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What are the barriers and facilitators to success for female academics in UK HEIs? A narrative review

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Gender inequality prevails in academia; there is currently no review on the barriers and facilitators to success for female academics in UK Higher Education. We conducted a systematic search identifying 32 papers addressing this issue. Narrative review revealed six themes: networks (prohibiting the inclusion of women), home-work balance (where women are expected to make a binary decision between the two), everyday sexism (leading to compromised psychological wellbeing and reduced likelihood of application for career advancement), inclusion/hierarchy/power structure (the assignment of less valued roles), intersectionality, and facilitators (supportive partner and Athena SWAN). The manifest, overarching narrative was of continued biases, barriers, double-standards, and unsupportive work environments.

Law and resulting institutional policy should, but does not appear to, address identified barriers; consideration should be given to processes employed to implement and culturally embed these. Findings suggest we must challenge institutional norms, attitudes and expectations through facilitating accessible networks, consciousness raising and mentorship.

Key words: barriers, facilitators, advancement, HEI, higher education, sexism, discrimination, progression, female

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Background

In the forty-five and fifty respective years since the Sex Discrimination Act (1975) and Equal Pay Act (1970) were introduced, and in the decade since their repeal by the Equality Act (2010), it would seem a safe assumption that gender equality exists within the workplace. However, in the UK and internationally (Santos, Horta, and Amâncio 2020) this is still far from the case. There are no sectors where women are paid the same as men (Wisniewska *et al.* 2019); despite a significant change in the median pay gap from 47.6% in 1970 (Ward 2018) to 11.9% in 2019, progress has recently slowed, and more than eight out of ten women work for an employer that pays men more (Wisniewska *et al.* 2019). Women remain three times more likely to work part-time, with 41.2% of women working part-time as of 2018; the gap of employment rates of woman compared to men widens significantly with dependent children, especially when the youngest child is below five years old (HM Government 2019). The ‘second shift’ (Hochschild and Machung 1989) seems to remain deeply rooted in the division of household work, with women taking on significantly more unpaid hours on average per week than men, including double the amount of cooking and housework, six times the amount of laundry, and more than twice the amount of childcare (HM Government 2019). Attitudes to gender roles have steadily changed in the past decade, with only 8% now agreeing that ‘a man’s job is to earn money; a woman’s job is to look after the home and family’ (this is a marked improvement to thirty years ago, when it was 48%) (HM Government 2019). Women occupy 76% of all administrative and secretarial jobs, and despite dominating the education sector, are underrepresented in leadership roles (HM Government 2019).

This is no different in UK academic institutions. Forty-six percent of academic staff are female, yet only 27% of professors and 38% of other senior academic staff are

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female, showing a decrease in female representation as seniority increases (Higher Education Statistics Agency 2020). Eighty percent of administrative and secretarial occupations in higher education institutions are occupied by women (HESA 2020), reflecting that of other sectors. Of female academics, 41% are part-time; of male academics, only 28% are part-time (HESA 2020).

Advance HE is a UK organisation founded on the belief that excellence is achieved by people. They are committed to eradicating barriers so that each person can be successful and higher education becomes a better place for all. Each year Advance HE publish staff equality data to assist HEIs to better understand the major challenges for students and staff and consider future work to overcome these. Each report offers a snapshot of data on gender, age, ethnicity and disability and intersections between these across the UK HEI workforce (Advance HE 2019).

In their twelfth annual review Advance HE (2019) found the highest academic pay spine ($\geq 60,411$) was dominated by men (70.1%); the proportion of female academics on the highest pay spine range was half that of male academics (10.4% women, 20.7% men). The median and mean gender pay gap was greater among academic than professional service staff. 24.8% of academic women earned over £50,000 compared with 37.2% of academic men. Overall, the median and mean gender pay gap was 13.7% and 16.7% respectively, higher than the UK's overall median pay gap. Among academic staff, men were paid more on average than their female colleagues in every occupational group except for associate professional and technical. Outside of academia, the largest pay gap was between male and female professional and support staff in skilled trades occupations (22.7% median pay gap and 14% mean pay gap) which, along with the managers, directors and senior officials occupational group has regressed since the 2016/17 report. The proportion of male professors was greater

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than that of female professors regardless of whether they were in science, engineering and technology (SET) or non-SET subjects, part-time or full-time; male professors were more prominent in SET subjects (78.7%) than non-SET subjects (67.9%). Men made up a majority of senior managers (68.7%) particularly in SET subjects, where 72.4% were men (Advance HE 2019).

Academic success is increasingly measured by metrics that inherently privilege men and which tend to be related more to research than teaching (Kandiko Howson *et al.* 2018). Women face more challenges in achieving metrics which influence recruitment and promotion (Coate & Kandiko Howson 2016) often due to gender disparities in opportunity. Internationally, women are systemically disadvantaged in recruitment and promotion decisions, grant applications, keynote speaker invitations, nominations for awards (Lerback and Hanson 2017), citation rates as compared with men (InsideHE) and invitations to editorial board memberships in most disciplines (for example medicine, Silver 2019). These are the very metrics that underpin academic success (Lerback and Hanson 2017).

Existing literature encompasses barriers obstructing women's progression in the international context. The barriers identified in developed countries' science, technology, engineering and mathematics (STEM) fields include a lack of role models and cultural expectations; gender-biased recruitment, hiring and evaluation processes; exclusion from networks; male-dominated culture; work-family conflicts; lack of access to information, funding and institutional support; and low recognition in the field (Idox Group 2018). However, academic culture differs from one country to another. Gender inequality is a nuanced issue; to review it in such broad strokes can be problematic in identifying culture-specific issues. Data is crowded by different academic cultures,

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lacking in depth, and the themes found within one country may not accurately represent that of another, thereby muddying how each is understood.

Our response was to focus exclusively on one country's academy, the UK, to offer themes which are internationally identifiable while arising from detailed instances of gendered inequality within a clearly defined academic context. Our scoping review found no current literature review on the barriers and facilitators to success for female academics in UK Higher Education Institutions (HEIs). The landscape of academia, gender equality and diversity are ever-changing; a contemporary review is important if institutional policies and workplace attitudes are to improve.

Aim

Our aim was to conduct a narrative review of peer-reviewed, published studies to identify the barriers and facilitators to success for female academics in UK higher education institutions (HEIs).

Methods

Literature Search Strategy

We first conducted a scoping review to ensure there is no similar existing study examining recent literature, and to identify relevant search terms.

