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Orthopaedic nurses' engagement in clinical research; an exploration of ideas, facilitators and challenges

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ABSTRACT

Background: Previous international studies have identified individual and organisational barriers to nurses' research utilisation, but there is little data reporting on nurses' engagement in research design and/or delivery, particularly within the orthopaedic speciality.
Aim: To explore orthopaedic nurses' views regarding the research priorities for neuro-musculoskeletal care and the perceived barriers and facilitators associated with their engagement in the research process.
Methods: A single centre mixed methods study (n = 75) employing a survey and 14 focus group discussions.
Findings: The current sample of clinical orthopaedic nurses showed little evidence of research engagement. Research priorities focused on: 1) Understanding and improving patient and staff experiences; 2) Improving processes, systems and workload models; an 3) Interventions to improve clinical outcomes. Key themes arising from the focus group discussions were research activity, priorities and motivation, culture and leadership, and resources.
Conclusion: These findings suggest that significant work is still required to build sufficient research capacity and capability within the nursing workforce. Key to success will be developing effective leaders who can create a positive and supportive research culture across an organisation to strengthen the research voice of nursing and which will drive improvements in future care.

Introduction

Increasing evidence supports that research-active healthcare provider organisations provide better quality care and improved clinical outcomes (Carrick-Sen et al., 2016). Nursing staff who are embedded in clinical practice are in an excellent position to identify questions and design research that matters to patients and families, to the National Health Service (NHS), and to the profession (Carrick-Sen et al., 2016). This paper reports the findings of a study exploring orthopaedic nurses' perspectives of engaging in clinical research.

Previous international studies have identified individual and organisational barriers to nurses' research utilisation, including a perceived lack of knowledge, skill, awareness and confidence, support and autonomy, time and exposure (Athanasakis, 2013; Breimaier et al., 2011; Duncombe, 2018; Kousar et al., 2017; Pericas-Beltran et al., 2014; Sanjari et al., 2015). There is, however, little data reporting on nurses' engagement in research design and/or delivery, particularly within the orthopaedic speciality.

Background

Nurses can engage in research in two key ways. Firstly, as a clinical research nurse, who supports the conduct of high quality research. In England, this includes activities such as recruitment, consent and data collection for large national or international multi-site studies registered in the National Institute of Health Research (NIHR) portfolio. The NIHR have set out a three-year strategy for developing clinical research nursing (Hamer, 2017), focusing on three key areas - see Box 1.

The second route is by becoming a clinical-academic. A clinical-academic nurse simultaneously undertakes both clinical practice and research, designing and delivering projects to improve local, national and international practice (Westwood et al., 2018). Despite a published strategy and clinical-academic framework for nurses and allied health care professionals in the United Kingdom (UK) (Carrick-Sen et al., 2016; Department of Health, 2012), outside of a few well-established areas opportunities are limited and the recruitment and retention of experienced staff remains a challenge (Strickland, 2017).

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Box 1
Clinical research nursing: strategic aims (Hamer, 2017)

- Creating a clinical research culture that is patient and public focused
- Promoting innovation in research delivery practice to include the use of digital technologies
- Improving awareness and understanding of the specialty of clinical research nursing and its contribution and impact
- Developing leaders to share best clinical research nursing practice locally, nationally and internationally

There is a national drive to increase the number of nurses and allied health staff in clinical academic roles by 2030 (Carrick-Sen et al., 2016). Research engagement by clinical nurses is an important precursor to this goal. This paper, therefore, focuses on embedding research into nurses' everyday practice either as part of their current role or, more formally, as clinical academics.

Aims and objectives

The aim of this study was to explore nurses' views regarding the research priorities for neuro-musculoskeletal care and the perceived barriers and facilitators associated with orthopaedic nurses' engagement in the research process. Key objectives were to:

- Identify the extent of nursing research activity
- Describe nurses' views of the research priorities for neuro-musculoskeletal care
- Explore perceived facilitators and challenges related to orthopaedic nurses' engagement in research

Methods

A single centre mixed methods study was conducted at a national specialist orthopaedic hospital NHS Trust. Based in London, England, this is the largest specialist orthopaedic Trust in the United Kingdom (UK), providing a comprehensive range of neuro-musculoskeletal health care for both adults and children across two sites.

