

Women in Academic Radiology



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Introduction

Over the last two decades, gender parity of students, residents, faculty and departmental and university leads has been of major interest to academic institutions. Despite many concerns and plans for improvement, women continue to remain under-represented in academic medicine, in radiology as a whole, and in academic radiology in particular. The Association of American Medical Colleges compiled a report in 2006 examining gender disparities in academic medicine (1), looking at faculty hiring and promotions and the representation of men and women in leadership academic positions. A similar study was undertaken in 2006–2007 in the UK, the Women in Academic Medicine project, commissioned by the UK Councils of the Heads of Medical and Dental Schools (2). The results from both sides of the Atlantic mirror each other and conclude that there is an inequality of males and females in senior academic positions.

This lack of gender equity is a common thread in science engineering and technology generally, where women have traditionally lacked career progression. A recent survey of 44 academic institutions in the UK carried out by the National Centre for Social Research (3) found that women occupied lower grade academic posts than their male counterparts. In the USA, although women physicians have been shown to be more likely to pursue an academic career than men (4) the number who advance to professor appears significantly lower than expected (4, 5). Data from the American Medical Colleges reported that while women formed 50% of medical school entrants and graduates, they were 42% of fellows, 32% of faculty and 11–16% of full professors. Thus, despite the increasing feminization of the medical workforce, there remains a distinct under representation of women in academic medicine. In subspecialties such as radiology, this trend is accentuated (1).

What Is an Academic Radiologist?

Traditionally the role of an academic clinician has been in research and teaching while maintaining a speciality clinical practice. The balance of research versus teaching is determined by institutional profile and by the role of the individual within the team. Radiology ranks along with surgery and pathology as a highly technical and craft-based speciality where the need to maintain technical skills in a clinical environment is paramount. A research profile in radiology thus requires a high degree of technical skill, innovation, and a strong science-based drive to introduce and develop novel imaging

technologies into clinical practice. An academic radiologist therefore needs the skills required of an academic clinician with clinical expertise and a basic medical knowledge of biological sciences as well as an understanding of the physical sciences in order to introduce novel scanning and contrast agent technologies into the clinic.

The Size Of the Problem

In 2005, of the 99,395 physicians in U.S. residency training programs, ~42.5% were women, an increase from 34% a decade earlier largely due to the increased number of medical graduates. Despite this, the number of women in specialty training did not change over that decade (1): women residents formed 27% of all specialty residents in 1995 and 27.4% of speciality residents in 2005.

Looking further along the academic pathway for clinicians in radiology, 32% of assistant professors, 25% of associate professors, and 15% of full professors are women (1). Thus, there is a significant attrition of women as careers progress. This attrition is also reflected in other specialties that are traditionally popular with women such as obstetrics and gynecology where 54% of assistant professors, 35% of associate professors, and 16% full professors are women. In other health sciences as a comparator, 42% of assistant professors, 28% of associate professors, and 17% of full professors are women MDs. Specialties with the highest number of women full professors (pediatrics [22%], pathology [19%], and family practice [18%]) still fall far short of the 50% gender equality benchmark.

Possible Reasons for Inequality

Gender discrimination in academia: This has been shown to occur early in the careers of women in medicine. A study of 1000 medical students in the United States showed that 29% had experienced gender discrimination during their training (6). A decade on this research warrants repeating. Gender discrimination has also been reported in female medical students in the UK (7) and among female clinicians and academics working in radiology (8). A large study of medical academics across the United States showed that women were more than twice as likely to perceive gender discrimination in the academic environment than male colleagues and, although their academic productivity was similar, they had less career satisfaction (9).

Radiology as a specialty: While 46% of students enrolled in U.S. medical schools are female, only one quarter of radiology residents are female (10). And unlike many specialties, the numbers are not improving. A literature review (11) from 1988–1999 showed that the percentage of radiology residents who were women held constant at 25%. In an era when there is an explosion of new imaging technology this is surprising, in particular because diagnostic radiology offers many of the characteristics that are desirable to women such as reasonable on-call hours, flexible scheduling, and an opportunity to work part-time. The “controllable lifestyle” offered by a career in radiology for women

with family responsibilities therefore should correlate with higher satisfaction than other specialties in internal medicine. However in a 1999 *JACR* career satisfaction survey, this was found not to be the case because of work stress and encounters with gender bias and harassment. Another possible reason for lack of popularity of radiology with women medical graduates speculated by Potterton et al (11) may be the lack of role models. Choice of specialty is often related to exposure to role models. Radiology needs more role models in senior academic positions.

