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Published in:
Radiography

DOI:
[10.1016/j.radi.2023.10.008](https://doi.org/10.1016/j.radi.2023.10.008)

Publication date:
2024

Document version:
Final published version

Document license:
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Citation for pulished version (APA):

Pedersen, M. R. V., Jensen, J., Gale, N., Senior, C., Woznitza, N., & Heales, C. J. (2024). Reporting radiographers in Europe survey: Support, role satisfaction, and advanced clinical practice within the European federation of radiographer society (EFRS) member countries. *Radiography*, *30*(1), 87-94.
<https://doi.org/10.1016/j.radi.2023.10.008>

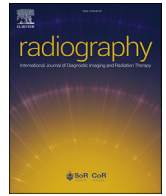
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Reporting radiographers in Europe survey: Support, role satisfaction, and advanced clinical practice within the European federation of radiographer society (EFRS) member countries



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ARTICLE INFO

Article history:

Received 28 June 2023

Received in revised form

6 October 2023

Accepted 9 October 2023

Available online 21 October 2023

Keywords:

Reporting radiographers

Survey

EFRS

Advanced practice

ABSTRACT

Introduction: Increasing number of radiographers are undertaking image reporting throughout Europe. However, there are variations in practice and experience in European countries. The study aim was to investigate reporting radiographer's perceptions in relation to support for their role and workload satisfaction and elements of advanced practice that may also be undertaken.

Methods: Following institutional ethical approval an online 34 item questionnaire survey was circulated via social media; Twitter, Facebook, and LinkedIn in a 12-week period in 2022 across Europe. The survey data were managed by the online secure database REDCap (Research Electronic Data Capture). Data was collected across a range of questions, of which those relating to support for, and barriers to radiographer reporting, role and job satisfaction, and other role elements are reported here.

Results: A response level of 345 individual reporting radiographers replied to the survey from 15 European countries; some questions were optional and therefore had a lower response rate. There was consensus about the need for support from radiologists and management, protected time, and funding to support the reporting role. The majority of respondents received additional pay for taking on this role and expressed satisfaction with their role and workload. In relation to elements of advanced practice, the majority of respondents were involved in educational and managerial activities, and there was interest, but limited involvement, in research.

Conclusion: There was a consensus about the support needed, and perceived barriers to, radiographer reporting, between reporting radiographers from different countries. Whilst there is some commonality in relation to activities such as supervision and education, there was clearer variety in relation to opportunities for research between the respondents, perhaps reflecting the differences between reporting as a standalone role development and reporting as part of an advanced clinical practice role.

Implications for practice: As there is increasingly an emphasis on advanced clinical practice, reporting radiographers are likely to require support to develop their skills so that they can actively participate in the broader activities associated with this role, including education, leadership, and research.

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Introduction

Radiographer reporting throughout Europe has a long history that varies by country. In the United Kingdom (UK) radiographers being able to issue reports for ultrasound opened the door for reporting by radiographers in other modalities¹ although this took a period of time to become established. Feedback systems such as 'red dot' were implemented initially in the mid-1980s,^{2,3} the first study demonstrating the effectiveness of radiographer reporting following in-house training was reported in 1994,⁴ and the move to formal higher education qualification came soon after.⁵ Generally speaking, radiographer reporting is less well established outside of the UK⁵ although numbers have been increasing in Denmark since being introduced around a decade ago,⁶ with the first reporting radiographer in Denmark employed in 2004.