The study was exempt from NHS National Research Ethics approval, but approved by a University ethics committee (HSCSEP17/17) and the NHS Trust's research and development department. All participants gave their written consent.

Sample and recruitment

All qualified nurses (n = 373) in the Trust were invited to complete a questionnaire and take part in a focus group discussion between January–June 2018. Following formal approval, an email containing a study information sheet was sent to each ward/department head (using the internal email system) to cascade to nurses within their department. Study information was also circulated electronically and via posters. Focus groups were organised, either independently or as part of established ward/team meetings for those who registered their interest in participating. All activity took place on hospital premises.

Data collection

Paper-based questionnaires designed by the project team were used to collect demographic data and to establish the extent of participants' research related activity. Following four questions on demographics (age, gender, grade, job role), the questionnaire consisted of a further five closed questions asking about their academic qualifications, experience of research and future aspirations. A final free-text question provided an opportunity for individual comments. Participants completed the anonymised questionnaire immediately prior to the start of the focus group discussion.

To explore nurses' research experience, ideas and perceptions of the facilitators and challenges related to research engagement, a single researcher conducted 14 audio-recorded focus group discussions lasting 30–60 min, each of which had 3-11 participants. Focus groups were chosen as they can provide new insights triggered by the interaction between participants (Krueger and Casey, 2015). Separate focus groups were held for managers to avoid any potential power differences affecting the discussion. A topic guide,focused on three key areas (research experience, research ideas, barriers and facilitators) aided data collection; however, participants were encouraged to explore other issues they felt were of relevance.

To strengthen internal validity, the design of data collection tools was informed by a review of the literature and the tools were piloted with two allied health professionals; resulting in minor amendments to the wording of the questionnaire.

Data analysis

Using Microsoft EXCEL, descriptive statistical analysis (frequencies and percentages) was perfomed with data from the 75 completed questionnaires. Qualitative data from the 14 focus groups underwent thematic analysis as described by Burnard (2006). Following transcription and initial coding by a single researcher, a second member of the team listened to a sample of the audio recordings compared to the written notes. Minor differences of opinion in interpretation were resolved using a consensus approach to agree final themes. Free-text comments from the questionnaire were combined with the focus group findings and key themes from each dataset amalgamated to provide conclusions. Anonymised quotes, highlighting key issues of significance are reported as part of the results.

Questionnaire results

Seventy-five nurses (20% of population) agreed to participate in the study, approximately half of whom were over 40 years of age (n = 42, 56%). The majority were female (n = 56, 75%) and there was a good spread of staff from all clinical pay bands (5-8c) and departments (see Table 1).

Table 1
Demographic details of study participants.

Domain	Category	*n* (%)
Age	< 25 years	2 (3)
	26–40 years	28 (37)
	> 40 years	42 (56)
	Missing data	3 (4)
Gender	Female	56 (75)
	Male	15 (20)
	Missing data	4 (5)
Level of experience (Band 5: Junior-Band 8-Senior)	Band 5 (Staff nurse)	25 (34)
	Band 6 (Sister/charge nurse)	19 (25)
	Band 7 (Senior sister/ward manager/specialist nurse)	16 (21)
	Band 8 or above (Consultant nurse/Head of nursing)	10 (13)
	Other/Missing data	5 (7)
Role	Bedside/theatre nurse	34 (45)
	Ward/department manager	8 (11)
	Clinical nurse specialist/lead nurse	15 (20)
	Divisional head of nursing	4 (5)
	Other/missing data	14 (19)

Eleven (15%) participants reported no first-degree qualification and only five (7%) declared a postgraduate (master's level) qualification. Respondents' most commonly reported academic aspiration was to study at masters level (n = 37, 49%), but some also stated an interest in doctoral level study (n = 7, 9%) and/or other academic related activities such as writing for publication (n = 12, 16%) and attending (n = 23, 31%) or presenting at conferences (n = 13, 17%). Eleven (15%) participants also stated that they had no academic aspirations.

Twenty (27%) respondents reported a desire to be involved in research and some declared involvement in project work of some kind (n = 19, 25%). However, there was little evidence of this work being shared externally, with 65 (87%) reporting never having published in a journal and 46 (61%) never having presented at a conference.

Free-text comments focused on the need to provide adequate resources and funding (n = 13, 17%); to have dedicated and backfilled time (n = 21, 28%); support and encouragement, (n = 22, 29%); and the provision of relevant training and education (n = 13, 17%).

