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ORIGINAL RESEARCH

The RISES Model: A New Approach to Promoting Health Professionals' Motivation to Engage in Research

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Purpose: A decline in the number of health professionals (HPs) engaging in clinical and healthcare research has spurred governments, educational and healthcare organisations to focus on developing strategies to promote a resurgence of clinical researchers. Based on the Expectancy-Value-Cost theory which offers a comprehensive framework to understand motivation in research, this study aimed to explore how motivations and perceived values of research evolve across different career stages, and develop a model that promotes sustained research motivation.

Methods: This study employed a phenomenological qualitative research design and individual interviews to explore the experiences of 30 HPs (doctors, nurses, midwives, and allied health professionals) across three career stages—early, mid, and late—at three North Queensland Public Hospitals from March 19 to April 15, 2021. A purposive sampling technique was used to select participants, and data were analysed through inductive thematic analysis.

Results: Six themes emerged, categorised into individual, organizational, and sociocultural factors. Individual: Back to Basics and Career Aspirations Influence Research Value; Organisational: Cumbersome Processes and Resource Accessibility; Sociocultural: Building Research Capacity through Connections and Supportive Relationships Enhance Motivation. These themes informed the development of the RISES model, a multi-layered framework emphasising a collaborative approach to addressing individual, organisational, and sociocultural factors to support HPs' sustained research engagement.

Conclusion: The study provides valuable insights into the lived experiences of HPs in relation to research, highlighting the intricate interplay of factors affecting their motivation. It introduces the RISES model to encourage ongoing research motivation and suggests further research to expand on these findings and explore additional aspects of research engagement in healthcare.

Keywords: career stage, motivation, barriers, enablers, expectancy-value-cost theory, phenomenology

Introduction

In the rapidly evolving field of healthcare, research plays a pivotal role in shaping evidence-based practices, informing policy decisions, and driving innovations that enhance patient care.[1–3] The commitment of health professionals (HPs) to research activities is instrumental in translating theoretical knowledge into practical applications that advance the quality of healthcare services.[4] Despite the recognised significance, a concerning decrease in the number of HPs participating in clinical and healthcare research has prompted governments, educational institutions, and healthcare organisations worldwide to prioritise the development of strategies aimed at revitalising the pool of clinical researchers.[5–7]

The decline in research engagement among HPs is influenced by an evolving research environment, characterised by global trends such as digital transformation, interdisciplinary opportunities, and changing patient care models. These factors may also affect HPs' motivation for research.[8,9] Barriers to research participation such as time constraints,

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financial limitations, organisational inefficiencies, lack of mentorship, and complex ethics approval processes continually challenge HPs, further impacting their motivation for research.[10,11]

HPs' motivation to undertake and continue with research while in clinical practice has largely been discussed in the literature.[8] Research engagement directly contributes to career progression and professional recognition for HPs.[11] While the literature confirms that research training is very important to engage HPs in research, there is a weak correlation between training and continuous motivation for research, especially in the postgraduate space and when HPs become clinical researchers.[12–14]

Motivation, both intrinsic and extrinsic, is a significant determinant of engagement and productivity in research activities.[10,15] Intrinsic motivation is driven by personal interest and the satisfaction derived from engaging in research, while extrinsic motivation is influenced by external rewards such as career advancement and recognition.[16,17] Both types of motivation play crucial roles in sustaining research endeavours.[12] Understanding these motivational dynamics is essential for developing strategies that foster a vibrant research culture among HPs, thereby enhancing research output and contributing to improved healthcare outcomes. Furthermore, value attached to research has recently been emphasised to be the major consideration for motivation to take-up research.[10,18] The Expectancy-Value-Cost (EVC) motivation theory postulates that achievement-related choices are motivated by a combination of people's expectations for success and subjective task value in particular domains.[19,20] Our recent review revealed that research capacity—defined as expectancy and competence—is significantly influenced by attitudes, particularly the type of value (attainment, intrinsic, or utility) and the connection to research.[21] The review reported that HPs with highly positive attitudes towards research exhibited all three value types and were eager to engage in research despite obstacles. In contrast, HPs who lacked motivation saw no personal connection to the research experience and perceived no value in it, underscoring the critical role of the value attributed to research. Ultimately, understanding these motivational factors is crucial for developing strategies to foster a research culture among HPs, enhance research output, and ultimately improve healthcare outcomes.[22,23]

Career stage is also a key determinant of HPs' level of engagement with research, highlighting the need to support professionals as they transition from early to mid and late-stage health and medical research careers.[24] The growing concern over the declining number of HPs involved in clinical and healthcare research across all career stages emphasises the need to develop strategies aimed at resurging the number of clinical researchers. The impending retirement of an aging health workforce further emphasises the urgency to provide effective succession planning processes for those actively engaged in research, making it crucial to focus on facilitating the progression of professionals through various stages of their research careers. Nonetheless, there is a relative paucity of studies focusing on the personal and professional journeys of health professionals who engage in research, or do not, as they move through their career stages.[25]

A recent systematic review by the authors revealed a significant gap in relation to existing strategies or models aimed at improving research engagement.[21] The review indicated that although 45 studies investigated HPs' motivation to engage in research, only eight of them employed a theoretical framework or model in their investigation. Theories such as Self-Determination Theory (SDT), Social Cognitive Career Theory (SCCT), and others are crucial for systematically addressing the barriers and incentives for HPs in research, yet their underuse suggests an opportunity for more structured inquiry for capacity building[21]

Furthermore, the growing importance of interdisciplinary collaboration in healthcare research is emerging as a critical factor that could significantly enhance HPs' motivation. Interdisciplinary approaches bring diverse perspectives and expertise to bear on complex health challenges, potentially making research endeavours more engaging and relevant for HPs.[22] Emphasising such collaboration would not only boost motivation but also drive innovation and effectiveness in healthcare research, aligning with technological advancements and broader healthcare goals.

Given the complexity of HPs' experiences and motivations, a qualitative approach was deemed necessary to thoroughly explore their lived experiences and perceived value of research in their clinical work. This approach will deepen our understanding of the contextual factors that shape HPs' commitment to and valuation of research across different career stages. This study aims to bridge the gap in the literature by investigating how motivations and the perceived value of research evolve throughout a health professional's career. The critical insights obtained from the study

participants will be utilised in developing a model that could foster HPs' ongoing motivation for research and enable healthcare institutions to enhance support for HPs' research activities.

Therefore, the study sought to address the following research questions.