Expansion of radiographer reporting has been supported by the consistent demonstration of similar reporting accuracy and quality by radiographers when compared to radiologists,⁷ albeit within a more defined scope of practice. Further drivers across Europe are due to a combination of low radiologist numbers and consistently increasing demands for imaging. Furthermore, studies have found reporting radiographers to be very cost-effective^{8,9} and they can, therefore, be seen as an asset for radiology departments.^{6,10} However, the role of healthcare professionals has continued to evolve and within the UK there is a recent and increasing shift towards a broader role development, described as Advanced Clinical Practice (ACP), with reporting being a discrete (but not necessarily essential) component. The UK has introduced an associated recognised skills framework that applies across a range of healthcare professions within the National Health Service (NHS) and not just Radiography. There are published standards for ACP¹¹ which emphasize the need to incorporate four pillars (also referred to as domains) which are expert clinical practice, leadership, practice and service development (including research and evaluation), and education (including professional development).¹² The most recent published radiographic workforce figures in the UK mention the fact that approximately 10% of the diagnostic radiography workforce work at advanced practice level¹³ but do not specifically mention reporting. This shift is also seen in the European Federation of Radiologic Societies' most recent White Paper on the future of the radiography profession where the need for education that enables radiographers to advance their roles is discussed without any explicit mention of radiographer reporting.¹⁴ There are many benefits to such role development including recruitment and retention of personnel.^{15,16} However, some of these roles have been established without agreed standards which risks creating a lack of consistency regarding education, credentials, job titles, and scope of practice.

Despite the evolving role of reporting radiographers, there is limited research available in relation to reporting and advanced practice in Europe. Furthermore, advanced practice may have various meanings depending on opportunities in individual countries, and this can make it difficult to compare between nations.¹⁷ As an example, advanced clinical practice roles, governance and support has shown variation in England, according to a recent survey by Fothergill et al.¹⁸

Understanding the factors that influence radiographer reporting is vital to ensure consistency in terms of education and skills development, which in turn leads to consistently high quality and standardised practices across Europe. Therefore, the overall objectives of the study were to obtain a wide-ranging cross-sectional perspective of reporting practice across Europe, including educational level, support for the role including professional development, breadth of practice and motivations. This paper reports upon a particular aspect of the study, namely

reporting radiographers' perceptions relating to support for radiographer reporting and the extent to which elements of ACP are included within their roles.

Methods

The survey was piloted to ensure comprehensiveness; item relevance and subsequently some amendments were made for reasons of clarity. Participants were eligible if they were reporting radiographers (excluding sonographers), and the study gathered data on age, gender, country of residence. The questions included closed questions, free text responses, and Likert scale questions (both 4-point and 5-point scales). It was not mandatory to provide response to all questions, therefore number of respondents may vary though the survey. An in-depth description of the survey can be found in an earlier publication.¹⁹

The cross-sectional online 34-item questionnaire survey was circulated via social media: Twitter, Facebook, and LinkedIn over a 12-week period in 2022. The target study population was individual reporting radiographers. Study data were collected and managed using REDCap (Research Electronic Data Capture), which is a secure web-based platform designed for surveys^{20,21} managed by the Danish Open Patient Explorative Network (OPEN).

Statistical analysis

Descriptive statistics were combined with chi-square test to analyse the data. Excel for Mac version 16.71 were used to generate Figures 1 to 5. The statistical analyses were performed in Stata (College Station, TX, USA, version 18). The 5-scale Likert scale questions were reported as mean with a standard deviation (S.D) and 95% Confidence interval (CI). P-values of ≤ 0.05 were considered statistically significant. 4-scale Likert scale questions are reported descriptively.

Ethical approval

Ethical approval was obtained from the Research Committee at the University of Southern Denmark (ID number 22/29639) in June 2022. All data was collected as anonymised data. All respondents were asked at the beginning of the survey to provide informed consent before entry to the survey and were advised that, upon submission of their responses, they would at that point not be able to withdraw due to the anonymisation of the data being collected.

