Invisible Sportswomen 4.0—"Everyone Will Know You're a Mum,

It's Part of Your Resume": A Mixed-Methods Cross-Sectional Study

Exploring the Impact of Family on Women's Experiences in Exercise

and Sport Science Academia

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Background: Although gender parity exists at the PhD level within exercise and sport science academia, there is a lack of women in senior leadership roles. This global, mixed-methods study, conducted in 2024, aimed to (a) investigate the specific challenges women face related to family and home responsibilities and (b) examine the demographic characteristics of women working in exercise and sport science academia. **Methods**: As part of a larger project, participants completed an online survey and follow-up focus groups. This study specifically reports on data from 36 survey items that focused on childcare responsibilities, division of household labor, career concessions, and perceived impact of family on career progression. Focus groups provided deeper insight into these topics. Data were

analyzed using descriptive statistics, group comparisons, and reflexive thematic analysis.

Results: Three hundred and forty one participants completed the online survey and 37 participated across 10 focus groups. Three themes were generated from the mixedmethods data: (a) (in)visibility of women, characterized by the perceived hypervisibility of women during pregnancy and their invisibility during postpartum; (b) denial or survival of the internal pressure to manage professional and family responsibilities; (c) assumption that Woman = Mother reflecting the common social perception that all women want to be mothers, and those that do not have child caring responsibilities can be called on during nontraditional working times.

Conclusion: Findings suggest that women still face family-related challenges in exercise and sport science academia that hinder their career progression.

Keywords: parenthood, gender, university, invisible labor, professional progression

Background

Women are underrepresented in senior roles across higher education. Recent European figures show that women hold just a quarter of professorships and institution leadership positions (European Commission, 2021), and this holds true for exercise and sport science (EXSS) where only 23% of professors are women (Deutschland Statistisches Bundesamt, 2003). Additionally, women are leaving academic positions at higher rates than men across all career stages (Spoon et al., 2023). While data on gender representation within EXSS remain limited, evidence highlights underrepresentation across sub-disciplines including physiology (James et al., 2023), psychology (Walton et al., 2022), and biomechanics (Kirk et al., 2023). This disparity extends to research where only 17% of senior authorship positions in EXSS publications are held by women, further

underscoring women's limited presence in senior roles (Martinez-Rosales et al., 2021). These trends are mirrored in applied sport settings, with women occupying just a quarter of executive positions across thirty-one international sport federations (Sport Integrity Global Alliance, 2023).

In today's higher education system (O'Connor et al., 2023), academic career success largely hinges on productivity, usually measured by the volume and prestige of publications and grant funding (Araneda-Guirriman, 2023). While these meritocratic measures initially appear gender-neutral, they can disproportionately disadvantage women as criteria used to measure academic excellence - and by extension, determining promotion - are modelled on an unburdened (typically man) academic (Thun, 2019). Traits traditionally associated with masculinity, such as being comfortable declining academic service work (Järvinen & Mik-Meyer, 2024), competitiveness, constant availability to work long hours (often beyond formal work hours), and the ability to travel (Araneda-Guirriman, 2023), align with expectations for academic productivity and career success. Although these demands can be challenging for both women and men, they often place an extra burden on women, who continue to bear the primary caregiver role (Hochlaf et al., 2023). For many, working beyond formal work hours is not a choice, but essential due to family and home demands. This can result in fewer publications and subsequently fewer job promotions (Francis & Stulz, 2020). Some women go to great lengths to juggle full-time work, publishing pressure, childcare, and the emotional demands of parenthood (Piggott & Pike, 2019). This often means working late at night or early in the morning to keep up with colleagues (Gipson & Malcom, 2020). Some women report working 22 hours more per week than their men colleagues with children (Mason & Goulden, 2004). This is compounded when women are pregnant or take maternity leave, as they face the 'Maternal Wall' of bias and often feel the need to work twice as hard to make up for 'lost' productivity (Howe-Walsh & Turnbull, 2016; Willams, 2004). Given

the variability of postpartum experiences, it is important to question the ethics of assuming how much work women will or should do during maternity leave. Some may continue working as usual, others may take on selective responsibilities, and some may be unable or unwilling to continue any work commitments (Maxwell et al., 2018). This period of active recovery and adjustment – often marked by sleep deprivation and, in some cases, recovery following surgery, significant trauma, and psychological distress - should be guided by the woman's choices, free from external pressure and assumptions.

While flexible working arrangements can be beneficial in supporting women's varied responsibilities, Thun (2019) describes academia as "greedy" (pg.7), suggesting that the working day is boundless and the extra hours women 'give back' far exceed the occasional late morning or early finish. There is often an assumption that women with children have a partner or family support system (Howe-Walsh & Turnbull, 2016). With the rise of flexible and virtual/remote working, there has also been an increase in 'informal' work hours, such as breakfast meetings and evening teaching. This creates a challenge for women who rely on childcare providers, which typically operate between 8am and 6pm. Working outside of traditional hours may be impossible for single mothers or those without support systems due to caregiving responsibilities. Partner support, childcare, or flexible availability must not be a default assumption for women with children or caretaking responsibilities.

