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Exploring the research domain of consultant practice: Perceptions and opinions of consultant radiographers

R. Harris*, A. Paterson

The Society and College of Radiographers, 207 Providence Square, Mill Street, London, SE1 2EW, UK[a]

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ABSTRACT

Aim: This paper reports on one part of a larger study. The aim was to explore what the core domain of research means to consultant radiographers in clinical practice and to identify the key factors that facilitate or hinder research activity by this staff group.

Design and method: Grounded theory research methodology was employed. This first part of the study involved electronic questionnaires being sent to all those known in consultant radiographer posts in the United Kingdom.

Results: Results indicate there are variations across clinical specialties as to the amount and level of research undertaken by consultant radiographers, and not all agreed that research should be a core domain of consultant practice.

Main facilitators to research were noted as: time; skills and knowledge of the researcher; a well defined research question.

Main barriers to research were noted as: lack of allocated time; lack of skills/experience; clinical workload.

Conclusion: Research is one of the four core domains of consultant allied health professional and nursing roles but, as yet, it is not fully embedded into those of all consultant radiographers. Many consultant radiographers appear to spend more of their time on the 'clinical expert' element of their role at the expense of the research domain.

This study concludes that there is an urgent need for consultant radiographers to understand that research is one of the four core domains and to recognise the need to embed research into their clinical practice.

Introduction

In recent years, governments have stressed the requirement for frontline clinical staff to be able to deliver high quality evidence-based care, and have realised the potential of non-medical staff taking on higher levels of responsibility. In 2000, the Department of Health (DH) published '*Meeting the Challenge: a Strategy for the Allied Health Professions*'[1] and '*The NHS Plan*'[2]; both documents proposed future role development opportunities for allied health professions (AHPs). The role of the consultant allied health professional (AHP) practitioner was first described, with the expectation that these posts will improve patient outcomes by underpinning practice with research and education.

Four core domains of the consultant AHP and nursing role were described in the Advance Letter[3] and, to date, these stand unchanged:

- Expert clinical practice;
- Professional leadership and consultancy;
- Practice and service development, research and evaluation;
- Education and professional development.

According to Ford,[4] those early into consultant radiographer posts felt the clinical practice element was the priority and, for many, the creation of their role was driven by the necessity to meet government waiting list targets, a recognition that there was a shortage of radiologists to cover the demanding workload, and

* Corresponding author. Tel.: +44 020 7740 7250.
E-mail address: rachelh@sor.org (R. Harris).
[a] In collaboration with the Department of Psychology, University of Exeter.

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to meet local service needs. This echoed the '*Scope of Radiographic Practice*' Report[5] which discussed the necessity for consultant radiographers, but suggested that the core duty of clinical practice was being undertaken to the detriment of the other domains.

Although research is one of the four key domains of practice for a consultant radiographer, it is unknown how many are undertaking research as an integral part of their role.

This study

This paper reports on one part of a larger grounded theory study. The aim of the overall study was to explore what the core domain of research means to consultant radiographers in clinical practice and to identify the key factors that facilitate or hinder research activity by this staff group.

A questionnaire was developed to collect background information about the consultant radiographer population, and to explore their views and opinions relative to the research domain of consultant level practice. Two previous surveys[6,7] informed the development of the questionnaire both in terms of its construction and its focus, with the kind permission of the authors.

The questionnaire was piloted on five conveniently sampled consultant radiographers before wider distribution. This enabled a feasibility and acceptability check on the practicality and ease of using the online questionnaire, on the clarity of questions posed, and the time burden. No alterations were found to be necessary and a link to the on-line questionnaire, using the Survey Monkey™ tool, was e-mailed to all consultant radiographers (including the pilots) on The Society and College of Radiographers (SCoR) '*consultant radiographer group*' e-mail list (n = 61). This e-mail list does not show individual e-mails, hence, there was no direct contact with any members of the group, and their anonymity was guaranteed.

