



Women in medicine: historical perspectives and recent trends

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Accepted 19 January 2015

Abstract

Introduction: Women now outnumber men in British medical schools. This paper charts the history of women in medicine and provides current demographic trends.

Sources of data: A historical literature review and routinely collected data from Department of Health and the Health and Social Care Information Centre.

Areas of agreement: Clear gender differences are apparent in working practices, including greater likelihood of working part time and specializing in certain areas of medicine.

Areas of controversy: The increasing need to increase activity among the existing medical workforce is timely amidst a changing workforce demographic.

Growing points: Workforce planners, policymakers and Royal Colleges should continue to develop interventions that may reduce disparities in career choices, as well as considering ways to increase participation and activity.

Areas timely for developing research: Further research is needed to explore the cost-effectiveness of existing and future interventions in this field.

Key words: medical staff, personnel staffing, physician gender, statistics and numerical data

Introduction

Over recent years, there has been increasing discussion of the ‘feminization’ of the UK medical workforce, with women now forming the majority of medical

students¹ and over half of the general practitioner (GP) workforce.² This is a relatively new phenomenon, as for centuries the profession of medicine, like comparable professions such as law, was dominated by men. In this

paper, the history of women in medicine is reviewed, followed by analysis of recent demographic trends and discussion of the potential consequences of the changing gender composition of the medical workforce.

History of women in medicine

Healers, midwives and nurses

Women's role in medicine and healing is evident throughout history, from the ancient world through to the present day, albeit in different forms and with various associated conflicts along the way. Women were not, however, allowed entry into UK medical schools until the late nineteenth century. As a result, there was historically a class and gender divide in treatment. Those who could afford the care of university-trained medical practitioners were treated by men, while others sought help from female healers, often termed 'wise women' or even 'witches'. Experience and knowledge of herbal remedies to treat the sick was passed down from generation to generation. These methods were frequently opposed by the Church as they represented a threat to the religious messages they preached and to the formal medical licences that were issued by the Church to university-trained doctors.^{3,4} The more successful the 'peasant healers' were, the more the Church feared people would become less reliant on prayer. The Church was therefore heavily involved in discrediting the role of women as healers and encouraged witch-hunting throughout Europe.⁵

During the period of witch-hunting, midwifery was the only clinical profession in which women were allowed to practice, partly because its lower status did not attract male medical practitioners.⁵ The introduction of obstetric forceps, however, encouraged men into this field of health care, as only members of the (all male) Barber Surgeon Guild were allowed to use these surgical instruments.³ Gradually, the proportion of female midwives reduced over time as there was a presumption that male practitioners possessed more technical skills and it became fashionable for women to have 'man-midwives' (obstetricians) attend their childbirth, which was associated with greater wealth and status.⁵

Women in medicine in the nineteenth century

Limitations placed on the type of work that women could undertake during the early 19th century led to the majority of the female labour force working in other women's homes, for example as household maids, nurses or governesses.⁶ Some women went to great lengths to conceal their identity and pursue male occupations incognito. For example, Hannah Snell masqueraded as a man to join the British army in search of her husband who had deserted her.⁷ In the medical profession, the case of Dr James (Miranda) Barry perhaps best demonstrates the lengths to which women might go to practise medicine. Dr Barry's career as a physician spanned several decades following qualification in Edinburgh in 1812 and included achieving the highest accolade as Inspector General of Hospitals in the British army.⁷ Not until her death in 1865 was it discovered Dr Barry was a woman.⁷

Scientific discovery and new laboratory techniques during the 19th century brought about the era of 'modern medicine' which was also characterized by professionalization,⁸ and continued masculinization, as women were excluded from undertaking the university medical training that was required to practise.³ Biological arguments were often used to justify women's exclusion from education and the professions, for example Dr E. H. Clark published the book 'Sex in Education' in 1873 (cited by Achterberg⁵) which warned that 'higher education in women produces monstrous brains and puny bodies, abnormally active cerebration and abnormally weak digestion, flowing thought and constipated bowels'. The Medical Registration Act, introduced in 1858, did not exclude women explicitly, but the Royal Colleges, universities and medical institutions did so by either prohibiting women from studying medicine or from the academic examinations that would allow them to practise.⁸

