# Feminization of Sri Lankan Doctors and Key Specialties: 2000 to 2020 

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#### Abstract

The study focused on the feminization of Sri Lankan generalist doctors in all major and selected minor specialties between 2000 and 2020. The study analyzed all relevant documents by exploring Sri Lanka's male-to-female doctor and specialist ratio over 20 years. This was determined by analyzing state medical faculty records from 1990 to 2020 . For better clarity, the researchers analyzed the gender ratio changes in every five-year block from 1990 to 2020. Focus groups filled PGIM's gender data fields. Five-year medical students surged from $43 \%$ to $63 \%$ between 1990 and 2020. Linear trend analysis predicts $68 \%$ of female medical students by 2025 and $72 \%$ by 2030 . This study simulated generalist doctors with medical students. Until recently, men dominated medicine, surgery, obstetrics, and pediatrics. Female specialists have increased in all fields over the past 20 years. The feminization of medical doctors challenges national human resource policies and health sector reforms. They emphasize gender-sensitive health workforce planning that considers a country's economic development and healthcare system. Sri Lankan health policymakers should consider gender dynamics in national health HR planning for the next decade.


Keywords: Sri Lanka; feminization; specialists; health workforce; gender


#### Abstract

Abstrak Studi ini berfokus pada feminisasi dokter generalis Sri Lanka di semua spesialisasi utama dan minor terpilih antara tahun 2000 dan 2020. Studi ini menunjukkan rasio dokter dan spesialis pria-wanita di Sri Lanka selama 20 tahun dengan menganalisis semua dokumen yang relevan. Hal ini ditentukan dengan menganalisis catatan fakultas kedokteran negara bagian dari tahun 1990 hingga 2020. Para peneliti mencatat bahwa rasio gender berubah setiap lima tahun. Kelompok fokus mengisi kolom data gender PGIM. Jumlah mahasiswi kedokteran melonjak dari 43\% menjadi 63\% antara tahun 1990 dan 2020. Analisis tren linier memperkirakan 68\% mahasiswi kedokteran pada tahun 2025 dan $72 \%$ pada tahun 2030. Penelitian ini menyimulasikan dokter generalis dengan mahasiswa kedokteran. Sampai saat ini, laki-laki mendominasi bidang kedokteran, bedah, kebidanan, dan pediatri. Spesialis perempuan telah meningkat di segala bidang selama 20 tahun terakhir. Feminisasi dokter merupakan tantangan bagi kebijakan sumber daya manusia nasional dan reformasi sektor kesehatan. Mereka menekankan perencanaan tenaga kesehatan yang peka gender dan mempertimbangkan pembangunan ekonomi dan sistem layanan kesehatan suatu negara. Para pembuat kebijakan kesehatan di Sri Lanka harus mempertimbangkan dinamika gender dalam perencanaan SDM kesehatan nasional untuk dekade berikutnya.


Kata Kunci: Sri Lanka; feminisasi; spesialist, tenaga kesehatan, gender

## INTRODUCTION

Since World War II, the gradual feminization of the medical field's human resources has been a global trend in development. $(1,2)$ These trends were initially observed in the United States, the United Kingdom, Australia, and New Zealand. However, it is currently observed in middle-developed nations. $(3,4)$

Interestingly, while the medical field is experiencing this feminization trend, in general, Sri Lanka faces a contrasting challenge regarding female labor force participation. As per a report published by the World Bank, Sri Lanka is confronted with the critical challenge of having one
of the lowest rates of female labor force participation globally. The report discloses a disconcerting fact that women are often confined to occupations that offer low remuneration, intensifying an already substantial wage disparity between genders. In addition to the challenge mentioned above, many women are employed in the informal sector, exposing them to substandard working conditions and inadequate remuneration.(5) The high unemployment rate of $16.9 \%$ among females aged 15 and above underscores the existing gender-based disadvantage experienced by women in Sri Lanka. The International Labour Organization (ILO) has provided evidence that supports the abovementioned disconcerting figures. According
to the ILO, the involvement of women in the labor force has remained consistently inadequate, fluctuating within the range of $30-35 \%$ throughout the previous twenty years. Specifically, in 2017, women accounted for a mere $37 \%$ of the labor force, while men constituted a much larger proportion of $75 \%$.