Work/Life Balance Issues: Women admitted to medical school do well and graduate well, but then they start to make choices to balance their family and their lifestyle. It may well be that they lack the commitment of their male colleagues to take on extra, but essential, roles necessary to maintain the position of senior physicians leading research teams in the health care system as they opt out of additional administrative responsibilities expected of academic team leaders and non-essential committee work.

Changes from a clinical to academic employment or working on short-term research grants or fellowships can be daunting for women planning to have children because the arrangements for paid maternity leave may be unclear. Research grants are usually awarded over a fixed time period, with no provision for maternity leave, and arranging cover for carrying out or supervising projects can be problematic. Although in the UK, grant-awarding bodies, such as the Medical Research Council and the Wellcome Trust, have begun to address these issues, there remains an intrinsic problem. Unlike clinical medicine where absence may be covered by colleagues using standard practice and protocols, research requires more creativity, more innovation, and more obsessive attention to detail that often cannot be left to the next person to supervise. A student, post-doctoral researcher, or supervisor on maternity leave may mean that a research project is on hold. In slowly moving areas of research, such delays may well be tolerable. However, in more competitive areas where other research groups are working on similar ideas, this delay may result in losing out to scientific discovery. Maternity leave is thus a strong disincentive to employing women in highly competitive fellowship schemes.

Lack of Role Models

There is a perception that it is “too hard” to combine academic, clinical, and family commitments, which is highlighted by the lack of female role models in academic radiology. This is supported by the findings of Blake and Lavalle (3) which showed that women scientists were less likely to be in a relationship than their male counterparts and less likely to have dependent children. Junior female academics find it difficult to envisage a successful career and a successful family life. Their perceptions may be well-founded: in one study only 50% of female academics had applied for grants compared to 62% of males. Also, being less senior, women were less eligible to apply for research project grants. However, those that did apply were as successful in gaining funding as their male colleagues. Another study indicated that female radiologists published fewer articles and were less likely to be lead authors (10). These barriers encountered by women in academic medicine generally also apply in academic radiology.

The Way Forward

It is essential that we eliminate once and for all the environment of male cronyism that still dogs the upper echelons of academia. In this multidisciplinary environment the key element is very much of collaborative research. In radiology in particular where a broad range of highly technical expertise with input from physics, biochemistry, biology, engineering, and clinical medicine is necessary, it is essential to build cohesive research teams for successful research outcomes. Within such teams, flexible working practices are not only possible, they are desirable. Any particular project will go through a predominantly engineering-based, laboratory-based, or animal-testing phase, where different members of the project team are in the driving seat. It is therefore possible to be part of this collaborative team by working flexibly. Women are fantastically good team players. Their skills of communication, negotiation and organization are paramount for a successful family life, and even more so when juggling the requirements of children, elderly parents, and a demanding career at the same time. They can bring these skills of multitasking and organization to the work-place to create successful multidisciplinary research groups. What women require to implement these successfully is confidence, support, and respect, particularly in a male-dominated academic environment.

Institutions often are not supportive of career breaks and parental leave. Also, the difficulties in fulfilling both academic and clinical commitments within a part-time working week can be daunting. Acknowledgement of this and a greater flexibility within working hours and the structure of academic careers are needed.

Mentoring: Mentoring is a critical part of career development (12) is an important factor in encouraging academic career choice (13). Female mentors are likely to encourage female trainees to consider academic radiology, and formal mentoring schemes are likely to give trainees links to senior academics regardless of gender. Mentors do not necessarily need to be women. However, they need to cultivate an environment of understanding and professionalism that is gender-blind.

