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# Navigating the academic ladder as an early career researcher in earth and environmental sciences

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## Abstract

There is growing concern in Higher Education around job security, work–life balance and inequalities, and early career researchers (ECRs) must make difficult trade-offs and life choices. Literature confirms that women navigating academia face additional challenges compared to their male counterparts. Few studies connected contractual circumstances, employment priorities and their impacts on the life choices of individual academics. We report results from a survey exploring the experiences of 37 ECRs who completed PhDs in the United Kingdom (UK) navigating the academic ladder in geomorphology and earth/environmental science, and contextualize these findings by drawing on personal experiences and wider literature. We find evidence of multi-directional pressures that have materially negative effects on individuals' life choices, including concern that academic employment is a barrier to living where and with whom one may want to. The level of precarity amongst survey respondents is stark in terms of number of years they have held fixed-term contracts (maximum 10 years), the number of individual contracts held (maximum 14) and number of different institutions worked at (maximum six). Women respondents were less prepared to be employed on precarious contracts and put more emphasis on job security when applying for academic posts, with men being generally more satisfied by financial aspects of university employment; which will amplify the leaky pipeline and gender gaps at more senior levels. We also find that perceived institutional prestige was a surprisingly low priority for the majority of respondents, and there were notable divergences between career advice given by more senior colleagues and the priorities of ECRs seeking guidance. We put forward a set of key considerations: improving policies on parental leave and flexible working; formalizing and improving mentorship; more considerate recruitment procedures; reducing contract precarity; and, transparency on pay and promotion. We believe these are within the scope of action by departments, laboratories and research groups.

## KEYWORDS

academia, academic progression, early career, geomorphology, women

## 1 | INTRODUCTION

Grappling with uncertainty has become an essential criterion when choosing an academic occupation, especially during the early career stages. Concerns around precarity and working conditions in Higher Education have intensified prior to and through the COVID-19

pandemic (OECD, 2021; UCU, 2020). After earning a PhD, short-term contracts are commonplace, ostensibly to build experience and publication records to make oneself competitive for open-ended contracts. This is a function of a highly competitive and saturated job market (Etmanski et al., 2017). Furthermore, an increasing number of short-term teaching-focused positions are being advertised (certainly in the

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United Kingdom [UK]), as a response to growing student numbers in universities. This type of contract reduces research-related time, making it more difficult to align with the 'publish or perish' narrative (Forrester, 2021). A career path outside of academia is seen as less desirable by some, with those having obtained a doctorate finding it difficult to know how to market their skillsets (Powell, 2018).

Nerad and Cerny (1999) and Bazeley (2003) recommended universities take steps to create more stable working conditions to improve the experience of early career researchers (ECRs) almost 20 years ago. Whilst some improvements may have been made, work pressures continue to cause deep-rooted concern amongst ECRs (Woolston, 2019). Navigating an academic career undoubtedly brings benefits for some (e.g., living and working in different locations; flexibility and challenges in academic endeavour), but for others this insecurity and transient employment can lead to stress, decline in mental wellbeing and difficulties with personal circumstances and making life decisions (Dorenkamp & Weiß, 2018; Ekine, 2018; Mudrak et al., 2018). A special issue on 'ECRs and Changing working conditions in academia' in the journal *Higher Education Policy* (Wöhler, 2014) provides a number of in-depth articles on the general challenges that ECRs face, covering topics such as work-life balance, stability, mobility, supervision and publishing.

The term ECR is used widely in the literature and generally refers to a person at the beginning of their academic career, although there is no single definition. UK Research Councils and funding bodies as well as learned societies (such as the European Geosciences Union and American Geophysical Union) tend to define an ECR in terms of length of time since completion of a doctorate, with a range extending from 3 to 10 years and the most common timescale being 5 years post-PhD. Extenuating circumstances that lengthen this period may be given to those who have taken a career break due to illness or parental/caregiving duties (Akram & Pflaeger Young, 2021). Length of employment is a common categorization for ECR, but Laudel and Glaser (2008) consider time in employment an imprecise measure, since increasing casualization has seen a growth in casual teaching-only appointments or short-term research positions funded through grant money. Bazeley (2003) also found that academics who self-defined as ECR commonly did so on the basis that they lacked experience, competence and/or confidence to undertake independent projects or that they had not yet completed or only recently completed their PhD.

The challenges of being a woman, a transgender woman and/or a non-binary researcher in academia have also been widely discussed in the literature (Bono et al., 2019; Casad et al., 2020; Huang et al., 2020; Rathburn & Ely, 2021; Siegel, 2019) and often intersect with other aspects of identity including racial diversity, sexuality, disability and class (Berhe et al., 2022; Dowe et al., 2021). The tendency for women to leave academia prematurely is well-established (Gasser & Shaffer, 2014), sometimes described as the 'leaky pipeline'. There are a multitude of factors at play (see Huang et al., 2020), including barriers to equal research recognition (Witteman et al., 2019) and promotion (Baker, 2010). Gender bias is also rife in the delivery of education in academia, with ample literature highlighting that ECR women are perceived as less experienced and less of an authority on their subject matter, which is reflected in poorer student evaluation scores for women compared to their male colleagues (e.g., Mengel et al., 2017).

Looking specifically at the disciplines of geomorphology, earth and environmental sciences, these same challenges and benefits exist (Tooth & Viles, 2021). These fields have a historical masculine legacy and dominance (Bono et al., 2019), with science subjects often viewed as tough, competitive and impersonal. Marín-Spiotta et al. (2020) describe the gendered nature of the geosciences (mostly from a US perspective), notably highlighting a general lack of diversity and hostile environments faced by under-represented groups. Field and laboratory work, which are often critical components of an academic career in earth and environmental sciences, present specific challenges from a gendered perspective welcoming and normalizing the able-bodied (Greene et al., 2021; Jokinen & Caretta, 2016; Lininger et al., 2021).