Consequently, the first women to practise medicine in Britain did so using loopholes in universities' legislation. For example, the first woman officially registered by the General Medical Council (GMC) was Dr Elizabeth Blackwell in 1858, who had studied at an American medical school and was

therefore permitted to register through a clause which allowed women with foreign medical degrees to practise as medical doctors in the UK.⁸ Upon realizing that a woman (Elizabeth Garrett Anderson) had been awarded a medical qualification for her studies in midwifery in 1865, the Society of Apothecaries (later the British Medical Association) banned future female entrants.³ In Edinburgh, there were similar restrictions, for example Sophia Jex Blake was allowed to attend medical lectures but faced strong opposition and harassment from male students. Despite sitting the same examinations, she was awarded a Certificate of Proficiency rather than the medical degree awarded to her male counterparts.³ Frustrated, she left Edinburgh and continued her studies in Berne, where she was finally awarded a medical degree, and in Dublin, allowing her to register with the GMC.

Amidst wider changes in society that were occurring as a result of first-wave feminism, the 'Enabling Act' of 1875 came into force which theoretically allowed British universities to grant medical licences to women;⁹ however, this did not prevent institutions selectively choosing whether or not they wished to admit women.⁸ Nevertheless, in 1874, a group of determined and pioneering women, including Elizabeth Garrett Anderson and Sophia Jex Blake, established the first medical school in Britain to allow women to graduate and practise medicine, the London School of Medicine for Women (now the Royal Free Hospital School of Medicine).⁵ Sophia Jex Blake later moved back to Edinburgh where she established the Edinburgh Hospital and Dispensary for Women and Children in 1885.⁵

Women in medicine in the twentieth century

The establishment of the first medical schools for women led to an increase in number of women practising medicine in the early twentieth century: in 1881, there were only 25 women doctors in England and Wales, rising to 495 by 1911.¹⁰ Additionally, wider social reforms during this time, such as the Education Act of 1918¹¹ and Sex Disqualification Act of 1919,¹² led to greater access for women to professions such as medicine. During the First World

War, labour shortages further fuelled gradual increases in numbers of women gaining entry into employment across a range of occupations.¹³ At this time, there were growing numbers of women studying medicine in Britain, to meet the needs of the country as men enlisted in the armed forces.¹⁴ There were still restrictions on where women could study medicine as they were admitted to only a small number of medical schools. From 1915, some London hospitals began to train women, including Kings College Hospital and University College Hospital.³ The London School of Medicine for Women still trained approximately a quarter of all female British medical students in the 1930s.¹⁴ Various bars on women studying medicine continued until 1944 when, as a result of sustained public pressure, a government committee decided that public funds would only be made available to those schools that allowed acceptance of a 'reasonable' proportion of women, 'say one fifth' (Ministry of Health: p 99, 1944 cited in Elston¹⁴). While this was a positive step to improving women's participation, these recommendations became the basis for quotas that restricted all but the strongest of female candidates from entering medical schools at this time.¹⁴

Despite the gradual gains made by women following the Second World War, men were the sole earners for the majority of households and women continued to be financially dependent on men.¹⁵ There were still restrictions placed on women in the workplace. For example 'marriage bars', restricting the employment of women once they married or became pregnant,¹⁶ were adopted by many employers, particularly in the professions, even in post-war Britain.¹⁵

During the 1960s–1980s, a host of changes encouraged female participation in the labour market more generally, as well as in medicine. Amidst wider social pressure to provide equal rights to women, and new legislation such as The Sex Discrimination Act,¹⁷ medical workforce planners also recognized a need to increase numbers of British trained doctors and reduce reliance on an overseas medical workforce. This need was predominantly met by an increasing number of female doctors from the 1960s onwards.¹⁴ During the 1970s, the application system for medical schools also

became more formalized and based on merit, or the exam results of applicants,¹⁴ rather than previous informal systems that permitted class and gender discrimination. This encouraged greater numbers of female applicants, who were achieving grades similar to boys in schools at this time.¹⁸

Today, girls are higher achievers than boys educationally,¹⁹ and there has been a general move towards more women than men participating in higher education.²⁰ There is also greater balance in the A-level subjects studied by males and females today, with girls making up 56% of A-level entries in biological sciences and 48% in chemistry.¹⁹ These changes have all contributed to the growing numbers of women entering the medical profession.