Results

A maximum of 251 individual responses were obtained regarding questions on support, role Satisfaction, and Advanced Clinical Practice, although not all participants answered all questions. Responses were received from reporting radiographer employed in 15 European countries (Albania, Andorra, Belgium, Bulgaria, Denmark, Finland, France, Ireland, Malta, the Netherlands, Norway, Portugal, Russia, Sweden, and the United Kingdom (UK)). The respondents were allowed to omit questions, and therefore the response rate varied between questions. The highest response rate was from the UK ($n = 245$, 72.5%) followed by Denmark ($n = 66$, 19.5%). As demonstrated by the response rate, radiographer reporting practice is more established in the UK than in other European countries. Therefore, responses from European (non-UK) reporting radiographers were compared with UK reporting radiographers for some elements of the survey.



Figure 1. Shows the satisfaction with the reporting role (all respondents).

Support for radiographer reporting

A total of 173 participants responded to a free text question stating, ‘Please comment on what you see as priority issues to ensure support, role expansion, and professional development for reporting radiographers?’. In total, 67% (n = 115) of responses relate to one of the following themes, namely support from radiologist(s) and/or management, protected time, and funding.

Between 238 and 251 respondents answered a series of questions asked under the heading ‘Do you think there are any barriers to becoming a reporting radiographer in your country?’ using a 5-point Likert scale with ‘1’ indicating ‘strong agreement’ and ‘5’ ‘strong disagreement’. Table 1 compares UK and European (non-UK) responses to these sub questions. Generally, there is agreement between the two groups with just two questions showing a statistically significant difference. More UK than European (non-UK)

Table 1 Perceived barriers to radiographer reporting, UK compared with European (non-UK responses). 5-point Likert scale with ‘1’ being ‘strongly agree’ and ‘5’ being ‘strongly disagree’.

Sub-question	UK responses			Non-UK			p-value
	n (%)	Mean	SD (95% CI)	n (%)	Mean	SD (95% CI)	
Responses to the question: ‘Do you think there are any barriers to becoming a reporting radiographer in your country?’							
No barriers	185 (76.9)	3.1	0.08 (2.9–3.2)	53 (23.1)	3.0	0.13 (2.7–3.2)	0.267
Resistance from radiologist	191 (76.4)	2.8	0.07 (2.6–2.9)	59 (23.6)	2.5	0.11 (2.3–2.7)	0.250
Resistance from other healthcare professionals	191 (76.7)	3.4	0.07 (3.3–3.6)	58 (23.3)	3.6	0.09 (3.4–3.7)	0.147
Resistance from other radiographers in my country	190 (76.3)	3.9	0.06 (3.8–4.1)	59 (23.7)	3.9	0.110 (3.7–4.1)	0.775
Lack of adequate training and education	192 (76.5)	3.6	0.08 (3.5–3.7)	59 (23.5)	3.0	0.151 (2.7–3.3)	0.003
Perceived lack of skill of radiographers to undertake role	187 (77.6)	3.2	0.08 (3.0–3.3)	54 (22.4)	3.4	0.153 (3.1–3.7)	0.096
Lack of financial incentives (no extra pay for the work)	191 (76.7)	2.5	0.08 (2.35–2.66)	58 (23.3)	2.9	0.159 (2.59–3.23)	0.052
Healthcare funding within my country does not allow this	190 (77.2)	3.7	0.06 (3.63–3.90)	56 (22.8)	3.9	0.127 (3.71–4.22)	0.391
Lack of legal framework (who has the legal responsibility for the patient?)	188 (77.7)	3.9	0.06 (3.68–3.92)	54 (22.3)	3.2	0.163 (2.91–3.56)	<0.01

SD = standard deviation, CI = confidence interval.

radiographers disagreed with the statement that there is a lack of adequate training and education being a barrier to becoming a reporting radiographer. This suggests that some European (non-UK) respondents may perceive that there are difficulties accessing suitable training and education to support radiographer reporting as their mean score was ‘partly agree’ for this statement (mean score 3). There was also a statistically significant difference to the responses to the question about legal frameworks. Both groups were between ‘partly agree’ and ‘disagree’ with this statement (mean = 3.9 UK respondents, mean score 3.2 European (non-UK) respondents), with partial agreement being more marked within the European non-UK reporting community.