In this article, we aim to provide a balanced analysis of the experiences of ECRs who have during their academic career classified themselves as geomorphologists, environmental scientists and/or geoscientists, focusing on the post-PhD experience. For the purposes of this work, and drawing on the definitions of ECRs discussed earlier, we have defined an ECR as an individual within 10 years of being awarded their doctorate. This should encapsulate most existing classifications of ECRs and ensure we capture those who may have taken extended periods of time out from their direct academic career. Many of those working in, or closely with, academia will be familiar with personal or anecdotal evidence about career progression, but there have been few studies of academic career experiences that integrate personal and external data to evaluate this in more detail. Drawing on a mixed-methods approach using textual and graphical analysis of survey data and our own personal experiences, we explore the challenges and merits of the academic career trajectory. Our specific objectives are:

- Identify the challenges and benefits of being an ECR with a focus on those working in geomorphology, environmental- and geosciences in the UK;
- Evaluate the current situation faced by ECRs and explore the ways in which employment prospects and realities influence individuals' life plans, goals and choices;
- Analyse to what extent and in which ways being a woman in geomorphology, environmental sciences and geosciences intensifies or exacerbates those challenges and opportunities;
- Put forward a set of key considerations for improvement that can be considered by fellow academics in the context of their home institutions.

To provide context for the discussion, the authors must acknowledge their identity and personal experiences that may introduce unconscious bias to this research. The authors are all white and cis-gender, identifying as three females and one male. They studied for undergraduate and postgraduate degrees (Master's and PhD) in the earth and environmental sciences fields at primarily UK institutions. Two of the authors at the time of writing were on temporary contracts and two were on permanent contracts. All authors have undertaken multiple temporary, short-term contracts post-PhD. In accordance with our ECR definition of 10 years post-PhD, three authors are classified as an ECR and the other no longer sits in this category. One ECR author has a child, has experience of taking a period of parental leave during a fixed-term contract and at the time of writing is preparing to take

another period of leave with a second child. The authors recognize that they have a specific set of privileges and experiences, which people with other intersectional identities may not. The survey data in this study should assist in providing a balanced analysis of intersectionality.

## 2 | METHODOLOGY AND METHODS

We applied a dual approach to gather information about the thoughts, feelings and experiences that ECRs have regarding the benefits and challenges of continuing with a career in academia after earning a doctorate. We conducted an extended survey (approximately 30 min), designed by the authors, which we supplemented with our own experiences working in UK Higher Education. The survey questions are provided as Data S1 in the Supporting Information. The survey was posted on Microsoft Office Forms and advertised by the authors through their networks, including relevant Learned Societies, email lists and Twitter. The survey was open to anyone identifying as a geomorphologist, environmental scientist or geoscientist who had completed their PhD in the last 10 years and then went on to be employed in a substantive role at a university for some or all of those years (i.e., as a minimum held a contract for 6 months or longer, either fixed term or permanent/open-ended). There was no mention of gender in the promotion of the survey to try to get responses from the full gender spectrum for comparison. We encouraged participation from those who continued working in universities in any role (professional services, research, teaching, technical, laboratory-based) after this initial employment as well as those who have since left to pursue a career outside of universities. Although there was no geographical limit placed on who could undertake the survey, the majority of respondents were from UK institutions. This manuscript therefore draws primarily on a UK context while incorporating responses from the rest of the world to highlight points applicable to universities and academic careers more generally.

Given the UK focus, it is prudent to summarize the UK Higher Education system. UK universities are generally divided into the Russell Group (an umbrella organization representing a collective of 24 research-intensive universities: <https://russellgroup.ac.uk/>), the post-1992 (newer establishments focused on teaching and research) and the pre-1992 (older establishments that are not currently members of the Russell Group) institutions. The most common academic positions following completion of a PhD include:

- Postdoctoral research associate: fixed-term position on advertised research projects;
- Postdoctoral fellowships: fixed-term position where the applicant applies to conduct a research project;
- Teaching associate; fixed-term position focused on teaching support and delivery;
- Lecturer; can be either fixed-term or permanent and can be teaching-focused or a combination of teaching and research;
- Subsequent career progression on a permanent position usually follows Lecturer > Senior Lecturer > Reader/Associate Professor > Professor. Most involve teaching and research but teaching-focused pathways are becoming more established in the UK.

The survey consisted of 55 questions (provided as Data S1), comprising a mix of Likert-scale rating (i.e., a continuum of options where the most applicable is selected by the respondent) and open-ended types that encouraged free-flowing comments. The survey covered the following sections: background information, information about the respondents' academic career, their experiences of being an ECR, the day-to-day job demands and expectations and the job application process. A final section asked respondents to comment on the benefits and challenges of being an ECR, and in particular how these impact women, and to outline what actions they would recommend could be taken at an immediately actionable level (i.e., as individuals, research groups, departments) to better support women working in academia. The questionnaire was structured with branching to enable additional targeted questions for those who have left academia compared to those who are still working within a university setting.

Quantitative analysis was performed on the Likert-scale questions and the open-ended questions were assessed for key trends using word clouds and coded using axial (thematic) coding as defined by Wicks (2012). For all questions the trends were evaluated across all responses and then disaggregated by gender and other key characteristics (i.e., career stage, country PhD was undertaken in, whether the respondent is still working in Higher Education).

## 3 | MAIN FINDINGS

### 3.1 | General survey

We received 48 complete responses to the survey. Using the country where each respondent completed their PhD as the classifier; 37 responses completed their PhD in UK, with others completing these in Estonia, Israel, the Netherlands, New Zealand and the United States. Given the majority of responses had completed their PhD in the UK, we made the decision to focus the detailed analysis on the UK-based responses and use responses from the rest of the world as contextual insight. This approach ensures consistency: respondents awarded their PhD at a UK institution will have been trained in the UK university system and gained insight into academic pathways in the UK, even if they moved institutions or countries later in their career. No respondents who completed their PhD in a country outside the UK moved to the UK after their PhD.

