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INTERDISCIPLINARY PERSPECTIVE

Low socioeconomic status is an under-recognised source of challenges in academia

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equality, diversity, and inclusivity; social class; socioeconomic background; academia; research culture.

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Abstract

Barriers faced by underrepresented groups in academia have increasingly formed the basis of serious discussion, consideration, and policies, recently (in the UK) under the mantle of equality, diversity, and inclusivity (EDI). While such recognition has not solved the challenges encountered by, for instance, women and ethnic minorities, it has at least ensured that consideration of such issues is becoming a normal part of policy and practice. One underrepresented group in academia is low socioeconomic status (working class) backgrounds, a characteristic that intersects widely with other more commonly considered EDI groups. However, socioeconomic status is not a legally protected characteristic in the UK, which has resulted in it receiving less attention in terms of consideration of the barriers it imposes and possible mitigations needed. Moreover, unlike often more salient EDI characteristics such as gender and ethnicity, outward-facing cues of socioeconomic status are less visible at a glance, although they are often detectable in more subtle or indirect ways. Coupled with the attempts many working-class academics make to 'mask' cues of their background, this creates a situation whereby low socioeconomic status is a 'hidden' barrier that commonly remains unrecognised and unaddressed throughout much of academia. Here, we provide an overview of the challenges faced by working-class academic scientists based partly on the literature, which is currently limited, and partly from the experiences of our diverse working-class authorship team. In doing so, we hope to bring greater awareness of working-class backgrounds to the table in EDI discussions, and we provide suggestions for future research on and mitigation of the challenges faced by academic scientists from low socioeconomic status backgrounds.

Introduction

There has been a growing emphasis on equality, diversity, and inclusion (EDI) issues in academia over recent years, with universities, professional societies, conference organisers, and scientific journals creating committees and policies to address the challenges faced by underrepresented groups. EDI initiatives aim to work towards identifying and reducing barriers related to personal characteristics (e.g. gender and ethnicity) or circumstances (e.g. caring responsibilities) that convey a disadvantage compared to others. Although there is still substantial work to do on all fronts, both the literature and actions on EDI have begun to develop strategies and recommendations for mitigating barriers (e.g. Burnett et al., 2020). A major advance has been the recognition and awareness of the barriers that exist within our professional structures such as universities and their departments, scientific societies, editorial boards, etc. It is essential to recognise what the problems are before effective solutions can be devised. Moreover, those with particular sets of privileges (e.g. an Indian man) are often unaware of the difficulties and biases faced by colleagues with different sets of privileges (e.g. a white woman). Such lack of awareness can even manifest itself in a pattern whereby biases are driven mostly by people who don't think they exist (Begeny et al., 2020).

Different aspects of EDI have received vastly different degrees of attention (Burnett et al., 2020, 2022; O'Brien

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et al., 2019; Wanelik et al., 2020). In particular gender and, more recently, ethnicity have received the bulk of research attention, and gender is also often the main focus of EDI initiatives while moderate attention has been given to other attributes such as sexual orientation and disability. Others such as caring responsibilities and socioeconomic status (SES) have received comparatively little attention (Burnett et al., 2020, 2022; O'Brien et al., 2019; Wanelik et al., 2020).

For characteristics such as gender, which are widely brought into discussions about EDI, conversations are normalised to a greater degree than other EDI issues. This has the potential to influence how comfortable people are about discussing barriers related to particular characteristics; for instance, the increased salience of the #MeToo movement subsequently encouraged more women to discuss their own experiences (Palmer et al., 2021; Sweeny, 2020). However, people with EDI characteristics that receive less attention may consequently feel less comfortable discussing them, negatively impacting the mitigation of their associated problems. Part of the reason for the relative ease of discussing gender issues is a longer history of being part of the conversation, which emphasises the importance of putting issues on the table. For instance, the Athena SWAN charter was introduced in the UK in 2005, albeit that uptake and action were relatively limited until suggestions in 2010 that it may become linked to funding. Consequently, we aim to raise awareness of the barriers and issues surrounding lower SES (working class) backgrounds in academia, as this is one of the least discussed EDI considerations.