The responses were analysed with descriptive statistics using the facilities on Survey Monkey™. Additionally, selected characteristics were compared using the cross tabulation function to explore any relationship between length of time in post and level of qualification attained to agreement that research should be a main part of the role and a publication record. Analyses were also conducted to explore differences amongst the three largest groups of consultant radiographers, namely those in breast imaging, those in ultrasound and those in radiotherapy and oncology. Finally, Section Opinion on and attitude to research of the questionnaire, which comprised eighteen statements to be rated using a five-point Likert scales, was analysed using Jinks and Chalder's consensus technique.[8]Consensus was deemed to have occurred when respondents were in agreement on a statement in a range from neutral to strongly agree. Diversity was deemed to have occurred when measurements ranged across the agreement and disagreement statements: agree/strongly agree to disagree/strongly disagree.

Ethical approval

The project was submitted for full National Research Ethics System (NRES) assessment, but was classified by the Bristol Local Regional Ethics Committee as service evaluation not requiring ethical approval and Chair's approval was given. Ethical approval was obtained from the University Of Exeter School Of Psychology Ethics Committee (ref 2010/263).

Results

Fifty responded within the allocated timeframe, which equated to an 82% response rate. Not all participants responded to all questions, therefore 'n' values stated are the number of responses to each particular question.

Demographics and scope of practice

Section Demographics and scope of practice of the questionnaire gathered background information, specifically: gender, age, full or part-time tenures, and length of time in a consultant radiographer position:

Demographics

The research participants were found to be:

- Forty four respondents female (n = 48 = 92%), and four male (n = 48 = 8%);
- Forty eight respondents were over 40 years of age (n = 49 = 98%);
- Forty seven worked in full-time posts (n = 49 = 96%); and
- Seventeen (34%) consultant radiographers had been in post for less than two years, twenty-two (44%) for between 2 and 5 years, and eleven (22%) for more than 5 years (n = 50 = 100%).

Scope of practice

Table 1 demonstrates the profile of the participants in terms of their scope of practice, and compares the numbers against the known profile of the Society and College of Radiographers consultant radiographer group at the time of the survey.

Table 1
Scope of practice of participants.

Scope of consultant practice	Number who responded to questionnaire (n = 49)	Number known to be in consultant role at time of questionnaire (n = 61)
Breast Imaging (including 1 trainee)	22 (45%)	23 (38%)
Ultrasound (including 1 trainee)	9 (18%)	11 (17%)
Radiotherapy and Oncology	8 (16%)	8 (13%)
GI Imaging (including 1 trainee)	2 (5%)	6 (10%)
Plain film and general (including 1 trainee)	3 (6%)	4 (6%)
Emergency Care	1 (2%)	3 (5%)
MRI	1 (2%)	3 (5%)
Endovascular	1 (2%)	1 (2%)
Nuclear Medicine	1 (2%)	1 (2%)
1 CT (known to be a trainee)	1 (2%)	1 (2%)

GI = gastrointestinal; MRI = Magnetic Resonance Imaging; CT = Computed Tomography.

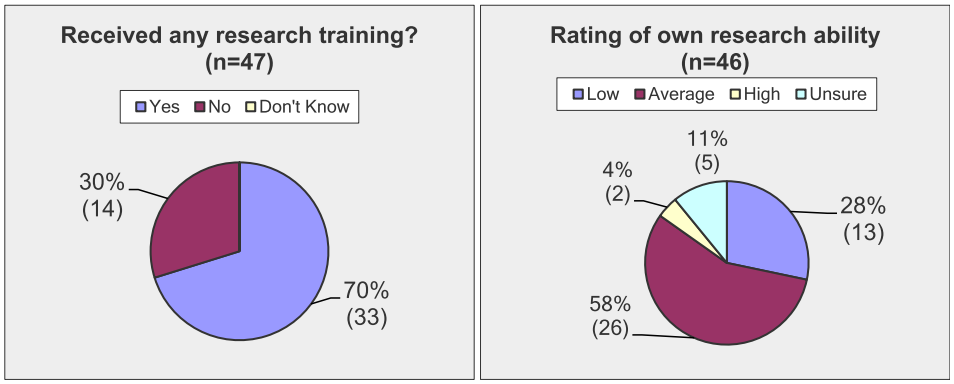

Figure 1. Research training and perception of research ability.

Highest academic qualifications and research knowledge base

The purpose of Section Highest academic qualifications and research knowledge base was to examine the research knowledge of individuals, their perceptions of their research ability, and their level of research involvement.