The 37 UK-based respondents comprise 23 women, 13 men and one who preferred not to say. We received zero responses from those identifying as other genders/non-binary. The majority of non-UK respondents (9 out of 11) were women. Respondents show an even spread across years since completion with the exception of those who had completed in the last 3–4 years, where there were double the number of responses than other categories (Table 1). In terms of contractual status, 18 respondents hold a fixed-term contract and 11 have a permanent post. We note a mixture of terminology is used across UK Higher Education to denote 'permanent' contracts; 'open-ended' or 'indefinite' are also common. Eight respondents now work outside academia but held at least one substantive university role since PhD completion.

**TABLE 1** Survey respondent demographics

Respondent age		Years since PhD completion	
Age range	Number of responses	Years	Number of responses
20–29	3	1–2	6
30–39	31	3–4	12
40–49	2	5–6	7
50–59	1	7–8	6
60 or older	0	9–10	6

**TABLE 2** Contractual circumstances for survey respondents disaggregated by time in academia (see Figure 1 for survey questions asked)

Time in academia	Number of fixed-term contracts held			Total number of years on fixed-term contracts			Number of different institutions		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum
1–2 years	2.5	1	5	1.4	<1	2	1.7	1	2
3–4 years	3.1	1	5	2.9	1	4	1.8	1	4
5–6 years	7.0	3	14	5.6	3	6	2.0	1	4
7–8 years	3.0	2	4	4.2	2.5	6	2.3	1	4
9–10 years	4.5	2	8	5.1	<1	10	2.0	1	3

### 3.2 | Who and what is an ECR?

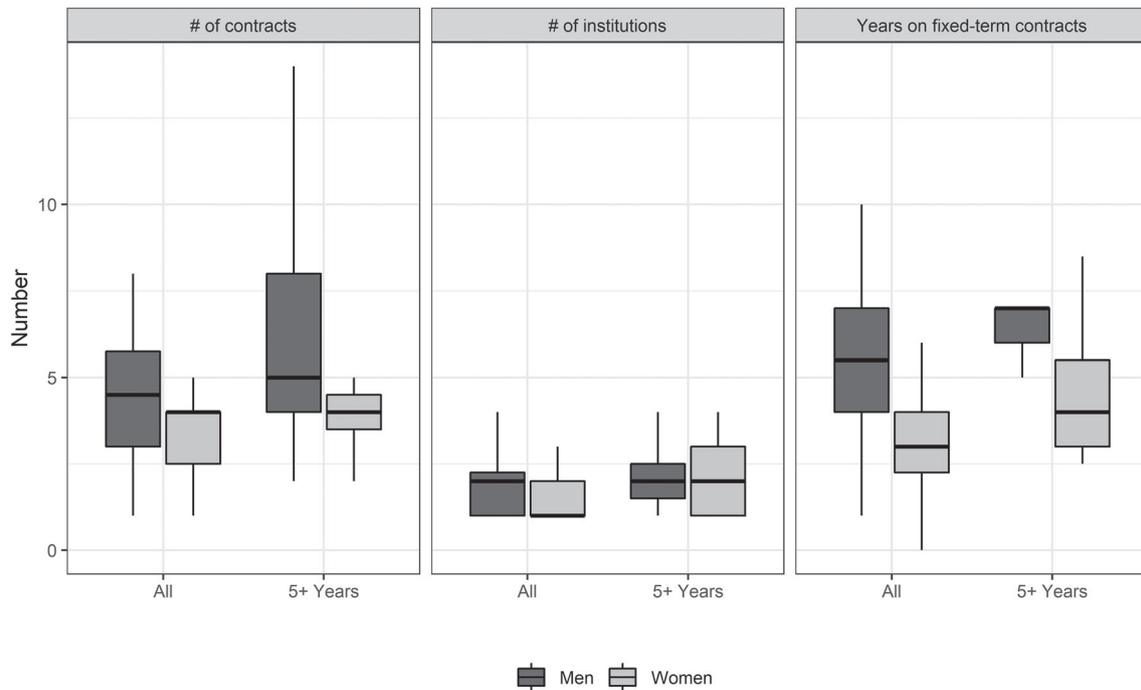
Given the variation in the definition of what constitutes an ECR we asked respondents whether they considered themselves to be an ECR within the timeframe that we set (i.e., 10 years from PhD award). Of the respondents, 22% felt that they no longer classified themselves as an ECR, with all of these having completed their PhD over 5 years prior and 50% had since left academia. Interestingly, all respondents from elsewhere in the world still considered themselves as an ECR regardless of time since PhD, even those with 10 years employment post-PhD. The most common definition of an ECR (as outlined in the Introduction) is 5 years employment post-PhD, but of our respondents who were 5–6 years post-PhD, 86% still considered themselves as an ECR, with 42% of those with 7+ years of experience also self-identifying as an ECR. Interestingly, all female respondents with 5–6 years post-PhD felt that they were still ECR and half of those identifying as non-ECR in the 7+ years group of respondents were female.

Often women have a greater number of career breaks due to childcare and this could be a factor in these results. Evaluating time since PhD against the number of contracted years worked we found that there was a disparity between these figures for 40% of the women and only 15% for men; showing that proportionally more women had employment contracts for less than the time that they potentially could have been in employment. Unemployment and other factors could account for this but it is telling that the figure is much higher for women, who are entering the job market at a time when many are starting families and have to juggle caring responsibilities with their career. This highlights the complicated and individualistic nature of academic career progression, and aligns with the findings of Bazeley (2003) that personal experience and confidence is important when self-defining career stage. As suggested by Bosanquet et al. (2016) when defining ECR it may be appropriate to combine objective measures (such as doctoral candidature or completion, length of university employment, and/or research output) with subjective indicators to acknowledge the complex and conditional nature of entering academia.