Today's medical workforce

Over the past four decades, the proportion of women entering medical schools in the UK has increased rapidly, and female medical students now outnumber males.¹ When the Universities Central Council on Admissions (UCCA) first measured the proportion of male and female medical applicants in 1963, women

comprised fewer than 34% of applicants and only 29% of acceptances.²¹ Female medical students rose to ~40% in 1980 and increased by around 10% in each subsequent decade.²²

While the proportion of women studying medicine has made significant gains over recent decades (as shown in Fig. 1), the numbers of women actually practising medicine is yet to reach parity. Women now represent 47% of the medical workforce in the UK,^{2,23} with the proportion of women working in primary care greater than in secondary care (Fig. 1). Estimates suggest that by 2017, women will account for over half of the medical workforce.¹

The changing gender composition of the medical workforce is comparable to other professional occupations in the UK.³⁵ The legal profession has followed a similar path to that of medicine, moving from a historically male-dominated workforce that excluded female participation,²⁴ towards near equality today with 46% of legal professionals now women.³⁵ Nevertheless, there are still some professional occupations that remain male dominated, for example 85% of Architects are male³⁵ and women are underrepresented in engineering and technology fields.¹⁹

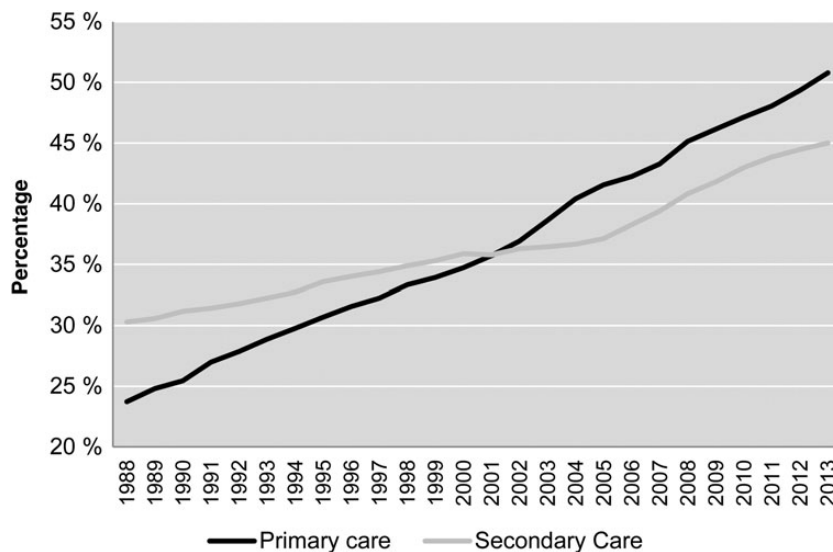


Fig. 1 Trends in percentage of women doctors working in primary and secondary care in the UK 1988–2013. Source: NHS Information Centre and Health and Social Care Information Centre.^{2,23,26–31}

Gender balance in the medical workforce is increasing around the world. The World Health Organisation²⁵ collects global data on the proportion of women employed as physicians in a large number of countries. There may be variability in terms of the quality of data and the reference year, but this provides a useful international comparison across Europe and for other countries with a total physician workforce >20 000. The majority of data were collected during the early 2000s, and in Europe, the mean proportion of women working as physicians was 40% (SD 8.8). This is comparable with the proportion of women doctors working in England at this time (37% in 2002).^{26,27} The proportion of women working as physicians was noticeably lower outside Europe (median 33%, inter-quartile range 24–36%), although this is skewed by the relatively low proportion of women physicians in Japan (15%), Nigeria (20%) and Bangladesh (24%).