Highest academic qualifications

The highest academic qualification attained was a Master's degree, by 38 (n = 48 = 79%) participants. Differences in the highest level of qualification held were evident across the three main areas of practice. In breast imaging, 16 (n = 22 = 73%) held a Master's degree, while in ultrasound 7 (n = 8 = 87%) and in radiotherapy and oncology 7 (n = 8 = 87%) held a Master's degree.

Training and perceptions of research ability

Participants were asked to indicate whether they felt they had received research training, and to rate their perceptions of their research ability. The results are shown in Fig. 1.

Thirty three participants (n = 47 = 70%) stated they had received research training, with 19 commenting that this was as part of a postgraduate qualification.

Of those who had been in post for five years or more, 9 (n = 10 = 90%) stated they had received research training, while 11 (n = 37 = 29%) of those who had gained a Master's degree qualification felt they had not received any research training.

Comparisons for training across the three main practice areas showed that 15 (n = 21 = 71%) in breast imaging had received research training, 6 (n = 21 = 29%) had not; 6 (n = 8 = 75%) in ultrasound had received research training, 2 (n = 8 = 25%) had not, and 7 (n = 8 = 87%) in radiotherapy and oncology had received research training, 1 (n = 8 = 13%) had not.

The majority, 26, of the whole group of participants (n = 46 = 58%) felt their research ability was 'average'. Relative to the three main areas of practice, 10 (n = 21 = 47%) in breast imaging, 7 (n = 8 = 88%) in ultrasound, and 4 (n = 8 = 50%) in radiotherapy and oncology rated their ability as 'average'.

Thirteen of the whole group (n = 46 = 28%) considered their research ability to be 'low', with 8 (n = 21 = 38%) of these in breast imaging, 1 (n = 8 = 12%) in ultrasound, and 2 (n = 8 = 25%) in radiotherapy and oncology.

Only 2 of the whole group (n = 46 = 4%) felt their research ability was 'high', with no-one in breast imaging or ultrasound selecting this option, and a single individual in radiotherapy and oncology choosing this option.

Finally, examining the ratings of those holding a Master's degree qualification showed that 22 (n = 36 = 61%) rated their research ability as average, 7 (n = 36 = 19%) as low, and 2 (n = 36 = 5%) high, with 5 (n = 36 = 15%) being unsure.

Level of research involvement

Participants were asked questions about their prior or current research engagement. Table 2 shows the reasons participants had previously or were currently engaging in research.

Ten respondents (n = 47 = 21%) stated they had previously been a research lead while seven (n = 46 = 15%) indicated they were currently a research lead. Nearly half (23) the number of respondents (n = 47 = 49%) had previously been in a research team and over half (24) (n = 46 = 52%) were currently involved in one. Thirteen (n = 46 = 28%) stated they were not currently involved in research, and 4 (n = 47 = 8%) that they had not been previously engaged in research.

Changes to practice as a result of research

Participants were asked whether they had made changes to practice as a result of research, either their own or that of others, as illustrated in Fig. 2.

Table 2
Previous and current reasons for research involvement.

Reason	Previous research engagement (n = 47)	Current research engagement (n = 46)
	Response count	Response count
To gain a qualification	35 (74%)	9 (19%)
For your own interest	14 (30%)	8 (17%)
To improve patient care	24 (51%)	19 (41%)
As the lead	10 (21%)	7 (15%)
As part of a team	23 (49%)	24 (52%)
Never been/not involved	4 (8%)	13 (28%)

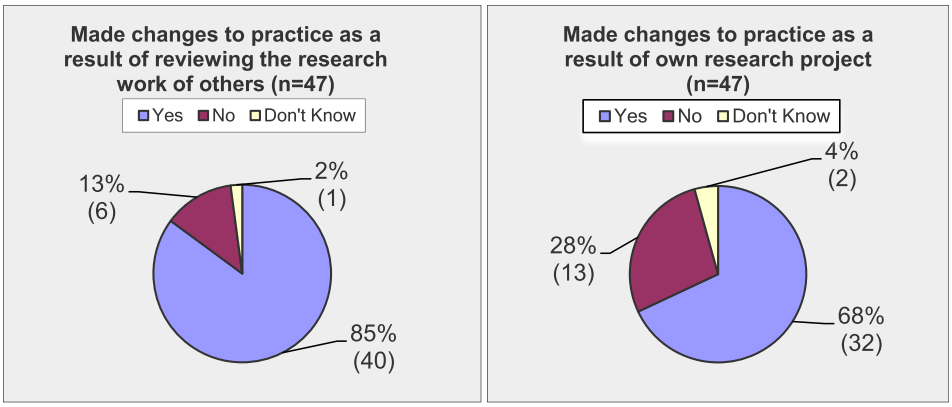

Figure 2. Changes to practice as a result of research.