Focus group findings

Four key themes arose from the focus group (FG) data. These were research activity, priorities and motivation, culture and leadership, and resources (Table 2).

Table 2
Themes and subthemes.

Research activity	Priorities and motivation	Culture and Leadership	Resources
Not part of the job	Perceptions	Role modelling	Competence and confidence
Other people do it	Unpleasant and scary	Career development	Time and resources
Research ideas	Previous experience	Support, value and empowerment	Knowledge and understanding
Personal interests	Where to start	Curiosity	Training
	Professional responsibility	Opportunities and exposure	Flexibility

Research activity

Few participants described exposure to research activity. Participants perceived that there was "*lots of surgical research happening*" (FG1), but commented that "*you don't hear about it - happens behind closed doors*" (FG1). Instead, they described nurses being more commonly involved in literature reviews and audits, which sometimes led to "*small things … not like research … improvement work*" (FG7). However, few had shared their work externally, as illustrated by one participant who said; "*10,000 words and it's just in the wardrobe and I gave a copy to my mum!*" (FG9).

Participants struggled to articulate their research ideas, but suggestions fell into three key areas, detailed in Table 3: 1) Understanding and improving patient and staff experiences; 2) Improving processes, systems and workload models and 3) Interventions to improve clinical outcomes. Some of these, for example exploring the role of specialist staff such as arthroplasty practitioners, are specific to orthopaedic practice but many are applicable to nursing more widely.

Priorities and motivation

Participants did not consider research to be part of their role, pointing out that it is "*more appropriate for medical staff to have the data - they make the decisions*" (FG3). However, they deemed project work to be relevant to them as it was "*more tangible - better related to day to day nursing*" (FG4). Some participants suggested that it was more important to follow the advice of specialist nurses and local guidelines than to generate research evidence, with one saying: "*don't worry about what the research says - just go and get the sister or the doctor*" (FG4). However, this was not a universally held view, as illustrated by one participant who said we; "*need nurses to believe that it's not only doctors that do research*" (FG11). Others had just never considered how research might fit with the role of a clinical nurse, but suggested that it should be a mandatory part of revalidation saying; "*I think we should be doing it - it is part of our code of conduct*" (FG13).

Clinical priorities and the pressure nurses face on a daily basis were described as significant factors affecting their motivation to engage in research. As one participant explained; "*it's something else to do when we are already stretched … We are struggling to get the basics done at times … feels like we are being asked to do our ordinary care and this and this and this and this … it's never ending*" (FG9). Participants considered shift patterns as part of the problem, stating that long days do not allow for overlap time for discussion or project work: "*Come to work, do your job that's it - the idea of doing something on top is too much … Long days take up everything … close together - so burnt out and too many personal things to sort. Short shifts … I found them beneficial, there was overlap time*" (FG5).

Discussions emphasised the importance of personal motivation, with participants stating that you; "*need to find people who are really interested in research - not us … it doesn't bring me any joy … I'm a nurse not a researcher*" (FG7). Participants also described the need to recognise and reward peoples' efforts, because you "*need something to*

Table 3
Research priorities.

Key area	Research areas	Example questions
Understanding and improving patient and staff experiences	• Staff recruitment and retention • Staff wellbeing • Training and education • Patient and family engagement	• What makes nurses stay or leave the world of orthopaedic nursing? • How can we engage older people in rehabilitation innovations?
Improving processes, systems and workload models	• Leadership • Multidisciplinary communication • Culture and behaviour change; admission, discharge and length of stay • Role and impact of specialist nurses, length of stay	• Information giving to families whose children undergoing amputation- where are the gaps and how can they be filled? • What is the future role of the Arthroplasty Practitioner?
Interventions to improve clinical outcomes	• End of life • Pain and anxiety • Infection control • Tissue viability • Use of technology • Evaluating tools adapted for specialist practice	• Pre-operative anxiety; evaluating the impact of the COPE tool • What non-pharmacological approaches might reduce chronic pain in patients with neuro-musculoskeletal disorders?

drive them … you need a reward" (FG6). Previous experience also influenced participants' motivation toward research. For example, one participant explained that it "*wasn't really sold to me in my nurse training, it was just really dull, you had to just grit your teeth and do it*" (FG7). These experiences had a long-term effect on some to the point where; "*when you hear the word research everyone's heckles go up*" (FG7).