UK primary and secondary care

Increasing numbers of women doctors are particularly apparent in primary care, and the overall increase in numbers of GPs can almost solely be attributed to increasing numbers of women: from 1988 to 2013, the number of male GPs remained relatively stable (20 915–19 801), whereas the number of female GPs rose from 6505 to 20 435 during this time. This is demonstrated in Figure 1, which presents the proportion of female doctors in primary and secondary care over this time period.

Despite almost equal numbers of men and women GPs, there are differences in the type of contracts held, with greater tendency for GP principals (partners of a GP practice) to be men and salaried GPs (contracted employees of a practice) to be women.²⁸ This highlights vertical gender segregation in medicine, a term used by sociologists to refer to women's lower likelihood of holding positions of power and prestige in organizations, despite similar levels of skills or experience. In secondary care, there have been increasing numbers of both men and women over the past decades, but in recent years the number of women appears to be increasing at a slightly faster rate.^{23,27,29–31}

Gender and career progression

Several authors have commented on the underrepresentation of women in leadership positions in medicine. For example, in 2004 the former President of the Royal College of Physicians, Dame Carol Black, controversially discussed her concerns about the potential 'downgrading' of the future medical profession that may result from women's lesser tendency to take on leadership roles.³² Many authors have suggested women doctors struggle to break through a 'glass ceiling' to reach these higher positions in medicine.^{33–37}

Trends demonstrated in Figure 2, however, suggest that the general influx of women into medicine in England appears to be slowly reducing gender differences in career grades as women begin to filter through into higher positions in medicine. There is a cohort effect whereby the trend is slower to change in the higher positions, such as consultant posts, due to the length of time needed to reach this level. Taylor and colleagues³⁸ suggest that male doctors' more rapid career progression than women may largely be a reflection of more women working part time or taking career breaks to have a family, rather than gender discrimination. In their cohort studies of medical students, gender differences in career progression were greatly reduced by accounting for full-time or part-time working, and there was no statistically significant difference in the career progression of male and female doctors that had always worked full time.³⁸

Part-time working

Gender differences in rates of part-time working are strongest in primary care, which offers greater flexibility and perhaps as a result, attracts more women doctors.¹ In general practice, 42% of female GPs work part time, compared with 18% of men.² Figure 3 illustrates these gender differences in full-time equivalents. The average hours worked by female GPs does, however, appear to be increasing gradually—female GPs worked an average of 30 h per week in 2003 compared with 32 h in 2013.²

In hospital medicine, the numbers of women doctors working part time have increased over time; but the actual proportion of women hospital doctors