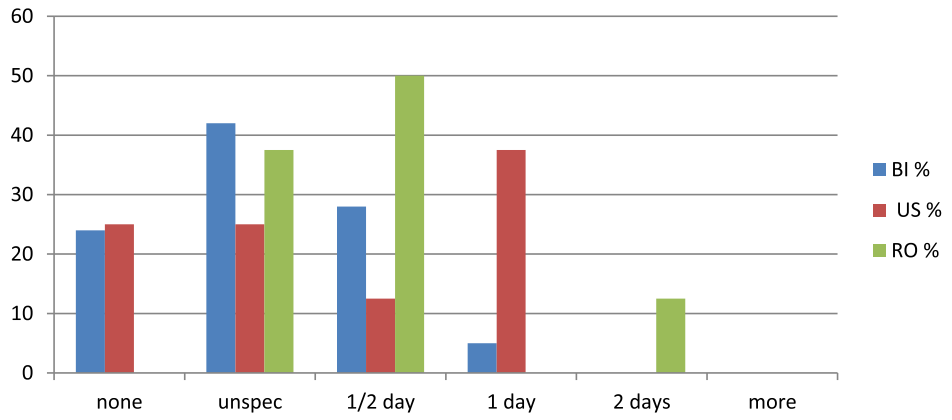

Figure 3. Time allocation for research across the three main areas of practice.

It is evident that a sizeable majority of consultant radiographers have changed practice as a result of research, with 40 respondents (n = 47 = 85%) recognising they had used the research of others, and 32 (n = 47 = 68%) their own research.

Research activity

The objective for Section Research activity was to investigate the level of research activity. The initial focus was the time allocated for research, followed by an exploration of views on how research time might be increased. Opinions on whether or not research should be a core domain of consultant practice were also elicited.

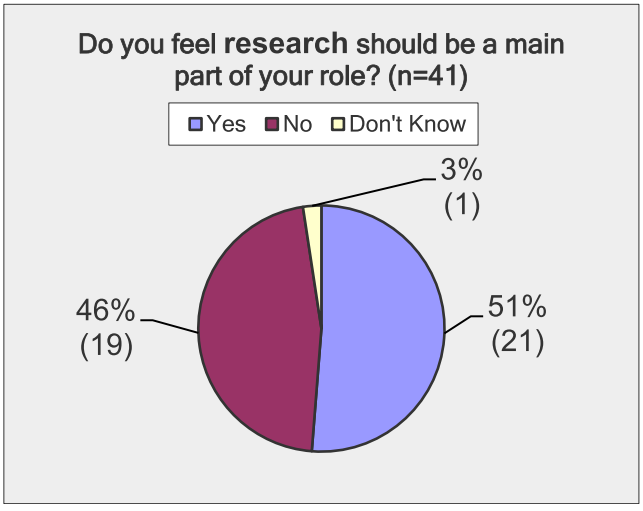

Figure 4. Should research be a core domain of consultant radiographic practice?

Time allocated for research activity

Twenty eight respondents (n = 46 = 61%) stated there was 'no', or an 'unspecified', time allocation for the research element of their role. Where time was allocated, most commonly this was half a day per week (13 individuals; n = 46 = 28%). Four respondents allocated 1 day per week (n = 46 = 9%), and one 2 days per week (n = 46 = 2%). No-one allocated more than 2 days a week.

Time allocation varied across the three main areas of practice, as illustrated in Fig. 3.

Fourteen breast imaging respondents (n = 21 = 66%) had 'no' or 'unspecified' research time in a week. Where there was allocated time, most commonly this was half a day (6 respondents; n = 21 = 28%). In ultrasound, 4 (n = 8 = 50%) had 'no', or 'unspecified', research time in a week, and 3 (n = 8 = 37%) allocated 1 day per week. In radiotherapy and oncology, 3 (n = 8 = 37.5%) had 'no', or 'unspecified', research time in a week, 4 (n = 8 = 50%) had half a day per week, and 1 (n = 8 = 12%) had 2 days per week.

