BRITISH PHARMACOLOGICAL SOCIETY

Today's science, tomorrow's medicines

BPS response to STC 'Women in STEM careers' inquiry

1. The British Pharmacological Society (BPS) welcomes the opportunity to input into the Science and Technology Committee's inquiry on 'Women in STEM careers', an issue of great importance to our members. We represent 1,090 women in STEM careers. Pharmacology has been successful in recruiting women at undergraduate and PhD level but, like many other biosciences, the discipline sees a decline in women in pharmacology from PhD onwards with few women at the highest levels of academia. We would be happy to contribute oral evidence to this inquiry.

2. With 52.9% women at postgraduate membership level (Masters and PhD students) but only 19.27% women at Fellowship (a senior category of membership for those demonstrating distinction in pharmacology) our membership reflects the general trend seen in STEM. As a membership organization we support our members with a number of initiatives designed to encourage the recruitment and retention of women in pharmacology. These initiatives have grown since 2004, when we first took steps to address the issue of under-representation of women in our Society. While our prizes, mentoring scheme and training workshops are highly valued by our members, clearly intervention by central Government and universities to encourage greater participation by women in STEM careers more broadly would benefit pharmacology and be more effective than our activities in isolation.

Why do numbers of women in STEM academic careers decline further up the career ladder?

3. In our academic members' experience, pharmacology begins to see a decline in the numbers of women at the Post-Doctoral Research Assistant (PDRA) level. Gaining experience as a PDRA is critical to an early career researcher's progression, as at this time they will be working toward establishing their reputation as an independent researcher capable of attracting funding. This stage is an important window of opportunity for effective intervention; however, it is not the only stage at which representation of women declines. Our members have also highlighted that even those women who do achieve this experience and independent status often progress more slowly than men to the highest levels of academia, if at all.

4. There are numerous contributing factors to a decline in representation of women in pharmacology, which are outlined below:

[1] http://www.pnas.org/content/early/2012/09/14/1211286109.abstract
[2] http://www.hesa.ac.uk/content/view/1905/251/, table 12
[3] http://www.hesa.ac.uk/content/view/1906/251/, table 2a
[4] HESA statistics 2006/7 (purchased content)
[5] HESA statistics 2006/7 (purchased content)

a. The opportunity to transition to independence is commonly via the award of an academic Fellowship. As highlighted in point 3, such an award is dependent on several years of experience as a PDRA. During this time individuals are expected to have achieved recognition in their specialty via: publications in peer reviewed journals, presentations at conferences and involvement with networking opportunities. This is usually a time-limited stage as remaining as a long-term PDRA tends to make an individual more expensive as an employee, and less 'fundable' as an independent researcher. The usual PDRA period often coincides with the time when researchers wish to start a family – the **long hours** (i.e. attending conferences, networking outside of office hours, visiting other laboratories to learn techniques etc.) are difficult to balance with family life. Furthermore PDRAs are often **on short-term or dependent on funding contracts**. Individuals must be able to take on a peripatetic lifestyle, i.e. willing to move to new research institutes or universities, in order to gain the necessary experience.
b. Academics have a **poorly defined career pathway,** as well as a highly competitive environment, so progression is challenging for all early career researchers. Often, individuals feel pressure to distinguish themselves, often in the form of extra responsibilities and therefore even longer hours. This long hours culture, combined with a lack of job security and unclear career pathway, can disproportionately deter women from staying within academia, as well as disadvantage women in terms of progression.
c. The responsibility for caring commitments (children or elderly relatives) often impacts women more than men. Many individuals with such responsibilities are likely to prefer part-time positions. Promotion criteria are weighted towards publication outputs. Clearly breaks from work such as **maternity leave, or part-time working**, prevent high levels of output. This has an impact at each stage of the career ladder i.e. a PDRA can not progress because the publication record is not in place, more senior researchers can not progress because a drop in output is viewed negatively by funders and host institutions alike. In general, the nature of promotion criteria (i.e. the emphasis placed on publication) disadvantages those individuals who chose flexible working.

5. The impact of **unconscious bias** should not be underestimated, there is now evidence that bias does impact on recruitment of women in science faculties[1] suggesting women are at an immediate disadvantage; positive action may be required in the short term to tackle this. Our members also report that management/promotion committees are highly likely to be all men which may offer candidates who are also men an advantage over women. Additionally, many women in STEM suffer bias due to **expectation**, in that the potential for a woman to take maternity leave or to require flexible working in future can impact the judgement of interviewers.

6. Finally, submissions from our members suggest that women are **less likely to put themselves forward for promotion**.

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When women leave academia, what careers do they transition into? What are the consequences of scientifically trained women applying their skills in different employment sectors?

7. Our members highlighted a general lack of value placed on and consistency with the use of exit questionnaires and reporting within institutions. This can make it challenging to gather concrete information on why staff members are leaving academia, and into which careers they transition.