Positionality and reflexivity statement

We focus this perspective on UK-based academia, as represented by our authorship team which includes men and women, multiple ethnicities, and multiple career stages from early PhD to Professor, and some who have left academia post-PhD. All authors identify as coming from a low SES background, all studied zoological subjects at undergraduate level, followed by postgraduate zoology training at UK institutions. We acknowledge that this shared background does predispose us to bias in the way we select and interpret literature, for example seeking publications which validate our own experiences. This is particularly so in a perspective article such as this which, by design, does not follow systematic literature review methods. To navigate this risk of bias, we have ensured our authorship team is diverse in terms of gender, age, career stage, geographical location within the UK, culture, and ethnicity. Equally, as the focus of the article is to convey lived experiences of being from low SES backgrounds in the UK zoology space, we feel that the explicit sharing of experiences is an essential component of the piece. Indeed, some individual authors have directly shared their personal experiences of working in zoology whilst coming from SES backgrounds. These are denoted by quotations later in the text. Experiential statements were not collected formally via interviews or ethnographic methods but rather as an organic addition to this perspective piece as it developed.

Contextualization

Although many of the issues we discuss are unlikely to be restricted to scientific disciplines, we also have an implicit focus on science, specifically zoology, as this reflects the experiences of our authorship team. We here focus on SES, but many of the issues we discuss are not unique to low SES backgrounds, and so considering the issues we highlight will benefit many other groups facing similar issues for different reasons. Moreover, different EDI characteristics are not in competition with each other; low SES interacts with other EDI and related issues in academia, at least additively and possibly synergistically with other EDI characteristics, and also likely compounds imposter syndrome. In other words, there is substantial intersectionality between issues relating to SES, gender, ethnicity, and other such barriers, meaning that a particular person has a distinct combination of challenges and privileges which interact rather than being unidimensional (Crenshaw, 1989). As an illustration of this, and despite still not being an entirely representative team, the authors of this paper include people with a range of such intersecting attributes, as described above in our positionality statement.

In the UK, working class versus higher SES backgrounds form or closely relate to large perceived cultural divisions throughout the country and especially within higher education (Greenhalgh et al., 2004). We note that, perhaps in contrast to its use in other countries, the term 'working class' is broadly used in the UK in reference to low SES backgrounds (not necessarily current SES). However, as discussed in the Great British Class Survey (GBCS) of 2011, class in the UK is a complex subject matter; Savage et al. (2013) argue that social class in the UK is now based on much more than simply what role one works in or what income one generates, and although the so-named 'North–South divide' exists within the UK (with a greater proportion of working-class households in the North) there is substantial variation in all regions. Factors such as generational wealth, social capital, and cultural capital all need to be factored into determining one's class. Hence, the term 'working class' in a UK context incorporates not just the financial aspect of low SES backgrounds but also the cultural and social aspects which covary with this. Although there are criticisms of the GBCS (Divine & Snee, 2015; Silva, 2015), for the basis of this perspective it is a useful piece of work to exemplify the complexities around defining class or indeed SES in the UK. This is in contrast to other countries, where class may be tightly linked to income and can also be conflated with other characteristics. For example, in the USA there is a particularly strong link between ethnicity and poverty, with black people disproportionately represented among the poor (Adeola, 2005). Taken together, this means that although the UK is a major global contributor to science, with disproportionately high impact for its size, any barriers linked to class and SES are likely difficult to recognise, measure and break down. These challenges remain despite the fact that other SES-related characteristics such as ethnicity and household income are routinely collected as part of EDI initiatives.

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Socioeconomic status impacts education at all levels

We are not the first to raise the issue of SES-related barriers in academia, and there are some recent attempts to bring it into the wider discussion (e.g. Rickett & Morris, 2021). For example, the British Ecological Society set up the Socioeconomic Equality and Diversity (SEED) network in 2023, aiming towards 'highlighting and breaking down socioeconomic barriers in ecology' (https://www.britishecologicalsociety.org/membership-community/seed-network/). However, the SEED network highlights that 'acknowledgement and action on these issues is low,' and we therefore believe that bringing greater prominence to SES as an EDI issue is an important goal. Notably, the majority of studies concerning SES in academic settings demonstrate the existence of barriers and biases rather than investigating what they consist of, and they usually focus on secondary school or undergraduate performance rather than postgraduate onwards (e.g. Farooq et al., 2011; Reay et al., 2010).