Views on how to increase research activity

When asked "*What do you feel you could do to increase research activity*", 15 participants (n = 43 = 34%) wanted ring-fenced or protected research time.

Table 3
Should Research be a core domain? Differences in views according to area of practice.

Research should be a core domain?	BI group (n = 17)	US group (n = 8)	RO group (n = 6)	Whole group (n = 41)
Yes	7 (41%)	5 (63%)	4 (66%)	21 (51%)
No	10 (59%)	3 (37%)	1 (17%)	19 (46%)
Don't know	0	0	1 (17%)	1 (3%)

BI = breast imaging; US = ultrasound; RO = radiotherapy and oncolog.

A further 8 (n = 43 = 18%) felt reducing the clinical aspect of their role was required.

Four respondents (n = 43 = 9%) felt that more research experience and confidence would help. Of the remaining 3 respondents, 2 suggested that links with academia would be beneficial (n = 43 = 5%), and 1 (n = 43 = 2%) that a *"successful funding application"* would help.

Views on research as a core domain of consultant practice

Opinion as to whether or not research should be a core domain of consultant practice was relatively evenly split amongst respondents, with almost half of respondents expressing the view that research should not be a core domain, as illustrated in Fig. 4.

Examining the views of those in the three main areas of practice revealed differences between the breast imaging group in which the majority felt that research should not be a core domain, and the ultrasound and radiotherapy and oncology groups in which the majority felt that research should be a core domain, see Table 3.

Exploring the data further also revealed that of the 21 respondents who believed research should be a core domain, 17 (81%) held a Master's degree qualification.

Impact of and context for research role

The objective of Section Impact of and context for research role was to consider the impact of any research undertaken by exploring respondents' presentation and publication records; and through free text responses to questions about how the respondents led research, and what they felt was the context for research in their role.

Publication and presentation records

In terms of published material, Fig. 5 illustrates those who had 'ever published' and those who had published in the past year, 14 (n = 46 = 30%) and 8 (n = 42 = 19%) respectively.

Exploring the data further showed that:

- Relative to holding a Master's level qualification, 22 (n = 36 = 61%) had never published any research work and 24 (n = 32 = 75%) had not published in the last twelve months.
- Of those who considered research should be a core domain of consultant practice, 14 (n = 21 = 66%) had never published any research work, and 5 had published (n = 19 = 26%) in the past twelve months.

There was also variation in publication records according to the three main areas of practice, as seen in Table 4.

Leadership of research

In response to the question *"As a consultant practitioner how do you lead research?"*, 17 (n = 41 = 41%) stated they did not feel they led research in their department. Various reasons for this were given, as illustrated in the following comments:

> "Not asked to do so under current job description. I am at present 100% clinical due to service need."

> "I am not taking the lead at present and feel I would require more knowledge and skills to do so."

Those respondents, 11 (n = 41 = 27%), that felt they did have a research leadership role indicated that they fulfilled this in a number of ways, typically by:

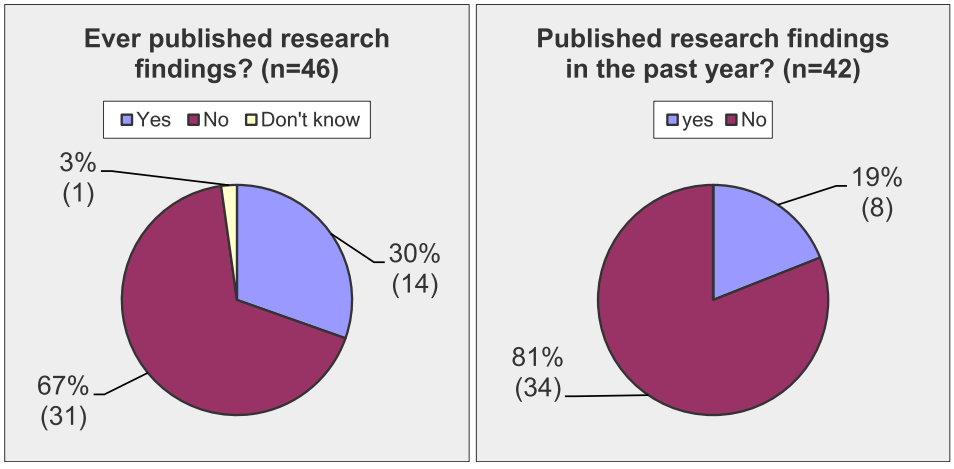

Figure 5. Publication records: 'ever' published' and published in the past year.