1. How do HPs characterise the concept of research in relation to their career stage?
2. What are the contextual factors that influence HPs' motivation to engage in research?
3. How can ongoing motivation and value for research be fostered among HPs?

Methods

Study Design

This study adopted a social constructivist epistemological approach and a phenomenological qualitative research design to explore the perceptions, experiences, and recommendations of participants regarding research engagement across various career stages.[26,27] . Phenomenology helps to present the lived experiences of people relating to an event or phenomenon.[28] Hence, the adoption of phenomenological research design aided in exploring what study participants have experienced, how they acquired the experiences and a collective presentation of such experiences.[28] The consolidated criteria for reporting qualitative research (COREQ) checklist[29] was utilised to guide the reporting (see Appendix 1 for a detailed COREQ protocol).

Participant Recruitment Strategy

Prospective participants were a North Queensland, Australian population of early career, mid-career, and late career allied health, medical, nursing and midwifery professionals working in public regional, rural-remote hospitals in Cairns Hospital and Hinterland Health Service (CHHHS), Mackay Hospital and Health Service (MHHS), and Townsville Hospital and Health Service (THHS). Overall, 124 HPs volunteered for interviews, and 30 were selected through purposive sampling. This technique ensured the inclusion of 10 participants from each career stage - early, mid, and late -as well as representation from different professions. Purposive sampling used in the recruitment process offered the flexibility required to select eligible participants and maximise differences in the sample.[30] HPs who were not working in regional, rural-remote North Queensland hospital settings were excluded from the study. Participants were recruited through a previous on-line survey in which they provided an email address advising the researcher if they would be willing to engage in interviews.[10]

Data Collection

Data were collected by one of the investigators (LMDA), who conducted thirty (30) semi-structured in-depth individual interviews - four (4) face-to-face and twenty-six (26) telephone interviews. This method was used because it offered the flexibility and privacy for the participants to air their views. The interview guide (Appendix 2) was piloted with the first three interviews and there was no need to amend the questions. The key questions focused on the individual "What motivates you to undertake/continue with research?", the organisation "How do organisational structures and processes create clarity and direction for you in relation to research?", and the sociocultural aspect "How would you describe the research culture at your organisation?" and these questions were followed by prompts to elucidate further depth of the responses. Data from the pilot was included in the analysis. Both face-to-face and telephone interviews were conducted in an office space devoid of third-party intrusions. The interviews lasted between 30 to 60 minutes. Interviews continued until data saturation was reached.[31]

Data Analysis

Interviews were audio recorded and transcribed verbatim (by a professional transcriber) and de-identified before data analysis.[32] All data were imported into QSR International's NVivo version 12 Plus to facilitate storage, coding, and theme development.[33] An inductive thematic approach was undertaken to analyse the data, following Clarke and Braun's 6-step process.[34,35] Two members of the research team (LMDA and BSMA) cleaned the transcripts carefully and thoroughly familiarised themselves with the data. The transcripts were independently coded by both authors. Weekly Zoom meetings enabled hour long iterative discussions between LMDA and BSMA, facilitating clarification of themes

and the development of a coding framework. The coding framework was used independently by LMDA and BSMA, then collaboratively to ensure coding consistency and robustness. Subsequently, the codes were categorised into broader themes. The scope and content of each theme was defined and refined in a consensus meeting. Illustrative quotes were presented verbatim. Trustworthiness and shared understanding were fostered through member-checking, that is summarising interview accounts with each participant whilst still on the phone or in the interview room in person.[36] The interviewer took field notes during the interview for reflexivity and to manage preconceptions; however, they were not used in final analyses. To maintain confidentiality participants were assigned pseudonyms.

Ethical Considerations

The Human Research Ethics Committee (HREC) of Townsville Hospital and Health Service (Reference number: HREC/2019/QTHS/ 59607) and James Cook University Human Ethics Committee, Australia (H8314) granted approval for this study. Participants were recruited through a previous on-line survey in which they provided an email address advising the researcher if they would be willing to engage in interviews. All participants were provided with an information sheet and consent form that detailed the aims of the study and the ethical obligations of the researchers which included confidentiality, informed consent, and publication of anonymised responses. All these obligations were strictly adhered to during the research process. All interview participants were assured of anonymity, and they provided verbal informed consent at the beginning of the interview where they agreed to the session being recorded, confidentiality between LMDA and the professional transcriber, purpose of the interview and permission to use direct quotes quarantined through anonymity (Appendix 2).

Research Team and Reflexivity

Researcher reflexivity, an essential component of qualitative research, was addressed in this study to ensure the integrity and depth of the analysis. Prior to the study, the researchers had no direct relationship with the participants. To maintain credibility and reduce bias, researchers engaged in reflexivity sessions throughout the study, discussing potential preconceptions and ensuring that findings were grounded in the participants' experiences. BSMA, an expert in qualitative research, provided initial guidance on conducting the first two interviews, ensuring that LMDA approached these interactions with an open and critical perspective. This supervision was instrumental in refining LMDA's interview techniques and sensitivity to nuanced data. Additionally, the team involvement in data analysis and interpretation helped to balance any potential biases that may be introduced, thereby enhancing the credibility of the study findings. This reflexive approach was crucial for acknowledging and mitigating the influence of the researchers' own experiences and biases throughout the research process.

Results
Characteristics and Research Experience of Participants

Table 1 shows the characteristics and career stage of the participants. There were 30 participants in this study, who were evenly apportioned between the early, mid, and late career stages. Twelve participants were from the allied health professional group, while 9 were from medical, 3 from midwifery and 6 from nursing. The majority (N=22) of the participants were females. Their qualifications ranged from diploma to PhD; 13 held a master's degree. The majority (N=24) of the participants qualified in Australia. Fifteen of the participants were from the Townsville Hospital and Health Service, nine (9) from Mackay Hospital and Health Service and six (6) from the Cairns and Hinterland Hospital and Health Service.