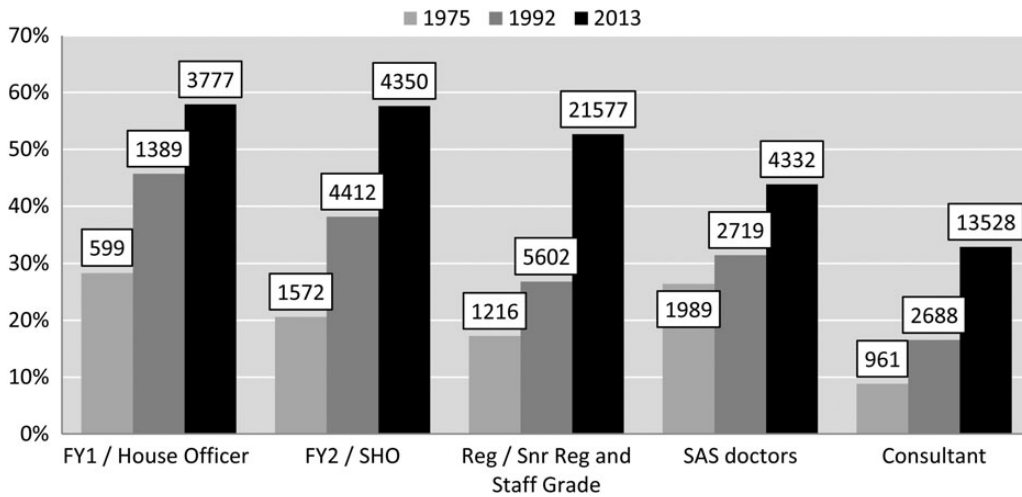


Fig. 2 Percentage of women doctors in different hospital grades: 1975, 1992 and 2013. Numbers are given in boxes. In the UK, the first training stages are referred to as foundation years (FY1 and FY2), which has replaced the earlier terms 'House Officer' and 'Senior House Officer (SHO).' Following the foundation years, specialty choices are made and trainees commence the registrar grade. Data here are grouped to include registrar, senior registrar and staff grades as the historical data does not separate these. 'Specialist and Associate Specialist (SAS) doctors' include specialty doctors, associate specialists, hospital practitioners and clinical assistants. The highest doctor grade is that of consultant. Source: Department of Health and Health and Social Care Information Centre.^{23,27}

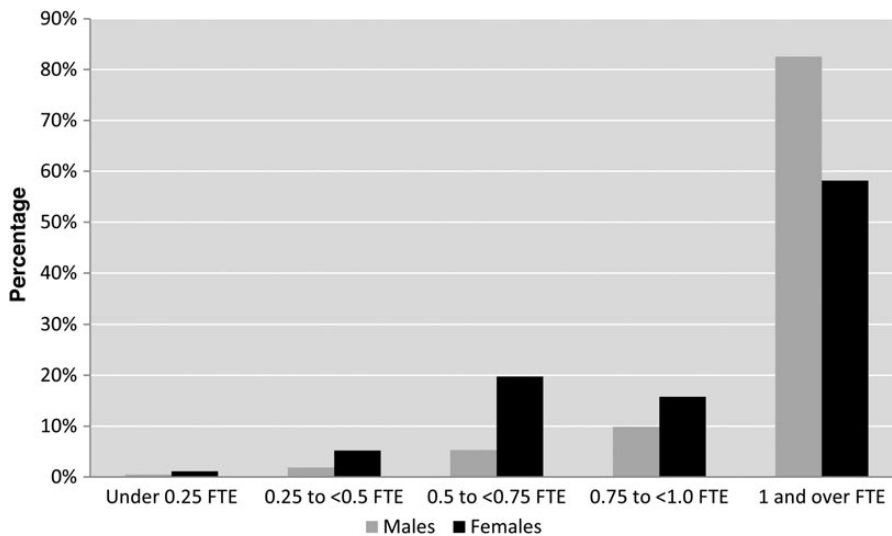


Fig. 3 FTE by gender of GP in 2013. Source: Health and Social Care Information Centre.²

choosing to work part time has reduced from 39% in 1975 to 24% in 2013.^{23,29} This has also happened in the male hospital doctor population, where the

proportion of men working part time has reduced substantially, from 35% in 1975 to 8% today.^{23,29} This may be a reflection of the 2003 consultant

contract which now enables NHS consultants to work full time (at least 10 ‘programmed activities’ of 4 h duration per week) while also practising privately.³⁹

While the majority of hospital doctors today work full time, part-time working becomes more common as doctors progress in their careers,²³ which again may be a symptom of private practice which is only open to the consultant workforce. Gender differences in the motivations around part-time work have been highlighted in the literature, for example female doctors have reported lower levels of spousal support for domestic and childcare responsibilities which affects their work patterns and career progress.^{40,41} Furthermore, a pattern of ‘deferred parenthood’ has been described in numerous studies,^{1,42–45} whereby women restrict their personal aspirations of having a family to benefit their medical careers. These influences can be seen in the current workforce data, as gender differences in part-time working appear to increase as doctors move up the career ladder.²³ For example, there is a large gender difference in part-time working among career grade doctors (which include consultants, staff grades, associate specialists and

specialty doctors), with approximately three times more women career grade doctors working part time compared with men at the same career level. This trend is also noticeable when looking specifically at the consultant grade (the highest doctor grade, referred to as ‘attending’ doctors in the USA, which forms part of this ‘career grade’ group): 33% of female consultants currently work part time compared with only 10% of male consultants.²³ Research suggests that this may be a cohort effect, which may gradually reduce as more women enter these higher doctor grades and progress beyond the child-bearing years, when part-time working is more prevalent.⁴⁶