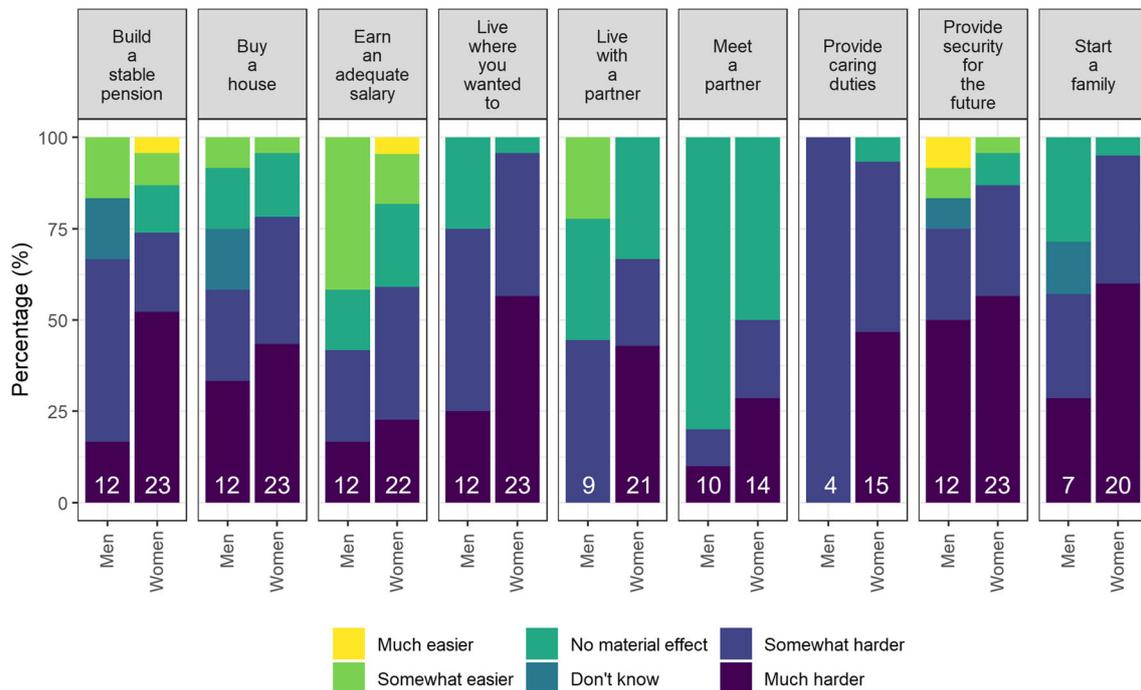
### 3.3 | Contractual status

We found that 48% of people surveyed were still on fixed-term contracts at the time of submitting the survey, with the remainder having secured a permanent position. On average, respondents spend just under 5 years on fixed-term contracts (median = 4), often across multiple institutions (Table 2; Figure 1). This masks the reality that ECRs can spend up to 10 years on numerous separate fixed-term contracts (maximum = 14). Two metrics of contractual status show divergence by gender (Figure 1): women typically hold fewer fixed-term contracts (Wilcoxon rank sum test,  $p = 0.1$ ) and shorter periods of time in total ( $p = 0.01$ ) that the male respondents in the survey. These values will be influenced by respondents who have completed their PhDs more recently, so we recalculated for respondents at least 5 years since PhD award. This confirms ( $p < 0.01$ ) a tendency for men to spend more years than women on fixed-term contracts (Theall & Franklin, 2001). These findings suggest that, overall, women are less keen on navigating an ECR pathway rooted in protracted precarity. There are many plausible reasons for this, not least that – from our experience – moving is a non-trivial undertaking, especially when a life partner or family must be accommodated.

To explore the prevalence of short-term contracts for ECRs in further detail, the responses were disaggregated based on the respondents' time in academia (Table 2). Reported duration of short-term contracts varied from 7 months to 5 years, and even in the first couple of years of an academic career some ECRs had already held five short-term contracts (Table 2). Those that had been employed in academia for a longer time period since their PhD had moved institutions more often than those respondents that had completed their PhDs more recently, and most had spent a significant portion of their career on short-term contracts. Of the respondents, 30% had stayed at the same institution and 14% moved institution but not their primary address; the majority (56%) had to relocate (37% moved to a different town or city and 19% moved to a different country). For non-UK responses, the proportion of those relocating was 75% (42% moved



**FIGURE 1** A summary of the contractual circumstances for survey respondents, disaggregated by gender. Survey questions: Thinking about all the fixed-term contracts you have held since completing your PhD, for how many years, in total, were you on fixed-term contracts? Since completing your PhD, at how many different institutions have you been employed? Since completing your PhD, how many employment contracts at a university have you held in total (i.e., the total number of individual contracts across all the institutions you may have worked, treat contract extensions as a separate contract)? Because the values for 'All' will be influenced by respondents who have been awarded their PhDs recently, we recomputed each plot for respondents who are at least 5 years since PhD award.



**FIGURE 2** Responses to Likert-scale questions on life experiences as an ECR. Survey question: Thinking about your experience working at universities as an ECR, to what extent do you feel your time as an ECR has affected or is affecting your opportunities to do the following? White numerals at the base of each bar denote the total number of responses to that question.

to a different town or city post-PhD and 33% moved to a different country). This illustrates that relocating is a necessity for the majority of ECRs. The respondents who had left academia corresponded with those holding the highest number of short-term contracts while they

were employed in Higher Education, highlighting the impact that job insecurity can have on retention rates of ECRs. The contractual status of our survey respondents re-affirms the scale of precarity amongst ECRs in Higher Education.

