Exploring early career researchers' perspectives of training and funding opportunities: Motivations and setbacks when applying for the UK's National Institute for Health and Care Research's fellowships and research funding

Ferhana Hashem | Jörg Huber | Bernadette Egan | Rebecca Barnes | Christopher Newby

Abstract

Despite the availability of training and funding opportunities with the UK's National Institute for Health and Care Research (NIHR), early career researchers (ECRs) invariably experience concern in sustaining an academic career in health research given the uncertainties of success following rejection from peer-reviewed funding bodies. The objective of this study was to consider what motivates ECRs when applying for funding to NIHR programmes and how they overcome funding setbacks. Eleven ECRs took part in a one-to-one virtual in-depth interview; the sample included more women (n = 8) than men (n = 3) and participants included pre-doctoral researchers (n = 5), and both doctoral (n = 2) and post-doctoral (n = 4) ECRs. The interviews were analysed using the logic of a systems theory framework identifying factors impacting on ECRs occurring within an individual, within their social system and within their broader environment. The central themes that emerged from the data focussed on: (1) facilitators for ECRs to apply for NIHR funding; (2) exploring ECRs' setbacks and...
INTRODUCTION

Over the past 15 years, the UK’s National Institute for Health and Care Research (NIHR) has invested heavily in the biomedical and health research workforce in England, with the express aim to attract, develop and retain research professionals, building research capacity through skills development, mentorship and dedicated clinical academic career pathways.\(^1\) NIHR training programmes targeting early career researchers (ECRs) (a term widely used in UK higher education institutions)\(^2\) offer a large array of career development opportunities for nurses, midwives and allied health professionals (NMAHPs), dentists and doctors and non-clinically based health researchers, competitively awarded through a rigorous selection process.\(^3\) A total of 673 NIHR Personal Awards have been granted out of 2831 applications between 2017 and 2021, with an average success rate of 24% (reported by financial year). Total success rates across the programmes (with awards being aimed at doctoral, post-doctoral, advanced and professorial fellowships) have increased for all personal awards from 21% in 2017/18 to 30% in 2020/21.\(^4\) The recent growth in successes seem impressive at 9%, but the application process of achieving funding success is beset by setbacks given the time invested by applicants, as shown by our study. Aside from fellowships, ECRs also have the opportunity to apply for NIHR’s Research for Patient Benefit Programme as a joint lead applicant, or as a co-applicant on NIHR’s other programmes. There is no publicly data available on the career stage of applicants for such programmes. Despite the availability of NIHR training and funding opportunities, ECRs experience ongoing concern in sustaining an academic career given the uncertainties of success following rejection from peer-reviewed funding bodies.\(^4,5\) ECRs face some of the toughest challenges to progress their careers inside or outside of academia, as there are notable barriers due to lower salaries, overdependence on competing for funding, unclear career pathways, and no obvious re-entry point for ECRs following a career break.\(^6\) For ECRs working in health and social care settings, there are issues around poorly resourced infrastructure, low expertise and limited capacity to increase opportunities to conduct research.\(^7\)

Even with these barriers, ECRs seem undeterred from applying for NIHR fellowship and training opportunities. The overall number of researchers applying for NIHR Personal Awards in financial year 2019/20 was comparable to the following financial year 2020/21 of 711 and 694 respectively; NMAHPs applying to the Clinical Doctoral Research Fellowship programme was also comparable in these respective financial years of 76 and 75. The central issue that requires consideration therefore is how do ECRs continue with applications for research funding despite the rejections and setbacks they may encounter. Our research question is: What are the intrinsic motivations of ECRs when applying to NIHR programmes and how do they overcome funding setbacks?\(^8\) In short, we focus on what facilitators

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**KEYWORDS**

early career researchers, grant applications, health research, overcoming setbacks, research training
make it possible for ECRs to apply for applied health research funding, and how do they move on from funding disappointment.

2 | METHODS

Recruitment procedures: Participants (ECRs) were identified through gate-keepers via Research Design Service (RDS) Directors, Deputy Directors and Research Advisors across eight RDS regions in England. Each region identified between one to two participants. With their permission, participants agreed to share their contact details with the project lead (FH) at the University of Kent. FH approached participants using a participant information email inviting them to the study. Participants had the chance to ask questions via email before agreeing to take part. Prior to the interview, informed consent was obtained from participants.