Participants discussed the need to engage nurses at the early stage of their career, saying it "*needs to be part of your working life from the beginning*" (FG12). A perceived lack of confidence and competence were key barriers to participants' desire to engage in research, often underpinned by a lack of knowledge. Participants described research as "*like tasting a nasty medicine - you know it will do you good but …*" (FG4). They expressed fears around the language used, with some put off because "*research sounds scary and words are scary*" (FG5). Some participants had never received any research training, particularly if they qualified some time ago and academic ability was seen as a particular barrier for international nurses, one of whom said; "*I can't do research, I didn't do my studies here, I don't feel confident, English is my second language. I can help but …*" (FG7).

Culture and leadership

The importance of effective clinical and research leadership, and the need to make research part of the normal work culture, was emphasised throughout the discussions. Participants described feelings of disempowerment and a lack of support; factors which inhibited their desire to engage. One participant pointed out that it is "*hard for nurses to come up with something as ideas get carpeted. You are too junior, you are a student, what do you know?*" (FG6). Participants also described wanting to decide themselves what to implement rather than it coming from top down, wanting to feel listened to, and valued.

Discussions highlighted the need for "*buy in from the senior team …*" (FG8). One participant pointed out that "*it's one thing to have these opportunities but it is another to be proactively encouraged to do it*" (FG14). Others described how their appraisal had helped them to think about how they might take research forward as part of their career plans, although pointed out that the this depended on the appraiser stating, "*appraisal could be an effective mechanism, if done the right way*" (FG8).

Participants highlighted the importance of developing a culture of encouraging curiosity. They acknowledged the value of, for example, research champions and newsletters to raise awareness of opportunities, and of forums such as journal clubs and local project groups, where ideas can be shared and supported. The need for research staff to have a visible presence and for role-modelling and shadowing opportunities was also described as important because; "*just for us to observe, shadowing how others do it enhances the knowledge and confidence*" (FG10). Participants also wanted opportunities to share and learn from each other, for example at internal and external conferences.

Resources

The need for designated protected and back-filled time for research and innovation activity was strongly supported in all discussions. Participants perceived that; "*other disciplines have protected time and nurses don't - so nursing research falls down … You have to go through millions of hoops to get anything - medics have time, money and* support - *nurses have nothing*" (FG14).

Participants highlighted the importance of a flexible approach, using resources to demystify research and to help people turn ideas into projects. They wanted 'user friendly' workshops and action learning sets, which led to some form of output such as a presentation or publication. Participants also described not knowing where to start, saying; "*I don't know who to approach … we don't know who are the research team*" (FG8) and they wanted processes to be; "*as simple and practical as possible … simple ABCD … that's what I would need*" (FG9). Signposting and buddy systems were also identified as important as it would be "*nice to know there is someone to go to for help and advice*" (FG6).

Finally, participants stressed that financial resources need to be committed to support research engagement including funding to undertake academic study, to support staff release and for the provision of facilities to support research activity, such as employing research advisors and statisticians.

Discussion

The aim of this study was to explore nurses' views regarding the research priorities for neuro-musculoskeletal care and the perceived barriers and facilitators associated with orthopaedic nurses' engagement in the research process. Overall findings suggest that, despite some acknowledgement of its importance for improving health outcomes and patient experience, there remain significant barriers to achieving effective engagement and to changing nurses' attitudes towards clinical academia.

Positive attitudes are associated with increased overall research utilisation (Squires et al., 2011). The nurses we studied generally reported poor motivation towards research engagement and there was little evidence of research activity. The only other published study conducted in an orthopaedic setting, reported that their participants (n = 43) were motivated towards both conducting and using research (Berthelsen and Hølge-Hazelton, 2015). Studies conducted with nurses working in a range of other clinical settings have also reported increasingly positive attitudes towards research (Akerjordet et al., 2012a). However, all these studies were conducted in Scandinavia using descriptive cross-sectional surveys. In contrast, our mixed methods approach provided opportunity for participants to discuss and explain their views and experiences related to research engagement specifically within the UK NHS.