Table 4
Publication Records: main area of practice and respondents who have 'ever' published, and published in the past year.

'Ever' published	BI group (n = 21)	US group (n = 8)	RO group (n = 8)	Whole group (n = 46)
Yes	5 (24%)	3 (37.5%)	5 (62.5%)	14 (30%)
No	16 (76%)	5 (62.5%)	2 (25%)	31 (67%)
Don't know	0	0	1 (12%)	1 (3%)
Published in the past year	**BI group (n = 19)**	**US group (n = 7)**	**RO group (n = 7)**	**Whole group (n = 42)**
Yes	1 (5%)	3 (43%)	3 (43%)	8 (19%)
No	18 (95%)	4 (57%)	4 (57%)	34 (81%)
Don't know	0	0	0	0

BI = breast imaging; US = ultrasound; RO = radiotherapy and oncology.

"Supporting and advising on proposals, looking for funding possibilities, looking for opportunities to increase the evidence base."

Context of research in role

In response to the question "*What do you feel is the context of research in your role?*", 19 (n = 38 = 50%) felt it was to improve patient care and improve practice as can be seen in the example comments below:

"Research within clinical practice the results of which will improve service delivery and patient care."

"To improve practice and patient experience."

Opinion on and attitude to research

The penultimate section of the questionnaire sought to elicit opinions and attitudes towards research and related professional activity. Consensus and diversity analysis of the eighteen statements offered to respondents revealed four areas of consensus across the whole group, and fourteen of diversity, as shown in Tables 5 and 6 respectively.

Research support

The objective of the final section of the questionnaire was to explore possible barriers and facilitators to research in the clinical setting. Respondents were asked to rank in importance a series of statements relative to how they perceived these assisted successful clinical research. They were also asked to provide free text statements on the main facilitators and barriers to research, and to rank the research culture in their own clinical departments. Finally, their opinions were sought on the impact of conducting research on their department and for the radiography profession.

Aids to successful clinical research

Respondents (n = 43) ranked ten statements about successful clinical research from 1 (most important) to 10 (least important). The collective outcome is shown in Table 7, with research skills, interest and dedicated time ranked from 1st to 3rd as the most significant aids, and financial backing ranked in 10th place as the least important aid.

Facilitators and barriers

Responses to the question *"What do you feel are the three main factors that facilitate good quality research?"* showed that participants felt dedicated time (19 respondents n = 40 = 47.5%), skills and knowledge of the researcher (13 respondents n = 40 = 32.5%), and a well defined research question (10 respondents n = 40 = 25%) were the three main factors.

The question *"What do you feel are the three main barriers to you undertaking research?"* showed the main barriers to be lack of allocated time (33 respondents; n = 41 = 80%), lack of skills and/or experience (13 respondents; n = 41 = 32%), and their clinical workload (10 respondents; n = 41 = 24%).

Research culture

Respondents were asked to rate the research culture in their clinical department as 'good', 'average' or 'poor'. Ten (n = 43 = 23%) selected 'good', 17 (n = 43 = 40%) chose 'average'; and 16 (n = 43 = 37%) 'poor'.

Table 5
Statements of consensus (respondents agreed with or were neutral to the statements).

Statement	Responses
Research provides the evidence to direct patient care n = 44	22 strongly agree 22 agree
Using research information is an integral part of my role n = 44	21 strongly agree 20 agree 3 neutral
My actions are based on an evidence base and research n = 43	15 strongly agree 27 agree 1 neutral
I change my practice to reflect the evidence base and new research outcomes n = 44	13 strongly agree 29 agree 2 neutral

Table 6
Statements of diversity (respondents ranged across agreement, neutral and disagreement relative to the statements).

