Abstract
This literature review explores the current issues and historical aspects of the problems faced by female medical students and doctors in Pakistan. The literature search comprised PubMed, Education Resources Information Centre and Google Scholar databases to look for resources from education as well as from health sector from 2009 to 2020. Due to lack of local literature on the subject, it was tried to make sense of the career barriers and enablers they face considering the underlying theory and evidence from other countries. Keeping the Pakistani context in view, it explored the interventions adopted in other countries to help reduce the gender-based issues which have resulted in the facilitation of women in health education and healthcare systems. The major gender issues identified were unequal representation of female doctors in leadership positions and in some specialties, work-life imbalances, socio-cultural norms and lack of professional development opportunities.

Keywords: Women in medicine, Feminisation of medicine, Career barriers, Career enablers, Medical education.

DOI: https://doi.org/10.47391/JPMA.119

Introduction
The term 'Doctor Brides', which refers to females who train as doctors to make a good marital match and then give up the medical profession to take the roles of mothers and wives, is in constant parlance in Pakistan. These women are being blamed for the shortage of physicians in the country. In 2014, the Pakistan Medical & Dental Council (PMDC) estimated that half of graduating medical students do not continue medicine in the country, with 70% of the country’s medical students being female at that point. According to a news article published in 2016, only 23% of the registered doctors in Pakistan were female. Reports from 2019 found that 85,000 female doctors from Pakistan are not working. PMDC recommended restricting female admissions to 50% based on a quota system in 2014. However, the Pakistani constitution states in clause 2 of the article 25 that "There shall be no discrimination on the basis of sex". This had previously formed the basis of the Shirin Munir case in 1989, which had resulted in the elimination of quota system favouring male medical candidates for the first time in history. The PMDC's recommendation was put on hold by the Punjab High Court.

A Pakistani study reported that parents influenced their adult children to pursue medical education for the sake of social status, honour and prestige, and also as a safety net for their daughters if something went wrong with their marriage. To reduce this, suggestions have been made to change the admissions process by incorporating evaluation of various aspects, such as family support, enthusiasm, purpose of pursuance of medical career, ability to take pressure, communication skills and aptitude.

The attrition of healthcare professionals in Pakistan, especially female doctors, has two major implications. Firstly, it is perceived as a waste of national resources due to the subsidies paid by the government for those students' medical education. Secondly, it produces a shortage of physicians in a developing country like Pakistan, despite graduating around 14,000 physicians each year. However, another study on data pertaining to female final year students (n=101) and house officers (n=46) reported that 72% had decided themselves to become doctors, and only 13% were influenced by their parents. Furthermore, 93% of them planned to continue their careers and 88% expressed their intention to obtain post-graduation certification. This raises a number of questions: is there indeed high attrition of female doctors, and if so, at what point in their career, where are they going, and why? Only by answering these questions can we determine how to reverse the problem.

Globally, the phenomenon that the number of female medical students and doctors are increasing has been reported in various countries including the United Kingdom (UK), the United States (US), Canada, Australia, New Zealand, India, Bangladesh and Pakistan, where the majority of medical students are now female. This is known as the 'feminisation of medicine', which simply
refers to the increased number of female medical students and doctors throughout the world.\textsuperscript{5,8,12} However, Menkel-Meadow\textsuperscript{13} presents another meaning to this term. To her, feminisation of a field means changing or adapting to something more acceptable to women, not just applying a male model of what professionalism means. It also means to recognise and accept the value of women, bringing in traits such as empathy, understanding, care and cooperation into the workplace.\textsuperscript{13} If we can focus our attention on this definition, we may be able to help female medical students and doctors break the many barriers they face, as discussed below.