Secondary school pupils from low SES backgrounds already show worse academic performance in terms of grades, and lower confidence in their abilities, than their higher SES counterparts across subjects, school years, and countries (Boyle et al., 2023; Farooq et al., 2011; Selvitopu & Kaya, 2023; Sirin, 2005). The effect on grades continues into higher education (e.g. Richardson et al., 2012), and beyond grades low SES also negatively impacts self-confidence, engagement, and other aspects of psychological well-being that may impact studies at all levels (McLeod & Kessler, 1990; Reay, 2018; Reay et al., 2009, 2010; Soria & Stebleton, 2012; Stephens et al., 2012). Hence, educational barriers for low SES people appear to be varied and long-lasting, imposing additional challenges to achieving strong academic success over higher SES students. In turn, this would likely lead to lower uptake, retention, and progression rates in low SES undergraduate students (Crawford, 2014), impacting the number and diversity of graduates entering the field and consequently the ability to maintain scientific contributions and reputation on a global scale.

Varying measures of SES: The importance of early-life environment

One challenge in interpreting these studies is that, partly because low SES is a complex concept and partly because it lacks a legal definition in UK cases (because it isn't a protected characteristic), measures of SES vary between studies. Indeed, this issue is not trivial when comparing across studies, because even though disadvantages of low SES are apparent in most research, the effect size has been found to vary substantially with the measure used (Evans et al., 2022; Selvitopu & Kaya, 2023; Sirin, 2005). These different ways of measuring SES include self-identification, level of education, type of occupation (e.g. professional or unskilled jobs), income, reliance on social support (e.g. eligibility for free school meals), deprivation indices of neighbourhood, home resources (e.g. access to books, computers, study space), or indices that attempt to combine these attributes.

Some metrics of SES, particularly income, occupation, and education level, can be used based either on the individual's current position or that of their parents or their early life environment. Of these, factors in childhood (e.g. home resources or qualifying for free school meals) seem to be most closely linked to the barriers faced in that it tends to give stronger effect sizes than an individual's current situation (e.g. current occupation or income) (Selvitopu & Kaya, 2023; Sirin, 2005). Related to this, Evans et al.'s (2022) investigation of factors linked to a composite social class metric found that those factors most relevant to childhood situation and upbringing were most closely associated with social class, for instance childhood wealth and parent's social class (which affects home environment) more than current perceived social status. Such early life influences have implications for perceptions of social mobility (change to SES over an individual's lifetime or across generations), since they imply that 'working-class academic' is not a contradictory term as it may appear if you focus on current education, income, and occupation as indicators of SES. Misunderstandings like this have the potential to contribute to poor recognition of class barriers in academia. Specifically, because academia (beyond undergraduate level) is not a traditional working-class environment, so a view that is naïve to the importance of childhood environment would entail that no academic can be working class. This emphasises the complex nature of defining social class, at least in the UK, which has led to the use of self-identification as a more holistic approach compared to reducing the social context to simple metrics.

A common proxy for low SES in university settings is whether the person is a 'first-generation university student' (e.g. Stephens et al., 2012); these are students whose primary caregivers did not go to university reflecting, in part, historical shifts in opportunities available to individuals from low SES families. There is certainly an overlap and many closely-related issues faced by low SES and first-generation students, but they are nevertheless distinct concepts and this must be acknowledged in discussions around SES. For instance, Soria and Stebleton (2012) found that first-generation students comprised nearly three times more working class and eight times more 'low income or poor' people than non-first-generation students, but also that nearly 60% of first-generation students were middle class to wealthy. The distinction is likely due to the imperfect relationship between university education and income. For instance, if an individual's parents set up their own business or worked their way up through a successful company, they may be able to bring up their children in a high-resource environment without having a degree. Similarly, although having an undergraduate degree does increase earnings on average (Britton et al., 2020), there is substantial variation and many degree-holders will not be able to provide greater childhood resources for the next generation of potential students than a non-degree holder (Britton et al., 2020).