The literature search was conducted using the Preferred Reporting Items for Systematic Reviews and Met-Analyses guidelines (Moher *et al.* 2009) (**Fig 1**) and the following subject-specific databases were explored:

via EBSCO: Academic Search Premier
Education Research Complete
ERIC
PsycINFO

via ProQuest: Educational Database

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IBSS

Different key words including location and academic posts in question were combined, and when applicable, Boolean operators were used and truncation employed. The final search strategy was as follows:

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career* or progress* or success* or lead* or manag* or promot* or opportunit*
or experienc* or represent*
AND
(universit* or college* or “higher education” or HEI* or research* or facult* or
academ* or lecturer* or researcher* or professor*) N3 (wom?n or female* or
gender*)
AND
equal* or unequal* or inequal* or fair or unfair or equit* or barrier* or lever* or
facilitator* or obstacle* or bias* or block* or limit* or “glass ceiling” or “leaky
pipeline”
AND
UK or “United Kingdom” or Britain or England or Wales or Scotland or Ireland
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The inclusion and exclusion criteria are presented in **Table 1**

Study selection, data extraction, and quality assessment

The databases were systematically searched on 19 June 2019. The article selection process is shown in **Fig 1** using the PRISMA diagram. Two reviewers independently screened all studies based on titles (CW, JD), then abstracts (CW, FC), and finally full-text reports (CW, JD, FC, TB). Disagreements were resolved through discussion with a third reviewer (titles FC, abstracts JD, full-text reports FC and TB). Thirty-two articles considered eligible were examined in full text and assessed for methodological quality using quality appraisal tools CASP Qualitative Checklist and NCBI Questionnaire Checklist. Studies were not excluded based on quality appraisal. Data extraction (CW) included population and sample, aims and method, findings relating to barriers identified and facilitators identified.

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Analysis

Thirty-two studies are included in this review. In terms of study location, 26 studies focused on the UK, the remaining six included UK data that could be disaggregated within a broader range.

Data were extracted according to the review questions, and a narrative synthesis was conducted to identify the barriers and facilitators to success (Popay 2006).

Results

Thirty-two studies were examined (CW, JD, FC) for prevalent codes addressing the research question (n=106). Related codes were grouped together into 15 subthemes (e.g. 'junior posts undergoing process of feminisation', 'women given more pastoral roles', 'avenues for furthering catered to men' were grouped as '**Gendered assignments of roles**'). Subthemes were then grouped into six themes (e.g. 'Mentoring and support', 'Access' and 'Male dominated networks' were grouped as '**Networks**').

The included papers were of a variable quality, but nevertheless all go to addressing the question to a greater or lesser extent. Exceptions to quality were identified in a quality appraisal, the most prevalent findings of which included: saturation of data not discussed; lack of critical examination of authors' own roles, potential biases, or relationships with participants; insufficient details of ethical considerations, including whether clearance from an ethical committee was obtained prior to undertaking the study; recruitment strategy not reported. A couple of texts were presenting data collected significantly earlier than our 2009-19 window (Crossouard 2011, Smith 2009). Murphy *et al.* (2014) used no recorded data, and, as with Savigny (2014), deployed discussion with participants rather than interviews with a predetermined method.

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Included studies engage with a range of mostly female participants: from doctoral students to pro vice-chancellor post-holders, working class to middle class; participants with and without children are included, though there are altogether fewer without.

Table 2 describes the studies; **Fig. 2** shows the barriers and facilitators thematic map.

Theme 1 Networks: The foundation of support and gateway to networking, opportunities and progression is good *mentorship*. The importance of this connection is voiced across our results (Davies and Healey 2019), as is its rarity and difficulty to obtain for female academics (Maddrell *et al.* 2016, Davies and Healey 2019, Howe-Walsh and Turnbull 2016). While a mentor does not *need* to be a fellow woman, the theme of too few female academics in senior positions—and with it the lack of female mentors and *role models* to aspire to—resonates throughout the data (Guth and Wright 2009, Howe-Walsh and Turnbull 2016). Men receive more mentoring than women and were found to have formed a personal friendship with their supervisor (Maddrell *et al.* 2016) and even internal *viva voce* examiner (Crossouard 2011), whereas women receive less mentorship and little help with career planning (Kandiko Howson *et al.* 2018, Howe-Walsh and Turnbull 2016, Zalevski and Swiszczowski 2009). Webber (2017) highlights the benefits of supportive colleagues and mentors, alongside barriers posed by colleagues who feel threatened by the woman's progress, and supervisors who fail to empathise with the respondent's situation. Poor and ineffective mentoring is reported as counterproductive and damaging to career progression; women had to be part of a network to find a mentor, which implies a paradox that is hard to avoid (Davies and Healey 2019).

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Networks are vital in facilitating progression, but are harder to *access* and establish for women academics (Pritchard 2010a, 2010b). Pre-established networks primarily consisting of men, or ‘old boys’ at the top level, prove difficult to enter (Howe-Walsh and Turnbull 2016, Karataş-Özkan and Chell 2015). In SET departments where women are outnumbered, it is difficult to break into male networks and contacts must be established alone: “*An intangible sense that ‘my face didn’t fit’ and that people were less comfortable with me than my male colleagues has deterred me from moving forward*” (Karataş-Özkan and Chell 2015, 118).

Theme 2 Home-work balance: Academic women face a huge challenge in the balance of home and work; the profound barrier this causes was an overarching theme of the results, from those who sacrifice one for the other (Hoskins 2010) to those who manage both (Guth and Wright 2009). The binary choice presented—raise a family or progress in one’s career—can be institutional (Pritchard 2010a), cultural (and covert) (Burkinshaw *et al.* 2018) or a manifest ultimatum by the academic’s superior (Savigny 2017, Pritchard 2010a). This fork in the road of one’s career that pregnancy (or even the intention to one day have children [Pritchard 2010a, Maddrell *et al.* 2016]) initiates seldom carries the same gravity for male academics (Karataş-Özkan and Chell 2015), such are the gendered expectations of caring roles.