Specialty choices

More women doctors, compared with men, appear to choose what have been termed ‘people-orientated’ specialities, such as paediatrics and psychiatry.^{1,47} Increasing numbers and proportions of women are also evident across other specialties over the past 20 years. Registrars, as the middle career grade, are chosen here to demonstrate these trends in Figure 4.

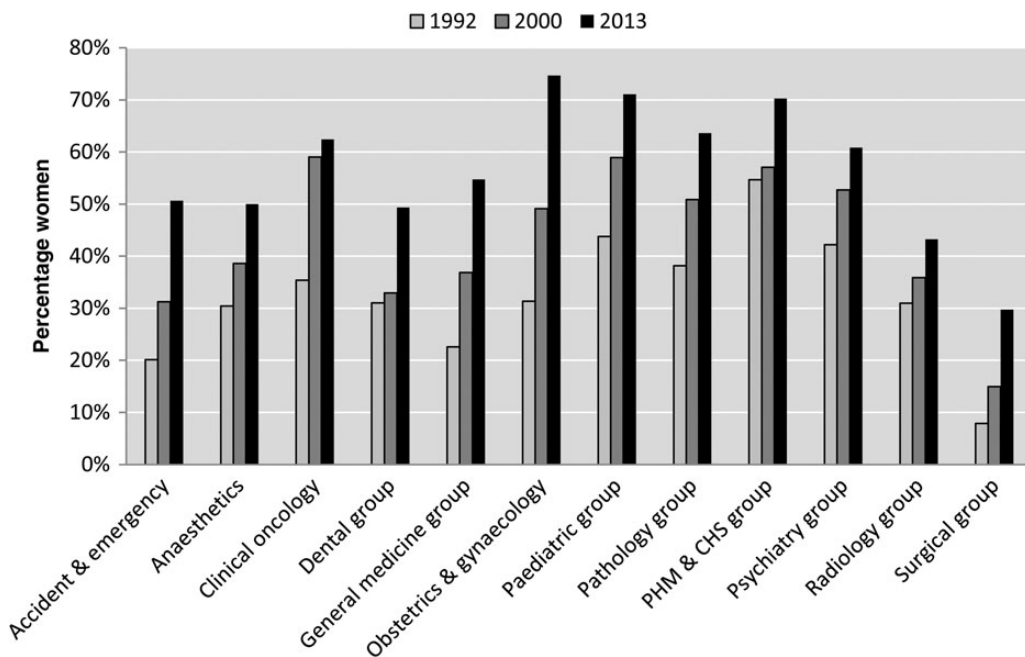


Fig. 4 Percentage of women registrars in each specialty: 1992, 2000 and 2013. Source: NHS Information Centre and Health and Social Care Information Centre.²³

The specialties with the highest proportion of female registrars include Public Health Medicine and Community Health Services (PHM & CHS), Obstetrics and Gynaecology and Paediatrics. Meanwhile, while surgery currently has the lowest *proportion* of female registrars, the *number* of women specialising in this group has increased >10-fold over the last two decades and this is now one of the specialties with the largest number of women registrars.²³ These gender differences in specialty choices may relate to the format of training for particular specialties, for example both the Obstetrics and Gynaecology and Paediatrics specialties require trainees to follow the ‘run-through’ training route,⁴⁸ which is associated with greater job security and stability and may therefore be more attractive to female applicants. The alternative ‘uncoupled’ route requires re-application for training posts after 2 years, sometimes resulting in a change in location. Numerous studies also suggest that gender differences in specialty choices may arise as women doctors place greater emphasis on balancing the demands of professional and personal lives.^{49–52} For example, Davidson and colleagues⁵¹ found that 56% of female doctors reported being influenced by ‘domestic circumstances’ and ‘hours and working conditions’ when making career choices, compared with just over 30% of men.