The barriers and challenges faced at levels before university graduation are clearly important and will contribute to cumulative effects and also act as a demographic filter for those entering post-graduate studies/employment. However, comparatively little work has examined SES as an EDI issue in academia (beyond undergraduate education), and so there is a hidden

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assumption that this is a minor problem. Such an assumption may be precipitated by the combination of the lack of discussion and a perception that once an individual has got to the postgraduate stage they have overcome all the challenges and therefore have no problems. We here shine light on the continuation of barriers and challenges of coming from a low SES background for those who have continued in academia at a postgraduate level. We predominantly aim to generate awareness of an EDI issue that has received low visibility, but also provide some suggestions to improve the situation over time.

Low SES as a 'hidden barrier': The challenge of recognition, measuring, and monitoring of barriers

An important distinction between most other EDI characteristics and SES is that the latter is not a legally protected characteristic in the UK, despite calls to change this (e.g. https://www.bps.org.uk/tackling-social-class-inequalities), and so there are relatively few studies and policies incorporating SES as an issue. This also means that, unlike more traditional barriers such as gender or ethnicity, SES has no legal framework in which to embed discussions, meaning that definitions vary and data on SES are not recorded as standard during EDI monitoring processes for most universities or other organisations. The relative lack of consistent data on SES or inclusion in EDI discussions leaves it as a 'hidden' barrier which is often unrecognised.

There is another sense in which SES is 'hidden' compared to traditional EDI characteristics: external cues are lacking or minimal in many settings. Although prejudices against women or minority ethnic groups can be based (not necessarily accurately) on identification as belonging to those groups from a photograph or even just a written name, SES does not provide these particular external cues, and so in some contexts, SES is unlikely to be apparent (e.g. if writing an email to someone after viewing their university staff page). However, certain regional accents, those from poorer areas, are often associated with low SES and these are salient when a person is spoken to, either on the phone or in person. Similarly, clothing choices or styles of dress and cultural background can also provide cues to SES. Indeed, such 'cultural mismatch' based on these cues has been proposed as a major contributor to low SES disadvantages for undergraduate students (Stephens et al., 2012).

Low SES individuals within academia are often faced with substantial social pressure to mask these cues by, for instance, changing accents when speaking or carefully considering clothing choices. This pressure could be direct, but may most commonly be indirect via biases feeding into staff appraisal systems, for instance when staff are partly assessed using student evaluations of teaching, which are known to suffer biases that penalise staff with EDI characteristics but are poorly related to teaching quality (Spooren et al., 2013; Stroebe, 2024; Uttl, 2024; Uttl et al., 2017). Masking cues of low SES is a very common strategy; for instance, in our experience most speakers of regional accents (particularly from more deprived areas) have either actively weakened or changed their accents, or at least felt pressure to do so, and both Crew (2020) and Nchindia (2020) suggest this is a widespread occurrence among academics.

If many cues of low SES can be masked, isn't this a solution to the problem of biases? We would answer with a strong no, even before considering that masking isn't always possible to do successfully. Such masking doesn't remove the barriers faced, partly because many of the examples discussed later are not based on direct face-to-face discrimination but built into wider systems, however it does make them harder to monitor or recognise. This only compounds the issue – attempts to disguise barriers enable organisations to sweep problems under the rug without even looking to see what's there, and so this is not an effective solution. Moreover, the assumption that individuals from low SES backgrounds must go to additional time and effort over their colleagues is a poor basis for EDI issues, especially when that effort goes towards disguising parts of the identity of such individuals. There is a mental burden that comes with hiding your identity and that should not be seen as an acceptable expectation. The challenges and burden of masking have been discussed in the context of autism and other neurodiversities (Radulski, 2022); this may also intersect with low SES since individuals from such backgrounds are more likely to be undiagnosed with neurodivergent conditions, at least until much later in life (Kelly et al., 2019).