Both women with and without children in academia face judgements and assumptions about their personal lives. In job interviews, women are frequently asked inappropriate and illegal questions about family planning – questions that men candidates do not face (O'Connell & McKinnon, 2021). Pregnant women may receive comments questioning their decision to work close to their due date, and upon returning from maternity leave they can find decisions have been

made for them regarding their work capacity without their consultation, such as the removal of tasks and responsibilities (Taylor et al., 2018). They are also subject to judgements on how they balance work and family commitments (Taylor et al., 2018) and can receive fewer speaking invitations at academic conferences due to the assumption they do not want to be away from family (Biggs et al., 2017). Meanwhile, little attention is given to men who are new parents as they return to work, and their partners typically shoulder most of the responsibilities at home (Kenetta, 2020; Thun, 2019). When men need to leave work early to care for a sick child or arrive late following a school run, they are often idolised for prioritising their family. In contrast, women in these situations are often perceived as less committed to work or disorganised (O'Connoll & McKinnon, 2021). For heterosexual academic couples, in situations when the man's career is prioritised, women are frequently seen as 'auxiliary' (gg.13), whereby they make career concessions such as accepting part-time or support roles (O'Connell & McKinnon, 2021), which continues to perpetuate the cycle of men holding senior academic positions (Gipson & Malcom, 2020).

This paper is part of a larger mixed-methods study that sought to better understand the professional and workplace experiences of women working in EXSS academia. As a result of themes generated from the same dataset, the current secondary analysis was conducted to explore the impact of family and home responsibilities on women's experiences working in EXSS academia.

Theoretical framing

Our examination of women's experiences is rooted in evidence that EXSS is a man-dominated field where women are underrepresented across a range of sub-disciplines (Lesch et al., 2023; Naidu-Young et al., 2024; Pielichaty et al., 2024; Taylor et al., 2018; Williams et al., 2022). Our political perspective on this issue provided us with an overarching feminist lens which is

infused throughout this paper and the wider study. To specifically explore women's low rate of progression into leadership roles and the impact of domestic and family responsibilities on experiences of working in EXSS academia, we used social role theory (Eagly & Wood, 2012). Social role theory draws attention to gender stereotypes, such as women being more likely to take on caregiving responsibilities within the home (Eagly & Wood, 2012). Within social role theory, role incongruity theory specifically facilitates examination of how behaviour stereotypes mean (1) women are seen less favourably for leadership and (2) when women behave in the same ways as men leaders their actions are perceived less positively (Eagly & Karau, 2002).

Role incongruity theory has been used effectively across a broad range of literature in sport and exercise, including examining the proportion of women directing athletics programmes in the USA (Acosta & Carpenter, 2008), in interscholastic athletic leadership (Swim, 2023; Whisenant, 2003; 2008); and in National Sports Organisations (Shaw & Hoeber, 2003). Within this current study, the overarching theoretical framework draws attention to the ways in which women's family and identity characteristics compound with persistent gender stereotypes resulting in complex and challenging experiences in EXSS academia.

Research background and aim

The current study forms part of a wider project investigating women's experiences in EXSS academia, specifically why there are fewer women than men in senior positions in EXSS academia (Cowley et al., 2025). It builds on this mixed-methods dataset, including survey and focus group data collected from 341 women to address the questions: "*What impact does family responsibility have on women's experiences working in EXSS academia?".* A secondary aim of this study is to examine the proportions and characteristics of women in EXSS academia who have family responsibilities. As the literature on women in EXSS academia remains relatively

limited, we adopted an exploratory approach to gain deeper insights into these factors and their influence on women's academic careers.

Given the likely high proportion of women in EXSS academia with family or caregiving responsibilities, this study specifically aims to understand the associated facilitators and barriers these women face. By pinpointing the challenges preventing women with family responsibilities from advancing into senior and leadership roles, we hope to identify actionable strategies for creating a more equitable environment. Our ultimate goal is to support more women in entering management and leadership roles (if they so wish), fostering greater inclusion and diversity in academia. This shift would enable women to have a stronger presence in decision-making processes and a greater influence on setting research agendas within EXSS.

Methods

Study design

This study employed a mixed-methods design, combining online survey data and semi-structured focus group data, as initially described (Cowley et al., 2025). Survey data were collected between February and March 2024, with focus groups conducted in April 2024. All procedures were approved by the University's Ethics Committee (23/SPS/085), and participants were required to provide voluntary informed written consent prior to participation.

Participants and recruitment

To take part in the study, participants were required to self-identify as a woman, be at least 18 years old, and either: (i) hold a PhD, (ii) be currently pursuing a PhD, or (iii) discontinued a PhD programme before completion, within the field of EXSS. Individuals in any sub-discipline of EXSS were eligible to take part in this study, including but not limited to exercise physiology, psychology, nutrition, sport medicine, coaching and management, physical activity, and

biomechanics. Participants self-determined their eligibility based on the study criteria. No geographical constraints were included, though all survey materials and focus groups were created and performed in English only. Recruitment efforts were made through standardised social media channels (LinkedIn, Instagram, X, Facebook).

The authors recognise gender as a social construct shaped by cultural gender roles, stereotyped behaviours, and actions (Birrell, 1988; Hall,1988). Throughout this paper, the terms 'woman' and 'man' are used to denote participants' gender. Gender identity may not directly align with biological and physiological sex; however, participant sex was not relevant to the present study, and thus, only gender identity was considered.