Participant characteristics and background details: Participant characteristics and background information were collected as part of the interview and prefaced the in-depth discussion. This included information on age, gender identity, ethnic background and other protected characteristics (see Table 1), and was input into an Excel spreadsheet for analysis.

Conduct of interviews and data collection: The topic guide was developed in collaboration by the author (FH) and all four co-authors (JH, BE, RB, CN) who suggested interview questions, that were then reviewed by the whole team for consistency and coherence (please refer to Supplementary File 1). As ethical approval was attained through the University of Kent, only the lead author (FH based at the University) was able to conduct the interviews. Interviews were arranged and conducted by FH with each participant separately over approximately a 1 month period. Early career researchers took part in an online one-to-one interview lasting between 30 and 66 min, and were video recorded and audio transcribed verbatim at a later date. Data collection took place between 26th March 2021 and 29th April 2021.

Data analysis: Due to ethical considerations on the gathering, handling and analysis of the data, being restricted to the lead author, FH was solely responsible for coding the data. The data was coded once all of the interviews had been completed. NVIVO 12 Pro was used as a data management system; the process involved reviewing transcripts and inductively coding emergent themes and concepts, and then creating the coding framework (please refer the Supplementary File 2, Data Saturation Grid). The analysis also builds on the findings of Patton and McMahon’s (2006) and Ranieri et al.’s (2018) work adopting the logic used in systems theory framework to identify what factors influence ECRs’ decision-making when seeking research funding. This framework divides up impacts as occurring

<table>
<thead>
<tr>
<th>Participant</th>
<th>Role</th>
<th>Stage of career</th>
<th>Gender</th>
<th>Age</th>
<th>Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paediatric Nurse</td>
<td>PhD</td>
<td>Female</td>
<td>30–39</td>
<td>White British</td>
</tr>
<tr>
<td>2</td>
<td>Social Worker</td>
<td>Pre-doctoral</td>
<td>Female</td>
<td>40–49</td>
<td>Unspecified</td>
</tr>
<tr>
<td>3</td>
<td>Academic/Health Psychology</td>
<td>Post-doctoral</td>
<td>Female</td>
<td>30–39</td>
<td>British Indian</td>
</tr>
<tr>
<td>4</td>
<td>Academic/Physiology</td>
<td>Post-doctoral</td>
<td>Male</td>
<td>30–39</td>
<td>White British</td>
</tr>
<tr>
<td>5</td>
<td>Midwife</td>
<td>Pre-doctoral</td>
<td>Female</td>
<td>50–59</td>
<td>White British</td>
</tr>
<tr>
<td>6</td>
<td>Academic/Mental Health</td>
<td>Post-doctoral</td>
<td>Female</td>
<td>30–39</td>
<td>Unspecified</td>
</tr>
<tr>
<td>7</td>
<td>Music Therapist</td>
<td>Post-doctoral</td>
<td>Male</td>
<td>50–59</td>
<td>White</td>
</tr>
<tr>
<td>8</td>
<td>Rehab Doctor</td>
<td>PhD</td>
<td>Male</td>
<td>30–39</td>
<td>White British</td>
</tr>
<tr>
<td>9</td>
<td>Pharmacist</td>
<td>Pre-doctoral</td>
<td>Female</td>
<td>40–49</td>
<td>White</td>
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<tr>
<td>10</td>
<td>Speech and Language Therapist</td>
<td>Pre-doctoral</td>
<td>Female</td>
<td>30–39</td>
<td>White British</td>
</tr>
<tr>
<td>11</td>
<td>Academic/Health Economist</td>
<td>Pre-doctoral</td>
<td>Female</td>
<td>30–39</td>
<td>White</td>
</tr>
</tbody>
</table>
within an individual, within the individual's social system and within the individual's broader environment. This framework provides a way of conceptualising the wide range of influences that are likely to impact on ECRs' career development.