Discussion

This paper has described briefly the historical role of women as healers, the opposition to their entry into the medicine over centuries and their relatively recent progress towards gaining medical qualifications and general acceptance in the profession. Current trends demonstrate that despite increasing numbers of female medical graduates, there remain large gender differences in occupational choices. Over the past decade, concerns have been raised about the potential impact this may have on healthcare provision,^{1,32,53–56} with much discussion centred around the future shortfall in supply of doctors due to greater part-time working. This may create particular challenges in fields that attract large numbers of women (e.g. Obstetrics and Gynaecology) as well as potential reductions in applications to male-dominated fields such as Surgery.

Goldacre and colleagues⁵⁷ have demonstrated that losses due to part-time working and non-participation 15 years after graduation led to a 20% difference in the estimated whole-time equivalents (WTE) for male and female doctors (60% WTE for women and 80% for men).

While concerns around labour supply are important, recent research suggests that workforce planners and policymakers should consider other ways of increasing activity from the existing stock of doctors and reducing variation. Rather than just employing more staff, there may be ways of improving the participation and activity within the existing workforce. An expanding evidence base has documented other sources of variation that may impact on the activity rates of men and women doctors, including gender differences in doctors’ communication style with patients and in interactions with colleagues.^{50,58} Meanwhile, Hedden *et al.*⁵⁹ recently report gender differences in the types of patients seen by men and women doctors and in the provision of on-call or out-of-office care, which may also influence the activity of women doctors.

Aside from these concerns around ‘quantity’ of health care, implications around quality outcomes may also be worth considering—numerous international studies have shown women doctors provide more patient-centred care⁵⁸ and, despite near equal numbers of men and women in the medical workforce today, over 75% of GMC referrals (GMC referrals are complaints that have been escalated to the UK governing body, the General Medical Council) are for male doctors.⁶⁰ A recent study of all UK doctors has also shown sanctions to medical registration are lower among female doctors, after adjustment for potential confounders such as specialty, year and country of medical qualification.⁶¹

While the Royal Colleges have recognized the need to encourage and support women in medicine through strategies such as the Women In Surgery scheme (which aims to raise opportunities for women who wish to pursue surgical careers by challenging attitudes within the profession and provide a support network for advice and guidance),⁶² more can still be done to encourage both activity and participation in the workforce. Policymakers and NHS

organizations could learn from schemes such as the 'Quality Worklife Quality Healthcare Collaborative' (QWQHC) in Canada. This organization, formed by 12 healthcare organizations, aims to improve health professionals' work-life balance to ultimately improve patient outcomes and service delivery.⁶³ Meanwhile, improved child care provision and the use of flexible working arrangements have been emphasized in the Deech report to the Department of Health.⁶⁴ These measures may also improve rates of sickness absence, which is gradually increasing among NHS hospital doctors.⁶⁵

Conclusion

This paper provides a historical perspective highlighting the role of women in medicine and more recent trends. Questions about the future role of gender in medical work continue to exist as the cultural and social roles of women at work and in the home appear engrained and slow to change. These long-standing gender differences in working practices and career choices have important implications that should now be a priority for workforce planners to ensure that women are sufficiently represented across all spheres of medicine. Further work needs to be done to explore strategies that may maximize participation rates, particularly during the childrearing years, and to enable greater work-life balance, for both men and women doctors.

Funding

L.J. and K.B. were supported by an NIHR Career Development Fellowship (CDF/01/002). The views expressed in this paper are those of the authors and not necessarily those of the NHS, NIHR or the Department of Health.

Conflict of Interest statement

The authors have no potential conflicts of interest.

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