Identified Themes

Six themes emerged from this study, two related to individual factors - (1) Back to Basics; (2) Career aspirations determine value attributed to research; two related to organisational factors - (3) People are helpful, but processes are cumbersome; (4) Resource Accessibility; and two socio-cultural factors - (5) Building Research Capacity through Connections and (6) Supportive Relationships enhance Motivation, respectively. Themes are presented along with

Table 1 Study Participants' Profiles*

Variables	Number (N)	Percentage (%)	Male N	Female N
Career stage				
Early career	10	33.3	3	7
Mid-career	10	33.3	1	9
Late career	10	33.3	4	6
Total	30	100	8	22
Profession				
Allied Health	12	40.0	3	9
Medical	9	30.0	4	5
Midwifery	3	10.0	0	3
Nursing	6	20.0	1	5
Total	30	100	8	22
Qualification				
Diploma	1	3.3	0	1
Bachelor	7	23.3	0	7
Graduate Diploma	1	3.3	0	1
Fellowship	5	16.6	2	3
Honours	2	6.6	0	2
Masters	13	43.3	6	7
PhD Candidate	1	3.3	0	1
Total	30	100	8	22
Country Qualification Obtained				
Australia	24	80.0	7	17
Overseas	6	20.0	1	5
Total	30	100.0	8	22
Work Location				
HHS				
CHHHS	6	20	1	5
MHHS	9	30	2	7
THHS	15	50	5	10
Total	30	100		

Note: *HHS, Hospital and Health Service; CHHHS, Cairns Hinterland Hospital and Health Service; MHHS, McKay Hospital and Health Service; THHS, Townsville Hospital and Health Service.

illustrative quotes affixed with study participants' demographic characteristics (gender: M/F; profession: A-allied health, M-medical, MW-midwifery, N-nursing; career stage: EC-early career, MC-mid-career, LC-late career). For example, P10 FAMC refers to Participant 10, Female, Allied Health, Mid-career.

Theme 1 - Back to Basics

This theme captures the HPs' conceptual understanding of research, including its significance and what it entails. The participants reported that level of interest in research and confidence (self-efficacy) are pivotal, as they directly impact motivation and the perceived relevance of research in professional development.

> I say that it's my curious nature but it's also I'm pretty detail-oriented and I like to do things thoroughly and completely, I think is where it all comes from. it's a confluence of many things, and one is obviously my experience and confidence, my burgeoning confidence, in research. Well, I guess it's hard because - in the sense that not everyone has the interest to do research and not everyone is good at research, and not everyone has to be either of those things. P10 FAMC

> So that's again where, you know, building that confidence. I've got the knowledge base. I know what I want to research. It's having that confidence to take each step. P5 FAEC

Most participants felt there was the need to go back to the basics in relation to how research is conducted. They perceived that their exposure to research during undergraduate studies at university concentrated on theoretical aspects rather than the practical issues involved in conducting research and the purpose of research in the clinical environment lacked emphasis.

> if it could perhaps be taught differently at university - how we do research, because the way we do it is very overwhelming because it's one subject and it goes very in depth into methodology and all of that, rather than the research process. It would have been useful to actually learn how to perform research rather than all the [abstract knowledge] because I feel like the methodology and the method, yes, you need to learn those things but I went over them again in post grad studies and felt that was a better use of time. It would have been helpful to understand how research happens and why we need to - how we can utilise research in practice. That sort of stuff in the undergrad would have been helpful. P1 FMWEC

In addition, participants felt there was little connection between formal research training and the purpose/conduct of research in the clinical environment which discouraged enthusiasm for research in the undergraduate years.

> I haven't overly enjoyed it, given that when I was first taught how to do search methods and so on was over 20 years ago when I was a student. I found it really clunky, I found it really non-intuitive, and I felt somewhat excluded. I think, again, giving it some sort of rationale and some purpose, so getting a message out there that this is something that we can all engage in to improve what we're doing. Just bringing it very much back to our front door, how it can impact what we do. P12 FMMC

However, involvement in research during clinical practice has enabled some participants to engage and be motivated to participate in research. They indicated that making opportunities for doing research available in the workplace environment stimulated their desire for research engagement.

> I'm part of a project at the moment, which is good I guess, to understand it a little bit more, because I mean I did in uni but, to be honest, at the time I wasn't really motivated for research. I didn't really understand the purpose of it, it was just something that you had to do because you were at uni. So now that I'm in practice, and been practising for a couple of years, I have been a little bit more motivated to do it myself. P25 FAMC

> I've always thought that if I did want to do research, then I'd probably have to go back to university, but I guess this is making me reflect that maybe there are more opportunities in my current workplace, and those kind of things. P18 FAEC

Theme 2 - Career Aspirations and Constraints

HPs' engagement in research is significantly influenced by their career aspirations and the constraints posed by their current career stage. This includes time, financial constraints, and life stage considerations that can either facilitate or hinder their ability to undertake research. The value attributed to research often intersects with these aspirations and constraints, affecting decisions to engage in research activities.

Some late career participants felt that their research goals were limited at their current career stage due to lesser imaginative abilities. They suggested that research was more appropriate for their junior colleagues and rather saw themselves more as supporting others, which is a role that appealed to them in their late career stage.

> Look, I've come to research pretty late in my career. Like, this is the stuff I should have been doing 20-plus years ago, because I didn't have the opportunity to do things then. But I just feel that that whole culture, and that understanding of how useful it is, really is targeted more often much more to junior people. P13 FMLC

> Okay, so my research goals are very limited. I'm very happy to take part in research. I'm getting a bit older now, so I think I was probably a lot better at it 30 years ago, because I had more imagination, and I'm a bit unimaginative now. So I see my role as mainly supporting others or if somebody else comes up with a good idea, I'm happy to become a site coordinator than actually take part in research. P19 MMLC

In contrast, early career participants emphasised that time, work life balance and financial implications hinder their aspirations for research.

> Well, this is I think probably very individual. I think the problem is by the time we finish our training we're sort of early to mid-thirties and then when you try to do a PhD you take another three to four years out. It sort of becomes family, children and sort of the funding, financially it's not a viable thing to do three to four years of research. When there's other competing financial things, that becomes a problem. P30 MMEC

Some early career participants described an apparent lack of interest in research from some of their senior colleagues and lack of a supportive culture as impediments to their own motivation for research.

> But I have a lot of senior consultants who just say I'm not interested in it. You know, I know what I know. So that's a shame, because I feel like we've hit a limit here of the learning when we stop researching. So yeah, I don't know if the culture is as supportive as it could be. P6 FMEC

Participants in their mid-career also emphasised the financial and time burden involved in research and described these as barriers.

> Time is the biggest issue. Because it's not paid, or very minimally paid, as a clinician if I spent the same number of hours doing research, actually working, I would be a lot richer. So the money side of it is a huge thing. Even, you know, [clinicians who are] involved in research, some of them have got grants and things but I don't see that money myself. So, I always end up putting a lot of in-kind hours as I said. You know, it just takes longer than you think it's going to take. So I guess time and money are the biggest barriers, yeah. P26 FMMC

Late career participants also echoed the views of their early to mid-career colleagues on time as a crucial factor for research while in the clinical setting.