### 3.4 | Experience of being an early career researcher

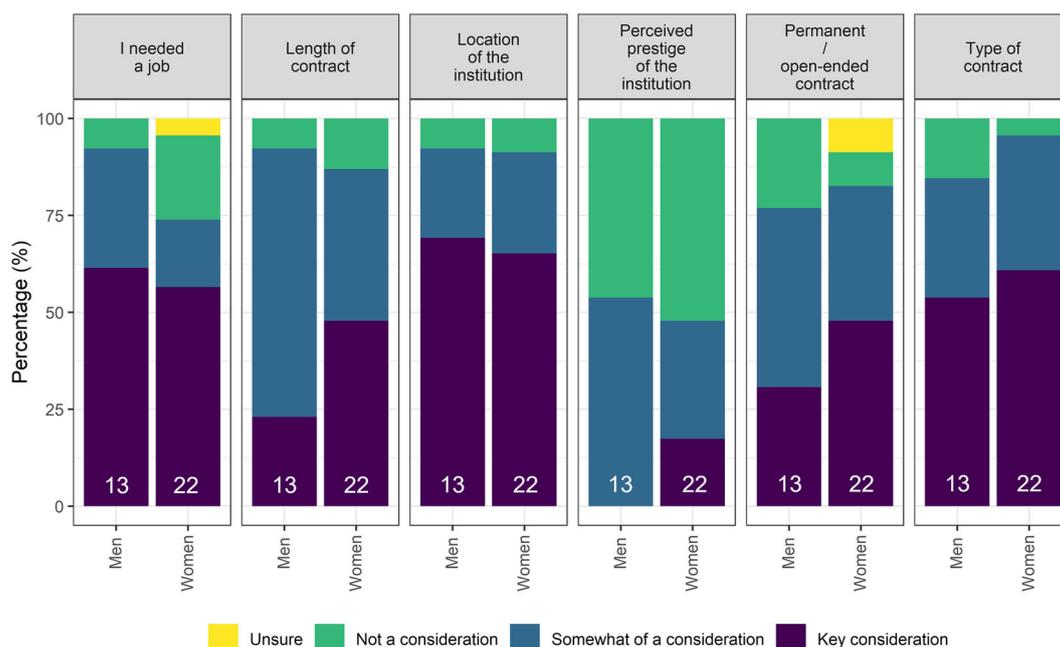
ECRs consider their work at universities to be detrimental to many key life experiences (Figure 2). Women and men considered their ECR roles to have made it particularly hard to live where they wanted to, to provide security for the future and start a family. Although each question received overall negative responses, there were some gender differentials. Women were more concerned by factors linked to their personal life, such as meeting and living with a partner, starting a family and living where they want to. Men were more positive than women about financial considerations, including salary, pensions and future security. It is important to consider the uneven gender distribution of respondents to this survey as a factor in this analysis (only 35% were men), with women more likely to respond to surveys, especially on topics of particular concern (Smith, 2008). Nevertheless, the challenges posed by ECR employment are clear and seemingly of greater concern to women, which is mirrored by a wide literature (Bono et al., 2019; Webster & Caretta, 2019).

### 3.5 | The job application process

The precarity of ECR employment leads to a tough balancing act between delivering outputs attractive to future employers and spending time completing job applications. From our experience, preparing and submitting each academic job application can take up to 2 days, plus more time to prepare for a presentation and interview if short-listed. We wanted to explore what drives ECRs to apply for a particular academic position. Location of the target institution appears to be the priority for women and men (Figure 3), even ahead of contract length, type of role and potential to secure a permanent (open-ended) post. At the same time, 50% of women and even more men were

essentially willing to apply for any academic position that they were eligible for ('I needed a job' deemed to be a key consideration). Our data suggest that women prioritize potential job security more than men, with 'length of contract' and 'permanent/open-ended contract' being key considerations for around 50% of women compared to 25–30% of men.

Most surprising to us was the unimportance of institutional prestige (Figure 3). Perceived prestige is pervasive in academia: particular (groups of) institutions, publishing in specific journals, and securing large research grants seem to carry huge weight (Merga & Mason, 2021; Raja & Dunne, 2021; Sutherland, 2017). We interpret this as evidence that ECRs are emphasizing work–life balance and therefore ECR priorities continue to shift away from the established view of what constitutes, and how to forge, a successful career in academia, which usually involves judgement against a set of performative metrics (Sutherland, 2017). A follow-up question revealed more starkly the continued mismatch between ECR priorities and the career advice given by more senior colleagues. When asked whether they had received advice from a colleague on the impact of continuing to work at the same institution, 22 UK-based respondents indicated they had, and 93% (women) and 85% (men) received advice that they should move institutions in order to advance their career. Non-UK respondents had received similar advice, especially for respondents in the United States trying to obtain tenure. Moving is difficult (Bono et al., 2019) yet there is a conflict with the perception in academia that you need to move institution or indeed country to develop a strong career (Bono et al., 2019; Teichler, 2015). This contradiction was further magnified by 52% of respondents believing that holding a fixed-term contract had or will positively influence the likelihood of securing a permanent post at the same institution, a view shared by the authors. Respondents also received wholly (100%) negative advice when applying for roles that do not fit this conventional view of 'success', including lectureships at non-Russell Group institutions in the



**FIGURE 3** Summary of respondents' priorities when they last applied for a role at a university. Examples of 'Type of contract' include teaching-focused, research-focused, teaching and research or a technical role. White numerals at the base of each bar denote the total number of responses to that question.

UK, technical or professional services roles or teaching-focused posts. Academia needs to move away sharply from the notion that there is one pathway to success and that a traditional 'pipeline' model (Batchelor et al., 2021) of career development should be followed by everyone. There is room within Higher Education for people wanting to become world-leading researchers, those wanting to focus on teaching and others who wish to support these roles. We encourage colleagues to keep these findings in mind when providing career advice and sitting on recruitment panels.