Scores between ‘partly agree’ and ‘agree’ were recorded for both groups of respondents regarding resistance from radiologists (UK mean score 2.8, European (non-UK) (mean score 2.5) and there being a lack of financial incentives (i.e., no extra pay for the work) (UK mean score 2.5, European (non-UK) mean score 2.9). There were 243 responses to a question regarding pay, namely ‘is there extra pay attached with your work as a reporting radiographer’? Of those responses, 170 (70%) were affirmative; by group, 118 (64%) UK and 52 (88%) European (non-UK) reporting radiographers indicated agreement with this statement.

Satisfaction with workload and job role

Overall, reporting radiographers were satisfied with their workload (4-point Likert scale: agree 46.9%; partly agree 31.6%; partly disagree 13.8% and disagree 7.7%), and the majority responded that they know what is expected of them in the reporting radiographer role (n = 220, 89.8%). Collated responses to further

questions regarding workload and job satisfaction are shown in Figure 1. Although there is variation in the proportion of positive responses, overall, the majority of responses were favorable for each sub-question.

Of the 206 respondents who answered questions about expanding the modalities for which they report, 151 (73.3%) UK and 55 (26.7%) of European (non-UK) reporting radiographers indicated that they plan to do so (p=<0.01). Figure 2 shows the areas of practice that respondents indicated they would like to expand to, with musculoskeletal (MSK) MRI being the most popular choice.

Elements of advanced clinical practice

Figure 3 summarises UK and European (non-UK) responses to questions about other elements to their role that may fall within the UK’s four pillars of advanced practice. Respondents are involved in teaching, with teaching of co-workers being much more common than teaching within academia. Whilst there are opportunities to participate in research, there appears to be less support for participants undertaking their own research.

Further questions sought more detail about the scope of these activities. The majority of respondents (n = 221, 88.4%) were involved in teaching, with no significant difference between UK and non-UK groups (p = 0.182). A total of 64.1% undertook supervision of reporting radiographers in training, and 51.4% performed supervision to trainee radiologists. Although the responses were positive, there were statistically significant difference seen in responses relating to supervision of radiology registrars with a score indicating stronger agreement for European (non-UK) reporting radiographers compared with UK reporting radiographers (means of 1.29 versus 1.56, p = 0.003).