> From a clinician's perspective, it's always around time. There's lots of unanswered questions. But having the time to put together the protocol and then actually get the time to implement are very difficult things. So yeah, we are unable to prioritise research over the clinical service delivery and it's not just as simple as saying that your service delivery should include the research, because it is additional work that has to occur, and we're fairly lean, so yeah. P9 MALC

Theme 3 - People are Helpful but Processes are Cumbersome

The participants reported that organisational processes, particularly those related to ethics and administrative procedures, can act as barriers to research engagement. Participants perceived the organisational processes involved in conducting research daunting. However, the presence of supportive structures, including good supervision, visibility of support, and allocated research time (quarantined time), play a crucial role in fostering motivation among HPs.

> I wouldn't know where to begin because of the ethics, all the submissions and that's going to be too painful a process for me to invest my time in it, and I don't know where to start. P12 FMMC

Some participants indicated that they found the processes involved in gaining ethical approval highly challenging.

You think it's going to be straightforward trying to get that ethical approval and governance for that but sometimes it's not that easy. There's a lot of processes and guidance out there but translation is a problem that's sort of a hindrance for the clinicians to do research, I think. That's my opinion anyway. You've got to have a highly motivated person to go through all the process and structures and then you can actually do research. P14 FMLC

The participants further added that despite the organisation providing dedicated staff to support the ethics process, the sheer volume and magnitude of the input required by researchers themselves into the process is both bewildering, time consuming and at times frustrating and stressful.

No, I find it very, very confusing. I certainly appreciate that the HHS has provided a couple of key players to approach for support and advice in relation to research, but I find following the directions unbelievably difficult and challenging. So, on the portals, I mean, ethics processes through portals and then the double up; the printing out and posting or delivering it to governance, and it's never correct so then there's always other things to do, I find it very unclear. Even achieving signatures or consent on things, it's very, very difficult to actually work out what is what and by whom, who's sitting in that position [makes exasperated sound], at what point do we follow people up when we've been waiting for weeks? At what point is it rude as a student to say I'm still waiting for a signature from this person? That's very stressful because the last thing we want to do is upset anybody sitting in that position. So no, not clear at all. P16 FAEC

Participants further added that while the people who work in ethics offer support, the processes needed to work through are far too extensive and complicated.

The ethics process is more of a barrier than anything. But the people who work in ethics are really helpful, and they're sort of working within their constraints as well, so they do a great job of helping people out and managing all those things. But I've been able to compare the ethics process in Queensland with Darwin, for instance, and the Northern Territory is much simpler. We have an extra layer of bureaucracy here in Queensland, which is sometimes a bit annoying. Well, you just get - as a doctor, you get a little bit of support from your peers or your supervisors or whoever, but again it's very person-dependent. So if you're lucky enough to be in a unit that has got an experienced person, then you get lucky with a particular person who will encourage you and help you. But if you weren't lucky, then you would be in a unit where no one did any research, and it didn't happen. So, there's no real, good, formal structure in the hospital system. It's very person dependent. So there, again, the people are helpful, but the processes are not. P26 FMMC

It seems like a very external, long-winded process with a lot of administrative paperwork, and huge difficulty in trying to scroll through multiple databases of information and then trying to compile it together, and sometimes still not reaching a satisfactory or statistically significant results. P7 MMEC

Theme 4 - Resource Accessibility

The participants indicated that financial constraints and the availability of resources, including statistical support and funding for translational research, are critical factors. The visibility of information and support structures within the organisation significantly impacts HPs' ability to engage in and pursue research activities. Participants argued that the current funding system employed by the organisation inhibits funding of translational research. They were of the view that the financial constraints and processes within the hospital were to the detriment of research and research activity.

It depends on the topic that we're talking about and the primary barrier to implementing evidence-based care is financial. Some of the things that we do in practice are constrained by management decisions, and understand, of course, that we don't have unlimited resources and we can't provide the absolute best for everything. However, some commonsense decisions can be made if it weren't for the perverse nature of the funding system for health that potentially or actually sometimes drives inappropriate care because of the revenue we can get from it. One specific example in mind, or two actually, that I think would be very simple things, commonsense things, to do and to change but we're unable to do it because of the impact on our revenue. P9 MALC

Then sometimes it's financial constraints, like the hospital doesn't want to spend the money on it, or for whatever reason they just say, well no, we'll just keep going with what we've got. So it's a hard thing when you work for a big company like Queensland Health to have change, because usually it has to go through so many boards and so many people have to look at it. In the long run, they run the hospital the way they want to run the hospital… P21 FNMC

The participants proposed that the support for research that is available should be better communicated throughout the organisation to facilitate research.

> Yeah, and all of the support that's already provided at the hospital. I think I wish that had been made a bit more obvious. It wasn't until I started working with the graduate nurses and we routinely invite the research team in to teach them, I hadn't heard of any of that support before. So whether the rest of the nurses know about it, I don't know. I wish that had been a bit clearer, because I was working here when I did my project - all of that was available to me and I didn't know. That would have been helpful. P1 FMWEC

Theme 5 - Building Research Culture Through Leadership

Leadership from within health systems and from professional bodies and interpersonal connections, were viewed by the participants as instrumental in building research capacity. A sense of belonging within a research community or network can enhance motivation and engagement in research by providing emotional support, guidance, and opportunities for collaboration. Participants stated that senior leadership should play a vital role in encouraging research.

> It takes leadership, I guess. So, I expect senior people to lead the way and to get it going on units and to get the sort of change champions out there that want it to happen and harness it. P11 FMWMC

> 'But also like access to kind of those resources, not only academically and professionally but also in terms of people and I guess other professionals and those kind of things. P18 FAEC

> I certainly think there are pockets of the organisation that have a very good research culture. Other areas do not at all but I think the organisation is developing in that way. P2 MAMC

Theme 6 - Supportive Mentoring Relationships to Enhance Motivation

The participants felt that mentorship would encourage and support research activity. They emphasised the importance of having someone they can turn to for advice and feedback as they undertake their research.