Validity (or trustworthiness) was established using the guidelines stated by Guba and Lincoln (2005) consistent with natural inquiry focussed around four criteria: (i) credibility; (ii) transferability; (iii) dependability; and (iv) confirmability. The researcher's immersion in the research process involved analysis, debriefing and reflection steps undertaken to achieving validity. Data saturation was achieved when no new information gave rise to new codes from the interviews, as informants did not express any novel ideas or perspectives thereby reaching “information redundancy”.

3 | RESULTS

We received a response from 11 ECRs who agreed to be interviewed, from seven out of eight RDSs (https://www.nihr.ac.uk/explore-nihr/support/research-design-service.htm RDS weblink). Our sample included more women (n = 8) than men (n = 3) and participants included pre-doctoral researchers (n = 5), and both doctoral (n = 2) and post-doctoral (n = 4) ECRs. The ethnic backgrounds of participants were: British Indian (n = 1), White British (n = 5), White/White other (n = 3) and unspecified (n = 2). Seven participants were health and social care professionals, while four were ECRs with an academic background with an interest in a health-related topic (see Table 1).

Despite the data capturing a wide-range of experiences and responses (see Supplementary File 2, Data Saturated Grid), the results reported in this paper aim at addressing our central research questions on: What are the intrinsic motivations of ECRs when applying to NIHR programmes and how do they overcome funding setbacks? The relevant themes that emerged from the data were developed using a hybrid approach of inductive and deductive coding using qualitative methods of thematic analysis, and incorporated using a logic of systems theory framework, and were salient to our questions, focussed on: (1) facilitators for ECRs to apply for NIHR funding; (2) exploring ECRs' setbacks and disappointments; (3) improving chances of funding; and lastly, (4) deciding to apply with a view to re-applying in future (see Table 2).

3.1 | Facilitators for ECRs to apply for NIHR funding

The ECRs expressed some specific factors which led them to apply for NIHR funding. They spoke about improving the evidence base in their profession, shaping clinical practice and building networks across their trusts. Early career researchers also spoke about applying for fellowships to develop and build on previous research that had been undertaken as part of a programme of PhD study.

3.2 | Exploring ECRs' setbacks and disappointments

Early career researchers identified a range of views about their experiences of applying for funding. Despite being noted as a positive experience, the participants were conscious of their time investment, as well as the physical and emotional demands required of a funding application, without any assurances of being successful. A common theme for ECRs with a clinical background was the lack of support from their organisations to pursue research with no mechanisms in place for any backfill arrangements for their time, should their application for funding be successful.
<table>
<thead>
<tr>
<th>Table 2</th>
<th>Motivations of early career researchers (ECRs) in applied health research and mechanisms for overcoming setbacks.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facilitators for ECRs to apply for NIHR funding</strong></td>
<td><strong>Exploring ECRs’ setbacks and disappointments when applying for funding</strong></td>
</tr>
<tr>
<td>Within an individual</td>
<td>My area of speech and language therapy, we have a lot of very tacit knowledge...But we don't necessarily have a lot of evidence to back that up, or we presume that there is evidence when there isn't. And so I am aware that there is...It can improve, and that's really kind of one of my main drivers is the fact that what we're doing, it does work. (Female, pre-doctoral, Speech and Language Therapist)</td>
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<td>...I think when you learn about, like, you know, the [NIHR] fellowships and things, that's when I became more interested. And that's something that I do want to do...And we were thinking...Okay, inflammatory arthritis, because it will bring the postdoc and my previous PhD experience together. (Female, post-doctoral, Academic/Health Psychology)</td>
<td>Do it again...apply again? To be honest, I've been asked to apply again. Yes. The problem is...I think it was a good experience. At the same time, would be a waste of time if you don't get it when we, because actually, I could have started [the PhD] probably before, right? And with other funding, maybe. And I would have had already [had] 1 year. And the same would be for the second application at the end if I don't get it, I waste my time. (Female, pre-doctoral, Pharmacist)</td>
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Facilitators for ECRs to apply for NIHR funding