Data collection

Quantitative survey

Participants were requested to complete a 100-item online survey through Jisc (www.jisc.ac.uk), which took approximately 25 minutes. It was piloted with individuals working both within and outside of academia to assess clarity and appropriateness of questions, and was subsequently refined based on feedback prior to data collection. Based on existing literature (Ash et al., 2004; Karami et al., 2020), the survey explored participants' experiences working in EXSS academia using both open- and closed-questions, divided into seven sections. However, this study focuses on data from three sections specifically relevant to understanding the impact of family responsibilities on women's professional experiences in EXSS academia (see Supplementary Materials Appendix A for the full survey). Section one (11 items) gathered information on participants' marital status, household composition, and the division of household labour. Section two (4 items) focused on career concessions for participants who were married or in domestic partnerships. Section three (21 items) addressed experiences specific to participants with children

or caregiving responsibilities, including the age at which participants had their first child, access to maternity leave benefits, availability of breastfeeding facilities at their institution, childcare expectation, and the perceived positive, negative or neutral impact of having children on their careers. Additionally, demographic information, such as age, country of residence, country of birth, ethnicity, sexual orientation, and disability status, was also collected as part of the survey.

Qualitative focus groups

After completing the survey, participants were invited to take part in a follow-up online focus group. Interested individuals were directed to a separate web link outlining participant information and an electronic consent form. Purposeful participant selection was used to ensure diversity in focus group make-up, e.g., including a range of employment roles, including PhD students, individuals from the public or elite sport sector, postdoctoral researchers, and professors across ranks when possible. Given the international scope of the study, focus groups were scheduled based on general time zones. Ten focus groups with three to five participants per group were conducted, lasting an average of 49 ± 4 minutes. Two researchers facilitated each group, one serving as the facilitator and the other ensuring technical smoothness. The researchers had experience and training in online focus group facilitation.

At the beginning of the focus groups, participants were asked for verbal consent to record the focus group for later transcription. Participants were encouraged to share as much information as they felt comfortable with, and were reminded of the importance of confidentiality and to not discuss details of the focus group after the call had ended. An ice-breaker activity was used to help participants feel more comfortable, followed by a series of questions to gain deeper insights into their experiences as women in EXSS. The facilitator encouraged group interaction, discussion, and debate during the call, and paraphrasing was used to check for understanding.

The questions were developed based on methods and findings of prior literature (Aiston & Fo, 2020; Hoskins 2010; Howe-Walsh & Turnbull, 2016), and the interview guide was piloted and subsequently refined using the same methods as the survey development (Supplementary Materials Appendix B).

Analyses

Descriptive statistics were used to present findings from quantitative survey questions, aligning with research aim two. Data are presented as percentages and mean ± standard deviation, where applicable, to highlight patterns and trends within the group, offering critical context for understanding the qualitative findings on the impact of family responsibilities in EXSS academia.

Focus groups were audio-recorded and transcribed verbatim. Transcripts and open-ended survey responses were analysed using reflexive thematic analysis (Braun & Clarke, 2019). The last author (a researcher focused on women's health and physical activity behaviours and motivation) led the analysis and was supported by the first author (a researcher focused on women's experiences in sport leadership). The survey dataset was cleaned and organised, and initial themes and subthemes were generated by grouping participant quotes together with similar meanings, patterns, or experiences (Braun & Clarke, 2013). Transcripts were initially analysed deductively, using the survey's sections as a guide, and were subsequently analysed inductively using the authors' knowledge, understanding of feminist theory and the broader literature base in this field (Braun & Clarke, 2019). During the coding process, the research team met regularly, with the other co-authors acting as 'critical friends' (Smith & McGannon, 2017) who assisted in refining the thematic structure through discussion and debate. Participant quotes are used to illustrate themes, and quote identifiers indicate the participant's geographic location and job position.

Throughout this research, the authors have sought to take an interdisciplinary approach (O'Cathain et al., 2008). This has involved developing a shared understanding of positionality, including ontology, epistemology, and methodology. All the authors approach this research from varied academic, social and geographical locations, different stages in their academic or professional careers, and from different disciplinary backgrounds. Despite these differences, all the authors felt driven by a strong sense of social justice and aligned in wanting to take a feminist-informed theoretical approach to the work. An interpretivist paradigmatic viewpoint, consisting of ontological relativism and epistemological constructivism, facilitated an approach that was attentive to participants' unique experiences, beliefs, and feelings (Sparkes & Smith, 2014). This paradigmatic and theoretical underpinning offered the opportunity to explore the social factors that influence women's experiences in EXSS academia (Creswell, 2007).

Integration of mixed-methods results

Using a sequential design, this study first collected data using a mixed-methods survey. The survey dataset was rich with quantitative findings used to describe participant characteristics, alongside participant typed responses to open-text survey questions. After the survey, qualitative data were gathered through semi-structured focus groups. While data collection occurred in sequence, the analysis was conducted concurrently, allowing the insights from both the survey and focus groups to enrich our understanding. To honour the depth of this dataset, the results were integrated and are presented together. Participant quotes are used to contextualise the qualitative findings, adding depth and meaning to the results. If notable differences were observed between participant groups (e.g., demographics, career stage, geographic location), these differences are highlighted and discussed.