The masculinized nature of the field emerges at about the time when the scientist achieves an established position; for the male scientist, it is the first rung of a ladder of career progression; for the female, it raises lifestyle choices. None of our male participants even hinted at the possibility that they had to choose between raising a family and their career, but for women it was an issue just below the surface, which came out time after time. (Karataş-Özkan and Chell 2015, 120)

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Women who do balance both facets of working life frequently take *part-time hours* to accommodate for the care of children and the household; this is to the detriment of career progression, with the prestige required for promotion or new jobs centred around publication (Cooper 2019, Murphy *et al.* 2014, Teelken and Deem 2013). Part-time workers are treated differently and are less privy to meetings, mentorship and opportunities for development (Savigny 2014, Cooper 2019, Guth and Wright 2009). Men are celebrated if they take on caring roles, while women must downplay this so as not to appear less committed to their work (Maddrell *et al.* 2016). A recurring theme in our findings is that *universities do not recognise, let alone esteem, this balance*. It is more difficult to *move, travel, or work irregular hours* when *caring for others*. Progression is obtained by being flexible with time and having a readiness to travel, or relocate entirely, even if university policies deny this. These practices can be demanded not just to progress, but to remain in a permanent post (Karataş-Özkan and Chell 2015). As a carer, flexibility is less viable. Typically less tethered to the responsibility of childcare, men experience fewer *geographical constraints*, and can uproot their partner or family to relocate for the progression of their career. Being a *tied mover*, a comparable role is not a given in the new location.

Toader and Dahinden (2018) found that women have more difficulties remaining employed abroad. Even when results point to an optimistic ‘diversification’ on who is the ‘first mover’ in a relationship, ‘traditional gender roles’ catch up once children are involved (Toader and Dahinden 2018, Schaer *et al.* 2017). This causes women whose career was on a comparable trajectory to their partner’s to be stalled or derailed (Schaer *et al.* 2017). Women reported feeling as though they had little choice in the matter. It is less common for the man to be the tied mover. Schaer *et al.* (2017) found that the engendered social environments impact on couples’ arrangements. Being a ‘follower’

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can cause men to be met with discriminatory attitudes from colleagues, and women to feel guilty about their partner following them. Structural elements (childcare or at least tolerance within an institution, or a support network to help with childcare) can decide how, or whether, the academic career of a tied mover continues (Toader and Dahinden 2018, Schaer *et al.* 2017).

Theme 3 Inclusion, hierarchy, power structure: Universities which operate under meritocratic values recurred throughout our results, presenting *institutional barriers and biases*. Advancement solely through academic merit appeals even to women, but is an illusion of a level playing field, ‘mak[ing] invisible the material benefits generated... to the dominant group’ (Śliwa and Johansson 2014, 825). In spite of surface-level institutional policies that appear to promote equal opportunity by esteeming teaching and administration as much as research, these policies do not necessarily reach promotions panels, nor employees (Guth and Wright 2009). A strong and consistent record of research publication is therefore required for employment or promotion, which is interrupted for women during *maternity leave and childcare*. Being unable (or in the following example, being *suspected* of one day being unable) to offer flexibility with one’s time brings one up against an antiquated barrier. ‘Despite the organisation having policies in place to mitigate gendered practices, the respondents reported blatant gender discrimination’, Howe-Walsh and Turnbull (2016, 421) found. One respondent recalls a man’s comments on an ideal candidate: “*yes she’s a really, really good candidate but she’s a woman, what if she has any problem with the children and has to leave halfway through the day*” (421). Part-time and temporary work, and the assignment of the significantly less-valued teaching and administrative roles, keep female academic’s publication output from gaining as much momentum; a double

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barrier here is that women were also found to need *more* publications and a fuller CV than men to obtain the same position or promotion (Savigny 2014). Women's assigned lower-status work roles (Ashencaen Crabtree and Shiel 2018) not only hinder their career progress, but help facilitate the progress of others (Kandiko Howson *et al.* 2018). Part-time and temporary work stunt progression, effect job security and invite different treatment (Howe-Walsh and Turnbull 2016); it is more common in female academics. The definition of 'excellence' has become gendered (Burkinshaw *et al.* 2018). The processes to move forwards within one's university are often covert, and not fully understood even by those on the promotion panel (Guth and Wright 2009); the criteria are 'predominantly male centric and being driven by a number of unconscious biases' (Burkinshaw *et al.* 2018, 92). It is a vicious cycle if the 'the definitions of merit' are 'being produced by the dominant majority within the organization' (Śliwa and Johansson 2014, 838), which continues to ensure a gender imbalance. An answer to this is to remain in a network who signpost opportunities, but this is more difficult for women. Such networks exist, but Coleman and Sherman's (2010) study implies that women-only networks are undervalued by their host institution(s), and younger academics are unaware of their importance; the network is in decline during this study, and by the end is disbanded. There was a limit to honest discourse due to members coming from institutions in competition with each other, but the group was otherwise 'of immense value to members, offering them opportunities that mixed groups did not, providing a special type of support as a network of women who can speak honestly and openly in a way that a mixed forum does not allow' (779).

We found a trend in the internalisation of shortcomings which in reality are a gendered institutional issue (Huppertz *et al.* 2019, Doherty and Manfredi 2010, Kandiko Howson *et al.* 2018), particularly in regard to new managerial or meritocratic contexts.

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Compliance—through necessity—to the system they work within caused an erosion of entitlements such as maternity leave and return to work arrangements (Huppatz *et al.* 2019). Female academics blame themselves for their lack of output, progress, and ability to balance the roles they are assigned (Doherty and Manfredi 2010), even individualising the demands made of them during maternity leave (Huppatz *et al.* 2019).

Theme 4 Intersectionality: In a university advertising that one advances through their own merit, respondents who struggle to advance do acknowledge that British men define excellence, but must continue to strive for it nonetheless (Śliwa and Johansson 2014); this study highlights *double discrimination*, where being a mother and not in Britain's ethnic majority puts one in 'a weak position within the power structures of the environment' where they work (834).