Moreover, the report postulates a substantial wage disparity of $14.9 \%$ between male and female employees.(6) As of February 2021, the proportion of female representation in parliamentary seats was recorded at $5.4 \%$ within the domain of political representation .(7) The inadequate representation of women in Sri Lanka's workforce may potentially result in the development of economic policies that are less advantageous to them, thereby sustaining their disadvantaged status.

Contrary to the societal norms and cultural expectations that limit women's career choices in various fields, the medical field in Sri Lanka has historically exhibited a relatively better representation of women. Female representation in the medical field has seen progress over the years. Efforts to promote gender equality and empower women have played a crucial role in this transformation. The Sri Lankan government has implemented policies and initiatives to encourage women to pursue medical careers and provide them with equal opportunities. Scholarships, mentorship programs, and support networks have been established to assist aspiring female doctors in their educational journey.

However, globally and locally, the health sector is renowned for its gender-based division of labor. Some professions in the health sector are primarily or frequently dominated by one gender. For instance, the majority of nurses and all midwives are female.(8) Prior to the early 2000s, men dominated the field of medicine in Sri Lanka. However, with the turn of the new millennium, men and women doctors had equal participation in health service provision.(9) In Sri Lanka, almost all the doctors in the workforce are Sri Lankans, with only six foreign nationals working as doctors in the country as of 2023. The gender shift in the health sector's workforce has generated many distinct challenges, such as female physicians are not attracted to certain professions.(10)

Further, the growing trend of female representation among medical school graduates poses a distinctive challenge in choosing surgical specialties such as orthopedic surgery and neurosurgery, which traditionally have lower levels of female participation. The increasing feminization of the medical profession may reduce the number of trainees who choose to pursue traditionally male-
dominated fields. The potential incongruity between career preferences and gender representation may lead to a shortage of surgeons in certain specialties. Establishing apex hospitals at the district and provincial levels of the island's universal healthcare coverage strategy could face significant challenges due to the lack of surgical specialists caused by the feminization trend and the mentioned factors. These apex hospitals are crucial in providing satellite hospitals with secondary and tertiary healthcare services. However, the diminishing number of male-dominated surgical trainees could hinder their successful implementation.(11)

Successfully passing the General Certificate for Education (GCE) (Advanced Level) examination in Sri Lanka serves as a fundamental stepping stone towards commencing a career as a doctor, as it is a mandatory requirement for admission to stateowned medical schools in the country. Sri Lanka has 11 government medical colleges as of 2020.(12) and one military medical school, while there are no private medical schools in the country. However, for this study, military medical school was not considered. The GCE (advanced level) examination is among the most competitive examinations in the country. On the basis of district-based cut-off points, the top students are admitted to state medical schools. Sri Lanka is one of the few countries that provide free medical education through the postgraduate level, adding to the alleged competition for medical school admission. Only the Postgraduate Institute of Medicine (PGIM), affiliated with the University of Colombo, is authorized to provide postgraduate degrees in Sri Lanka. After completing their local and international training, they are board-certified by the PGIM and deployed by the Ministry of Health to practice as medical specialists in their respective disciplines throughout the country.

In many countries around the world, women's participation in the medical field has increased in recent decades. A study conducted in the Middle Eastern nation of Oman revealed a greater proportion of females than males ( 64 percent females in 2015 compared to 54 percent females in 2009) in medical schools, with female doctors accounting for 42 percent of all physicians, up from 27 percent in 1990. A similar trend has been seen for postgraduates, with females making up $61.5 \%$ of the graduating physicians who live there. In addition, there have been gender inequalities among the various specialties. The percentage of female general practitioners increased from $30 \%$ in 1990 to $50 \%$ in 2015.(13) While the number of women in academic medicine has increased over the past decade.(14) McKinstry, B., Colthart, I., Elliott, C. et al. (2006) note that in Scotland, female
doctors employed in general practice have been gradually increasing. However, their increased part-time employment has decreased the number of general practitioners available despite an apparent increase in the overall number of primary care doctors.(15)