Results

Participant demographics and group characteristics

In total, the survey was completed by 341 women, and 37 of them subsequently participated in focus groups. The majority of participants were married or in a domestic partnership (n=205; 60%) and one third of participants had a child or children (n=96; 28%). Participant demographics are presented in Table 1 (information of the full dataset can be found in Cowley et al*.,* 2025).

[TABLE 1]

Family factors influencing women's experience working in EXSS academia

Following thematic analysis, three core themes and six subthemes were generated from the survey and focus group data. Figure 1 provides a visual representation of the interconnected nature of these themes. Integrated mixed-methods data, including quantitative survey results and participant quotes, are presented below.

[FIGURE 1]

Theme 1. (In)Visibility of Women

Through this theme, participants articulated experiencing heightened visibility as mothers within the workplace, yet simultaneously feeling unsupported and invisible when managing the ongoing impact of their dual roles at home and work. Notably, some women reported that this phenomenon was especially pronounced during pregnancy, when they felt an abundance of additional help, only to experience a stark decline in support after the birth of their child.

1.1 Visible

Several participants reported feeling highly visible to their colleagues during pregnancy and in the lead-up to childbirth. They often felt they were being treated as fragile, with

assumptions made about their limitations, despite feeling capable of continuing their professional duties.

"When men lead departments, there's a lot of assumptions about what some of the challenges might be (during pregnancy). *When I was pregnant, there was an assumption I would find everything really hard. I had instances where I would show up to the office at 34 weeks and my head of department asked why I'm here, surely you should be sitting at home. Don't get me wrong, I was feeling big at the time, but I still had a long time to go in the context of pregnancy"* (Senior Lecturer, Europe).

The sense of heightened visibility persisted into the postpartum period, but the additional support and resources provided during pregnancy were no longer available. This was especially pronounced for women who had to prioritise childcare responsibilities over work demands. Some participants reported receiving criticism from managers for not being able to work late hours, which led to feelings of scrutiny and judgement from colleagues.

"My daycare didn't open until 7:30am so I was constantly criticised. Around grant times, emails were flooding in at all hours of the evening. There were times I could respond and other times I couldn't. There were times I couldn't attend conferences because I needed to be at home with my children, and that was something that was brought up (by management)" (Professor, America)

Even participants who were not pregnant felt that their potential to become pregnant in the future was scrutinised.

"The first interview I went to was with two men and I explained I had to drop out of my first PhD because of having a baby and the first question he asked was 'are you thinking of having any more children?" (PhD Student, United Kingdom)

Survey data highlighted further issues related to the physical visibility of postpartum women in academia, particularly concerning breastfeeding. Although the majority of participants with children (85.4%) breastfed their most recent child, with over a third (35.8%) continuing for twelve months, less than half (43.3%) of workplaces provided adequate breastfeeding facilities. The lack of private spaces resulted in some mothers' being viewed undertaking feeding duties, as well as an added burden for mothers' to take time during working hours to pump/express milk. These conditions emphasised their mothering role within the workplace and coincided with a period of time where they were simultaneously receiving inadequate institutional support.

For one participant, inadequate institutional support was evidenced in a notably negative mentorship experience when seeking professional development. She described,

> *"I expressed to my former department chair (man) that I had an interest in academic leadership, and would welcome an opportunity to be mentored by him. He responded with, 'You should probably wait 7-10 years to be a department chair since you're a mother'"*
>
> (Associate Professor, USA)

This example underscores the hyper-visibility of women due to their caregiving responsibilities, illustrating how such visibility is often used to justify restricting women's career progression.

Despite the negative associations of visibility for many women, some participants felt visibility was beneficial in relation to their workplace role models. For example, the open text survey responses illustrate the benefits of having visible role models who can be looked up to. Role models with families "*provide hope and inspiration, showing that it's possible to combine being a parent/mother with work*" (Associate Professor, UK). When asked about details of positive mentorship experiences, many participants spoke of the importance of *seeing* their mentors lead lives that they aspired to, for instance, one participant said her supervisor *"showed*

[her] that you can have a career you're passionate about and a family" (PhD student, USA) and another said *"I watched [my manager] go to his kids soccer games and last year [he said] 'I'm not going to this conference, my son has a track meet, I'm going to that'"* (Professor, USA). In this way, the positive potential of visible role models contrasted with the intense scrutiny many women reported throughout the study, highlighting the complex and nuanced ways people are viewed in the workplace.

1.2 Invisible

Participants discussed the perceived 'unfair load' that mothers bear, expressing that their men partners and colleagues do not face the same challenge of juggling multiple roles and responsibilities. They felt that this additional unseen burden on women often goes unrecognised, unseen and directly impacts academic productivity.

> *"I think as women, we try to pick up the slack. I think there's an unfair load. If the child minder is going to be off it feels like it's on me to know that, that's my job to know all those things. If we've got holidays, that's my job. The shopping, he'll go and do the shop but he'll say to me 'Can you send me a list of what we need?'"* (Assistant Professor, Ireland)

Adding to the invisible burden, 47.9% of participants indicated that as mothers, they are the primary caregivers when a child is unwell, followed by 29.8% who rely on their partners, 18.7% on family members, and 3.5% on paid-for childcare. Despite feeling that childcare responsibilities were unfairly distributed, participants reported receiving no additional support from their workplace. Survey responses highlight the additional burden that childcare responsibilities place on their academic careers. The majority of participants (53.3%) felt that having children negatively impacted their careers. Specific challenges included missed

opportunities for attending conferences and other networking events, the negative effect of career breaks on promotion prospects, less focus due to exhaustion, and being unable to work evenings and weekends without arranging additional support. In contrast, 19.7% of participants indicated that having children positively impacted their careers. They highlighted benefits such as gaining a clearer perspective on their values surrounding home and work life, increased efficiency in completing work tasks, and being more selective in which career opportunities to pursue.