### 3.6 | Financial considerations as an ECR

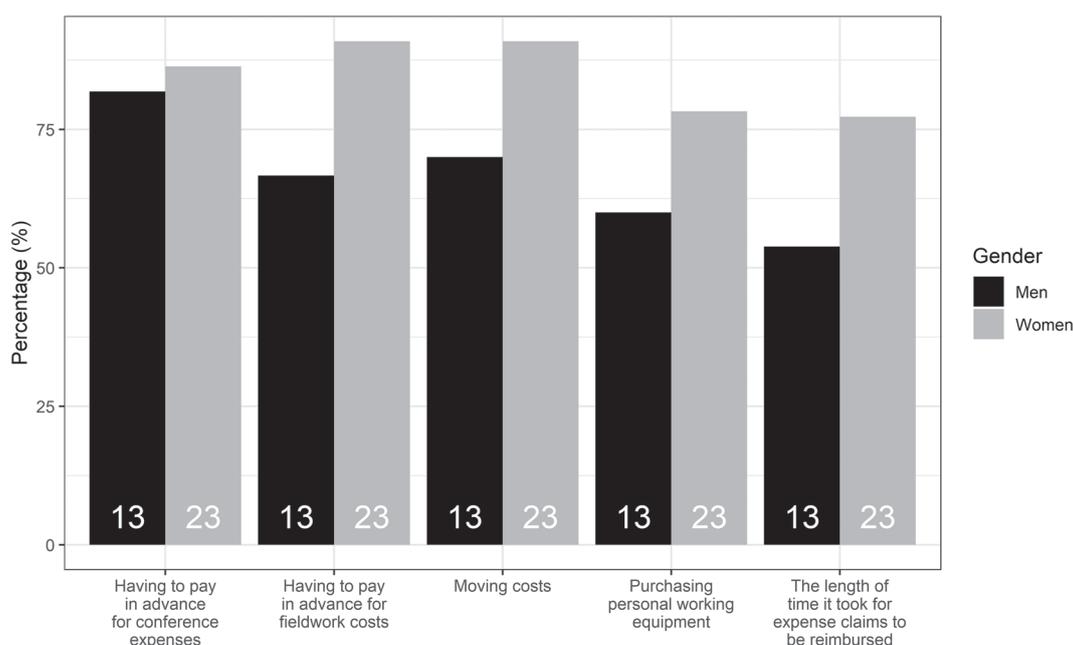
Working at universities can require an array of financial outlays, including conference attendance, fieldwork campaigns, costs to relocate and childcare costs. Some of these costs may be covered by remuneration from the ECR position, but payment in advance and reclaiming through an institutional expenses process is almost always required. This can leave a colleague out of pocket for large sums of money for many weeks. Costs to relocate will inevitably be exacerbated by repeated relocations to take up multiple fixed-term contracts. One author, for example, held positions at four different UK institutions in different regions of the country within a 6-year period and due to the temporary nature of the contracts was not entitled to relocation expenses for these. These financial considerations are viewed negatively by at least 50% of all respondents and especially (> 75%) amongst women (Figure 4).

Our survey results indicate that men are generally more satisfied by salary and/or have fewer financial uncertainties (Figure 2). There are a number of potential explanations. This difference could reflect gendered views and realities around disposable income, wealth and savings (e.g., Weller & Tolson, 2020) and/or be a function of the

known gender pay gap in UK Higher Education (UCEA, 2021). Equally, women may have stronger views that conventional norms in academia around finances, such as making hefty personal advance payments for conference or field expenses and protracted waits for reimbursement, are unfair and/or unsustainable. We urge Principal Investigators, Heads of Department and others holding line management roles to be continually aware of these concerns and, where it is necessary and possible, colleagues in secure and usually more senior positions should take the bulk of the responsibility to pay up front and reclaim such costs. We also highlight here that more protracted fixed-term contractual circumstances creates an unwelcome feedback: ECRs will increasingly have to move to their next position with a life partner and/or family, which is challenging and will probably increase their likelihood of ultimately leaving academia; thus worsening the leaky pipeline (Gasser & Shaffer, 2014).

### 3.7 | Viewpoints on an academic career

Respondents were asked their viewpoints on pursuing an academic career as an ECR, incorporating both the positive and negative. The keywords associated with the main perceived benefits are shown in Figure 5(A) and these align with the axial coding themes for this question (Table 3). The positive themes that emerged were around freedom and independence and the flexibility offered by academic jobs. Interactions with colleagues came out as another of the key benefits, although interestingly this was also listed as one of the worst elements, with bullying and 'old boys club mentality' (with 57% of those highlighting this as an issue being men) being cited as the reasons behind this. This highlights the importance of a supportive work environment for academics. Women in particular valued the flexibility and variety of the role, continued professional development and collegiate



**FIGURE 4** Percentage of respondents who hold 'somewhat negative' or 'extremely negative' views on a number of common financial considerations when working in academia. Survey question: Thinking about your experience working at universities as an ECR and the day-to-day financial side of this, how do you feel about the following aspects? White numerals at the base of each bar denote the total number of responses to that question.



**FIGURE 5** Top 25 most common words when respondents were asked to list the ‘main benefits’ (a) and ‘worst elements’ (b) of a career in academia.

aspects of an academic career including teaching and mentoring, as well as the opportunity to undertake a variety of tasks and to travel more than the male respondents (Table 3).

In terms of the perceived worst aspects of an academic position, (Figure 5b) the majority of respondents felt this was related to the lack of job security and unhealthy proportion of short-term contracts in academia (Table 3). Expectations and the pressure of the role was viewed by men to be a key negative, whereas women placed more emphasis on the lack of work–life balance, constant moving and the inability to plan for the future, workload and working extra hours and pay and benefits. Competition for jobs and funding was seen as one of the worst aspects by 21% of respondents, all of which were women (Table 3). The key themes highlighted in Table 3 were representative of the non-UK respondents and highlight that the benefits and negative aspects of an academic career are not country-specific.

## 4 | KEY CONSIDERATIONS

Drawing on the survey data and responses to an open-ended question asking about priority actions, alongside our own experiences, we put forward the following considerations (summarized in Figure 6). These are designed to highlight key themes that emerged from this survey to raise awareness amongst those working in Higher Education, and could serve as a starting point for readers to review their own academic practices. We have strived to highlight some actions that could be implemented at lower administrative levels (departments, laboratory or research groups); more systemic issues require significant thought and commitment from senior management.