> So, I don't formally have a mentor as such. But I guess a mentor would help me - if I had a mentor, it would facilitate me through it, what I was doing, because they've got experience in it. That's how I'd look at. I'd want them to have experience in it to facilitate me through the process. P23 FMWLC

> She was my supervisor for my MPhil so I had a close relationship with her, and I can go and ask her to read through grants or read through publications, advise and look over and give me feedback on my work. P17 FALC

The participants stated that the quality of supervision and the presence of supportive relationships are key determinants of HPs' motivation to participate in research. Increasing support over time, as reflected in enduring mentor-mentee relationships and professional support networks, contributes to a sense of belonging and sustained engagement in research activities. Participants' views regarding good mentorship emphasised the need to understand the mentor-mentee relationship to ensure open helpful and respectful communication in the research partnership.

> A good mentor is one who is able to give you advice in a non-judgemental sort of way, which is correct advice. So it's good that they will potentially give advice that they know is correct but not try and pretend that they know how things work if they don't work in that area, for instance, or - to be honest and supportive without doing the work for you. That's quite a tricky line sometimes. The mentee, I guess, just needs to continue to be enthusiastic and listen to the advice given and come up with ideas. It's nice when the mentee, I suppose, can have some of their own ideas. They don't have to do what they're told but they're able to think for themselves, and that's a nice environment, when that's supportive. P26 FMMC

Participants reiterated the value of a good supervisor which contributes immensely to a sense of belonging as they engage in the research environment.

> There's also supervision, I would say. I think having a good supervisor is a really big thing we've got. In our specialty, we have a professor who's dedicated to research, but he is not permanently based in XXX, so he's fly in, fly out from XXX. That professor that I mentioned has invited me to a working team. That made me feel very special. [laughs]… P6 FMEC

The respondents valued the guidance provided by mentors and supervisors and viewed it as an important aspect of ongoing motivation to engage in research throughout their education and career.

> I've always felt like research was always like really high above me. But then when I've actually come into nursing and I've done lots of courses and I've gone through degrees and then done Masters, you tend to realise that, no, research is a part of your role anyway. So the support that I need and the guidance is ongoing. I'm always needing it. I'm always needing to reach out to my mentors or supervisors to actually guide me through. P22 FNLC

> In terms of clarity, I guess the biggest help that I've had has been my PhD supervisor, because she's extremely experienced and knows how things work and is very good at giving advice. P26 FMMC

Overall, these themes highlight the complex interplay between individual aspirations and constraints, organisational structures and processes, and sociocultural factors in shaping HPs' motivation and engagement in research. For example, exploring how motivations differ more explicitly between early career and late career HPs provided additional insights as indicated under theme 2 - Career Aspirations and Constraints, where late career participants posited that their research goals were limited at their current career stage to lesser imaginative abilities in contrast to early career participants who emphasised that time, work life balance and financial implications hinder their aspirations for research.

Navigating this complex interplay is critical for developing targeted interventions and support mechanisms that encourage research participation across different career stages and within various organisational contexts.

Model That Fosters Ongoing Research Motivation - RISES

Based on the findings and identified themes from the qualitative exploration of HPs' experiences with research, a comprehensive model has been developed as a major outcome of this study, to foster ongoing motivation for research among HPs at different career stages. This model is named RISES and it integrates individual, organisational, and sociocultural factors to create a supportive ecosystem that encourages and sustains research engagement.

The RISES model is presented in Figure 1 and it consists of five key components that stakeholders must consider. The first and second components are targeted at the individual HPs, the third and fourth components focus on the organisational structure and wider socio-cultural environment, respectively. The fifth component is an overarching element that addresses adaptive strategies for ongoing improvements at the three stakeholder levels. In Figure 1, the RISES model is visualised as a multi-layered framework with the individual HP at the core, surrounded by concentric circles representing organisational structures and processes, and the outermost circle encompassing the sociocultural environment. This
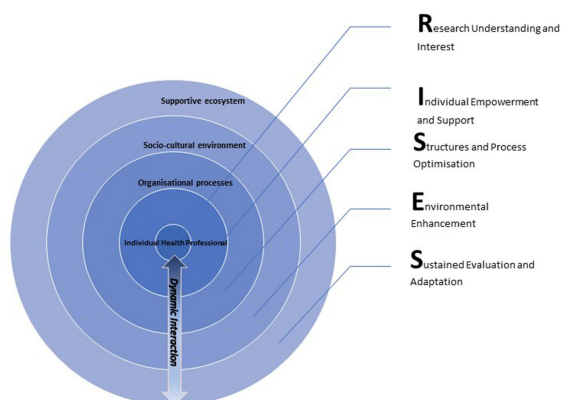
The RISES Model

Figure 1 The RISES model is designed to foster ongoing motivation for research among health professionals. This multi-layered framework places the individual health professional at its core, with a focus on Research Understanding and Interest as well as Individual Empowerment and Support. This inner layer is enveloped by optimisation of organisational structures and processes, with the outermost layer representing enhancement of the sociocultural environment. The dynamic interaction between these layers emphasises the importance of addressing individual, organisational, and sociocultural factors to create a supportive ecosystem for sustained research engagement. Arrows between layers indicate the dynamic interaction between individual, organisational, and sociocultural factors, highlighting the ongoing feedback and adaptation mechanism that ensures the model's effectiveness over time.

comprehensive model aims to create a conducive environment for HPs to engage in and sustain research activities, by addressing the multifaceted challenges and leveraging the diverse motivations that influence research engagement across different career stages. Details about the five components of the RISES model are presented in Table 2 with practical examples of how they can be implemented in real-life situations.

Table 2 Strategies for Implementation of the RISES Model by Key Stakeholders in Healthcare Organisations