The consequences of feminization in medicine have yielded favorable outcomes, resulting in advantageous implications for patients and the healthcare system. Females, recognized for their exceptional aptitude in communication, have demonstrated proficiency in establishing significant connections with their clients. The implementation of an empathetic approach has been shown to not only improve patient satisfaction but also positively impact health outcomes. Furthermore, female individuals have exhibited exceptional aptitude in leadership roles, particularly in coordinating and supervising teams with diverse skill sets, promoting teamwork, and enhancing the quality of healthcare services. In addition, women's propensity towards preventive medicine has resulted in a heightened emphasis on proactive healthcare interventions. The individuals in question demonstrate active involvement in preventative measures and display a notable dedication to catering to underprivileged communities, thereby guaranteeing the impartial availability of healthcare amenities to all, contributing to the development of a healthcare environment that is more focused on the needs of patients, characterized by greater cooperation and inclusivity.(16)

According to Mohamed, N.A., Abdulhadi, N.N., Al-Manir, A.A., et al. (2018), increased focus has been paid to evaluating the healthcare system's readiness to meet needs and serve women as primary care providers. Women primary care physicians work fewer hours than their male counterparts.(13) This pattern is anticipated to have major consequences for future planning, given that women physicians differ from men in their engagement in the workforce. If current work trends continue, the rapidly rising share of women in certain specialties may lead to a future shortage of medical personnel. Further research is required to determine this, and human resource planning is now needed to address this.(15) Theoretically, it can also cause a lack of supply due to differences in preferences, which could impact skill mixing and productivity. Examining the cultural and social background and characteristics and providing feasible solutions for better planning is crucial.(13)

In many countries over the past decades, it has been observed that the feminization of medicine, resulting in a gradual and imperceptible gender shift within the skilled labor force, has been challenging to attribute to specific determining
causes. These kinds of shifts are often gradual and imperceptible for any skilled labor force, and their determining causes are typically difficult to identify. However, factors including salaries, leave, and changes in age and gender tend to influence the labor profile and how labor is performed, often unobserved. Multiple studies demonstrate the effects of feminization in developed nations. However, such data is rare in low-income nations .(4) Healthcare organizations should strengthen their human resource strategies, staffing levels, and institutional structures in order to be better prepared for the growing feminization of their medical personnel. Although women's employment prospects have improved, their social responsibilities for their families, especially their children, have not changed considerably in Sri Lankan society. Thus, women must fulfill their social responsibilities even when executing their professional obligations. Healthcare policymakers, decision-makers, and human resource managers should take into account the feminization of the medical profession when making decisions.(17) This will improve the consistency and accessibility of health services for patients, as well.

The aim of the study was to characterize the changing feminization tendencies of Sri Lankan generalist doctors and all major specialties and selected minor specialties from 2000 to 2020. However, to get a better picture of the feminization of generalists, we have analyzed medical student cohorts from 1990 to 2020.

## METHOD

This study adopted a descriptive research design. The current study scrutinized the complete range of documents to ascertain the male-to-female ratio of medical doctors who underwent training in Sri Lanka over three decades. Furthermore, a thorough analysis of the available records was undertaken to determine the male-to-female ratio of medical specialists trained in Sri Lanka during the preceding two decades.