Additionally, 55.2% of participants reported a perceived decline in publication output, while 36.4% reported no impact. Interestingly, a discrepancy between perceived and actual productivity among women with childcare responsibilities seems to exist. Despite believing that their careers and academic output were negatively affected, those women reported higher rates of first-, second-, and last-author publications compared to women without children. When asked about their publication record, 47.6% of women with children and 15.8% of women without children reported having between 10 to over 50 first- or second-author publications. For last-authorship, 9.7% of women with children, compared to 0.4% of women without children, reported being the last author on more than 50 publications. Similar trends were observed in grant funding, even when accounting for age and career stage, with 11.6% of women with children and 1.7% of women without children reporting having secured grants totaling $1million USD or more. These findings not only challenge the narrative of diminished productivity among mothers in EXSS academia but also highlight their substantial contributions to research and leadership, underscoring the critical need for more equitable support systems in the workplace.

Invisibility for mothers was also evident in workplace policies. For instance, one participant delayed informing her employer about her pregnancy until late in the second trimester, fearing she would be '*passed over*' for opportunities and that management would '*write her off*'"

excluding her from projects (Associate Professor, UK). Survey data revealed that 76.7% of participants reported having a maternity leave policy at their workplace, with the average duration ranging from two to six months (46.0%). However, nine women (14.3%) were entitled to only one to eight weeks of paid maternity leave, with five of these cases occurring in the United States. Additionally, twelve women returned to work earlier than their leave entitlement, primarily due to financial constraints and pressures (both internal and external) to resume their projects.

Policies around extending the 'Early Career Researcher (ECR) period' for women with children were also criticised, with some participants arguing these policies fail to account for the true time demands of raising a child and the profound impact this has on women's career trajectory.

> *"Even if 'ECR' gets extended by a token 2 years it doesn't consider the momentum and impact* [on women's careers], *or the consideration that women have to adjust how she works, the hours she works, when she works, how much time she has available while literally managing another human life. Then you have all these men that just seamlessly build their career"* (Associate Professor, New Zealand)

It is important to note that extensions for ECRs who have children are not guaranteed. Within the frameworks of both the European Research Council and the National Institute of Health (NIH), parents must submit an application along with supporting documentation (e.g., child's birth certificate). These applications are reviewed by a committee, and "determinations are made on a case-by-case basis" (NIH, 2024). This process underscores the invisible additional workload women are frequently forced to undertake to ensure they receive the support they need to continue and be successful in academia.

Theme 2. Denial or Survival

In this theme participants articulated a tension around juggling family life and workplace development. This often resulted in women denying their own career aspirations and instead supporting their men partners in achieving their career goals. Where women did pursue their career alongside family, they often felt pressured to accept any opportunity they were offered rather than being selective in order to 'survive'.

2.1 To compromise or not

Participants discussed the challenges of gaining permanent employment within academia, and how relocation is often necessary to take up scarce opportunities. This can have a negative impact on women who have families or are in relationships.

> *"When I started out it was just me, I was able to move to take on the PhD, it was no big deal. Now I have kids, I definitely wouldn't be able to do that, it's not a set up for that opportunity of a PhD"* (Non-Academic, UK)

Another participant spoke of feeling guilty for wanting to prioritise her career aspirations in the same way that her husband feels comfortable prioritising his.

> *'He's very much in the mindset that this is his peak career, he's very ambitious and he's not one bit sorry about it. At times, I'm like why did you propose? Because I don't think you have time for a wife. I feel a big responsibility to our marriage to keep this going. Sometimes I would like to be like him, I wish I didn't feel guilty and sorry for everything all the time, whereas he's like, "this is my career and this is what's happening; be on board or don't'"* (Non-Academic, Ireland)

One participant reflected on the harsh reality that, despite her aspirations to advance her career and have a family, achieving both might be unattainable without adequate support.

"*I think for women in a lot of relationships where there's an unequal power balance, like the level of unpaid work that they're doing, whether it's housework, caring responsibilities etc., will have a massive impact on their careers and where they can get to. You only have a finite amount of time. I've got a lot of colleagues that are just going, 'Oh, I'm just gonna quit and we'll just live on one income'. There's definitely that to contend with, it's disappointing 'cause when I was 22, I didn't think that was a thing"* (Physiotherapist/ PhD student, Australia)

Survey results found that for participants in relationships, 13.4% of participants without children and 29.4% of participants with children reported that they make career concessions, while 14.3% and 8.7%, respectively, reported their partner makes concessions.

2.2 Is Work/ Life really balanced?

While some participants viewed childcare responsibilities as additional labour predominantly shouldered by women, others reported improved work-life balance upon having children. They noted that their childcare responsibilities limited their work to regular office hours, reducing the time they spent working late evenings and weekends. Whether consciously or unconsciously, participants categorised this unpaid labour of childcare as part of the 'life' component of work-life balance, overlooking that their 'work' had simply shifted to a different, unpaid form of labour.