A number of issues have been highlighted in recent literature throughout the world concerning female medical students and doctors. Studies have reported on the limited number of women in some fields and specialties, such as surgery and academic medicine, as well as limited representation in terms of leadership position roles, sometimes due to ineffective recruitment and progression policies and practices.\textsuperscript{14-18} Other studies have reported that female doctors have found it difficult to balance their home and work-life at the same time due to a higher burden of domestic responsibilities, especially after marriage and having children, which were amplified by social and cultural norms in some contexts.\textsuperscript{2,12,19-23} Evidence also suggests that a gendered culture exists in medical education and healthcare profession, for example others’ negative perceptions of and behaviour towards female doctors and medical students due to their gender.\textsuperscript{21-23} Lack of networking opportunities, female role models and formal mentoring facilities have also been reported as contributing factors to the barriers female doctors and medical students face.\textsuperscript{24-28} This current narrative review was planned to discuss these factors keeping in view the evidence from the world and Pakistan to have a deeper understanding of them.

**Methodology**

The literature review was carried out from July 2019 to June 2020. Primary literature search consisted of exploring relevant articles on PubMed and Education Resources Information Centre (ERIC) databases using different combinations of key words, like; ‘female doctors, career barriers, career enablers, leaky pipeline, glass-ceiling, medical education, women in medicine, feminisation of medicine, women in Pakistan’. Exploration of these two search engines ensured that resources related to both medicine and education were included. Initially, these databases identified a total of 947 resources. Filters including ‘English language only’ and ‘last 10 years’ (2009-2020) were applied; the latter was used to ensure relevance to reflect societal changes. This reduced the number of papers to 310 (32.7%). These papers were read in depth and themes were identified with the inclusion of resources relevant to the study. Secondary literature search was carried out to identify relevant resources on Google Scholar and Google which helped identify news articles and grey literature that was not available on PubMed or ERIC.

**Historical Access to Medical Training**

In the 1st century in the Indian subcontinent, the first written law ‘Manu’ made women totally dependent on a man, either husband, father or son. During the social reform movement in the 19th century, the harsh treatment of women in society, including child marriage, strict ‘purdah’ (veil) laws, right to own property, and laws concerning widows, was challenged by reformers. However, at the same time the reformers believed that women’s life should be restricted to their family.\textsuperscript{29}

Western medicine was introduced in the subcontinent in the 16th century with the arrival of medical officers with the East India Company (EIC). In 1858, with the dissolution of the EIC and formation of India’s British government, health services and medical education institutions were established throughout the country.\textsuperscript{30} In England, going back to the Elizabethan period (1558-1603), female health professionals had been criticised, condemned and were called “disorderly” women even though they contributed to the medical force in hospitals, parishes and as private practitioners.\textsuperscript{31} By the year 1865, only two women were registered as medical professionals in the UK, which sparked a debate whether they should be allowed at all. In 1869, the ‘Edinburgh Seven’ were the first women to enrol in medical education in a UK university. However, they were met with mental, verbal and physical abuse and were eventually barred from graduating by the Court of Session. In 1876, the ‘Enabling Act’ allowed examining bodies to accept female candidates.\textsuperscript{32}

In 1884, during the British Raj, the Calcutta Medical College was the first school in the subcontinent to admit a female medical student, Kadambini Ganguly, who then faced many challenges during her studies, echoing the experiences of her predecessors in the UK.\textsuperscript{33} In Pakistan, the first female-only medical college, Fatimah Jinnah Medical College, was established in 1948, just a year after the country’s independence. However, in the co-educational medical colleges, female admissions were restricted to 30-40% based on a quota system.\textsuperscript{5} As mentioned above, this was then challenged in the Shirin
Munir case in 1989 by women who were denied entrance in medical colleges despite having scored better than their male counterparts. From a total of 858 seats on open merit, 677 were reserved for men, which was claimed to be against the Constitution of Pakistan. The court ordered that no discrimination based on sex should be allowed and that the admissions should be solely on merit.

Unequal Representation of Female Doctors
Several studies throughout the world have reported unequal representation of female doctors compared to their male counterparts across different specialties, fields and positions despite there being more female medical students in colleges now. The representation of female doctors has been reported to be particularly limited in certain areas, such as in surgery, academic medicine and in leadership roles. A report published by the UK's Department of Health in 2010 reported that female doctors and consultants in surgery only accounted for 13% and 8% respectively. Women similarly were also under-represented in academic medicine and leadership positions in the UK, forming only 11% of those working in academic medicine.