Many national women's organisations exist both in the United States and UK such as American Medical Women's Association, Women in Medicine, the American Association for Women Radiologists, and the Medical Women's Forum. These organizations provide general support and guidance, but the benefits of a more focused one-to-one mentoring scheme cannot be underestimated. Within the UK the Association of the Medical Royal Colleges (AMRC) has set up a scheme for research fellows where a database of willing and available mentors is listed. Fellows can then choose and approach a mentor. If the relationship is unsuccessful, intervention through the AMRC can be sought. It may be possible to set up such schemes within academic radiology networks and through organisations such as ARRS, RSNA, ISMRM, and SNM.

Leadership Awareness: Leadership requires integrity, credibility, trust and, above all, reciprocity to facilitate effective engagement with others. It involves moving people from compliance to commitment, from acceptance to active engagement, and from task completion to professional involvement. It therefore requires

a portfolio of skills at the interpersonal and intrapersonal levels. This is driven by sophisticated self-awareness by individuals sensitive to their own personal configuration of talents, needs, aspirations, and fears. Women generally show lower risk-taking behavior than men, and are often more concerned with fears, rather than driving their aspirations. They need to feel confident that they have the necessary qualities and talents to be leaders by understanding that they possess the skills for success. A change in the perceptions of what leadership really is and recognition of various styles of leadership (14) would lead to increased numbers of women in senior academic leadership roles.

Clear clinical academic pathways: In radiology the training pathway to accreditation is clear cut. In the United States, radiology residency involves 4 intense years of training, with each of 10 specialist radiology areas having a pre-defined training time, before a resident is eligible to take the accrediting board examinations. In the UK, following successful achievement of a postgraduate medical qualification, and 2–3 years as a post-registration senior house officer, a trainee can embark on a radiology residency. This involves rigorous lecture-based training in the scientific and technical background to imaging supported by junior and senior training grade rotational appointments in radiological subspecialties. Hitherto, in radiology, there has been no academic training path or exposure to a research environment. Projects undertaken along the way have been minor case collation or retrospective studies. The exposure to large scale or prospective studies, if it does occur, is merely serendipitous, and the experience of grant writing or undertaking novel imaging in a multidisciplinary setting virtually nil. In the UK, the Walport Training Fellowships in Academic Medicine have started to address this, allowing short periods of academic exposure during which a trainee becomes acquainted with academic procedure, allowing them to prepare for a full-time research fellowship in their chosen specialty working towards a higher degree and enabling them to subsequently apply for clinical lectureship positions within academic departments. Such schemes are welcome in radiology where an otherwise regimented training system and pressure to complete subspecialty attachments quells academic aspirations. The negative side is that it requires a decision to pursue an academic path at the outset.

Financial constraints: The choice of an academic career often carries a restriction on income from private practice. This is a powerful disincentive to pursuing a career in academic medicine. In the past, in the UK, schemes such as the “merit award” scheme provided some financial compensation for those in academic posts. However, there has been a shift in the distribution of these financial awards so academics do not necessarily benefit. Undoubtedly an academic lifestyle involves a lower income. However, for women, where a dual family income is available, this may not be a deterrent.

Skills and competencies: In a clinical research environment a broad skill set is essential — people skills, communication skills, increasing awareness, strategic vision, management, and business planning. Women are intuitively good at some of these roles, but require additional training in others. In particular, women

may lack the risk-taking behaviour that comes more easily to their male counterparts. This is often a valuable asset in research where a certain amount of risk taking initiative is essential for ground breaking novel technologically based research. Women by nature or cultural training may not have as strong a drive for power and status as men do, which leaves them behind when being appointed as directors and deans. As clinicians we need to rethink our status symbols in academic radiology. There is a greater need for networking and teamwork. We need to applaud and endorse good multidisciplinary science and reshape leadership style.

Summary and Conclusions

Women are still under-represented in academic radiology. Although awareness of the problem is increasing and things have improved over the last 20 years, they have not improved enough. The pace of change to achieve gender parity appears frustratingly slow. In part this reflects the small number of trainees in radiology as a speciality. As radiology is an excellent career for having a controllable lifestyle that fits with family responsibilities, there should be an increased drive to encourage women into academic radiology. This can only be achieved through active mentoring, successful role models, and rethinking our status symbols and leadership styles. Radiology can then become a model for academic careers without gender bias that other specialities can follow. ■

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