What barriers exist for working-class scientists?

Despite the relatively abundant literature on SES as a factor in academic achievement at school and undergraduate levels, there remains a dearth of attention paid to continued barriers after undergraduate level as postgraduate students and academic or professional services staff. The implication is presumably that those who manage this transition to PhD or university staff roles have overcome what barriers exist and hence are able to compete on equal footing to higher SES colleagues. Here, we first briefly discuss reported barriers in the literature for academia, and then relay some of our own personal experiences and examples that have posed challenges resulting from low SES backgrounds; in doing so, we hope to convey a (non-comprehensive) sense of the problems that still remain.

Interestingly, one of the very few studies to quantitatively investigate barriers for early career academics including SES found little impact on standard measures of academic success, except that low SES backgrounds are associated with a higher chance of having a teaching contract versus (often more prestigious) research-only contracts (Wanelik et al., 2020). Specifically, they did not detect statistically significant effects of low SES on publication record, difficulty obtaining a postdoc position, grant applications, or having a permanent (vs. temporary) contract. However, importantly, their analyses were also generally unable to detect statistically significant effects of other commonly acknowledged EDI characteristics, such as gender, sexual orientation, and ethnicity. This could be a result of 'survivorship bias' (Eldridge, 2024) such that strategies to deal

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with challenges minimise the outward-facing effects (but often at personal costs), or because the analyses appropriately controlled for other aspects which might in themselves intersect with low SES, reducing the ability to detect effects. Notably, Wanelik et al. (2020) also included information on relative importance of different variables, based on their multimodel inference approach, and these revealed that low SES is often as important as traditional EDI characteristics in progression measures. Again, we are not claiming that low SES is more important, nor overrides other EDI challenges – substantial intersectionality and additive effects across multiple EDI characteristics are typical – but only that low SES is also important despite the relative lack of recognition it receives.

Despite limited statistical evidence for the effects of low SES on early academic career progression metrics, and in keeping with the survivorship bias explanation mentioned above, Wanelik et al.'s (2020) qualitative analyses found that those from low SES backgrounds were more likely to report having experienced barriers. The authors discussed reasons for this including lack of financial or cultural capital. For instance, the nature of early career academia often results in short-term temporary contracts (and consequent periods of unemployment) and requirements to relocate frequently, and this is far easier or less intimidating (even when possible) if you have or have had greater financial backing from family. Moreover, academia has historically been dominated by those from high SES backgrounds, something still true (albeit to a lesser extent) today (Morgan et al., 2022). The general culture of academia is subject to this history and can make it difficult to 'fit in' without higher SES social/cultural capital, which is intensified by a lack of low SES role models and consequently a greater risk of imposter syndrome (Reilly, 2024).

Crew (2021) explored these issues in more depth with interviews of 90 working-class academics in the UK and emphasised the importance of fitting in and clashes between culture and attitudes when growing up and those of higher SES colleagues. These differences manifest themselves in many ways, from accents, clothing, cultural references and sense of humour and were frequently reported to result in microaggressions from colleagues. Additionally, language is also a barrier imposed by a lack of deep engagement with academic subjects in working-class households, resulting in more limited knowledge of the meaning of some words uncommon in lower SES culture, and uncertainty on pronunciation of words that may only have been read and not spoken in social circles. Such aspects can contribute further to imposter syndrome and lack of 'fitting in' with academic cultures. Notably, the experiences documented by Crew (2021) are not restricted to universities with reputations for greater privilege (e.g. ancient universities and the Russell Group), but are present throughout academia.

A consideration that deserves mention is that, even when 'masking' cues of low SES is possible (it is often difficult at best), this often imposes additional burdens on individuals and hence is at odds with best-practice approaches to EDI issues. Attempting to mask can be demoralising, may come with additional time and opportunity costs, and can lead to social awkwardness or 'middle ground syndrome'. By the latter, we refer to the common experience that you don't quite fit into either working class or academic culture anymore, according to communities on both sides, such that you partially lose one identity and aren't fully able to assume another (even if that were desirable). Most of us have received some comments from either or both colleagues and family that suggest we are different or have changed or other similar sentiments. These are not always intended pejoratively, sometimes merely as an observation, but the implication of such comments is nevertheless that we are not *really* part of those cultures anymore.