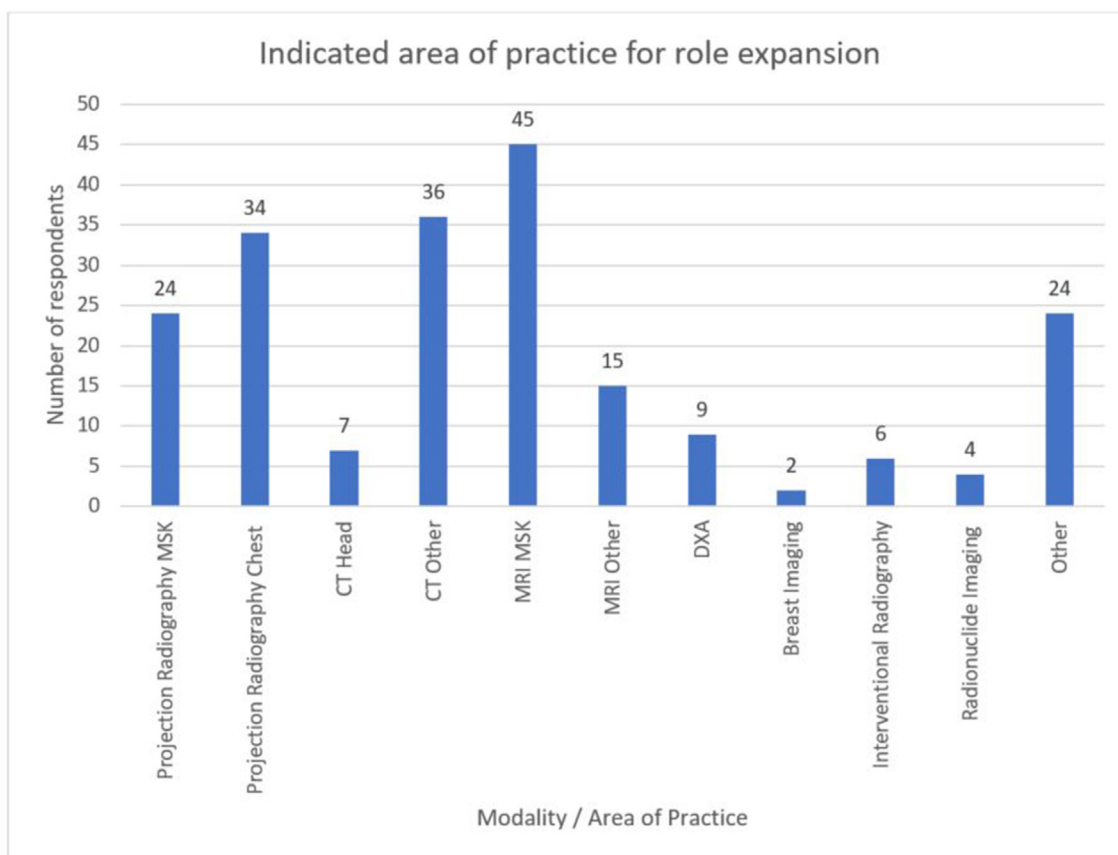


Figure 2. Shows areas of practice identified as being of interest in terms of expanding scope of current reporting role.