Component	Implementation Strategies	Practical Implementation Examples
1. **Research Understanding and Interest**: This relates to helping HPs develop foundational understanding and interest in research.	• Implement programs aimed at enhancing research literacy among HPs at all career stages, focusing on understanding the research process, its relevance, and its impact on healthcare. • Conduct workshops and seminars that showcase the diversity of research in healthcare, highlighting innovative studies and their outcomes to ignite interest among HPs.	Establishment of Monthly Research Sessions featuring a series of events such as keynote speeches from renowned researchers, panels discussing recent breakthroughs, and workshops on research methodologies to foster interest and deepen HPs' understanding of the research's impact. For new researchers, introductory sessions could demystify the research process, while advanced seminars focused on cutting-edge topics could be tailored to experienced researchers.
2. **Individual Empowerment and Support**: This is also targeted at individuals to support and empower them to engage in research.	• Develop personalised research career pathway plans for HPs, considering their career aspirations, stage, and life circumstances. This includes identifying opportunities for research engagement that align with their professional goals and constraints. • Offer training sessions and mentorship to build self-efficacy in research, focusing on skill development, navigating challenges in research processes, and understanding the value of research contributions.	Development of Research Mentorship Programs where early-career HPs are paired with experienced researchers. This program could include goal-setting sessions, tailored training to develop specific research skills, and scheduled check-ins to navigate career challenges. Additionally, an online portal could provide resources and tools for continuous learning and engagement, offering a pathway for career development in research tailored to individual aspirations and life stages.
3. **Structures and Processes Optimisation**: This component focuses on the optimisation of organisational structures and processes to foster HPs' motivation to engage in research.	• Simplify and streamline research-related administrative and ethics processes to reduce barriers to research engagement. • Enhance the visibility and accessibility of research support structures within the organisation, including financial resources, statistical support, and mentorship programs. • Allocate protected time for research activities, recognising and rewarding the time spent on research within the scope of HPs' professional responsibilities.	Implementation of a streamlined Research Approval Process using an integrated digital platform that reduces bureaucratic hurdles. By simplifying application forms and creating a transparent tracking system for submissions, the institution could significantly decrease the time HPs spend on administrative tasks. Furthermore, dedicated research days could be institutionalised, where clinical duties are minimised to free up time for research activities.
4. **Environment Enhancement** refers to the sociocultural factors that contribute to fostering interrelatedness and connection.	• Foster a sense of belonging within a research community by facilitating networking events, interest groups, and collaborative research projects that bring HPs together. • Establish robust mentorship and peer support systems that encourage knowledge sharing, provide emotional support, and offer guidance through the research process.	Establishment of Research Collaboration Hubs, both virtual and physical, where HPs from various specialties gather to discuss ongoing projects, seek advice, and partner on new initiatives. Regular networking events and themed research forums could also foster a community atmosphere, encouraging collaboration and the sharing of ideas. Support groups for research projects could also be formed to provide emotional and logistical support throughout research processes.

(*Continued*)

Table 2 (Continued).

Component	Implementation Strategies	Practical Implementation Examples
5. **Sustained Evaluation and Adaptation** refers to the mechanisms and strategies which could be used to facilitate continuous improvement.	• Implement regular feedback mechanisms to assess the effectiveness of support programs and identify areas for improvement. • Continuously adapt strategies based on feedback and changing needs of HPs to ensure the model remains responsive and relevant.	Implementation of departmental comprehensive annual review systems for research programs, incorporating surveys, focus groups, and outcome analyses to gather feedback from all HPs involved in research. The findings from these reviews could then be used to adjust training programs, resource allocations, and support structures to better meet the evolving needs of the research community. An adaptive strategy team could be tasked with updating policies and resources in real-time based on the latest feedback and research trends.

Discussion

This study integrates the findings from the qualitative exploration of health professionals' (HPs) experiences with research, highlighting the importance of individual, organisational, and sociocultural factors in fostering ongoing motivation for research. The identified themes and the proposed model offer a comprehensive understanding of the multifaceted influences on research engagement among HPs at various career stages.

The findings revealed that individual factors such as foundational understanding of research, interest, and career aspirations play critical roles in shaping HPs' motivation to engage in research. This aligns with existing literature which emphasise the significance of self-efficacy and personal motivation in research activities.[37] The notion of "back to basics" suggests a gap in research literacy that may hinder HPs from fully engaging in research, underscoring the need for educational interventions that enhance understanding and interest in research from early career stages.[11,12,38]

Organisational structures and processes were identified as both barriers and facilitators to research engagement. Reported cumbersome processes identified by the participants in this study, particularly around ethics and administration, align with previous studies, highlighting institutional barriers to research.[39] However, the presence of supportive organisational structures, including mentorship and dedicated research time, could significantly mitigate these barriers. This finding supports the argument for streamlined administrative processes and enhanced organisational support to foster a research-conducive environment.[23]

The sociocultural environment, underscored by environmental enhancement, particularly the sense of belonging and interpersonal connections, emerged as a pivotal factor in motivating HPs to engage in research. The importance of mentor-mentee relationships[40] and professional networks[41] in building research capacity and fostering a sense of community is well-documented.[42] Our findings underscore the value of these relationships in enhancing motivation and providing the necessary support to fulfill the socio-emotional needs of HPs[43] for sustained research engagement.[5]

Furthermore, the findings build on the Expectancy-Value Cost (EVC) theory of motivation for research encompassing the facets of: Expectancy; Value & Cost.[19] The EVC model, developed by Eccles et al[20] posits that motivation is determined by the individual's expectation of success, the value they place on the success, and the perceived cost or barriers associated with the activity. Expectancy refers to an individual's empowerment and support[43–45] and belief about their likelihood of successfully completing a task. For HPs, this often translates to their perceived competence in conducting research and their expectation of producing meaningful outcomes. Value in the EVC model includes intrinsic value, where the activity itself is enjoyable;[15] utility value, where the activity leads to future benefits; and attainment value, which aligns with personal or professional goals.[21] Cost includes any perceived obstacles or sacrifices associated with engaging in research, such as time, effort, and potential conflicts with clinical duties.[18]

Integration of the findings based on the EVC theory indicate that the early career HPs, particularly in nursing and allied health, often perceived a lower expectancy due to limited experience or insufficient training in research methodologies.[13,38] In contrast, mid-career and senior professionals demonstrated higher expectancy, influenced by their previous successes in research. Nonetheless, the senior professionals felt that their research goals were limited at their late career stage. To enhance expectancy, institutions can implement structured mentorship programs that pair less experienced researchers with seasoned investigators.[23,40,46] Additionally, offering regular workshops to improve research skills can boost HPs' confidence in their research capabilities. The study also identified that intrinsic value drives some HPs who are passionate about research, while others are more motivated by utility value, seeing research as a stepping stone to career advancement or better clinical practices.[10] Institutions should highlight and communicate the diverse benefits of research engagement, not only focusing on career advancement but also emphasising the impact on patient care and personal satisfaction.[46] Recognising and rewarding research contributions can also enhance the perceived value. A common barrier identified is the significant time commitment required, which competes with clinical responsibilities. Financial constraints, particularly in settings without dedicated research funding, also emerged as significant costs. Healthcare organisations can address these costs by providing dedicated time and funding for research activities.[46] Policies that integrate research time into HPs' schedules without reducing their clinical hours or compensation could mitigate the time cost. Offering grants or financial incentives within the health system for research can alleviate financial barriers.