Theme 5 Everyday sexism: Feelings of inadequacy contribute to many female academics reaching a mid-career plateau of 'pragmatic endurance' (Doherty and Manfredi 2010); the acute instances and slow grind of discriminatory behaviours, atmospheres, and lack of support and opportunity takes a *psychological* toll on female academic's drive to progress. Without this 'background drip of gendered treatment', men can continue to pave a way forward (Doherty and Manfredi 2010, 147). 'Sacrifice' recurs in the dialogue of more successful women; to reach where they are, they must usually accept the impact their use of time has on their family relationships. To choose home life or work is to the detriment of the other. In this mid-career stage, many were 'ambitious enough to want to forge ahead to senior levels... but were not sure that what it would take to get there would be worth it' (Kandiko Howson *et al.* 2018, 538), with

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one respondent describing this phenomenon as “*reach[ing] that boundary where you start thinking, is this really worth it?*” Self-esteem is eroded by individualisation, causing ambivalence and affecting retention: “*it is a point where a lot of women leave academia.*” (538)

Lack of confidence to apply for promotion (Cooper 2019) echoes throughout our results. Incidents of discrimination and the ‘chilly climate’ have a cumulative effect on confidence (Savigny 2017). Doherty and Manfredi (2010) observed that dwelling on negative interview experiences, and a history of direct discrimination, may affect confidence. Low confidence impacts career advancement; Howe-Walsh and Turnbull (2016) found female academics precluding themselves from applying for promotion, feeling they were not good enough to be employed in their faculty, questioning their own success and abilities. *Workplace atmosphere* continues to down-tread confidence and self-belief, or indeed lead to fears for personal safety – priorities being forced to adapt from *aspirational* to *survival* (Howe-Walsh and Turnbull 2016). Discrimination has caused some participants to break down, use avoidance tactics to cope, or move jobs entirely (Maddrell *et al.* 2016). Often the more ‘everyday’ instances of discrimination are left unchallenged, ‘absorbed’ as part of the workplace ambience (Maddrell *et al.* 2016).

This can come from other women, too. Ashencaen Crabtree and Shiel (2018) find that women who *do* make it to higher positions seemingly forget the struggle women in lower positions face in breaking free, which may indicate a mirroring of male behaviour to fit in. Miller-Friedmann *et al.* (2018) identified a key coping mechanism against discrimination to be adoption, an unconscious bias displayed by female academics against other women; participants dismissed incidents of discrimination or even referred to them with a sense of pride, aligning with masculine ideologies.

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Bullying and evidence of harassment by male colleagues was reported (Howe-Walsh and Turnbull 2016). Savigny (2017) found threats towards those who report discrimination and bullying, with severe consequences; this led to a fear of being identified for taking part in the study itself.

Hyper-individualistic reward and recognition processes (Kandiko Howson *et al.* 2018), individuality and self-promotion, rather than teamwork, are considered 'masculine' traits (Burkinshaw *et al.* 2018). Ashencaen Crabtree and Shiel (2018) identify the no-win choice women have in the 'unequal career terrain' of self-presentation: women who show 'masculine' (bold, strategic, opportunist) behaviours are disliked. The study explores the gendered implications of how one presents themselves; an exchange between three participants demonstrates that 'emulation of legitimised expressions by male colleagues may be viewed as an ill fit in women': "*he's strong and he's assertive... when it's a woman, it's bitchy, she has a bad character and she's not sweet*" (912). In Karataş-Özkan and Chell's (2015) study of academics' transition into the business world, female personalities are assumed unsuitable. Gendered assumptions extend further, to one's choice of appearance in the workplace (Pritchard 2010a); Howlett *et al.* (2015) found prejudiced judgements (by fellow women) of competence determined by clothing choice, particularly in a more senior role. Women are underestimated (Miller-Friedmann *et al.* 2018) and not taken seriously, even in senior roles (Cooper 2019). Gendered assignments of jobs see women take on more teaching, pastoral and administrative work (Teelken and Deem 2013, Maddrell *et al.* 2016, Cooper 2019, Ashencaen Crabtree and Shiel 2018, Kandiko Howson *et al.* 2018).

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Theme 6 Facilitators: Facilitators were manifestly outweighed by barriers in our findings. Most of these were exceptions to the rule of a patriarchal family, where a *male partner would take the role of carer* to allow the female academic to continue working full-time (Karataş-Özkan and Chell 2015), or where a male partner would accompany the female when her career required relocation (Toader and Dahinden 2018, Schaer *et al.* 2017). In broader strokes, some *university policies* at least partially succeeded in allowing for more diverse senior roles (Tzanakou and Pearce 2017, Guth and Wright 2009). Ovseiko *et al.* (2017) and Tzanakou and Pearce (2017) both explored Athena SWAN, the participants of which acknowledged its benefits while also giving insight into some of the unintended detriments: negative workplace atmosphere, the preferential treatment and positive discrimination of those with children (Ovseiko *et al.* 2017), the ironic increase in administrative work for women (Tzanakou and Pearce 2017), tokenistic changes, its ‘box-ticking’ nature (both studies). Studies which critiqued programmes or policies were very few.

Findings

See **Fig. 1**, **Fig. 2** and **Table 2**

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Discussion

The results of this review, set within the last decade of study and therefore within the context of policy such as the Equality Act (2010) and initiatives including Athena SWAN (Advance HE 2019), offers a disquieting narrative of continued biases, barriers, double-standards, and unsupportive work environments for women academics. To summarise according to our themes: i) *networks*, identified the continuing existence of “old boys” clubs, preestablished and impenetrable to women; ii) *home-work balance* identified clear institutional pressures to take binary decisions between the two factors; iii) *inclusion, hierarchy and power* included data suggesting women are assigned less valued teaching and administrative roles, and policies esteeming teaching and administration have not had the reach to influence promotions panels or employees generally; iv) *intersectionality* illustrated the additional pressures resulting from double discrimination for women; v) *everyday sexism* demonstrated the slow grind impact of daily discriminatory behaviours on a woman’s psychological wellbeing, confidence, self-worth and likelihood to apply for career advancement; finally, vi) *facilitators* identified factors supporting success for women, citing family support from a male partner. Where institutional support was cited this was in the form of Athena SWAN where benefits were acknowledged by study participants along with the unintended consequences of increased administrative work and experiences of the approach being “tokenistic”.

Policy adoption and receptive culture

Of the barriers we identified, the majority should be addressed by existing policies, e.g. ‘caring responsibilities’ should be covered by flexible working policies. However,

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policy adoption is variable due to well-documented challenges (Zenk 2017, Pülzl and Treib 2017).

The remaining barriers not addressed by existing policies are culturally related, e.g. ‘gendered assignment of roles’, ‘gendered assumptions and perceptions’, ‘male dominated networks’ and ‘access’ to networks. Cultural issues are intangible and pervasive within our entire society (Benschop and Brouns 2003, Simpson and Cohen 2004). The challenges lie in the changing of culture in academia (Tierney and Lanford 2018, Savigny 2017, Jackson and Sundaram 2018, Barratt-Pugh and Krestelica 2019). Here in the UK, the main vehicle to promote gender equality in academia is the Athena SWAN charter, which 70% of UK Higher Education providers have thus far engaged with (Graves *et al.* 2019).