The male-to-female ratio of medical doctors was achieved by analyzing records from all government medical schools and the University Grant Commission. The gender ratio of each batch of medical students was noted. We assessed the changes in the gender ratio every five-year interval and tabulated the results. The feminization pattern of medical students is taken as a proxy for generalist doctor feminization. The gender ratio of board-certified medical specialists was taken from the PGIM specialist registry. In this registry, there were certain data fields with missing gender information. Focus group discussions with relevant specialists were used to fill those gaps. All four
major specialties were chosen for this study (medicine, gynecology, and obstetrics, surgery, and pediatrics). In addition, to represent a large number of diverse medical specialties, we included two medical subspecialties (cardiology and dermatology), three surgical subspecialties (neurosurgery, otorhinolaryngology, and orthopedic surgery), and three diagnostic subspecialties (radiology, hematology, and clinical microbiology) in our analysis. We evaluated the changes in the gender ratio at five-year intervals, tabulated the results, and did a trend analysis.

## RESULTS AND DISCUSSION

Tables 1 and 2 demonstrate the rising number of female medical students from 1990 to 2020. Cohorts from 1991-1995 up to 2011-2015 have already entered the doctor workforce, while some of 2016-2020 are still medical students.

Table 1. Gender ratio of medical school students from 1990 to 2020:

| Academic Year | Male | Female | Total |
| :---: | :---: | :---: | :---: |
| 1989/1990 | 309 | 242 | 551 |
| 1990/1991 | 471 | 357 | 828 |
| 1991/1992 | 479 | 383 | 862 |
| 1992/1993 | 442 | 339 | 781 |
| 1993/1994 | 519 | 320 | 839 |
| 1994/1995 | 494 | 369 | 863 |
| 1995/1996 | 517 | 360 | 877 |
| 1996/1997 | 485 | 362 | 847 |
| 1997/1998 | 465 | 392 | 857 |
| 1998/1999 | 500 | 393 | 893 |
| 1999/2000 | 448 | 448 | 896 |
| 2000/2001 | 461 | 420 | 881 |
| 2001/2002 | 407 | 464 | 871 |
| 2002/2003 | 473 | 407 | 880 |
| 2002/2003 (A) | 480 | 439 | 919 |
| 2003/2004 | 450 | 454 | 904 |
| 2004/2005 | 418 | 493 | 911 |
| 2005/2006 | 554 | 610 | 1164 |
| 2006/2007 | 554 | 557 | 1111 |
| 2007/2008 | 526 | 630 | 1156 |
| 2008/2009 | 542 | 624 | 1166 |
| 2009/2010 | 536 | 630 | 1166 |
| 2010/2011 | 472 | 705 | 1177 |
| 2011/2012 | 559 | 812 | 1371 |
| 2012/2013 | 495 | 742 | 1237 |
| 2013/2014 | 455 | 822 | 1277 |
| 2014/2015 | 512 | 743 | 1255 |
| 2015/2016 | 514 | 752 | 1266 |
| 2016/2017 | 517 | 789 | 1306 |
| 2017/2018 | 558 | 926 | 1484 |
| 2018/2019 | 567 | 927 | 1494 |
| 2019/2020 | 696 | 1271 | 1967 |
| 2020/2021 | 736 | 1265 | 2001 |

Source- University Grants Commission of Sri Lanka

Table 2. Five-year block analysis of medical students

| Five-year interval | Female (\%) |
| :---: | :---: |
| $1991-1995$ | $42 \%$ |
| $1996-2000$ | $46 \%$ |
| $2001-2005$ | $51 \%$ |
| $2006-2010$ | $54 \%$ |
| $2011-2015$ | $60 \%$ |
| $2016-2020$ | $63 \%$ |

Figure 1 illustrates the linear and logarithmic trend analysis performed on the female medical students' intake. According to the linear trend analysis, the percentage of female medical students will rise to 68.6 in 2025 and 72.6 in 2030. However, when logarithmic trend analysis is performed, the medical student percentages would be 60.3 and 61.3 in 2025 and 2030, respectively.

## Major Specialities

When major specialties were considered (table 3), male dominance was visible, with $61 \%, 73 \%$, $74 \%$, and $94 \%$ general physicians, pediatricians, general Surgeons, and Gynaecologists and obstetricians being males, respectively. However, there has been an increase in the number of female specialists in general surgery (from 10\% to $26 \%$ ) and general medicine ( $20 \%$ to $39 \%$ ). Female participation in Obstetrics and Gynaecology had been less than $10 \%$ throughout the study period.