### 4.1 | Improved parental leave and flexible working

Improving policies, attitudes and outcomes around parental leave and flexible working opportunities was the most common priority (25% respondents). This is not a new concept. There is ample and long-standing evidence of a ‘motherhood penalty’ (Crabb & Ekberg, 2014), for example, the need to demonstrate ‘total commitment to work life’

**TABLE 3** The perceived best and worst aspects of an academic position derived from the axial coding

Axial coding theme	Percentage of respondents	Percentage of responses that came from women
<i>Best aspects</i>		
Freedom and independence	48	43
Flexibility (role, hours)	48	70
Interactions with colleagues	25	67
Ability to continue learning and develop skills	21	70
Undertake research and do something beneficial	19	67
Pay and benefits	19	33
Stimulating and fulfilling career	17	13
Teaching and mentoring	15	86
Opportunity to travel	15	86
Variety of tasks/diversity of role	13	67
<i>Worst aspects</i>		
Lack of job security and short-term contracts	63	67
Expectations and the pressure of the role	48	17
Precarity around the lack of work–life balance, constant moving and inability to plan for future	48	68
Workload and working extra hours	40	68
Stress, mental health and isolation of role	29	39
Competition for jobs and funding	21	100
Pay and benefits	15	86
Interactions with colleagues (‘boys club’, bullying)	15	43
Flawed metrics of success	15	29
Lack of institutional support	15	29
Imposter syndrome	8	50

in an academic career can often be a barrier to part-time or flexible working (Cannizzo et al., 2019, p. 261). UK universities have been proactive at updating policies in line with legislation, for example around shared parental leave (UCEA, 2016 cited in ECU, 2018). Nevertheless, there is stark variance in parental leave conditions across different universities (Epifanio & Troeger, 2020) and ECRs continue to perceive university policies around parental leave and flexible working as being insufficient (Crabb & Ekberg, 2014). A research priority should be for institutions to explore the back-to-work experiences and longitudinal outcomes of academics who have taken parental leave under revised policies. This should encompass material outcomes, such as promotion opportunities and success, as well as feelings of inclusion and fit in academia (Probert, 2005) after a period of leave. Recent research by King et al. (2020) suggests the COVID-19 pandemic may open society’s eyes, especially men, to the demands of caring

## HOW TO HELP (FEMALE) EARLY CAREER RESEARCHERS SUCCEED

01.

### PARENTAL LEAVE & FLEXIBLE WORKING

Improve (clarity of) policies, attitudes and outcomes around parental leave and flexible working opportunities. Institutions should actively track longitudinal progress of parents.

02.

### MENTORSHIP

Formalise and enhance mentorship opportunities. All ECRs should be allocated a mentor and consideration given to who would be the most effective in this role.

03.

### RECRUITMENT

More considerate recruitment procedures to improve diversity across academia, such as anonymity as part of the application process and dedicated recruitment streams.

04.

### PRECARITY

Reduce the number of short-term contracts and establish a fair minimum contract length. Ensure clarity on employment rights of ECRs on precarious contracts.

05.

### SALARY & PROMOTION

Transparency and clarity on salary scales, promotion criteria and decision-making to reduce the gender pay gap, encourage better retention of ECRs and improve diversity.

**FIGURE 6** Key considerations that individuals and institutions can implement to assist ECRs to successfully navigate the academic ladder.

responsibilities that have traditionally been ‘invisible’. How this influences women’s experiences of an academic career should be monitored in the years ahead so that lessons can be learnt. We also reiterate the need to ensure relevant policies are in place that apply to colleagues on fixed-term contracts. In our experience, this manifests as advisors at an institution not knowing whether or how a particular parental leave and/or flexible working policy applies to someone on a fixed-term contract, especially if the contract were to expire during the period of leave.

Such policy-level change will require time and significant thought; senior managers could commit to a thorough review of their parental leave and flexible working provision to ensure consistency across institutions as a first step. At a more individual level, Heads of Department, Principal Investigators and equivalent line managers should verify that relevant parties are aware of and fully understand relevant institutional policies, proactively encourage their staff to use parental/caring leave and flexible working arrangements and work to ensure prolongation of contracts should parental and/or caring leave be taken.

## 4.2 | Formalizing and improving mentorship

Many respondents called for better mentorship opportunities. What constitutes an academic mentor is complex (e.g., Garmire, 2021; Sambunjak et al., 2010) but a growing body of literature stresses that inadequate mentorship is a barrier to women progressing and thriving in an academic post (Cardel et al., 2020; Casad et al., 2020; Cross et al., 2019; Gardiner et al., 2007). Marín-Spiotta et al. (2020) similarly emphasize that peer-mentoring networks can improve intersectional support for under-represented groups. It is certainly our view that every ECR – and indeed all university employees – should as a minimum have a nominated individual as a mentor. Anecdotally, this is not the case at all universities and is an oversight that ought to be rapidly rectified. A formal mentor could be a line manager (e.g., Principal Investigator of a grant, Education Lead for teaching-focused positions) but we see value in separating career advice from direct managerial oversight.

What makes an effective mentor? Seniority or established research excellence does not inherently do so. Indeed Principal Investigators as mentors may exacerbate power dynamics around co-authorship of publications and other grant outputs, for example. One respondent emphasized that having a mentor with a realistic sense of the current realities of navigating university employment as an ECR was a valued criterion. One author has a mentor from a different research domain and has found this to be extremely valuable. A survey respondent highlighted the importance of finding a mentor with similar views to your own on what constitutes an appropriate work-life balance, regardless of their respective genders. Alternatively, one may seek a mentor for navigating academia more generally or identify someone well-placed to support a specific process, such as a grant application to a particular funding stream. Many departments could implement better communication processes so ECRs can identify colleagues who may be well-informed on particular grant schemes, perhaps having served as a peer reviewer or sat on an awarding panel. Such information is rarely visible.