The Athena SWAN scheme is designed to encourage universities and departments to affect cultural and systemic change. Evaluations of impact vary. Assessment by Advance HE reports that 93% of Champions believe the charter has had a positive impact on gender issues, 78% believe the charter had a positive impact on equality and diversity issues, and 78% believe the charter had a positive impact on the career progression of women (Graves *et al.* 2019). Other reports are more equivocal, in secondary analysis of data from a UK research-intensive university both women and men had improved equality through structural and cultural changes, however the motivation was perhaps influenced by requirements of research funding bodies than underlying commitment to gender equality (Ovseiko *et al.* 2017). Even research funding body requirements to have an Athena Swan had limited success in changing the position of women in a group of 12 medical schools (Gregory-Smith 2018). This demonstrates a good start, but there is room for more interventions at an individual, departmental and institutional level. An independent review of Athena SWAN by the

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Advance HE Board identified the charter's administrative burden, particularly on female staff, as 'a serious concern across the sector' (Advance HE 2018, 6), suggesting this is a potential increase in the "academic housework" some female academics feel is left to them (Harford, 2020 p.7). Morley (2012) suggests future and further developments should seek to address masculinised cultures rather than remould women to "fit in" whilst continuing to experience all we have outlined here, with what O'Connor and O'Hagan (2016, p.1954) refer to as a "cruel optimism".

Whilst policy, interventions (such as Athena SWAN) and explicit academic structures tangibly and explicitly seek to address gender inequality, there must also be recognition and means to address the informal embedded norms within academic culture. Beyond policy are the other institutional "rules" which reflect the social dynamics within society (Morley 2013); these impact on the behaviours and beliefs valued in academia, as seen in the findings of this review and illustrated by key authors such as Mosedale (2005). That is, gender norms and roles can become normalised and hence beyond notice (Butler 1988). Freire (1996) suggests that to address any form of oppression, a process of being conscious and objectively viewing the world to allow a more critical approach to it is required and enhanced by an open dialogue whereby problems are considered as a group. This suggests the Athena SWAN initiative may be successful not in the interventions it promotes but merely as a media through which to establish such a dialogue. Fine (2006) suggests that engaging academics in dialogue allows recognition of injustice and promotes actions to address these.

In defining or recommending appropriate "actions", we can refer back to the results of the studies included in our review alongside relevant theory which allow us to tentatively suggest the following: i) the generation of local supportive and accessible women-based networks – a space devoted to gender equality issues supports solidarity

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and connection (Burke *et al.* 2017); ii) educational strategies within institutions to support the recognition (consciousness raising) of overt and covert processes and attitudes that perpetuate inequality – such an approach may facilitate individuals to consider university structures and their roles within (Friere 1996), with specific focus on managers (Ó Gráda *et al.* 2015); and iii) mentoring, coaching and support, aiming to allow women to feel sufficiently empowered to challenge gendered expectations (e.g. adopting more supportive, teaching and administrative roles) (Sardenberg 2008).

Further study may include: the observation and capture of the culture of academia; evaluation of the impact of interventions which support cultural changes in gender equality in academia; investigation of where staff perceive successful implementation of gender-related policies, how and why this has happened and what can be learnt from it to be applied in other institutes.

Strengths and Limitations

Our comprehensive review addresses a well-defined question that has not been answered elsewhere. Gendered barriers and facilitators are an important area of investigation. The exclusively UK context is a strength *and* limitation; it allowed us to dig deep into the literature and perform a rigorous and nuanced investigation. It may limit transferability, but this study purposefully pursues depth over breadth, and indeed cautions viewing gender inequality in higher education institutions through too wide a lens, as every culture is different, if only marginally. Nonetheless, with the UK being a central hub of higher education—dominating nine of the top twenty-five universities in the world with the highest international student percentage (World University Rankings 2020)—we believe the issues we found will resonate with international academic

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communities; for example, findings reported by Harford (2018, 2020) show similarities within the Irish HE context.

Our search question did not focus on money, though we recognise the gender pay gap as a fundamental issue of gender equality deserving of a separate study. Several mentions of pay were found in the results, which must be highlighted even if it is not clear how much of a barrier to progression they are. Smith (2009) illustrates the paradox of the contented female worker – the relationship between the size of the gender pay gap, job grade, and how much dissatisfaction regarding pay is expressed. Women academics (as opposed to administrative, who experience the highest pay gap, yet show higher satisfaction) taking issue with this has been a contributory factor towards more equitable pay, which may be celebrated, but conversely suggests that for those less inclined to voice their dissatisfaction, nothing will change. Pay is inherent in the inequality we've covered and is intrinsically linked to progression.

We recognise that gender is largely binary, and this study focuses on women and men; non-binary academics were intermittently mentioned in the papers but was not a focus. With non-binary genders being increasingly recognised, it would be interesting to run this search in another ten years' time when data would allow an approach more sensitive to the nature of non-binary gender identification. There were demographics in some of our included papers which mentioned 'other', but it was mostly lost in the story of binary differences.

Most of the literature focused on the barriers, which is predictable given the unlikelihood that many papers would be written highlighting facilitators. The facilitators we found were few, and essentially were in opposition to some of the barriers. Supportive male partners who take on caring responsibilities and good mentorship were prevalent facilitators to female academics' progression.

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Institutions share the same law which informs policies, but policies differ from one institution to another, and different institutions adhere to their policies in different ways (Guth and Wright 2009).