Table 3. Female gender shift in all major specialties over the last 20 years at five-year intervals.

|  | Five-year interval | Female gender (\%) |
| :---: | :---: | :---: |
| General medicine | $2000-2004$ | $20 \%$ |
|  | $2005-2009$ | $25 \%$ |
|  | $2010-2014$ | $29 \%$ |
|  | $2015-2019$ | $39 \%$ |
| General Surgery | $2000-2004$ | $10 \%$ |
|  | $2005-2009$ | $22 \%$ |
|  | $2010-2014$ | $16 \%$ |
| Obstetrics and | $2015-2019$ | $26 \%$ |
| Gynaecology | $2000-2004$ | $9 \%$ |
|  | $2005-2009$ | $8 \%$ |
|  | $2010-2014$ | $10 \%$ |
| Pediatrics | $2015-2019$ | $6 \%$ |
|  | $2000-2004$ | $46 \%$ |
|  | $2005-2009$ | $53 \%$ |
|  | $2010-2014$ | $47 \%$ |
|  | $2015-2019$ | $37 \%$ |



Figure 1. Liner and logarithmic trend analysis of female medical student intake

## Other Specialities

Tables 4-6 show the gender distribution through time in a few specialties chosen to reflect a wide range of medical specialties. Results from three surgical subspecialties (neurosurgery, otorhinolaryngology, and orthopedic surgery), two medical subspecialties (cardiology and dermatology), and three diagnostic subspecialties (radiology, hematology, and clinical microbiology) were reported. Changes in the gender ratio at five-year intervals were tabulated to illustrate changing patterns.

Table 4. The male-to-female ratio of surgical subspecialties in five-year intervals from 2000 to 2020

|  | Five-year <br> interval | Male | Female | Total |
| :---: | :---: | :---: | :---: | :---: |
| Neurosurgery | $2000-2004$ | 4 | 0 | 4 |
|  | $2005-2009$ | 2 | 1 | 3 |
|  | $2010-2014$ | 9 | 0 | 9 |
|  | $2015-2019$ | 7 | 0 | 7 |
| Total | 22 | 1 | 23 |  |
| Otorhinolary | $2000-2004$ | 12 | 0 | 12 |
| ngology | $2005-2009$ | 9 | 1 | 10 |
| (ENT) | $2010-2014$ | 14 | 7 | 21 |
|  | $2015-2019$ | 8 | 5 | 13 |
|  | Total | 43 | 13 | 56 |
| Orthopaedic | $2000-2004$ | 12 | 0 | 12 |
| surgery | $2005-2009$ | 1 | 0 | 1 |
|  | $2010-2014$ | 22 | 0 | 22 |
|  | $2015-2019$ | 39 | 1 | 40 |
|  | Total | 74 | 1 | 75 |

Table 5. The male-to-female ratio of medical subspecialties in five-year intervals from 2000 to 2020

|  | Five-year <br> interval | Male | Female | Total |
| :--- | :---: | :---: | :---: | :---: |
| Cardiology | $2000-2004$ | 13 | 2 | 15 |
|  | $2005-2009$ | 6 | 2 | 8 |
|  | $2010-2014$ | 17 | 1 | 18 |
|  | $2015-2019$ | 23 | 8 | 31 |
| Total | 59 | 13 | 72 |  |
| Dermatology | $2000-2004$ | 2 | 4 | 6 |
|  | $2005-2009$ | 12 | 13 | 25 |
|  | $2010-2014$ | 10 | 20 | 30 |
|  | $2015-2019$ | 5 | 11 | 16 |
|  | Total | 29 | 48 | 77 |

