

**WEBHEAD: EQUALITY** <this is just one word added to the beginning of the headline online, but not in print]

**HEADLINE: Women more fairly funded in social science**

**STANDFIRST: Learn from other disciplines how to close the gender gap in bioscience grant applications, success and size, urge Paul Boyle and colleagues.**

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Despite the increasing commentary and debate on gender disparities in science[1-4] equality will not be achieved without proactive support from key institutions.

One of the key drivers of academic inequality is the receipt of competitive grant funding. In the biomedical sciences women receive smaller grants than men in both the US[5] and the UK[6]. Figures from the European Research Council (ERC) for 2007-13 show that only 25% of grant submissions are made by women, and they receive an even lower proportion of awards (20%).

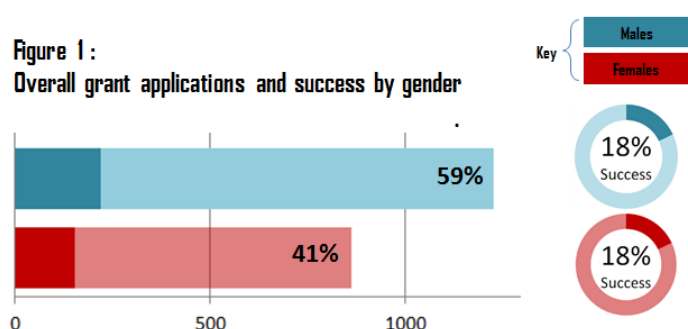
This pattern is evident, albeit at different rates, across all three ERC disciplinary domains (Physical Sciences and Engineering 17%, 15%; Life Sciences 30%, 21%; Social Sciences and Humanities 35%, 30% [http://erc.europa.eu/sites/default/files/document/file/Gender\\_statistics\\_April\\_2014.pdf](http://erc.europa.eu/sites/default/files/document/file/Gender_statistics_April_2014.pdf) accessed 26/03/2015). Interestingly, the gap is smaller for UK applicants to the ERC (Physical Sciences and Engineering 16%, 19%; Life Sciences 27%, 20%; Social Sciences and Humanities 40%, 37%).

We find that UK social science funding does not show such gender bias. There is little difference in application rate, success rate and grant size between female and male social scientists in our study. These results suggest that the biomedical sciences may be able to learn some lessons from the social sciences, as we discuss here.

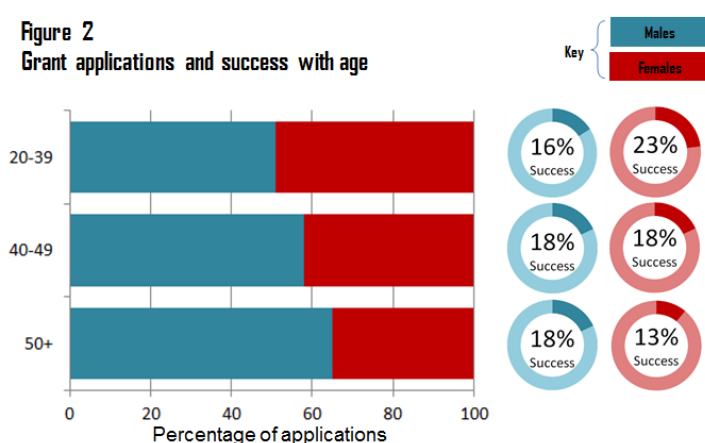
**CROSSHEAD**

We considered applications to the Economic and Social Research Council (ESRC) Research Grants Open Call scheme between 2008-2013, examining whether women and men submitted a similar number of grants, were as successful, and were awarded grants of similar size. We used Higher Education Statistics Agency data (HESA) for figures on the numbers of men and women in social science academic jobs in the UK. The descriptive results presented here are underpinned by robust multivariate analyses (available on request).

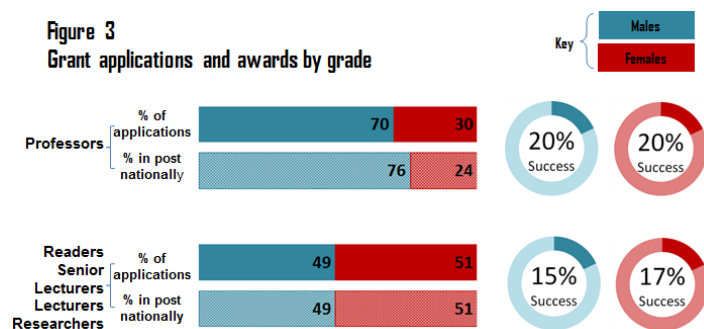
Reassuringly, we found that women and men were equally successful in being awarded ESRC grants (18% for both). However, while there were only slightly fewer women than men in academic posts in social sciences (HESA data: 48%), women were less likely to apply for grant funding at 41% of applications (Figure 1).