Research conducted at the Hospital Clinic de Barcelona, Spain, reported that whilst over 50% of trainees have been female since 2000, on completion women were twice as likely to be on temporary contracts compared to their male counterparts, and only 25% of total senior consultants were women. This pattern has also been reported in four of Europe's largest health centres based in Sweden, Germany, Austria as well as the Oxford Academic Health Science Centre in the UK, where the number of female doctors in low management levels were higher, yet as they progressed towards middle to higher level management, their proportions greatly decreased. A 2016 US study also reported that only 10% of the chairs of psychiatry were women (12 out of 106), and those too had faced many barriers. In Pakistan, there is currently no literature exploring the representation of doctors in different specialities, or in different positions in academic medicine, but we do know that many of them are lost upon graduation and in different stages of their careers. Up until June 30, 2019, Pakistan had 94,532 male and 92,448 female doctors registered with PMDC with basic medical degrees. However, when it comes to specialist doctors, only 15,064 were women compared to 30,314 male doctors.

The Association of American Medical Colleges (AAMC)'s Group on Women in Medicine and Science (GWIMS) has identified gendered problems in the recruitment, retention and promotion practices as barriers to female doctors' career progression. A cross-country European study suggested that the career progression of female doctors should be monitored to help identify issues related to gender in promotional practices. Pfleiderer et al. also believed that encouraging female doctors' participation in research will increase their chances of being appointed to key leadership positions and also produce research which incorporates gender aspects. Other issues relating to socio-cultural norms, work-life imbalances, gendered culture of medical profession, and lack of professional development opportunities also play a role in restricting female doctors and medical students in their careers that need to be studied in detail.

Personal and Social Factors
Personal and social factors that impact the career progression of female doctors, such as the socio-cultural norms and work-life imbalances, deserve the attention of the researchers.

Socio-Cultural Norms: There is evidence that socio-cultural norms, which relate to society's beliefs, habits and traditions, together with organisational structures in Pakistan and individual preferences, influence female doctors' career progression. Culture provides the individuals of a society with the general guidelines of acceptable behaviour, and provides social heritage. Families do not exist in isolation, but are influenced by the values and behaviours of the wider community, which shapes what happens within the family unit. The socio-cultural environment of Pakistan is considered highly patriarchal and family-orientated where female members in the country are largely expected to stay home and perform domestic responsibilities. Patriarchy is defined as a social structure which is male-dominated to which people in a society adhere to. This may be explained by 'gender socialisation', which refers to the process by which individuals in a society learn about the socially-constructed types of acceptable behaviour for men and women. To regulate individuals' behaviour in a society, there are measures in place known as 'social control', for example, women being called 'immoral' if they do not adhere to the social construct. However, in a study it is also worth noting that the successful female leaders who were interviewed in Pakistan thought that their families were very supportive and considered them equal to their male family members and this was one of the reasons they progressed in their careers. However, the major challenge they faced was the conflict between social expectations and their role as a leader.
In Bangladesh, a country very similar to Pakistan in terms of socio-cultural aspects, a study found that the most significant challenges for female doctors come from family and society. After marriage, female medical students and doctors were expected to prioritise family instead of their medical career. Moreover, a perception that women should get married at the ‘right’ age and that they should avoid night shifts made it more difficult for female students and doctors to progress. In Pakistani culture, both genders in 2016 believed that marriage and the responsibilities that come with it are more important than the medical career for a female doctor, and that work for females is perceived as a privilege instead of necessity. This perspective may be underpinned by the ‘functionalism’ theory which assumes that a society is made up of different parts, each having their own roles, whereby individuals contribute to the functioning of society as a whole. This theory states that a father and husband’s role is to provide bread, butter and shelter to the family, whereas a mother and wife’s primary role is to make sure relationships are held intact and there is harmony among different individuals in the family. In Pakistan, women are often encouraged to pursue education, such as a medical degree, for status and honour, whereas when it comes to career post-marriage, they are sometimes restricted in implicit ways because of hindrance to domestic responsibilities.