Effective mentorship underpins a positive and productive university culture yet is rarely acknowledged in formal schemes. Incorporating mentorship as a promotion criterion and creating dedicated awards schemes to recognize effective mentorship (e.g., Cardel et al., 2020) are actions likely to have material benefits. We also reiterate calls in the literature (e.g., Garmire, 2021; Janasz & Sullivan, 2002; Sambunjak et al., 2010) that effective mentorship can be delivered through support networks and need not be restricted to mentor–mentee pairs.

## 4.3 | Transparency and clarity on salaries and promotion routes

In the UK, organizations with more than 250 employees – which encompasses most universities – are required under recent legislation to report annually on their gender pay gap. This is reported as a mean or median, organization-wide value. Local level pay structures, for instance between or within departments, is not captured and indeed the measure is not designed to enable a member of staff holding a particular role to evaluate whether they are being paid the same salary as another colleague in an equivalent role. There was a clear wish

amongst respondents for salary information to be more transparent, especially where academic jobs have banded pay scales. As well as identifying persistent concerns of gendered rewards and recruitment and improving work culture (Pierson et al., 2020), such transparency could empower women during salary negotiations (Gamage et al., 2020) and potentially aid in the retention of women in academia. Increasing effort is placed on diversifying recruitment, which is undoubtedly vital, but retention is arguably more problematic (e.g., Casad et al., 2020) and must be considered in order to increase the appeal of an institution to women seeking their next academic position.

There are also enduring concerns that because academic promotion is weighted so heavily towards one's research portfolio, gendered productivity harms women's progress (Baker, 2010; Howe-Walsh & Turnbull, 2016). Many steps for reform have been proposed in the literature (Cardel et al., 2020; Schimanski & Alperin, 2018); we add here the need for greater clarity on the invisible sides of promotion. As ECRs, we often wonder: because the promotion panel has limited time to evaluate each application, which criterion/criteria listed on the promotion specification are really prioritized by the panel? And to what extent does this magnify acknowledged barriers to women's progression? Transparency would be welcomed.

There is another tension around academic progression that must be navigated carefully. However, survey respondents highlighted that men tend to hold more senior administrative roles in departments or faculties, creating another barrier to curriculum vitae (CV) development and promotion. Conversely, there is ample experiential, anecdotal and published evidence that women – and other under-represented groups – make disproportionately high contributions to service activities in the name of 'diverse committee membership' (Casad et al., 2020). These activities can be perceived as being less noteworthy contributions for a CV or application for promotion and leave less time for research. Departmental Heads should therefore actively monitor who holds each service role year-to-year and that this information is shared between administrative tiers (e.g., Department and Faculty). Department Heads should also ensure that appointments to service roles follow a fair, equitable and transparent process. Departments, institutions and Learned Societies can also do better at making clear that appointment to a service role, Committee or recruitment panel is voluntary and therefore the recipient is not required to undertake this if they do not wish to; this would help address concerns around appointments in the name of diversity.

#### 4.4 | More considerate recruitment procedures

The lack of diversity across all axes amongst university employees (including but certainly not limited to gender, race or disability), especially in academic and management posts, reflects prolonged systemic inequalities in policies and practices in Higher Education (Dowey et al., 2021; Orupabo & Mangset, 2021). Some efforts to improve recruitment, such as unconscious bias training, are a useful start but have limited evidence of material outcomes, and there are growing calls for more direct action (Cardel et al., 2020). The recommendations outlined earlier are intertwined here; for example, better mentorship could increase a candidate's chance of success. Similarly, there is evidence that comprehensive policies around parental leave and (child) care is attractive to potential women applicants (Morgan et al., 2021).

Survey respondents broadly emphasized two courses of more direct action. First, dedicated and ring-fenced recruitment streams, often termed 'positive action'. In the UK, the law surrounding this approach is defined under the Equality Act 2010, which 'permits employers to take positive action measures to improve equality for people who share a protected characteristic' (EHRC, 2011 p.159). We are aware of few instances of this approach at UK universities, anecdotally owing to concerns around the navigating positive action rather than positive discrimination, which is unlawful in the UK. The second prominent request was for gendered anonymity on job applications. An anonymized approach can be implemented for cover letters and references during the short-listing process. Lastly, we urge departments and institutions to be considerate in their use of fixed-term contracts. We acknowledge that there are circumstances where fixed-term contracts are appropriate, but no one wins from a trajectory of ever-increasing precarity in academia. Policies should be devised that establish a minimum length for every contract and illustrate clearly the opportunities for job progression at the same institution. These policies should embed transparency and monitoring of contract types.

## 5 | CONCLUSIONS

We collated survey data illustrating that the pressures of working in universities felt by all ECRs are intense and are perceived to have materially negative effects on core life pathways and opportunities. We observed gendered responses on a number of fundamental issues. We infer that women are more concerned than men by financial aspects, including salary, pension or house purchasing power, and 'geographical choice': living in a particular place with a particular person. The data also suggested that women prioritize job security, contract length and opportunities to secure a permanent post more than men. We do have to keep in mind that unbalanced gender responses (65% of respondents identify as women) may influence our data.

We also want to draw attention to the striking disparities between the ambitions and priorities of all ECRs and the career advice we receive. Surprisingly, ECRs in our survey do not consider perceived prestige of an institution to be a priority when applying for their next job. This is in stark contrast to persistent advice from more senior colleagues framed in precisely those terms: 'working at a certain institution will have negative effects on career progression because of a perceived less prestigious status'. We urge more senior colleagues to acknowledge and reflect carefully on these findings.

An academic career continues to be enormously fulfilling for us as authors and for many colleagues. But navigating the academic ladder is becoming trickier for those entering this career path and a number of factors are tipping the scales unfavourably. We have sought to draw from quantitative and qualitative data some actions and approaches that everyone in academia can take to strengthen support for and improve working conditions of ECRs.

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## AUTHOR CONTRIBUTIONS

Authors contributed equally to all stages of data collection, analysis and writing.

## ETHICS STATEMENT

The survey used in this research was given ethical approval by King's College London.

## DATA AVAILABILITY STATEMENT

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

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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