Exploring ECRs' setbacks and disappointments when applying for funding

Improving chances of funding success

Deciding to apply with a view of re-applying in future

<table>
<thead>
<tr>
<th>Individual's social system</th>
<th>He's won quite a lot of grants from there... Even like when I arrived in the UK, it's you know my first meeting with him, it's like, &quot;so what are you going to do after your PhD? Fellowship? So you need to be thinking about X, Y, and Z. Have you thought about which funder, you know, what do you want to do?&quot; And when I described what I wanted to do, it most fitted with NIHR, so it was training and brainwashing from day one. (Female, post-doctoral, Academic/Mental Health)</th>
</tr>
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<tbody>
<tr>
<td>Exploring ECRs' setbacks and disappointments when applying for funding</td>
<td>And I say I didn't get through to the interview stage. So I did that last year. So I applied last year, and then because I'm a social worker in my trust, it isn't very research [active] for my study (Female, pre-doctoral, Social Worker) It was a tough process physically and emotionally demanding [referring to Clinical doctoral Research Fellowship application]...you had to do it all yourself...there wasn't the same support... (Female, pre-doctoral, Midwife)</td>
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<tr>
<td>Improving chances of funding success</td>
<td>...so I had been speaking to a number of colleagues and actually, they were very helpful. They were previous former successful applicants as well. And they helped a lot with some key points, or the focus of my application, and what should I particularly look at and explain or be more specific about in my application? So I think that was very helpful. (Female, pre-doctoral, Academic/Health Economist)</td>
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<tr>
<td>Deciding to apply with a view of re-applying in future</td>
<td>So I'm lucky at the moment...and hopefully we can keep these collaborations going. But I'm within a team and an environment that it's very normal to put together those sorts of applications. So the seizure study that we got accepted was £2.3 million, the cranioplasty, one that we've just finished that we didn't get was £1.7 million. (Male, doctoral, Rehab Doctor)</td>
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<tr>
<th>Individual's broader environmental/societal system</th>
<th>I think I've changed practice within my own team. I am sort of looking at how I can do something a bit more widely in my trust...So I'm just doing a consultation process. I'm trying to work with MIND, if they will take on some suggestions from my participants about how they think the process should be done. (Female, pre-doctoral, Social Worker)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring ECRs' setbacks and disappointments when applying for funding</td>
<td>Yeah, I think the [clinical research] structure that is there for medics is quite, you know, fluid...yeah. In terms of non-medical research, it's all a bit like, &quot;well what do I need to backfill for?&quot; That's obviously more work for them. Find someone to match the same skills that you've got...that's another headache for them. &quot;What do you want at the end of your PhD? What you're going to be giving back to the unit? What do we get given to the service?&quot; So my, I suppose my journey to getting my fellowship has been quite difficult from a clinical viewpoint. (Female, doctoral, Paediatric Nurse)</td>
</tr>
<tr>
<td>Improving chances of funding success</td>
<td>RDS advisor and health services researcher, and advisor...she's been really useful. Both because she's been the primary contact for feeding back on my work...I would say now I have established that working relationship. I have abused it to the max, they've been really, they have been so helpful. Like, with my last minute deadlines, I've been sort of been able to go, &quot;look, I've got this, you've got 1 day to read it...you've got 1 day on Thursday, next week, please&quot;. And they've communicated around, worked out who's got some free time and done it. And you know, they've really pushed to get it done, which has been amazing. (Male, post-doctoral, Academic/Physiology)</td>
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<tr>
<td>Deciding to apply with a view of re-applying in future</td>
<td>But I think I was prepared because I'd done it before...But I think I was more able to articulate myself better a second time around. And I'd had three mock interviews... (Female, doctoral, Paediatric Nurse)</td>
</tr>
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**TABLE 2** (Continued)
3.3 | Improving chances of funding

Participants found talking with previously successful applicants helpful for feedback on their application, revising their application based on the comments from the funding panel on an unsuccessful application and understanding who to put together in their research team to improve chances of success. The RDS was also noted as a valued resource providing essential methodological guidance and research design support to improve the quality of their application.