Work-life Imbalances: Studies from many countries, including the UK, the US, Austria, Pakistan and some in the Middle East, showed that both male and female doctors have reported difficulties balancing their work and family life. One study involving 1293 paediatricians in the US reported that half of both male and female doctors felt rushed at all times and thought that they were unsuccessful in maintaining their work-life balance. However, there is also evidence that more female doctors have a larger burden of domestic responsibilities than their male counterparts. In one study, female trainees thought that having children was one of the biggest barriers to their career progression because of time constraints. Female doctors also thought that having children would also mean that other people may develop negative perceptions about them, and that their colleagues’ workload may increase, they may have difficulties managing time, and it may also affect their future careers. On the other hand, women who did not have children felt worried and sad that they might never have children due to their career workload. Difficulties maintaining a work-life balance was also associated with lack of support from family and friends, for example, distribution of domestic responsibilities among family members. A recent study of 31 female doctors of Pakistan showed that most of the domestic responsibilities fall on women even when they are working, which the study called ‘the second shift’. The participants in the study also complained of long working hours, night shifts, lack of childcare facilities, and inflexible practices and policies which make it even harder for them to maintain a balance.

It is suggested that introducing flexible policies in the workplace could facilitate female doctors in achieving a work-life balance, for example, having a comprehensive maternity and paternity leave policy, reduction in working hours and part-time work opportunities. It has also been suggested to have a family-friendly environment at workplaces, with day-care facilities to take care of working mothers’ children while at work. Institutions are recommended to have formal counselling and mentoring opportunities for doctors who find it difficult to maintain a work-life balance. Provision of financial benefits for working mothers by individual institutions and the government is also suggested, which may help reduce stress resulting from financial constraints. People who have female doctors and medical students as family members are encouraged to support their wives, daughters, and mothers, for example, in sharing of domestic responsibilities, as this has shown to be very beneficial to their successful career progression.

Institutional Factors
There are certain institutional factors that impact the career progression of female doctors, such as the gendered culture of medical profession and lack of professional development opportunities, that need to be kept an eye on in future studies.

Gendered Culture of Medical Profession: Research evidence continues to demonstrate the prevalence of gender norms and expectations, and a gendered culture within the medical profession. A study of 13 consultants in two National Health Service (NHS) hospitals revealed that patients as well as healthcare professionals had different expectations from male and female doctors. Patients were more open with female consultants compared to their male counterparts, interrupted them more often, and sometimes also showed uncooperative behaviour. Female doctors were more concerned about how other people perceive their behaviour which made them behave differently in different contexts with different people. For example, they were found to be more dominant with their medical colleagues compared to their patients. Female
consultants also felt that there was a sense of gendered culture that existed in the medical profession which included unpredictable working hours and gender discrimination. Nevertheless, female doctors spent more time with patients, they listened to their problems, and provided them with increased psychological support. They were also found to be more empathetic and less dominant compared to their male counterparts.22 In another UK study, female doctors sometimes thought that their peers and patients were surprised to see them working as surgeons and would think that a woman is not suitable for the job. One female doctor would avoid talking about her children at work, which she thought would compromise her position.21

In a Pakistani study, female doctors acknowledged that people had different expectations from them compared to their male counterparts.23 They also showed concerns about limited access to the resources available, sometimes due to lack of contacts and relationships with male colleagues. They were expected to have less communication with male members of society and were also concerned about sexual harassment at the workplace.23 In Pakistan, there are also reports that female doctors are leaving the medical profession after graduation,2 with an estimated 85,000 medical graduates not working in 2019.5 Whilst there is very limited evidence of why this is happening, it is widely acknowledged that in the Pakistani culture women are seen as having different roles as their male counterparts.35 There are also reports of harassment, inequalities in salaries and promotional practices, and long hours combined with an inflexible working environment.5 However, evidence regarding the number of female doctors in different specialties, fields and positions, and the problems they face, are yet to be explored.