Statement	Responses
Leading research is an integral part of my role n = 44	9 strongly agree, 12 agree 10 neutral 10 disagree, 3 strongly disagree
Doing research is an integral part of my role n = 44	11 strongly agree, 21 agree 3 neutral 7 disagree, 1 strongly disagree
I feel I have received sufficient training to understand research findings n = 44	7 strongly agree, 18 agree 13 neutral 6 disagree
I feel I have received sufficient training to undertake research n = 44	4 strongly agree, 17 agree 15 neutral 8 disagree
I feel I have received sufficient training to lead research n = 44	2 strongly agree,10 agree 12 neutral 18 disagree, 2 strongly disagree
My other roles are more important than research n = 43	7 strongly agree, 14 agree 14 neutral 8 disagree
Research leads should be medical staff and not radiographers n = 44	1 agree, 8 neutral 15 disagree 20 strongly disagree
I do not have the time to do research n = 44	8 strongly agree, 16 agree 13 neutral 7 disagree
I am unable to implement research findings in my department n = 43	2 agree 12 neutral 27 disagree, 2 strongly disagree
I have support from my radiographer colleagues to undertake research n = 44	5 strongly agree, 17 agree 18 neutral 4 disagree
I have support from other professionals in my field (i.e. physicians, physicists) to undertake research n = 43	8 strongly agree, 18 agree 12 neutral 4 disagree, 1 strongly disagree
I have support from my line manager to undertake research n = 44	8 strongly agree, 20 agree 11 neutral 3 disagree, 2 strongly disagree
I feel my role is one of research leadership rather than doing research myself n = 43	8 agree 19 neutral 14 disagree, 2 strongly disagree
I feel I undertake service evaluation rather than research n = 44	4 strongly agree, 15 agree 16 neutral 9 disagree

Impact of research

In response to the question "What do you feel is the impact to your department of doing research?", the most frequent answers were:

- Improving quality of service and delivery of care (17 respondents; n = 38 = 45%);
- Increased credibility and reputation/raised profile (10 respondents; n = 38 = 26%).

Relative to the question *"What do you feel is the impact to the profession of doing research?"*, the most frequent response was that it raises profile and status of the profession (21 respondents; n = 40 = 52.5%).

Discussion

The response rate to the questionnaire was acceptable with 50 of the 61 consultant radiographers in post at the time of the questionnaire responding, and reasonably representative of the whole population of consultant radiographers in terms of scope of

Table 7
Aids to successful clinical research.

Ranking 1 = Most important 10 = Least important	Aids to successful clinical research (n = 43)
1	Research skills
2	Interest
3	Dedicated time
4	The support of management
5	Availability or resources (i.e. databases, journals)
6	Collaboration with an HEI
7	The support of colleagues
8	Research mentorship
9	Supporting infrastructure (i.e. admin and research support)
10	Financial backing

practice and gender (see Table 1). Breast imaging supported more than any other area of practice, with twenty two (45%), of those who responded, in this field.

In terms of qualifications held, none at the time of the survey held a doctoral level qualification, and not all respondents held a Master degree. The need for learning at Master's level as a minimum has been stressed in a number of policy, government and professional papers[9–12] but it seems that the routine attainment of a Master's degree had yet to become fully embedded in the consultant radiographer population surveyed. This is worrying given that it has been argued[13] that they should be aspiring beyond that level towards Doctoral level qualifications, and there has been much debate within the profession on this matter.[14,15] An exploration of trainee consultant radiographer roles by Nightingale and Hardy[16] found that those who were also undertaking a Master's degree incurred considerable additional time and other pressure compared to those already holding such a degree, to the point where the trainees felt that attainment of a Master's qualification should be a pre-requisite for both training and substantive consultant posts. It may now be timely for the profession as a whole and those responsible for maintaining and establishing consultant radiographer led services to review this.

The importance of skills for research is acknowledged by the respondents but fourteen (30%) stated they had received no research training. This was reflected in respondents' estimation of their research ability with all but two rating this as average or lower, or claiming to be unsure of their ability. The need for research skills was ranked as the most important aid to successful clinical research, and was considered to be the second most important facilitator to research by thirteen (32.5%) of the respondents. Similarly, lack of skills and/or experience was also found to be the second most common barrier to research, again with thirteen (32%) respondents offering this as one of their top three barriers.

Despite respondents' concerns about their research skills, the survey showed that just over half of respondents (24, 52%) were nevertheless currently engaged in research as part of a team with most focussed on improving patient care, and 11 were leading research. The majority (27, 63%) also rated the research culture in their departments as good or average. Notwithstanding the fact that 16 (37%) selected poor as the rating of their local research culture, this finding was cautiously encouraging.