It may be argued that there are benefits of entering academia for people from a low SES background; for instance, achievement of a PhD and the gaining of a title (Dr or Prof) may give a new veneer of 'respectability' in some circles. However, while there are indeed contexts when this can lead to being taken more seriously than otherwise (e.g. conversations with bank managers or public engagement), we caution that this may also contribute to imposter syndrome and an unwillingness to use these titles outside academia, compared to those from higher SES. Indeed, many of us prefer not to use the title in most situations even within academia – sticking with name only – partly because it can seem 'pretentious' and 'not the done thing' according to our upbringing. Because working-class households often, but not always, have a strong emphasis on not 'bigging yourself up' (implicitly encouraging the person to downplay their achievements), the challenge of switching between academic and home/family life can result in a loss of personal identity or a struggle to reconcile two very different cultures (Brook & Michell, 2012; Hoskins, 2010; Skeggs, 1997). As such, even apparent benefits are rarely straightforward or universally free of difficulties.

As a diverse authorship team, but all from working-class backgrounds, we are able to share some of our personal experiences as examples of the challenges and barriers we have faced in academia. We do not intend this as a comprehensive overview of every issue encountered by low SES academics, but sufficient to convey a sense of the nature of the problem. We have taken space to share a few experiences and problems (in quotation marks to emphasise the personal character of the text). Although we have not linked names to individual accounts to retain some degree of anonymity, not all authors were comfortable relaying their personal experiences in this public discussion. This in itself emphasises the difficulty faced by people in discussing low SES as a personal issue, even amongst those keen to raise the wider issues.

Experience 1: Academic faculty member on accents and funding terminology

"I was unaware for a long time that I had experienced challenges that higher SES colleagues had not: trying to subvert them was so normal as to be barely noticed. It is only upon reflection and discussion with other academics that I recognised them. For instance, as a first-generation academic from a working-class household, I had no-one growing up – neither within family nor school nor anyone else I knew from the wider community – who could advise knowledgeably or understand the basic situations that occur concerning academic

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studies or careers (from undergraduate onwards), however supportive they were keen to be.

Although I have been unable to lose my regional Scottish accent, I have been essentially forced to 'tone down' how I speak, which inevitably means 'speak with a more middle-class English accent'. Despite my attempts at this however, I now frequently get told I sound too Scottish to understand by those in academia and also that I sound too English and posh now by family and others from where I grew up; I no longer quite fit in anywhere. My accent is also one notoriously poorly served by auto-transcription software, which risks certain policies (e.g. 'all recorded lectures must have autocaptions, corrected as needed') disadvantaging me over other colleagues. Fortunately, those policies have been floated but abandoned at my institution.

Grant funding is also something I struggle with, partly due to my upbringing being very opposed to self-aggrandising, which is something that is both expected and necessary to produce a successful funding application. Grandiose statements concerning how a single project will change the world or the field are deeply, almost painfully, intolerable to me (and often, with any thought, are barely tenable if we are being truthful). Moreover, I find myself inherently uncomfortable and nervous requesting and then (if successful) dealing with large sums of money after a lifetime of carefully considering small amounts to spend. Some funding schemes exemplify the culture shock that is a much broader issue as well. For instance, my institution recently had an internal funding call which intended to be open to a wide range of areas. However, the language in which this call was couched was entirely linked to metaphors about sailing (e.g. 'out of the doldrums, with wind in our sails' was the theme/subject of the call) and mountaineering, neither of which remotely featured in the environment I grew up in. While I could follow the mountaineering references, though finding them tedious, I had no conception of what a 'doldrum' was, much less how it relates to my research. Between these higher SES cultural references and the grand wording of many funding calls ('ground-breaking, discipline-shifting research that will change the landscape'), I often either struggle to see how my research fits nor how (or whether) the call is relevant to me".