Closer inspection shows that women's applications and funding success declined with age, while men in all age groups had a similar success rate. Younger women applied for as many grants and were actually more successful than men, while older women, 50 years and over, applied for fewer grants and were less successful (Figure 2).

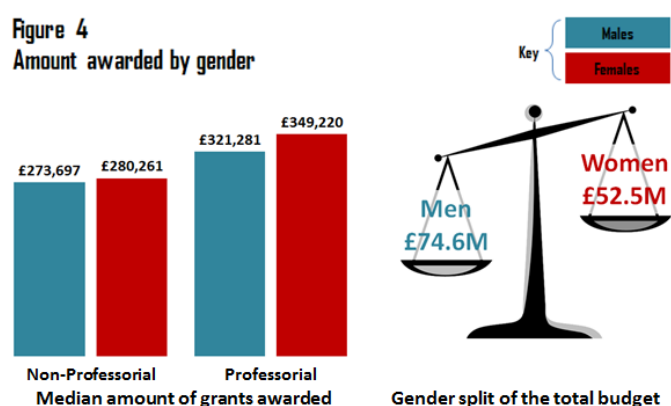


Comparing applications and success by academic position (Figure 3), we find that it is the smaller number of women professors that accounts for the overall difference in grant applications between men and women (Figure 1), and the greater success of older men (Figure 2). Thus, men and women professors were equally successful, and women at lower grades were actually slightly more successful than men at the equivalent grade. Indeed, at professorial level females were more likely to bid than their male counterparts; while females represented 30% of applications, nationally only 24% of these professorial posts were held by women.



## £'s awarded

Previous results from Wellcome Trust data in the biomedical sciences showed that women were awarded smaller grants than men[6]. This is not the case for social science awards from the ESRC, as the median amount awarded was not significantly different for women and men (Figure 4); indeed, women professors were actually awarded slightly higher amounts than male professors on average. However, while women were equally successful, and were awarded grants of similar size, their lower number of applications meant that of the £127 million allocated over the five year period 59% was allocated to men.



Our results show that women were less likely to apply for grants than men, and this was most evident in those aged 50 and over. This difference can be explained by the smaller proportion of women in professorial positions. Once we account for this, we find that women's application and success rates were comparable to men's; indeed, younger women do at least as well as younger men, and women professors apply more often than men.

Reassuringly, successful women secure grants of comparable size to men. This is in contrast to previous results using Wellcome Trust data[6] finding that award sizes were on average over £40K higher for men than women in biomedicine, which the authors attributed to women being 'less ambitious'. Whether these results were more due to endemic discriminatory practices that discourage women from applying for larger awards in biomedical disciplines is debateable. Regardless, it is clear comparing our results that there are disciplinary differences in women's funding success. Figures comparing the Medical Research Council (MRC) and ESRC show that while the proportion of women in biomedical and social science disciplines is similar (43% and 45% respectively), the proportion of grant applicants submitted by women in 2012/13 differed

substantially between the two research councils (27% and 42% respectively)

(<http://www.rcuk.ac.uk/RCUK-prod/assets/documents/skills/RCUKDiversityNarrativesanddata.pdf> accessed 14/05/15).

Evidently, the analyses we present here are based on standard routinely available data and so there are several caveats that should be born in mind including: the difficulties of combining different data sources on staff eligible to apply for awards and actual applications; a difference in the time periods covered by our work and that reported in biomedicine; and a lack of further detailed information on applications such as the number and gender of co-applicants. Even so, we believe these results presented here are robust.

## **CROSSHEAD**

It is interesting to consider why women are better served in the social sciences. The positive consequences of higher levels of female representation within social science disciplines include greater gender diversity and a move away from 'conventional gender expectations'[7] that align with hierarchical, individualistic and competitive behaviours. Social scientists have long been engaged with feminist research management practices, with the guiding principles of consultation, collaboration and social equity, which have served to disrupt male hierarchies[8]. Critiques of knowledge creation that exclude women as both researchers and participants have ensured that men in social sciences have long been aware of the ingrained, institutionalised male culture of universities[9] – an awareness that may be taking longer to permeate the STEM disciplines.