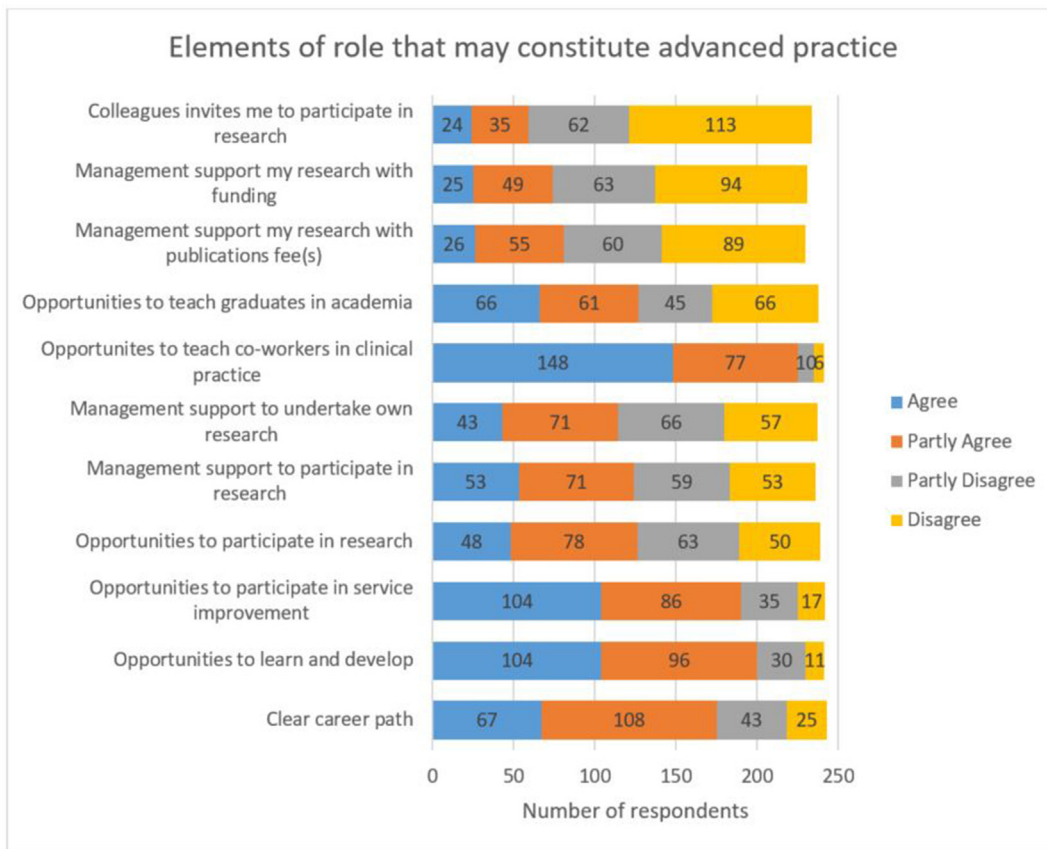


Figure 3. Shows elements of current role that may constitute advanced practice.

Many reporting radiographers indicated that they are interested in research (n = 180, 72%). Of 247 respondents, 76.5% (n = 189) had access to peer reviewed scientific article databases

at their workplace. Figure 4 shows the number of peer review articles published by reporting radiographers and it can be seen that, of 229 responses, the majority (n = 187, 81.7%) of reporting

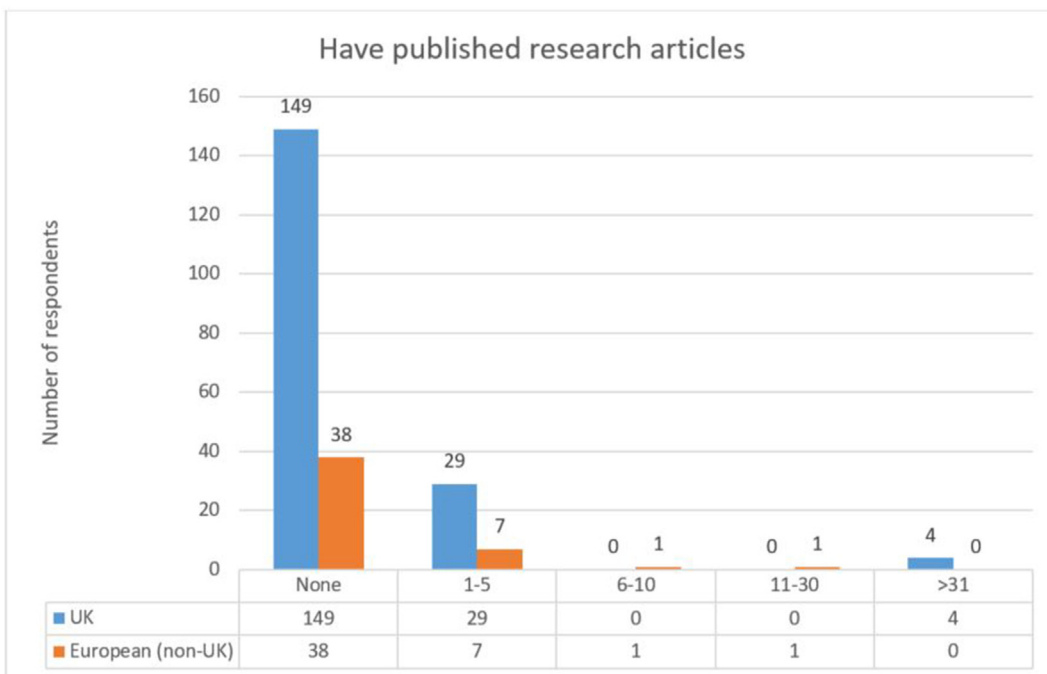


Figure 4. Shows number of respondents who have published research articles.

radiographers have not done this. Comparison between UK (n = 149, 81.9%) and European (non-UK) (n = 38, 80.9%) showed no statistical significance (p = 0.543). A total of 239 respondents answered the question about how often they read scientific peer review articles (Figure 5). Comparison between UK (n = 173) and Europe (non-UK) (n = 48) indicated that UK reporting radiographers read scientific articles more often (p < 0.001). Questions regarding what motivates a reporting radiographer to undertake their own research suggested the key factors were: increased knowledge and skills (n = 176; 95.1%), the choice of research topic (n = 158; 86.8%), ability to access courses (n = 157; 88.2%), higher salary (n = 146; 79.8%) and the opportunity to work from home (n = 123; 68%).