8. Generally, it appears that women choose more flexible careers or those with greater job security. In particular, teaching was highlighted as a common career destination for women. Furthermore, it is striking that many universities and teaching hospitals have experienced former PDRAs providing research support e.g. Research & Development Offices, Research Design teams etc. Our clinical members have highlighted that women tend to move away from academic-clinical roles and focus more on clinical roles; the reason for this seems to be the more structured hours of a NHS clinical position.

9. One consequence of this transition into different careers is that highly trained scientists, with transferrable skills earned during their PhD and post-doctoral training, contribute to the economy and bring valuable skills and contributions to new employment sectors.

10. However, there is a loss of expensively trained, highly specialised members of the STEM workforce and this loss of talent will be detrimental to research. Also, the impact of transitioning out of academia perpetuates worries that women do not progress in research because there are so few role models for early career researchers.

What should universities and the higher education sector do to retain women graduates and PhD students in academic careers? Are there examples of good practice?

11. Flexibility

a. Universities should make provision for flexible working. This could include enabling staff to continue their research during maternity (or extended paternity) leave e.g. access to technical staff or PhD students to keep research underway. Universities could also ensure a system of internal, more experienced, mentors to advise and assist those staff to ensure research continues smoothly.
b. Universities should be more proactive in helping women return to work from maternity leave by, for example, offering a break from teaching and/or administrative commitments to enable women to re-establish their research activity.

12. Promotion Processes & Criteria

a. In promotion processes there should be mechanisms to recognise a reduction in output due to part-time working, maternity leave etc.

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which will allow a more fair comparison of part-time and full-time staff, focussing on the quality, not the quantity, of research output.

b. The mixed job plans of staff should be explicitly recognised in promotion criteria so excellence in teaching, outreach, pastoral roles etc. is recognised as contributing to universities.
c. Universities should also consider the composition of the promotion and management boards within the institution and ensure there is fair gender representation within bodies with decision making powers.

13. Culture

a. Universities must recognise that barriers to progression are not simply an issue of women taking maternity leave, or having caring commitments. Equally, men are not unaffected by the difficulties of establishing a good work-life balance, or without caring commitments. The organisational culture of academia, for example the value of networking, can be detrimental to progression for a range of individuals.
b. There must be efforts to ensure that promotion requirements and decision making are transparent and appeals processes are in place
c. The value of role models should be recognised. It is important that institutions highlight and celebrate senior women (by awarding honours etc.) to demonstrate to early career stage researchers that progression is possible.
d. Mentoring schemes should be formalised and there should be ease of access to mentors. This is important to ensure staff members are encouraged to aspire, work toward and apply for promotions.
e. Universities could also make relatively simple changes to address a long hours culture – such as holding networking and meetings during normal working hours to enable wider participation.

What role should the Government have in encouraging the retention of women in academic STEM careers?

14. The requirement for institutions to hold Silver status in the Athena SWAN to receive NIHR funding has been highlighted as powerful driver to ensure institutions are more active in addressing gender balance. We consider that such funding requirements would be an important positive step to improve retention of women in STEM. To achieve this Government should commit to ensuring that there is adequate funding to support the Athena SWAN scheme and enable universities to meet the criteria.

15. An important enabling factor for women in academia would be to increase assess to both affordable nursery/childcare places and better access to respite care to allow staff members with caring commitments to return to or continue in work.

16. Our members have highlighted concerns that academic Fellowship schemes may have a limit on the number of years as a PDRA allowable prior to application. Such restrictions should be reviewed, particularly to take into

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account periods of leave or part time working. Similarly, all funders should be encouraged to be more support of flexible working for grant-funded staff.

17. We consider the changes to the Research Excellence Framework (REF) to acknowledge maternity and part-time working by decreasing outputs required to be REF returnable a positive development. However, there should be a more long term approach with research to monitor the usage and implementation of the guidelines, as well as the career progression of such individuals to determine the if long term promotion prospects are impacted by a period of leave.

18. This consultation provides an excellent opportunity for Government to consider, and offer advice, on quotas in academia.

19. In 2003/04, Higher Education Statistics Authority (HESA) data showed that 11.5% of pharmacology and pharmacy professors were women [2] (with 63.4% of pharmacology, pharmacy and toxicology undergraduates being women) [3]. In 2006/7, HESA data showed that this had increased to 16.2% of professors being women [4] (with 61.9% of pharmacology, pharmacy and toxicology undergraduates being women).[5] While there have been improvements in representation of women in the higher levels of academia, there is still poor progression to, and poor representation at, the highest levels. The pace of change is too slow and there is a need for significant action to drive gender equality within academia.

About BPS

BPS is the primary UK learned society concerned with research into drugs and the way they work. Our members work in academia, industry, and the health services, and many are medically qualified. The Society covers the whole spectrum of pharmacology, including laboratory, clinical, toxicological and regulatory aspects.

Clinical pharmacology is the medical speciality dedicated to promoting safe and effective use of medicines for patient benefit. Clinical pharmacologists work as consultants in the NHS and many hold prominent positions in UK Universities.

Declaration of interests

No interests to declare.

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