"I've had to get a better work-life balance, for me that's a non-negotiable. I'm now much better and I don't work in the evenings really. I've got an 18 month old and my husband works away, so during the week, I feel like I don't really have much choice. I have to go and do pick-ups etc." (Associate Professor, UK)

In response to survey questions around work-life balance expectations, 40.7% of participants without children reported that their expectations differed from those of men,

compared to 72.9% of participants with children. Regarding work-life balance realities, 41.8% of participants without children noted a discrepancy compared to men, in contrast to 74.7% of participants with children. Key issues contributing to this incongruence included inadequate childcare provision, the negative impact of maternity leave policies on career advancement resulting in longer working hours, and the failure of intended work divisions with men partners to materialise in practice.

Theme 3. Assumption that Woman = Mother

In this theme, participants without children often reported being asked to work non-traditional or additional hours, as they were perceived to have more availability for work tasks compared to those with childcare responsibilities.

> *"I don't have kids, I don't have a partner and I feel like because of that, people just expect me to be available 24/7 and like my time is less valuable than other people's time"* (Non-Academic, Canada)

Another participant highlighted that many issues labelled as 'women's issues' are more accurately 'mother's issues,' expressing frustration that these terms are often used interchangeably.

> *"The thing that always comes to my head in these conversations, I don't have children, and I understand that in today's society women generally take on the majority of childcare responsibilities, but I think that we have to think about the challenges of being a woman, overlapping, but separate from the challenges of being a parent"* (Research Fellow, Brazil)

> When asked about the number of hours worked per week, the majority of women across all groups worked 26-45 hours (56.6% of women without children, 62.5% of women with children, 56.1% of women without partners, and 59.0% of women with partners). There were also

little differences found between women who work 46-60 hours per week (32.0%, 31.2%, 31.6%, 31.8%, respectively), or 60+ hours per week (5.0%, 3.1%, 5.1%, 4.5%, respectively). Regarding networking opportunities, women with and without children attend, on average, one to four networking events per year (67.9% versus 68.4%, respectively). The most commonly cited barrier to women with children missing networking events was family responsibilities (92.3%), while for women without children, the most common barrier was perceived as 'imposter syndrome' (45.0%). When asked about considering lifestyle factors in career planning, participants without children were twice as likely to report that they did not take these factors into account (20.8%) compared to those with families (10.8%). While it's clear that women with families must weigh lifestyle factors in their career decisions, this contrast underscores that lifestyle considerations are not universal among women, highlighting a significant variance in how career planning is approached.

In relation to household chores, survey respondents with partners found that both women with (57.8%) and without (59.1%) child caring responsibilities shoulder the majority of household chores. When asked about the satisfaction of this division of labour, no significant differences were found between the participant groups. The average satisfaction score for women was 3.51 ($\pm$ 1.2) out of five, and their partners' perceived satisfaction was 4.1 ($\pm$ 0.8). When asked why women take on this amount of invisible labour, the highest scoring reason was because 'it is the right thing to do' (3.6 $\pm$ 1.2), followed by 'it is what others expect of me' (2.5 $\pm$ 1.3), and lastly 'it is what other women do' (2.0 $\pm$ 1.1).

Discussion

This study aimed to provide a global perspective on the impact of family on women's experiences of working in EXSS academia. The results provide evidence that family, childcare,

and domestic responsibilities continue to have an impact on women pursuing careers in EXSS academia. Specifically, results from this study demonstrated that women experience frequent discrimination due to persistent incongruity between women's identities and leadership expectations, societal stereotypes and the lack of adequate support. Whilst women's publication rate is not affected when they have children, the discrimination they face results in reduced opportunities in the workplace, a need to work harder to match the productivity of men colleagues, limited opportunities for career progression, and an implicit acceptance of double standards around domestic responsibilities. These factors are likely to lead to burnout and may contribute to a lack of desire to continue in EXSS academia. This underscores the need for better culture, support, and understanding of the stereotypes facing women within the workplace.

The findings of this present study align with those presented by Williams (2004) nearly two decades ago. Women in academia are continuing to face 'The Maternal Wall' when they become pregnant or take maternity leave. Akin to the 'Glass Ceiling', this 'Wall' refers to specific forms of bias that affect mothers as opposed to all women, resulting in them needing to work harder to receive recognition and opportunity (Williams, 2004). The 'Maternal Wall' is compounded by the negative competence assumptions surrounding pregnant women (Halpert et al., 1993). As illustrated in this paper, pregnancy is often linked to a heightened emphasis on common gender stereotypes. Women are perceived as weak, fragile or overly emotional, leading to employers asking the study participants questions like '*surely you should be sitting at home?'* These stereotypical assumptions often perpetuate the view that women would rather or have a duty to be caring for their children rather than undertaking academic activities like travelling to conferences. These stereotypes might only have a small impact initially but when compounded

with pre-existing role incongruity facing all women, they create long-term detrimental effects on women's careers in EXSS academia.