Interestingly and positively, when asked to say whether or not they had made changes to practice as a result of research, almost all respondents had done so. Respondents were also clear that improving practice and patients' experiences was the context for the research element of their roles; nineteen (50%) offered a free text comment to that effect, and this featured in both respondents' views on the impact of research and in the statements of consensus. These findings suggest that there was actually more engagement with research than the responses to questions on current involvement in research, skills and self rating of research ability might suggest. Such engagement did not, however, extend to publishing research, and only 14 respondents had ever published any research. Evidently, while consultant radiographers were engaged with research locally, this had not reached the threshold where it was being published as a matter of course. It is also the case that publication by radiographers is under par compared with other AHPs.[17,18]

It was apparent that time for research was difficult to find, with over half of the consultant radiographer group indicating that there was no specific time allocated to the research domain of the role. Free text comments showed that the clinical demand of posts was the major limiting factor and impacted adversely on research activity; over half of respondents felt there should be ring-fenced time for research or a reduction in their clinical activity, and lack of allocated time was considered to be the main barrier to undertaking research by 31 (80%) of them. These barriers accord with findings in studies by Pager, Holden and Golenko[19] and Williams[20] and are unsurprising.

Views on whether or not research should be a core domain of consultant practice were almost equally divided, with marginally more than half believing it should be (21, 51%), and the remainder indicating that it should not. However, this split was not consistent across the three sub-groups of breast imaging, ultrasound and radiotherapy and oncology; in breast imaging, 10 of 17 respondents were against research being a core domain. This was an important difference meriting further exploration as to why consultants in breast imaging were less likely to view research as a core part and expectation of their roles. Interestingly, holding a Master's degree was strongly associated with holding the view that research should be a core domain of consultant level practice, and 17 of the 21 (81%) had a Master's degree.

Ambivalence and antipathy towards the research role was apparent across the group surveyed, with further evidence of this visible in the statements of consensus and diversity, with only four of eighteen statements eliciting consensus and the remainder demonstrating considerable diversity.

Limitations of the questionnaire

There are certain limitations that should be recognised and which may have affected the results drawn from the questionnaire. It could not be established as to whether each question in the questionnaire was fully understood; this might account, at least in part, for any disparity in the results.

It is unknown if all the questionnaire responses were answered honestly, or if respondents simply gave the 'politically correct' answer. It is significant that there were non responders to several questions.

Some questions yielded flaws in the main group of respondents that were not detected at the pilot stage.

Further in-depth exploration occurred at the interview stage of the study which is reported in a separate paper.

Conclusion

The core domain of research has been a requirement since consultant AHP and nursing posts were first established in the very early 2000s. Yet the survey has shown a lack of preparedness for and acceptance of the research part of the role. The survey also revealed some differences across the disciplines of radiography, with those in breast imaging least willing to acknowledge the research part of their roles. These differences require further investigation to assist in addressing the challenges of embedding the research domain into all consultant radiographer posts.

Key findings and recommendations from the questionnaire can be grouped as follows:

Capacity

- Lack of time – a lack of specified or protected research time was an issue for 61%. Nearly half the number of respondents felt research should not be a core domain. More defined allocations for all four core domains need to be clarified, as currently it is only the 'clinical expert' domain that has a specified minimum time allocation. Job plans with allocated time for research activity in a working week would ensure that the research core domain was an integral and accepted part of the role.

Organisational structure

- Research culture – weak departmental research cultures were mentioned, with 37% rating this as 'poor'. Departmental managers need to review the organisational structures which support those undertaking research and recognise it as a legitimate part of professional activity.

Capability

- Confidence to undertake research – many felt they did not have the ability to both undertake and lead research and nearly a third rated their research ability as 'low'. All consultants should receive dedicated research training, for example as provided by the National Institute for Health Research.
- Research Activity – 68% had never published. Therefore radiography leaders in the field are not necessarily contributing to the body of knowledge of the profession. Training courses on how to write for publication would be beneficial and should be part of individual's Personal Development Review.

The study concludes that there is a need for consultant radiographers to understand why research is one of the four core domains and to recognise the need to embed research into their clinical practice.

Conflict of interest statement

None.

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