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Table 1. Inclusion and exclusion criteria

Inclusion	Exclusion
Gender inequality	Papers before 2009
Date range 2009-2019	Papers addressing historic gender inequality
Female	Focus on discrimination against men
Academic position: research, teaching, management, doctorate	Double-discrimination (sexuality, race, non-binary gender) which does not focus on being female
UK (or UK included among other countries)	Entry to university as an undergraduate
English language	Undergraduate study
Empirical	Anecdotal personal experiences

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Table 2. Description of included studies

First author and year	Population and Sample	Aims and Method	Findings Relating to Barriers and Facilitators Identified
Burkinshaw <i>et al.</i> (2018)	3 UK HEIs, 105 senior (predominantly women) academics.	To offer empirical insights that illuminate women's career barriers and accounts of limited success. Seminars and workshop events (n=4). 14 one-to-one interviews.	B: Merit defined and rewarded against masculine norms of behaviour, gender denied as an issue, lack of transparency in how to advance, unconscious biases, male-centric criteria, lack of women in senior positions and promotional panels. F: Gender bias awareness and unconscious bias training.
Coleman and Sherman (2010)	2 women-only networks in England: regional network in secondary education n=20, national network in higher education n=50.	To consider how all-women networks facilitate education leadership, and why these networks are in decline. Semi-structured interviews, and an observation of a meeting and conference.	B: Rivalry between HEIs limit honest discourse when supporting women across institutions, decrease in support for the networks from universities and local authorities. F: Supportive function of the network, information, opportunities for development.
Cooper (2019)	Social Science departments in one UK HEI. Staff of all genders and roles n=202.	To investigate the barriers to progression for female students / academic staff in UKHE. To establish where gender bias occurs: 'Uni A' data examined to identify barriers to entry at different levels and to establish why gender bias occurs. 30-item questionnaire.	B: Low confidence to apply for promotion, insufficient support, assigned tasks perceived as less valuable as research, part-time work due, work / life balances, family and childcare, senior positions advertised full-time, part-time workers disadvantaged in career development, women not taken seriously, influential admin roles occupied by men.
Ashencaen Crabtree and Shiel (2018)	Post-1992 UK HEI. Independent network of female academics and postgraduate students n=5-8.	To explore i) barriers to progression for women ii) the implications and impact of these, and iii) solutions that might facilitate change based on these experiences. 3 focus group discussions.	B: 'Unequal career terrain' due to gender differences in self-presentation, showing emotion compromises a woman's credibility, women channelled into lower-status work detrimental to progression, few women in higher positions and those who get there 'trample' fellow women. F: Mentoring early on can prevent pigeonholing into low-status tasks.
Crossouard (2011)	20 doctoral students from 8 UK HEIs. 14 female, 6 male.	To understand the student's experience of the doctoral <i>viva voce</i> through face-to-face and telephone interviews	B: Symbolic violence in <i>vivas</i> causes reluctance to publish or return to research but can also (F) provide enthusiasm to take research further.
Davies and Healey (2019)	Post-1992 UK HEI. Questionnaire: 119 academics. Focus group: 12 academics. Interview: 9 academics, 6 REF managers.	To triangulate existing literature with an analysis of data collected from a funded UK-based research project undertaken in 2015-16. Questionnaires, focus groups and semi-structured interviews.	B: Women requiring network to find mentor, lack of mentoring opportunities and poor mentoring detrimental impact on progression. F: Good mentoring shown to have a positive effect on progression.

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Doherty and Manfredi (2010)	One post-1992 UK HEI. 53 men and women academic and management staff.	To understand the barriers to women's progression to senior positions. To explore similarities and differences in career experiences and leadership styles between men and women. Semi-structured interviews n=53 and questionnaires from the same sample n=50.	B: Severely negative interview experiences affect confidence and limit aspirations, loyalty divided between work and home, feelings of inadequacy when research, management and teaching are not balanced, impact of gendered experiences keeping women on a mid-career plateau of 'pragmatic endurance'. F: networking, support and mentoring, the university's investment in family-friendly work practices.
Guth and Wright (2009)	30 male and female academics from the University of Bradford.	To further the understanding of why women experience barriers to progression despite university policies to address these, through an analysis of law and policy at institutional, national and European level, and semi-structured interviews.	B: Lack of transparency of promotion criteria, panel members not understanding promotion criteria or valuing teaching and administration, maternity leave, childcare, household management, caring responsibilities, male networks at the top, lack of female mentorship, women assigned more pastoral work, gendered assumptions about personality. F: University policies in theory, but may not trickle down to those they are designed to influence.
Hoskins (2010)	3 female, senior academics.	To explore how gender and class shape the constructions, perceptions and experiences of career success. Interviews informed by a life history approach.	B: Work and family balance, significant gendered sacrifices required to succeed (Groucho Syndrome: success becomes devalued once attained), family pay for the academic's success.
Howe-Walsh and Turnbull (2016)	3 UK HEIs, 20 women.	To explore women's personal narratives which highlight perceived barriers to career advancement. Semi-structured interviews.	B: Male-dominated networks, exclusion of women, lack of women in senior posts, lack of support by the university, intimidation and harassment damaging confidence and sense of safety, 'survival' prioritised over aspiration, pressure to undertake jobs with no benefit to progression, short-term contracts and career breaks impact progression and security, direct and indirect discrimination in recruitment and selection processes, lack of recognition, work / life balance.
Howlett <i>et al.</i> (2015)	Female UK HEI students n=54 and employed women n=90 (total 144).	To investigate how minor manipulations to female clothing affect the judgements of competence by other UK females, and whether such effects differ with occupational status. Participants shown images of faceless women, and required to rate them on a global competence measure.	B: Prejudiced judgements of competence depending on clothing choice by other women, pressure on females to conform to appropriate non-sexualised clothing.
Huppertz <i>et al.</i> (2019)	35 academic parents (25 women, 10 men) in Scottish and Australian young and old universities.	To examine via interviews the specific ways in which new managerialism mediates access to, and experiences of, maternity leave and flexible work.	B: Absence causes disadvantage within competitive research culture, pressures to work during maternity leave or cut it short, managers treat maternity leave as optional and secondary, structural advantages to those without caring obligations, work / life balance, academics individualise failures to meet expectations. F: flexible working.
Kandiko Howson <i>et al.</i> (2018)	30 female academics based in UK HEIs.	To investigate the gendered nature of the prestige economy in academia. The opportunities and barriers mid-career academic women perceive. Semi-structured interviews.	B: Aspects of women's positions not rewarded or recognised as prestigious, assigned roles hinder progress and facilitate the progress of others, home / work balance tensions, lack of mentorship and support from senior colleagues.