Implications for Practice

The proposed RISES model suggests that a multi-faceted approach is necessary to address the complex challenges HPs face in engaging with research. By focusing on enhancing research literacy, streamlining organisational processes, and fostering a supportive sociocultural environment, healthcare institutions can create a more conducive setting for research activities. This approach not only addresses the immediate barriers to research engagement but also builds a sustainable culture of research within the healthcare sector. Implementing personalised career pathway planning and self-efficacy building initiatives can empower HPs to navigate the challenges associated with research engagement. Organisational leaders are encouraged to advocate for resources and policies that support dedicated research time and recognise research activities as integral to professional development and evidence-based practice in healthcare.

Integrating the Expectancy-Value-Cost model into the study findings helps elucidate why HPs decide for or against engaging in research. By understanding these motivational dimensions, healthcare institutions can tailor their strategies to address specific factors that enhance motivation. For instance, by reducing perceived costs and enhancing both the expectancy of success and the value placed on research, institutions can create a more conducive environment for research engagement.

The RISES model developed in this study aligns with the EVC model and provides a practical framework for healthcare leaders aiming to foster a robust research culture within their organisations. By addressing each of the elements in the RISES model, strategies can be more targeted and effective, leading to higher engagement and more sustainable research activities among HPs. Further research is needed to explore the longitudinal impact of these interventions on research engagement across different healthcare settings and disciplines.

Future studies on motivation for research should investigate the outcomes of RISES Model's' interventions in relation to HPs' motivation for research engagement. Building on this research, longitudinal studies involving the inclusion of international perspective could be worthwhile. Such studies could utilise the RISES model developed in this research to enhance understanding of strategies and subsequently evaluate its impact on HPs motivation for research. Additionally, investigating the role of technology and digital platforms in enhancing research literacy and facilitating collaborative research endeavours could offer valuable insights into new strategies for supporting HPs in research.[8,9]

Strengths and Limitations

One major strength of the study is that it employed purposive sampling to include HPs from various disciplines, career stages and healthcare settings, enhancing the diversity of perspectives and experiences captured. This diversity strengthens the study's findings by encompassing a broad range of insights into research engagement across different career trajectories and disciplines. Additionally, the use of a qualitative phenomenological design also allowed for an in-depth

exploration of HPs' personal and professional experiences with research, capturing the complexity of their motivations, challenges, and perceptions. This approach provided rich, detailed insights that quantitative methods might overlook. Furthermore, the application of inductive thematic analysis, guided by the COREQ checklist, ensured a systematic and transparent approach to data analysis. This methodological rigor enhances the credibility and trustworthiness of the study's findings.

Nonetheless, given the qualitative nature of the study and the specific contexts from which participants were drawn, the findings may not be fully transferable to all health professionals or healthcare settings. The experiences and perceptions of HPs may vary significantly in different cultural, organisational, and geographical contexts. More so, the study could be affected by overestimation or underestimation of the issues discussed since participants had to recollect their experiences. Despite efforts to maintain credibility, qualitative research is inherently subjective. The researchers' interpretations and the participants' willingness to share their experiences openly could introduce bias. Although reflexivity sessions were conducted to mitigate this, some level of bias is unavoidable.

Conclusion

This study highlights the intricate dynamics influencing HPs' motivation to engage in research and proposes a comprehensive model (RISES) to foster ongoing motivation. By addressing individual, organisational, and sociocultural factors, healthcare institutions can create an ecosystem that supports and sustains research engagement among HPs. The findings contribute to a deeper understanding of the challenges and opportunities in promoting a robust research culture within the healthcare sector, offering a foundation for future interventions aimed at enhancing research participation and innovation in healthcare.

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Disclosure

The authors report no conflicts of interest in this work.

References

1. Engle RL, Mohr DC, Holmes SK, et al. Evidence-based practice and patient-centered care: doing both well. *Health Care Manage Rev*. 2021;46 (3):174–184. doi:10.1097/HMR.0000000000000254
2. Nass SJ, Levit LA, Gostin LO. The value, importance, and oversight of health research. In: *Beyond the HIPAA Privacy Rule: Enhancing Privacy, Improving Health Through Research*. National Academies Press; 2009:111–152.
3. Yoong SL, Bolsewicz K, Reilly K, et al. Describing the evidence-base for research engagement by health care providers and health care organisations: a scoping review. *BMC Health Serv Res*. 2023;23(1):75. doi:10.1186/s12913-022-08887-2
4. Daniels N, Gillen P, Casson K. Researcher practitioner engagement in health research: the development of a new concept. *Res Nurs Health*. 2021;44(3):534–547. doi:10.1002/nur.22128
5. Chalmers S, Hill J, Connell L, Ackerley S, Kulkarni A, Roddam H. The value of allied health professional research engagement on healthcare performance: a systematic review. *BMC Health Serv Res*. 2023;23(1):766. doi:10.1186/s12913-023-09555-9
6. Rahman S, Majumder MAA, Shaban SF, et al. Physician participation in clinical research and trials: issues and approaches. *Adv Med Educ Pract*. 2011;85. doi:10.2147/AMEP.S14103
7. Todd AL, Nutbeam D. More and better clinical trials in health care: focusing on people, not just systems and processes. *Med J Aust*. 2023;218 (5):209–211. doi:10.5694/mja2.51856
8. Huo M, Zhao B, Li Y, Li J. Evidence-based practice dynamic capabilities: a concept derivation and analysis. *Ann Transl Med*. 2022;10(1):22. doi:10.21037/atm-21-6506
9. Hart J, Hakim J, Kaur R, et al. Research supervisors' views of barriers and enablers for research projects undertaken by medical students; A mixed methods evaluation of a post-graduate medical degree research project program. *BMC Med Educ*. 2022;22(1):370. doi:10.1186/s12909-022-03429-0
10. D'Arrietta LM. Exploring the motivation of health professionals to engage with research at various career stages. *BMC Health Serv Res*. 2024;24:305. doi:10.1186/s12913-024-10772-z
11. Al Absi DT, Yousuf K, Aljaberi K, et al. Barriers preventing medical trainees from active participation in research activities. *J Multidiscip Healthc*. 2024;17:1513–1522. doi:10.2147/JMDH.S447948
12. D'Arrietta LM, Vangaveti VN, Crowe MJ, Malau-Aduli BS. Impact of research training on newly graduated health professionals' motivation to undertake research. *J Multidiscip Healthc*. 2022;15:2223–2240. doi:10.2147/JMDH.S377963
13. King O, West E, Lee S, et al. Research education and training for nurses and allied health professionals: a systematic scoping review. *BMC Med Educ*. 2022;22(1):385. doi:10.1186/s12909-022-03406-7