Table 6. The male-to-female ratio of diagnostic subspecialties in five-year intervals from 2000 to 2020

|  | Five-year <br> interval | Male | Female | Total |
| :---: | :---: | :---: | :---: | :---: |
| Radiology | $2000-2004$ | 7 | 8 | 15 |
|  | $2005-2009$ | 24 | 19 | 43 |
|  | $2010-2014$ | 33 | 36 | 69 |
|  | $2015-2019$ | 25 | 28 | 53 |
| Total | 89 | 91 | 180 |  |
| Hematology | $2000-2004$ | 1 | 3 | 4 |
|  | $2005-2009$ | 2 | 15 | 17 |
|  | $2010-2014$ | 6 | 26 | 32 |
|  | $2015-2019$ | 1 | 13 | 14 |
|  | Total | 10 | 57 | 67 |
| Clinical | $2000-2004$ | 3 | 19 | 22 |
| Microbiology | $2005-2009$ | 3 | 12 | 15 |
|  | $2010-2014$ | 5 | 15 | 20 |
|  | $2015-2019$ | 3 | 24 | 27 |
|  | Total | 14 | 70 | 84 |

In the case of medical subspecialties, a gradual feminization of dermatologists was observed during the two decades under consideration; moreover, after the year 2010, more than half of the dermatologists who were board-certified in the country were women.

In the case of cardiologists, there were more males than females in all 5 -year blocks. Men dominated all three surgical specialties studied: otorhinolaryngology, neurosurgery, and orthopedic surgery. The authors observed the male predominance in these three specialties in the five-yearly blocks analyzed. Male dominance was more prominent in orthopedics, followed by neurosurgery.

The authors explored three diagnostic subspecialties. Women entirely dominated the subspecialties of clinical microbiology and hematology. However, in radiology, male to female ratio was well-balanced.

Our results show that females dominate hematology, dermatology, and clinical microbiology specialties, while those of cardiology, orthopedic surgery, neurosurgery, and otorhinolaryngology are male-dominant. The specialty of radiology had an almost equal number of males and females, while orthopedic surgery is a complete outlier with 74 males and one female.

The purpose of this study is to provide a descriptive analysis of the shifting feminization patterns of Sri Lankan generalist doctors, major specialties, and selected minor specialties for twenty years, from 2000 to 2020. The study analyzed all relevant documents to estimate the ratio of male to female doctors and specialists in Sri Lanka over the past two decades. This was determined by analyzing state medical schools' records from 1990 to 2020. The authors monitored changes in the gender ratio every five years and collated results. Focus group discussions were used to fill in missing gender data fields in the PGIM specialist registry.

It is apparent from seeing the medical student population entering medical schools each year and entering the field as generalist doctors that the number of women choosing a medical career has continuously increased. When major specializations were considered, male doctors made up most of those pursuing surgical specialties. Both medical subspecialties and diagnostic subspecialties have been gradually feminized. Men dominated the surgical subspecialties.

Feminization of the doctor profession happened earlier in developed economies. Sooner, the trend followed in several emerging and underdeveloped economies like Sri Lanka, as illustrated in this paper.

A Canadian study revealed that in 2001, $59.2 \%$ of first-year medical students were women, and $29.8 \%$ of Canada's practicing MDs (specialists) were women (18), somewhat similar to our study.

Similar patterns are observed in a study done in Oman, a country with an emerging economy; a higher number of females compared to males ( $64 \%$ females in 2015 compared to $54 \%$ in 2009) were present among undergraduate medical students. A similar trend was observed regarding the postgraduates, as $61.5 \%$ of the graduated resident doctors were females.

Oman's active workforce in 2015 consisted of $42 \%$ female doctors compared to $27 \%$ in 1990. The proportion of specialized female doctors reached $31 \%$ in 2015 compared to $21 \%$ in 1990. There were also gender variations among specialties. The proportion of female general practitioners reached $50 \%$ in 2015 compared to $30 \%$ in 1990 ( $4 \%$ increase every five years) (13), similar to what is observed in our study.