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Karataş-Özkan and Chell (2015)	3 UK HEIs, 52 academics, male and female.	To identify underlying structures and practices that have causal powers to generate gender-based inequalities. Survey (n=28), 2 focus groups (n=10, n=5), 9 semi-structured interviews.	B: Institutions demanded practices more suited to men just to remain in a permanent post, female personalities assumed unsuitable, male-dominated environments and networks, few female role models and support groups, forced choice between family and career – institution not accommodating for both, gendered biases in obtaining funding. F: Men assuming caring roles.
Maddrell <i>et al.</i> (2016)	Staff and student geography community. 360 respondents, 253 of which work or study at a UK HEI.	To evidence gender inequalities in UK higher education geography departments through a qualitative survey.	B: Less mentoring than men, exclusion from male networks, junior posts reformed to accommodate women ('feminisation'), men commended for caring responsibilities while women must downplay it, forced choice between career progression and child-rearing, bullying and discrimination, 'everyday' instances unchallenged, women assigned pastoral and admin roles. F: Positive resolution of discrimination, men assuming caring roles.
Miller-Friedmann <i>et al.</i> (2018)	4 UK female academic chemists at UK HEIs.	To investigate the experiences of successful British female chemists, their experience of the gender gap and success. Life history interviews and background research into their online presence.	B: Women biased against other women as a coping mechanism, masculine behaviours rewarded by promotion, women dismissed incidents of being underestimated, work / childcare balance, lack of permanent position and salary, concern over relocation's effect on family. F: Support from families; mentoring, support and careers advice received from colleagues, mentors or supervisors.
Murphy <i>et al.</i> (2014)	Colleagues of the authors.	To study the cause of gender imbalance in the field of psychology and what can be done to address it. Discussions with colleagues at the top of their profession.	B: Having and caring for children or parents, senior posts affecting family life, disadvantage to being part-time, pressure to maintain administration and teaching duties at the expense of research. F: role models, organisations providing networking opportunities and advice on career progression.
Ovseiko <i>et al.</i> (2017)	University of Oxford. Survey: 2407 (59 of which mention Athena SWAN and are therefore included). Interviews: 37 female scientists.	To explore how Athena SWAN impacts on work conditions and employment prospects via free-text comments from a survey and qualitative interviews.	B: Ulterior motives of the institution to strive for the Athena SWAN award, administration falls on women (particularly senior), 'tokenistic' changes to meet goals, problems swept under the carpet, work-life balance not sufficiently addressed, excessive focus on staff with caring responsibilities (at the expense of older women, administrative and support staff), F: increased support, appreciation of caring responsibilities, challenge of discrimination and biases, increased awareness of gender issues, mentoring schemes, visibility of female role models, career development seminars, internal pump-priming grants, core hours policies benefitting people with children, improved maternity leave arrangements.
Pritchard (2010a)	Female academics. 5 UK HEIs n=40, 5 Germany HEIs n=47.	To study gender inequality in British and German universities through semi-structured interviews with female academics.	B: Having and caring for children, led to believe in forced choice between career progression and child-rearing, discrimination regarding pregnancy or <i>possibility</i> of pregnancy, difficulty networking, choice of clothing, negative reactions towards women who 'adopt a male style'. F: supportive partners and fathers, parental leave being divided between parents.
Pritchard (2010b)	Full universities in Germany and pre-1992 HEIs in the UK. 377 academics.	Questionnaires on how participants define professional "success", how male and females are perceived in the workplace, perceived effect of university equality legislation, how women academics are valued.	B: Universities being gendered organisations, less access to networks role models, too few women 'at the top', male behaviour perceived as necessary to success, maternity leave and child bearing. F: policies benefitting women also benefit excellence within higher education as a whole.