This study highlights that women continue to perform significant amounts of domestic work, caregiving, and unpaid labour which go unseen whilst simultaneously making substantial career concessions. Despite much of this work remaining invisible, the participants in this study simultaneously reported feeling hypervisible and heavily scrutinised when balancing their childcare responsibilities and academic roles, with many participants feeling the need to work twice as hard to make up for any lost time or productivity (Howe-Walsh & Turnbull, 2016). This finding reinforces those of previous studies, suggesting that colleagues who, prior to children, would assume women were working from home or at conferences if they were not in the office, however after maternity leave assume they are doing child care instead (Wilson, 2004). In these circumstances, the importance of visible role models and mentors in leadership positions was paramount to offer women examples of good work-life balance and a positive sense of equilibrium between childcare responsibilities and workplace expectations (Hillier, 2023). As such, this study supports Skorski (2024) in calling for 'a culture of respect and recognition' which is 'inclusive' and 'supportive' and celebrates the unique insight women who are mothers can bring to both academia and leadership, to replace the current sense of scrutiny and observation women feel when enacting the dual role of mother and academic.

Within the study, women reported resisting stereotypes related to motherhood by utilising a range of strategies. This included participants re-framing the dominant narrative of motherhood as negative to career progression and instead discussing motherhood as beneficial to their career. In line with earlier findings, some participants wanted the academy to value their roles as mothers and the unique insights they brought to their academic work (Swanson & Johnston, 2003). Other

participants reported that having children increased their ability to manage their own work-life balance as it enforced the need to place barriers between these two key aspects of their lives. Whilst this often seemed to be due to a recognition that they could not afford for either area of their lives to be detrimentally impactful on the other, those who chose to mention this often spoke of it positively, and as such, it formed a resistance strategy for those individuals. For some participants, this helped foster a sense of satisfaction with both motherhood and academia (Huopalainen & Suvi, 2019). As such, this study demonstrates the potential for women to resist and feel empowered through motherhood despite the challenges of balancing all aspects of life.

This study further highlighted the need to better understand women's experiences in academia with disabilities or other marginalised identities (e.g., Wagner et al., 2021). Other studies into women's experiences in academia have drawn attention to the unique oppressions faced by women of diverse race and sexuality (e.g., Swanson & Johnson, 2003). Yet, across the participant group globally, women reported being treated in very similar ways by their workplaces. This included women's issues and mother's issues frequently being conflated, which participants who did not have children felt to be frustrating. In many cases, this reinforced the way women are often homogenised and perceived to have the same needs. This study highlights that women in EXSS globally differ hugely in terms of their domestic arrangements, lifestyle considerations, work patterns, maternity and parental leave policies, and support systems. Participants felt strongly that employers need to see women's diverse lives, needs and commitments as overlapping but separate. Further complexity in the form of unique, intersecting identities, for example race, disability, sexuality, age and class, can impact on women's experiences and need to be recognised and appropriately considered in workplace support.

Strengths and Weaknesses of the Study

The results of this study should be considered in light of its strengths and limitations. Regarding the study's strength, to the best of the authors' knowledge, this is the first study to explore women's experiences in relation to motherhood and professional advancement in academic EXSS. The mixed-methods research design, encompassing in-depth quantitative survey data alongside qualitative focus group data, provided rich insight from which to draw the results presented in this paper. The sample size of 341 participants from twenty-nine countries offers a global perspective from wide-ranging academic contexts. However, the lack of previous data, particularly within EXSS academia and the wide variety of geographical environments, makes it hard to consider the history of the field or to report on the nature of any change. Consistent with the underrepresentation of women in professorship roles in EXSS, this study also recruited a limited number of participants in these senior positions (full professors n=13; 4% of sample). While this restricts our ability to analyse the specific barriers faced by women professors, it reflects the broader landscape of EXSS academia, where women remain significantly underrepresented in senior roles. Future research should prioritise targeted recruitment of women in professorship roles to better understand the unique challenges they face and to develop strategies for supporting their career progression and satisfaction. It is important to note that despite the wide-range of women who participated in the study, the majority of the sample were white, heterosexual women who did not report a disability and were primarily early in their academic careers (PhD students and postdoctoral research n=169; 50%). Therefore, despite applying an intersectional lens where possible, the study was unable to fully address the interconnected oppressions of race, disability, sexuality, and other identity characteristics. Previous research has highlighted that women with intersecting identities face greater barriers in EXSS, so the sample's homogeneity may limit the applicability of the findings in relation to those

with diverse identities (Sanyal *et al*., 2024). Future research is needed to consider the compounded marginalisation of some academics due to their intersectional identities (Bannerji *et al*., 1991).

Future work should consider the importance of institutional, geographical, and historical context in relation to women's progression in EXSS. For example, the authors were surprised that COVID-19 did not feature more in the focus group discussions, contrary to the findings of other recent studies which emphasised the pandemics role in increasing the burden on women's professional and mothering roles (e.g., Guy & Arthur, 2020; Miller, 2021). By examining the specific institutional contexts in which women work, and the ways in which women are working day-to-day, could shed light on the various ways in which policies and practices occur in situ in different global contexts. Study results were used to inform the development of practical recommendations for individuals, colleagues, institutions and the broader society to implement to improve women's experiences in EXSS academia, particularly those with family responsibilities (Figure 2).