14. Peckham S, Zhang W, Eida T, Hashem F, Kendall S. Research engagement and research capacity building: a priority for healthcare organisations in the UK. *JHOM*. 2023;27(3):343–359. doi:10.1108/JHOM-12-2021-0436

15. Robinson GF, Switzer GE, Cohen ED, et al. Shortening the work preference inventory for use with physician scientists: WPI-10. *Clin Transl Sci*. 2014;7(4):324–328. doi:10.1111/cts.12132

16. Deci EL, Olafsen AH, Ryan RM. Self-determination theory in work organizations: the state of a science. *Annu Rev Organ Psychol Organ Behav*. 2017;4:19–43. doi:10.1146/annurev-orgpsych-032516-113108

17. Ryan RM, Deci EL. Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemp Educ Psychol*. 2000;25(1):54–67. doi:10.1006/ceps.1999.1020

18. Van Maele L, Devos C, Guisset S, Leconte S, Macq J Expectancy-value-cost motivational theory to explore final year medical students' research intentions and past research experience: a multicentre cross-sectional questionnaire study. *medRxiv*. 2021.;

19. Barron KE, Hulleman CS. Expectancy-value-cost model of motivation. In: Wright JD, editor. *International Encyclopedia of the Social & Behavioral Sciences*. 2nd ed. Elsivier; 2015:503–509.

20. Eccles JS, Wigfield A. Motivational beliefs, values, and goals. *Annu Rev Psychol*. 2002;53(1):109–132. doi:10.1146/annurev.psych.53.100901.135153

21. D'Arrietta LM, Vangaveti VN, Crowe MJ, Malau-Aduli BS. Rethinking health professionals' motivation to do research: a systematic review. article. *J Multidiscip Healthc*. 2022;15:185–216. doi:10.2147/JMDH.S337172

22. Abrahamson V, Baldock B. Research champions': a mixed methods evaluation of an interdisciplinary training programme to build research capacity in a community NHS trust. *Adv J Prof Pract*. 2023;4(1):33–55.

23. Edelman A, Brown A, Pain T, Larkins S, Harvey G. Evaluating research investment and impact at a regional Australian hospital and health service: a programme theory and conceptual framework. *Health Res Policy Syst*. 2020;18(1):1–15. doi:10.1186/s12961-020-0542-y

24. Australian Government Department of Health and Aged Care. Early to mid-career researchers initiative. Available from: https://www.health.gov.au/initiatives-and-programs/early-to-mid-career-researchers-initiative. Accessed October 10, 2022.

25. Manson SM. Personal journeys, professional paths: persistence in navigating the crossroads of a research career. *Am J Public Health*. 2009;99:S20–S25. doi:10.2105/AJPH.2007.133603

26. Creswell JW, Clark VLP. *Designing and Conducting Mixed Methods Research*. 3rd ed. SAGE Publications; 2018.

27. Boyland JR. A social constructivist approach to the gathering of empirical data. *Aust Couns Res J*. 2019;13(2):30–34.

28. Creswell JW, Poth CN. *Phenomenological Research. Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. 4th ed. SAGE; 2018:75–82.

29. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349–357. doi:10.1093/intqhc/mzm042

30. Liamputtong P, Liamputtong P. *Research Methods and Evidence-Based Practice*. 4th ed. Oxford University Press; 2022.

31. Saunders B, Sim J, Kingstone T, et al. Saturation in qualitative research: exploring its conceptualization and operationalization. *Qual Quantity*. 2018;52(4):1893–1907. doi:10.1007/s11135-017-0574-8

32. Plano Clark VL, Creswell JW. *Student Study Guide to Accompany Creswell's Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. 3rd ed. Pearson Education; 2008:v,295.

33. Jackson K, Bazeley P. *Qualitative Data Analysis with NVivo*. 3rd ed. SAGE; 2019:xxiii,349.

34. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101. doi:10.1191/1478088706qp063oa

35. Braun V, Clarke V. *Thematic Analysis: A Practical Guide*. SAGE; 2022.

36. Shaw R. Embedding reflexivity within experiential qualitative psychology. *Qual Res Psychol*. 2010;7(3):233–243. doi:10.1080/14780880802699092

37. Bandura A. *Self-Efficacy: The Exercise of Control*. W.H. Freeman; 1997.

38. Palmer S, Coad J, Gamble J, et al. Nursing, midwifery, and allied health professions research capacities and cultures: a survey of staff within a university and acute healthcare organisation. *BMC Health Serv Res*. 2023;23(1):1–15. doi:10.1186/s12913-023-09612-3

39. Smith JA, Flowers P, Larkin M. *Interpretative Phenomenological Analysis: Theory, Method and Research*. SAGE; 2021.

40. Allen TD, Eby LT, Poteet ML, Lentz E, Lima L. Career benefits associated with mentoring for protégés: a meta-analysis. *J Appl Psychol*. 2004;89(1):127–136. doi:10.1037/0021-9010.89.1.127

41. Hildebrand F, Hoefer C, Horst K, et al. Research in orthopaedic trauma surgery: approaches of basic scientists and clinicians and the relevance of interprofessional research teams. *Eur J Trauma Emerg Surg*. 2022. doi:10.1007/s00068-022-02110-x

42. Lave J, Wenger E. *Situated Learning: Legitimate Peripheral Participation. Learning in Doing*. Cambridge University Press; 1991.

43. Li M, Jameel A, Ma Z, Sun H, Hussain A, Mubeen S. Prism of employee performance through the means of internal support: a study of perceived organizational support. *Psychol Res Behav Manag*. 2022;15:965–976. doi:10.2147/PRBM.S346697

44. King E, Cordrey T, Gustafson O. Exploring individual character traits and behaviours of clinical academic allied health professionals: a qualitative study. *BMC Health Serv Res*. 2023;23(1):1–10. doi:10.1186/s12913-023-10044-2

45. Cordrey T, King E, Pilkington E, Gore K, Gustafson O. Exploring research capacity and culture of allied health professionals: a mixed methods evaluation. *BMC Health Serv Res*. 2022;22(1):85. doi:10.1186/s12913-022-07480-x

46. Brandenburg C, Stehlik P, Noble C, et al. How can healthcare organisations increase doctors' research engagement? A scoping review. *JHOM*. 2024;38(2):227–247. doi:10.1108/JHOM-09-2023-0270