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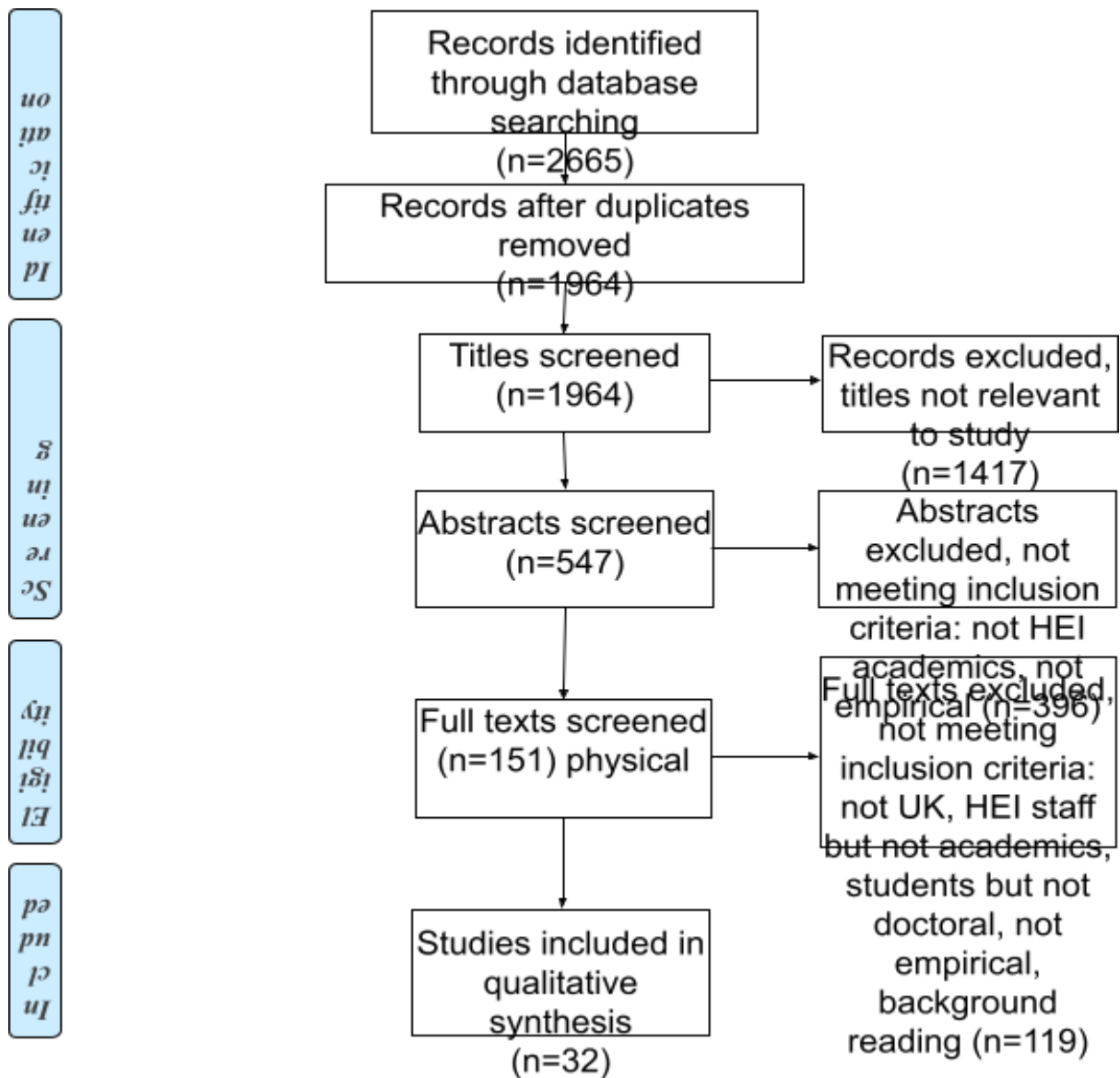
Savigny (2014)	Unspecified number of women who had experienced sexism in British HEIs.	To investigate why women are still under-represented at senior levels in British universities by collecting stories through informal discussions.	B: Women's promotion applications rejected without reason or with an unfair / illogical reason, erosion of confidence and ambition, voices not heard, lack of senior women, childcare seen as a woman's responsibility, institutions not accommodating childcare, appearance undermining position and research contributions, fear of consequences of speaking out, women seen as the problem.
Savigny (2017)	The author. Women academics from UK universities.	To give voice to women's experiences and consider the way cultural sexism has become an ordinary feature of women's academic lives.	B: Discrimination due to having children or taking maternity leave, forced choice between children and academic career, inability to report discrimination / bullying due to direct or indirect threats, consequences of reporting discrimination / bullying is detrimental to career progression (even ending a career), selection, recruitment and promotion biased against women, 'chilly climate' causing loss of confidence, gendered assumptions, 'culminative experience' of being underestimated, devalued, belittled, sexualised and invisible.
Schaer <i>et al.</i> (2017)	52 academics who have moved abroad with an opposite-sex partner (19).	To investigate how gender is articulated through the mobility patterns of young academics and how this reinforces or transforms gender relations. Qualitative interviews.	B: Child caregiving, having children causes couples to return to 'traditional' conceptions of motherhood and fatherhood, difficulty finding childcare, male-dominated professions causing difficulty in keeping a job, influence of gendered environments / social interactions, women as primary movers felt concern and guilt.
Schucan Bird (2011)	72 journals, 202 articles by UK-based scholars. Demographic data of UK social science academics (2003/4).	To investigate whether women and men publish journal articles at levels comparable with their representation in the social sciences. Data from an audit of journals compared against the number and proportion of men and women working in academia.	B: Proportion of female-authored articles were lower than the proportion of women social scientists.
Shepherd (2017)	45 pre-1992 UK HEIs. Census of all PVC post-holders; survey n=132; interviews n=73.	To present insights into the reasons for women's underrepresentation at senior leadership levels in higher education, via a census, online survey, and semi-structured interviews.	B: Geographical mobility is more of an issue for women, existing PVCs are recirculated as part of a self-perpetuating and predominantly male hierarchy (homosociability).
Śliwa and Johansson (2014)	14 UK business schools. 31 women of non-UK origin employed full-time within UK HE.	To investigate how meritocracy is contested in business schools in the UK and the impact of contestation on power relations through interviews.	B: Having and raising children, gendered selection processes, the dominant majority produces the definition of merit which others must then aspire to, fear of speaking out against meritocracy due to ramifications, race, religion.
Smith (2009)	1 post-1992 UK HEI. 1007 staff (30% academic).	Illustrate the state gender pay gap and examine satisfaction levels with pay. Satisfaction survey conducted during the academic year 2003-4.	B: Women paid less and occupy fewer senior positions than men, yet express higher levels of satisfaction with pay and conditions. F: Expressing dissatisfaction has led to more equitable pay.

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Teelken and Deem (2013)	10 HEIs in the Netherlands, Sweden and UK. 17 women, 31 men.	To investigate whether employees experience the current governance, management and policy contexts of universities as supporting or discouraging diverse university staffing and positive equality practice. Semi-structured interviews.	B: Work / home life balance, women taking on more teaching than research roles, gender research used as a statement to bring in more research funding, which has a stigmatising effect on women, avenues for progression made available to men despite their shortcomings but not women, working part-time (therefore achieving fewer publications) is detrimental.
Toader and Dahinden (2018)	Academics at the Universities of Cambridge and Zurich. Survey: 281. Biographical-narrative interviews: 27. Semi-structured interviews: 13.	To examine family characteristics when women and men decide to become internationally mobile for at least one year after completing a PhD, using an online survey, biographical narrative interviews, semi-structured interviews with the academics' partners.	B: Having a child can reinforce 'traditional gender roles' and makes finding work harder, family obligations a constraint to being mobile and becoming internationally recognised, difficulties in remaining employed in another country. F: Institutional characteristics such as family-friendly environments, (re)defining masculine and feminine roles, and 'diversification' of women and men's roles.
Tzanakou and Pearce (2019)	Academics from 4 UK HEIs.	To problematize the operationalization and implementation of Athena SWAN processes in departments and universities. 13 semi-structured interviews, 4 focus groups.	B: The high workload to write submissions falls on women in STEMM departments where they are typically underrepresented. F: Addresses structural issues, raises awareness of gender equality issues, increases engagement, offers support, financial schemes, support for new parents, increased representation of women at senior levels, efforts to change attitudes.
Webber (2017)	6 women on professional doctorate programmes in UK.	To explore tensions women experience during a professional doctorate programme, and identify barriers stopping women from confiding in their supervisors. Focused interviews, mind mapping techniques.	B: Colleagues who feel threatened by the woman's progress, undeveloped / poor relationship with supervisor, supervisors who fail to empathise with the student's situation, ill health caused by emotional pressures, home / work balance. F: colleagues who offer support (though this can wane) and well-developed relationships with supervisors.
Zalevski and Swiszcowski (2009)	UK PhD students. 191 women, 146 men.	To investigate whether gender impacts on doctorate students' attitudes and aspirations towards enterprise. Online survey.	B: Structural barriers, women receive less information, insufficient encouragement, lack of supervision, lack of recognition, ideas are taken less seriously, less awareness of entrepreneurial opportunities, insecurity and lack of self-belief. F: Maintaining work-life balance due to flexible working hours.

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Figure 1. Article selection process using Preferred Reporting Items for Systematic Reviews and Meta-Analyses.



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Figure 2. Thematic map, barriers and facilitators