3.4 | Deciding to apply with a view to re-applying in future

The informants acknowledged that they saw the application process as a way of perfecting their application, being strategic with understanding the review process and becoming cognisant of the views of the funding panel. The ECRs accepted that even if they were not going to be successful first time around, they would apply in the following year having improved their application skills and techniques.

4 | DISCUSSION

Early career researchers mentioned a range of facilitators that motivated them to apply for funding including: contributing to an evidence base, bringing PhD findings into an applied area of health research, being persuaded and supported to apply, and changing practice within their teams. Trusson et al. (2019) found similar motivations with NMAHPs embarking on a clinical academic career under the NIHR trajectory. The ECRs we interviewed vocalised the following frustrations when being declined for funding: spending and wasting time on their PhD funding applications, lack of support from their NHS Trusts, and questions being raised by their Trusts about what their PhD research would contribute back to the health service.

We found that some ECRs embraced disappointment almost expecting failure, with a view to turning a funding setback into an opportunity to build on an application as a starting point for their next application. Wang et al (2019) found in their analysis of the United States' junior scientist programme for the National Institutes of Health grants, that in fact early career setbacks had a powerful opposing effect, hurting some careers, but surprisingly, strengthening outcomes for others. Perhaps ECRs who anticipate disappointment arrive at the realisation much earlier on in their academic careers that failure to secure funding is an inevitable aspect of the current system in academia, with reliance on competition for the distribution of research funding by government.

Strategies to support ECRs to be successful in their funding applications and become lead research investigators are essential to help grow a research-ready health and social care workforce in order to expand the evidence base to improve patient outcomes. Mechanisms to generate a new cadre of ECRs could be facilitated through strengthening local research infrastructure through extensive R & D investment, research mentorship embedded as part of professional development and CPD, access to collaborative research communities and ambitious workforce development planning hard-wiring research into an organisation's strategic priorities. National Institute for Health and Care Research fellowships and research funding programmes have the potential to foster and develop ECRs across local and regional health and social care ecosystems in partnership with the university sector, and collectively such collaborations are crucial to sustain system-wide gains including greater staff retention and financial benefits to the health and social care system.

The main limitation of our study is that our overall sample was small with a total of 11 ECRs interviewed. Their responses are not representative of all ECRs who have applied to NIHR for research funding. However, their comments provide an honest and frank reflection of the uncertainties and experiences of ECRs in a highly competitive research environment. Participants were recruited from a pool of ECRs who were already engaged with the NIHR’s RDSs and its infrastructure. Therefore participants interviewed had insight of the NIHR and its funding programmes and were in receipt or had been in receipt of support from their RDS. We suggest further research on strategies for supporting ECRs including coaching to deal with disappointment, tapping into academic mentorship programmes and better access to local support...
networks, which could in part be facilitated through existing NIHR research infrastructure through the regional RDSs. At an organisational level integration of research as a priority area needs to be embedded into its strategic plans.16

5 | CONCLUSIONS

Our study set out to understand why ECRs apply for funding to NIHR, given the competitive nature of applications and funding outcomes. Despite the hurdles, the respondents felt that the application and review process was still worth investing their time in, as the prospect of improving their chances for funding increased, if they persevered with feedback from funding panels and colleagues, alongside working with grant support services. There was little discord around questioning or challenging the process in which research funds are allocated and administered. The implications of our research suggest that the validity and strength of competitively-run funding programmes and grant review processes is an accepted part of an ECRs career trajectory with successfully awarded research funding seen as a mechanism to build careers and research portfolios.

ACKNOWLEDGEMENTS

We would like to thank the National Institute for Health and Care Research’s (NIHR) Research Design Services (RDS) in England for helping with identifying researchers to take part in interviews. We would also like to thank the researchers who agreed to take part in the interviews and generously gave their time to share their experiences. This paper presents independent research undertaken in time spent while working on RDS national priority issues for the NIHR’s Research Design Service South East (RDSSE). The views expressed are those of the author(s) and not necessarily those of the NIHR or the United Kingdom’s Department of Health and Social Care.

CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

The data that supports the findings of the study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical considerations.

ETHICS STATEMENT

Ethical approval for our study was provided by the University of Kent’s Staff Research Committee for Research Centres (SRCEA ID: 0388).

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