[Figure 2. Practical strategies]

Conclusion

Through a global, mixed-methods assessment of women's experiences of family responsibilities, maternity, and caregiving, this study contributes evidence of the continued marginalisation and lack of support women face as a result of patriarchal power structures within EXSS academia. Specifically, the data show that women continue to face barriers around maternity leave, pregnancy and career progression. Given these findings, it is imperative that institutions are more realistic with their expectations of working mothers and take a well-being focused approach to policy development in these areas (Burk et al., 2020; Guy & Arthur, 2020). We also encourage future researchers to continue to identify and challenge inequitable workplace practices that

disproportionately affect women. Implementing recommendations from this study could facilitate

meaningful progress and enable all women to thrive in every aspect of their lives.

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Table 1. Participant demographics

	Participants with children/ child caring responsibilities (*n* = 96; 28%)	Participants without children/ child caring responsibilities (*n* = 245; 72%)
Age *n* (%)		
<25 years	0 (0.0%)	17 (6.9%)
25-29 years	4 (4.2%)	102 (41.6%)
30-39 years	49 (51.0%)	103 (42.0%)
40-49 years	38 (30.6%)	19 (7.8%)
50-59 years	4 (4.2%)	5 (2.0%)
60 years and above	1 (1.0%)	1 (0.4%)
Ethnicity *n* (%)		
Asian/ Pacific Islander	1 (1.0%)	9 (3.7%)
Black or African American	0 (0.0%)	1 (0.4%)
Hispanic or Latinx	1 (1.0%)	12 (4.9%)
Multiple ethnicities	0 (0.0%)	3 (1.2%)
White/ Caucasian	93 (96.9%)	212 (86.5%)
Other	1 (1.0%)	6 (2.4%)
Prefer not to say	0 (0.0%)	2 (0.8%)
Marital status *n* (%)		
Divorced	1 (1.0%)	4 (1.6%)

Married or in a Domestic Partnership	92 (95.8%)	113 (46.1%)
Partner, not married or cohabiting	0 (0.0%)	37 (15.1%)
Separated	1 (1.0%)	0 (0.0%)
Single, never married	1 (1.0%)	90 (36.7%)
Widowed	1 (1.0%)	0 (0.0%)

Disability *n* (%)

Yes	5 (5.2%)	19 (7.8%)
No	90 (93.8%)	223 (91.0%)
Prefer not to say	1 (1.0%)	3 (1.2%)

Sexual orientation *n* (%)

Bisexual	2 (2.1%)	14 (5.7%)
Gay or lesbian	5 (5.2%)	13 (5.3%)
Heterosexual	87 (90.6%)	208 (84.9%)
Other	0 (0.0%)	4 (1.6%)
Prefer not to say	2 (2.1%)	6 (2.4%)

Region of residence *n* (%)

Africa	0 (0.0%)	3 (1.2%)
Asia	1 (1.0%)	10 (4.1%)
Europe	60 (62.5%)	127 (51.8%)

Latin America	1 (1.0%)	4 (1.6%)	
North America	28 (29.2%)	72 (29.4%)	
Oceania	6 (6.3%)	25 (10.2%)	
Not reported	0 (0.0%)	4 (1.6%)	
Income USD *n* (%)			
<$20,000	5 (5.2%)	43 (17.5%)	
$20,000-40,000	9 (9.4%)	75 (30.6%)	
$40,000-60,000	18 (18.8%)	60 (24.5%)	
$60,000-80,000	26 (17.0%)	30 (12.2%)	
>$80,000	36 (37.5%)	30 (12.2%)	
Prefer not to say	2 (2.1%)	7 (2.9%)	
Contract type *n* (%)			
Contractual - Short-term (<12 months)	9 (9.4%)	37 (15.1%)	
Contractual – Long-term (>12 months)	28 (29.1%)	142 (57.9%)	
Freelance	4 (4.2%)	7 (2.9%)	
Permanent/ Tenured	55 (57.2%)	57 (23.2%)	
Prefer not to say	0 (0.0%)	2 (0.8%)	
Academic roles[1] *n* (%)	**83 (86.5%)**	**212 (86.5%)**	
Assistant professor / Lecturer	26 (35.6%)	33 (15.6%)	

Associate professor/ Senior lecturer/ Reader	29 (39.7%)	18 (8.5%)
Full professor	11 (15.0%)	2 (0.9%)
PhD student[2]	11 (15.0%)	111 (52.4%)
Postdoc / Research fellow	6 (8.2%)	41 (19.3%)
Other	0 (0.0%)	7 (3.3%)
Non-academic roles *n* (%)	**13 (13.5%)**	**33 (13.5%)**
Clinical practice	2 (15.4%)	4 (12.1%)
Government or policy	3 (23.1%)	4 (12.1%)
Industry	6 (46.2%)	14 (42.4%)
Non-profit organisation	2 (15.4%)	3 (9.1%)
Professional sports	3 (23.1%)	8 (24.2%)

[1]Some participants had a primary academic role but had a secondary role in the non-academic sector. For example, some PhD students and postdoctoral researchers worked with professional sports teams ($n = 17$), with industry ($n = 7$), and in clinical practice ($n = 17$), while some academics worked as freelance consultants ($n = 2$), with government agencies ($n = 2$), and non-profit organisations ($n = 2$).
[2]Although this study had a relatively high number of current PhD students, it is important to acknowledge that a large proportion of this group were women returning to education as a mature student or alongside their full-time employment. One PhD student with a child was 20-29 years (9%), eight were 30-39 years (73%), and two were 40-49 years (18%).