Our findings emphasise the importance of effective, visible leadership to create a positive and supportive research culture, supporting the view of NHS improvement (2017). It is important to recognise the contribution line managers and leaders make to embedding research into someone's career aspirations via appraisal and promotion mechanisms, and through supporting opportunities for involvement. As identified by some of our participants, however, the effectiveness of this process depends on the skills and motivation of those in leadership and management positions. Providing opportunities to learn how best to support and develop the research capability and capacity of others should be included in every leadership programme. This is particularly important considering that many senior staff may themselves not have been exposed to research during their training and clinical practice, and thus can feel unsure about how best to support the development of others. In our study, specialist nurses were identified as key sources of practice guidance, suggesting that they may have an important role in helping to develop a research culture.

Fifteen percent of our sample did not have a first degree and few reported postgraduate qualifications. Furthermore, our qualitative data supported the view that nurses often lack the required theoretical and/or practical research knowledge. Berthelsen and Hølge-Hazelton (2015) also noted a lack of confidence in their participants around how to conduct research - this is supported by older qualitative data published by Roxburgh (2006), which also suggest that nurses have limited knowledge and skills related to the research process.

Our findings are congruent with the views of other authors (Masterson and Rob, 2016; Westwood et al., 2018), highlighting the importance of

formal academic pathways and effective collaborations with higher education institutions. However, despite 44% of the nurses surveyed by Akerjordet et al. (2012a) holding a bachelor's degree, they still reported a low degree of theoretical and practical research knowledge. This highlights the need for nurses to obtain postgraduate qualifications, which provide more opportunities to explore and engage in research activities. Our findings further highlight the necessity for flexible and practical training and education and, similarly to Akerjordet et al. (2012a), the value of small group workshops to support skill development.

Our findings suggest that exposing nurses to research may help them to develop a more curious approach to their own practice, increasing their motivation towards research engagement. Team working, as opposed to working in isolation and developing effective partnerships across all level of the organisation and professional groups is important for success, as noted in the case study paper published by Westwood et al. (2018). Our local organisational structure consists of four deputy directors of research (representing nursing, therapies and medicine) working together to provide strategic research leadership. However, this model of collaborative working needs to be replicated in clinical teams across the wider organisation.

Time was a key barrier to research engagement identified from our study. As reported by others (Akerjordet et al., 2012a; Roxburgh, 2006), the lack of time available to be creative and the need to address other clinical priorities negatively affects peoples' desire and ability to engage in research. We also found that shift patterns can be a hindering factor, a finding supported by Roxburgh (2006), highlighting the pressures of working full time and the impact that this can have on work-life balance. This is an important consideration given the concern around resilience and burnout in nurses working in today's resource constrained healthcare system. Statistics suggest that there are currently over 40,000 nursing vacancies in England (NHSI, 2018). If handled correctly, offering wider opportunities and a broader scope of practice could act as both a recruitment and retention tool.

Many of the research challenges we identified in our study are not unique to orthopaedic nursing (Carrick-Sen et al., 2016), suggesting that a strategy for engaging nurses working in neuro-musculoskeletal settings can be informed by data from other practice areas and vice versa. Importantly, however, our study has identified orthopaedic nurses' views about research priorities to improve neuro-musculoskeletal health outcomes and patient and staff experience.

Study limitations

This small single centre exploratory study was designed primarily to inform a local nursing research strategy, thus inferential statistics were not utilised. A single researcher conducted all focus group discussions, however, other members of the research team checked final codes and themes and findings have resonance with those of other authors, adding to their credibility.

Conclusions

The aim of this study was to explore orthopaedic nurses' views regarding the research priorities for neuro-musculoskeletal care and the perceived barriers and facilitators associated with nurses' engagement in the research process. Our findings contribute to the limited body of evidence in the field. They will support the clinical-academic development of orthopaedic nurses and promote research, which addresses nursing sensitive outcomes for people with neuro-musculoskeletal disorders.

There is still significant work to do to build sufficient research capability and capacity within the nursing workforce. It is not easy to change the traditional culture, in which research is not viewed as part of nursing; by nurses or the rest of the multi-disciplinary team. Key to our success will be developing effective leaders, who can create a positive and supportive research culture across the organisation. These leaders must work collaboratively to address the research resource and education needs of nursing staff and to strengthen the research voice of nursing, which will drive improvements in future care.

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Ethical statement/financial disclosure

The study was exempt from NHS National Research Ethics approval, but approved by a University ethics committee (HSCSEP17/17) and the trust's research and development department. All those who took part gave their written consent.

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Appendix A. Supplementary data

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