literature highlights that radiographers taking on this role must be appropriately and adequately trained, preferably at postgraduate level. Furthermore, radiographer-led reporting in clinical practise is a viable alternative option to curb the crippling burdens facing the South African healthcare system.

Therefore, to facilitate appropriate patient management and treatment, considering the role of radiology in practise, the statutory regulations defining the scope of radiographers should allow for formal image interpretation by diagnostic radiographers, as they possess basic knowledge to contribute significantly in the clinical environment in interpreting images. However, formal, intensive educational programmes are required as well as role clarifications regarding the practise of radiographers taking up an image interpretation role in the South African context. It is further recommended that greater multi-centre studies should be conducted across South Africa to provide generalisable findings to provide rigorous national data to inform evidence-based practise.

Conflict of interest

The authors have no conflict of interest to declare.

Acknowledgement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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