Experience 2: Academic faculty member on financial and social stability and capital

"The end of my PhD was a time where I realised that my lower SES was genuinely a barrier to academic career progression. As I approached my thesis hand-in I was struggling financially but also socially isolated as I had moved cities but also had long periods of field work meaning both time and money for socialising had been limited. Although I was given opportunities for postdoctoral positions, these were either short term or the overseas bursary funding was barely enough for me to live on, let alone support my partner. The idea of waiting or applying for better paid roles seemed completely far-fetched; I could not afford to stop earning and did not have a 'nest' to return to as my parents' housing situation had changed. The only option I could see was to leave academia at this point and take on a low paid but stable job which allowed me to live close to my family, contribute financially to my household and use this stability to look for future prospects. This type of 'career break' is just not recognised in job or grant applications meaning early interviews on my return to academia did often include awkward questions and a complete lack of empathy. The assumption is that PhD graduates somehow have all the means (not just financial) to take on short-term positions which often involve moving away from their support systems. Of course I realise these issues can affect anyone but coming from a lower SES adds significant financial pressures plus the emotional toll of explaining to family members why your prestigious qualification has not yet resulted in anything resembling stable employment. I have returned to academia but I selected my first post-doc for stability and location factors as well as the research focus".

Experience 3: PhD Candidate on study routes, financial support, and 'fitting in'

"Being the first in my family to attend university, I entered academia entirely unprepared and ill-advised both to the processes and practicalities of applying and to the disparity I would feel once enrolled between myself and peers from higher SES backgrounds. Ironically, my journey into academia began halfway through my A Levels when I was told I was not 'university material' and I subsequently left school to pursue a BTEC; a 'less traditional' route that would result in a qualification the equivalent of three A Levels. This scenario is not uncommon; rather than pursue A Levels, many school students from lower SES backgrounds gravitate towards vocational qualifications that combine academic learning with an applied practical approach. For many of us, BTECS are our only route into university.

My next hurdle was finding a university that offered my chosen degree and considered my BTEC to be of value. Many 'top' universities refused to recognise my vocational qualification at all, while others posed limitations on their acceptance, such as the requirement of additional A-Levels, which undermines the initial purpose of accepting vocational qualifications. The first undergraduate open day I attended was at a university that accepted vocational qualifications, yet I was still belittled by an academic who told me I would 'struggle with the course content'. I believe this institutional snobbery against vocational qualifications is largely rooted in ignorance regarding their academic content. My BTEC qualification was the equivalent of three A Levels because it incorporated the relevant A Level syllabus, but it was also far more tailored to my subsequent degrees. Furthermore, it allowed me to gain work experience that is often expected alongside academic achievement but unattainable for those who cannot afford to participate in unpaid work once they become financially independent. Ignoring the value of these qualifications equates to ignoring the value in the person who has achieved them and, given that the large proportion of BTEC holders are from working-class backgrounds, this elitist attitude purposefully hinders social mobility.

These initial barriers just to gain access to university have created a prominent and long-lasting feeling of imposter syndrome. These feelings have intensified as I have progressed in

my academic career as others from lower SES backgrounds have seemingly been 'filtered out'. I entered my Master's degree at a university where many of my peers were from higher SES backgrounds and who had spent their summers volunteering or paying organisations for research experience abroad. Meanwhile, I had spent mine working in retail to financially support myself during the following term. I became acutely aware that when my peers transitioned into competitors for PhD positions and jobs, I would most likely be outcompeted due to my lack of relevant work experience due to my financial situation, rather than my academic achievements. It was also during my Master's that I began to mask my northern English accent due to associations with the UK's 'north–south divide' and the resulting negative economic and cultural stereotypes of being northern. Ultimately, it was not a place I felt I 'fitted in' and the feelings associated with imposter syndrome continued to grow.

Now undertaking a PhD, I am grateful to have been awarded grant money that has allowed me to attend conferences and organise field work abroad. However, I have only received this money through reimbursement following the submission of receipts. This is nonsensical: grant money provides research and networking opportunities for those who would otherwise be unable to afford them, yet it is only accessible to those who have these funds in the first place. It seems that even in the systems that are in place to supposedly increase academic accessibility for those from lower SES backgrounds, these processes are somewhat superficial in how they address these challenges".