Even so, while women fair comparatively well in ESRC funding, the lack of women in professorial roles means that around 60% of the total budget is allocated to men. It is quite possible that the young women social scientists of today who submit similar numbers of ESRC applications, are as successful, and are awarded grants of comparable size to equivalent men, will maintain their success as they age. Yet this is unlikely to transpire if they fail to reach the more senior positions that men have dominated to date. And as these young women age they will not experience similar work/life balances, child or parental care responsibilities, or cultural attitudes to the importance of their labour market work as men. Consequently, they will be more likely to have part time or fixed term contracts and to take career breaks[10].

In other words, young women perform well today, but they will only continue to match men if structural changes are implemented within Universities and funding agencies; if the current pace of change continues, it will take 39 years for women to be represented equally among the UK professoriate although this is likely to vary widely by discipline (ref: UCU: "The position of women and BME staff in professorial roles in UK HEIs" 2012: <http://www.ucu.org.uk/bmewomenreport> accessed 26/03/2015).

It would be wrong to assume that nothing is being done. Through Research Councils UK (RCUK) all seven funding councils have published their expectations for themselves and for institutions in receipt of their funding, which include an ongoing commitment to promote cultural change in relation to equality and diversity (<http://www.rcuk.ac.uk/RCUK-prod/assets/documents/skills/EqualityStatement.pdf> accessed 14/05/15). Further, the Athena Swan initiative (<http://www.ecu.ac.uk/equality-charter-marks/athena-swan/> accessed 15/03/2015), which provides a framework for addressing gender imbalances in biomedicine, has been a catalyst for

action, particularly since the National Institute for Health Research (NIHR) has made attainment of an Athena Swan silver award a requirement for certain large scale funding.

Remarkable progress has been made elsewhere, most notably in Scandinavian countries where a range of measures has been adopted, including quotas for the number of women on senior boards. In Finland, for example, equality legislation introduced 20 years ago requires a minimum representation of 40% of either sex on any committee responsible for public spending, including research funding. While controversial, even among some ardent proponents of gender equality, it has resulted in significant change with women making up 50% of the Academy of Finland board and scientific committees in 2010. The number of women holding academy professorships has also risen from 13% to 22% between 2009-10. It is no surprise that *The Economist* ranks Finland number one in its 'Glass-ceiling Index' (<http://www.economist.com/blogs/graphicdetail/2015/03/daily-chart-1> accessed 15/03/2015).

Also, internationally the gender gap in educational attainment for young people today is changing. OECD figures highlight that girls, who once trailed behind boys in school outcomes, have now caught up in science and are ahead in reading in many countries[11]. In higher education women now make up 56% of students enrolled across the OECD countries (up from 46% in 1986), and in the US women have overtaken men in the receipt of social science PhDs.

Despite such signs of improvement, gender inequality along the scientific career trajectory continues to pervade. Men earn more than women[12]; academic mothers are less likely to be promoted and have lower salaries than non-mothers[13]; and 'Brian' is more likely to be hired than 'Karen' as a Professor, despite identical applications[14]. Consequently, there are fewer women in senior Professorial, administrative and University President roles. While women make up 47% of non-professorial higher education positions in the UK, they account for less than 20% of Professorial appointments (ref: UCU: "The position of women and BME staff in professorial roles in UK HEIs" 2012: <http://www.ucu.org.uk/bmewomenreport> accessed 26/03/2015).

Significant change is unlikely, without some bold re-structuring.

## **CROSSHEAD**

Funding agencies worldwide should take the following steps:

- Commit to bold expectations regarding gender performance which link to eligibility for receiving awards, following the NIHR's lead
- Introduce targets for minimum gender representation on funding panels
- Train their selection panels on gender equality issues including unconscious selection bias
- Submit their data annually to independent scrutiny of gender differences in applications, success rates and award sizes
- Publish these figures to allow cross-agency and cross-national comparison by discipline

Universities worldwide should take these steps:

- Provide public access to gender breakdowns in key areas including promotions, appointments and reward in a consistent way, allowing for cross-institution comparison;

such transparency would allow prospective employees and students to assess the institutional culture

- Ensure gender equality issues are embedded in work practice, making them beacons of good practice to other public sector and private employers
- Ensure women's career progression is supported through the ongoing development of promotion criteria that focus on quality rather than quantity
- Drive the increased engagement of men in championing gender equality including a clear commitment to the principles and uptake of shared parental leave
- Reverse the traditional culture so that women's achievements are equally celebrated in a public way

Bringing funding agencies and a consortium of prominent universities who have shown commitment to these issues together to develop coordinated approaches could have a significant impact. For example organisations such as Science Europe and the Global Research Council have already committed to helping reduce gender inequalities in science and they could take a leading role in coordinating such engagement.

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