Gender schema relates to one’s expectation of how a man and a woman should behave, what they should like or dislike, or what their respective roles are according to their gender.29 Gender schema theory assumes that there are core cognitive structures formed early in one’s life, around which individuals build on their newly-acquired perceptions and information. Understanding of stereotypes, where people with similar characteristics are grouped into categories, and expectations of certain behaviours from individuals belonging to that group is a start to addressing these problems.29 What is needed is taking evidence-based interventions and promoting awareness on ‘unconscious bias’, which entails deeply engrained stereotypes, personal perspectives, or opinions, which may affect one’s attitude and behaviour towards something or someone, without people being aware of it.18,22 Also, changes in the traditional structural hierarchical systems in institutions to reduce unconscious gender bias in the recruitment, retention and promotional practices are needed, but are not easy to achieve. For this, we need to properly monitor these processes and address drawbacks in human resource management systems concerning healthcare and medical education. We also need to understand the context where these processes are taking place to get to the root of the problem. Institutions need to promote evidence-based research on gender studies involving more female physicians, which may also help female doctors climb the ladder.18

Lack of Professional Development Opportunities: Research on mentorship and role modelling in the medical profession has shown promise in helping doctors progress in their careers effectively.25,27,28 Mentorship refers to the personal and professional support provided by a person with more experience to another, whereas a role model is a person who is looked upon by other people so their actions and behaviours can be imitated.28 In a study conducted in Pakistan, female leaders thought that professional development opportunities and participation in social activities enabled them to gain confidence and self-esteem which helped them achieve their positions.35 However, there is also evidence that female doctors are less likely to receive mentorship and role-modelling opportunities than their male counterparts.28 Evidence suggests that same-sex mentors and role models had more influence on female medical students and doctors in terms of progressing in their careers effectively, so lack of female role models and formal mentorship opportunities in medical institutions will also negatively impact female doctors.25,27

It is recommended that formal mentoring and networking opportunities be established in institutions, identifying female role models and mentors to help female medical students and doctors progress effectively through their careers. Formation of national-level academic organisations are also recommended to involve female medical students and doctors for identification of same-sex role models and mentors.20,27,28 An institution with unequal representation of female doctors in leadership positions or in specialties are recommended to invite external female role models for encouragement. For example, seminars facilitated by female role models who have managed to achieve balance in their family life and work, and have effectively progressed to leadership positions or male-dominated specialties may motivate others to follow in their footsteps.24,25 Finally, research on
these gender issues in Pakistan should be promoted through professional development opportunities and grant funding, especially for female doctors and medical students.

The way forward
Firstly, we in Pakistan need to focus on forming a strong evidence base matching the scale of the problem and the barriers the female doctors face. This will lead to effective and acceptable interventions and their success will then be evaluated. Although the extensive western culture should not be ignored, we need to understand the sociocultural context of the country as well as the institutional hierarchical systems in terms of their recruitment, retention and promotion practices. Unconscious bias in the workplace must also be promoted through awareness programmes, seminars and workshops. Female researchers should be encouraged and research on gender studies in health education and healthcare systems should be promoted where there are gaps in the literature, such as the representation of female doctors in different specialties, fields and positions. Work-life balance issues should be explored in institutions and flexible family-friendly human resource policies should be put in place. National-level academic organisations as well as institutions can work on providing role-modelling, formal mentoring and networking opportunities for female medical students and doctors. Finally, the support that female doctors receive from their families, especially their husbands or fathers, affects female career progression as do families’ sharing of domestic responsibilities.

Conclusion
The literature review identified a number of factors that affect the progression of female medical students and doctors in their education and career. The way these factors restrict them and how one may affect the other are complex matters. There is no one solution to limit these barriers. A holistic approach with multiple interventions on multiple levels is needed to facilitate the doctors as well as the systems.

Disclaimer: None.
Conflict of Interest: None.
Source of Funding: None.

References
11. Davies S. What organisations can do to improve women’s ability to achieve their potential. UK: Department of Health; 2019.
13. Meadow M, Carrie. The comparative sociology of women lawyers: The" feminization" of the legal profession. [Online] [Cited 1987 May 01]. Available from: URL: https://escholarship.org/uc/item/9x36g2xv