These personal accounts illustrate the diversity of challenges faced by low SES academics even after progressing to PhD level and beyond. Many of the issues raised are unlikely to have even been considered by those from other backgrounds, such is the nature of unconscious bias, but have an impact nonetheless. We therefore hope that such considerations will start to enter conversations around EDI issues within academia.

Recommendations for future research and possible mitigation

A major problem for recommending solutions, beyond the inherent difficulties of instilling cultural change, is the 'hidden' nature of low SES as a source of challenges. With no consistent monitoring and little or no discussion in EDI contexts, it is difficult to fully understand the scope of how low SES impacts academic careers, and hence to make coherent recommendations. Nevertheless, we suggest a few general points that will likely improve the situation.

First, facilitating and encouraging formal research into the impact of SES in academia. Currently, few studies are available to provide a solid evidence base to formulate and action recommendations. A combination of quantitative and qualitative studies is urgently needed to understand the problem in detail and so generate effective solutions.

Second, improve the information available for future research on the problems. This would be facilitated by the inclusion of SES in EDI characteristics monitored by institutions; however, as discussed above it is not straightforward to decide on the best way of measuring SES. Inclusive discussions would be required and care needed to avoid putting undue weight on any single measure as identifying low SES. Institutions may also support initiatives to have SES listed as a protected characteristic under the Equality Act 2010, imposing a legal requirement to avoid both direct and indirect discrimination based on SES, in addition to providing incentive to devise acceptable ways to adequately monitor barriers. Incorporating low SES into discussions and policies surrounding EDI issues more widely, both within institutions and in relation to wider initiatives such as Athena SWAN applications, would also be a helpful change. The latter will also raise the profile of low SES as a barrier and hence give both visibility and credibility to the issues involved and perhaps ultimately less apprehension about discussing experiences in that context.

Third, decoupling metrics that are known to be biased against SES (and other EDI characteristics), such as student evaluations of teaching, from career progression processes. In the case of student evaluations, there is now abundant evidence that they do not measure teaching quality but do penalise academics already facing EDI-related challenges. Other criteria for hiring, promotion, etc. should be carefully considered in terms of the potential for bias against low SES individuals.

Fourth, a similar point applies to advertising for PhD studentships – those from higher SES backgrounds are likely to have had much more opportunity for volunteering and otherwise building a strong CV. This is particularly the case in certain fields, including zoology, where unpaid work is still commonplace but often requires time (e.g. ability not to do paid work for a time) and opportunities (e.g. by having a network of people who can help find such roles) that may differ markedly between applicants. While information on SES is not always directly available during shortlisting, being mindful of what different candidates have achieved with very different opportunities will help to reduce biases in entering the early stages of academia. Moreover, actively encouraging candidates from low SES backgrounds to apply and that they won't be disadvantaged (similar to what is done for other underrepresented groups) will make it clear from the outside that such opportunities are accessible to all candidates. There are several possible extensions to such encouragement to apply for positions. For instance, some success has been achieved by members of our authorship team by requesting narrative CVs rather than traditional structures for PhD applications, alongside the provision of support sessions on how to apply.

Fifth, academics from all backgrounds should use whatever social capital they have to lift up and support those with little. Academics from low SES backgrounds themselves should certainly act as role models to support students in similar positions, but they cannot and should not shoulder the burden of improvement alone. Providing a welcoming, supportive environment that is alert to the challenges of low SES students and colleagues will immediately benefit the people it's directed towards and is also the first step in changing academic culture over time.

Finally, partly because these suggestions could be readily adapted for other underrepresented groups, and partly because of the intersectionality between low SES and other EDI

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characteristics, we believe they could be useful in creating a more equitable environment beyond simply low SES groups. EDI initiatives should never be viewed as in competition with each other – a diverse and inclusive workplace is not a zero-sum game – but should be tackled holistically to benefit all parties. We hope that this perspective will therefore help to place SES on the table as an under-recognised condition for creating a better environment for everyone in academia.

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