Discussion

Main findings

As anticipated, the number of responses suggests that radiographer reporting practice is more established within the UK than in other European countries. However, this is difficult to say with certainty as there appears not to be any centrally held data on the numbers of radiographers undertaking reporting. Hence it is not possible to determine how representative this survey sample is. Nevertheless, it does appear that radiographer reporting is also expanding within Denmark.

This survey highlights the support needed, role satisfaction and workload, and elements of APC across Europe over a total of 15 countries. In total, 67% of responding reporting radiographers indicated that key elements of support needed are the support of a radiologist, together with the need for protected time and appropriate funding. Furthermore, there is a suggestion that there may be, in some cases, difficulties accessing appropriate training and education, particularly for European (non-UK) radiographers. There was also a consensus that there may still be

resistance from radiologists in relation to radiographer reporting. Generally, reporting radiographers are satisfied with their role.

Now that reporting by radiographers seems to be established and there is a shift towards broader role development i.e. Advanced Clinical Practice (ACP), radiographer reporting does not automatically equate to ACP in the UK unless the role combines elements from each of the four pillars such that the reporting radiographer contributes to service delivery in ways that extend beyond image interpretation.²² A majority (76.5%) of UK respondents indicated that there are plans for them to expand the scope of their reporting practice into other modalities and/or areas, whereas only 23.5% of European (non-UK) respondents reported the same. It is possible that this reflects the UK shift towards the more holistic ACP framework.

This study has also indicated that the majority of respondents do have management responsibility and participate in teaching and supervision of others, suggesting that their roles do combine elements of leadership and education pillars of the UK ACP framework. Furthermore, there is a clear interest in research, although this study has shown that a low number of reporting radiographers have published peer-review articles. The main motivational factor to start research projects is the opportunity to increase knowledge and skills, rather than for practice and service development. Overall, however, it can be argued that the breadth of activities undertaken by reporting radiographers, particularly in the UK, but across Europe in general, embody to a greater or lesser extent, the various elements of ACP. In other words, there are indications that reporting is starting to be embedded, for some individuals, within the broader remit of ACP, although it may still be a standalone role providing career progression for some radiographers.

Strength and limitations

It was a strength that the number of respondents were similar to another survey with focus on reporting radiographers.²³ The

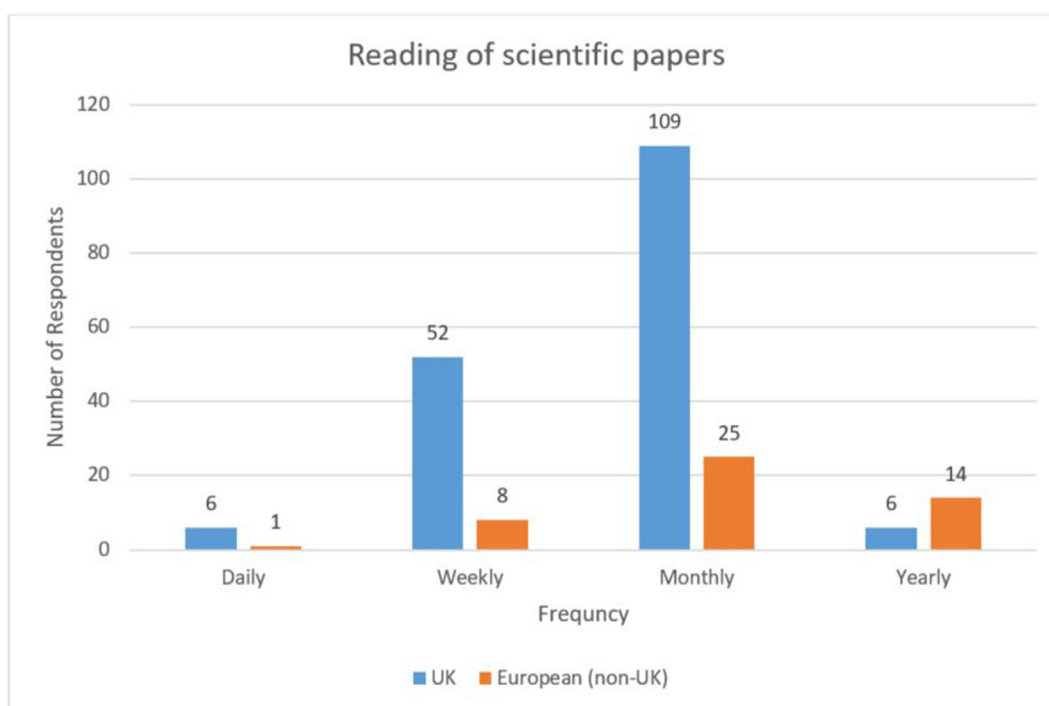


Figure 5. Shows number and frequency of scientific papers read by the respondents.

Society of Radiographers indicates that independent clinical reporting is a form of enhanced practice rather than advanced practice within the UK, acknowledging the further qualifications and skillsets of these practitioners. However, there is not an obligation to fulfil the 4 pillars of ACP within this enhanced practice role.²⁴

The survey had 34 items, and it was observed that the number of responses was decreasing towards the end of the survey. This may be as a consequence of the length of the survey (estimated to take approximately 15 min). A literature review has shown that shorter surveys typically have a higher response rate,²⁵ and the fact that the survey was only available in English is likely to have deterred non-English speakers to participate. Nevertheless, the participation rate is viewed as acceptable, although it is not possible to determine what proportion of reporting radiographers from each country has participated as no formal records exist for this. It is also a strength that the survey received responses from 15 European countries. There were two countries dominating the survey, but this was anticipated as the UK has a very long tradition of radiographer reporting practice and Denmark has educated many during the last decade due to a shortfall of radiologists. We can speculate on why few countries have a high number of reporting radiographers, and some countries have a very low number or are not even allowed to work as reporting radiographers due to national legislation. Is resistance from radiologists a significant influence upon national radiographer reporting development, or perhaps there is a limited impact and influence from the respective national radiographer societies.

Data could be perceived as skewed due to a high percentage of respondents from the UK and Denmark, although this may be reflective of the increasing prevalence of reporting practice amongst radiographers in those two countries. It was a limitation that it was possible to omit questions to maximise participation.

Conclusion

This study found that radiographers are participating in image reporting across 15 European countries, with the UK and Denmark being the most prevalent. The majority of reporting radiographers are satisfied with their job role and undertake a broad range of activities that may constitute ACP. The majority are involved in education in various forms and there is interest in, but not significant participation in, primary research.

Implications for practice: there is an increasing emphasis on advanced clinical practice and reporting radiographers across Europe already combine elements of this within their reporting roles. Formalising the need for these additional elements would enable development opportunities to be met, such as supporting reporting radiographers to fulfil their interest by undertaking research.

Funding

The research received no specific grant from any funding agency in the public, commercial, or non-for-profit sectors.

Author contribution

MRP led the project. All authors contributed substantially to the design of the questionnaire, progress of the project and manuscript writing. MRP applied for research ethical approval, performed the

statically analysis. CH and MRP wrote first article draft. All authors read and approved the final manuscript.

Conflict of interest

The authors have no conflict of interest to declare.

Acknowledgements

The authors would like to thank the EFRS for sharing the survey and to all other colleagues who shared the survey online or participated in the survey. Much appreciation is given to our local hospital colleagues who participated and provide valuable feedback for the pilot survey.

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