Consubstantial results of our study were observed in a survey performed in three African capitals in 2015. It revealed that female physicians do not represent most of the medical workforce yet. However, the feminization of the profession is underway in the three locations analyzed, as women are presently over-represented in younger age groups. Female specialist doctors were few in traditionally male-dominated specialties such as surgery, orthopedics, and stomatology.(4)

Commonly, surgical specialties were chosen by males. In our study, the specialty list preferred by the male doctors included gynecology and obstetrics. Very few females took into gynecology and obstetrics. Nevertheless, it is not so in other literature. In the US, data gathered in 2019 by the American Medical Association and the Association of American Medical Colleges revealed that women make up $83.4 \%$ percentage of residents in active training in gynecology and obstetrics.(19)

This paper recognizes two vital implications of the feminization of the medical profession. The effects of increased female participation in the medical labor market and the effects on maledominated medical/surgical specialties result from changing gender labor dynamics.

Women are more likely than men to cite family and will seek more part-time jobs in the future because of the demands of childcare and looking after their own family $(20,21)$. Increases in paid maternal leave were consistently associated with better infant and child health.(22) Therefore, with the rising female doctor population, health service delivery in Sri Lanka may be severely affected as the government allows one year of time off following maternity. Moreover, a study conducted in 1992 in Norway revealed that 3.1\% of physician full-time equivalents were lost because of leave for pregnancy and childcare (23) Further, a study among nurses in Denmark revealed that a generous maternal leave policy caused nursing shortages, which resulted in a decline in the quality of the hospital, readmission rate, and a large increase in nursing home mortality.(24)

The intentional delay in childbearing is facilitated by the availability of effective contraception to facilitate educational/ job opportunities for the ambitious pursuit of careers, often resulting in late marriages. Naturally, there is an age-related decline in fecundity, the decrease usually starting at the age of 32 with a dramatic fall after age 37, stressing the importance of age as the single most important factor in both the quantity and quality of oocytes.(25) MBBS degree is a 5 -year training program in Sri Lanka, including one 1-year internship after graduation.(26) Postgraduate training in medicine in Sri Lanka takes 5-6 years, with another year of foreign training before being board-certified as a specialist.(27) These lengthy trainings add female doctors and specialists to delayed marriage and childbearing. Their subfertility issues are higher, and they seek more sophisticated subfertility treatment as their awareness of subfertility treatment modalities is also high. These treatments require more leave spent overseas. This will add strain to the available doctor/ specialist cadre. Since December 2020, in Sri Lanka, the public administration circular 07/2017(I) permits statutory entitlement to up to 1 year of no-pay leave to be spent abroad to undergo fertility treatment on the recommendation of an obstetrician and Gynaecologist.(28)

Considering gender-wise specialization preferences in Sri Lanka and the rapid feminization of the doctors passing out from medical schools, the authors believe that there will be a short supply of trainees for surgical specialties in the future, mainly in highly maledominated neurosurgery, orthopedics, and gynecology \& obstetrics. This short supply will affect the development of secondary and tertiary care hospitals as envisaged in the Health strategic
plan of Sri Lanka. Further, the increasing number of women entering the domain of medicine will increase the competition among subspecialties dominated by women, particularly diagnostic subspecialties.

The current trend in the job market is that medicine should be organized to balance careers with family and other interests. Less than half of the workforce in the industrialized world will be in proper full-time jobs in organizations by the beginning of the next century. Keeping with the trend, most doctors will not work long hours because they feel that even though medicine is a major commitment, they deserve a decent family life and leisure time.(29)

Policymakers and healthcare planners should develop policies to retain women, develop role models, and empower them to face challenges associated with motherhood and childbearing. New networking, mentorship, and career coaching mechanisms should be created to improve and assist women's professional growth .(32)

Part-time or flexible work hours are not permitted in the state sector. If relevant legislation is implemented with the rising female employment levels and rising demands, it would reduce manpower shortages in the healthcare sector. Further, Gibson argues that part-time employment can also attract those doctors who refuse to work in the system due to other commitments.(20) Allen also mentions that women doctors did not drop out after childbirth, as many people had thought, but continued working, often part-time, in general practice or community health.(33)

Women doctors in primary care in Scotland work fewer hours in all age groups than their male counterparts. The rapidly increasing proportion of women in general practice may lead to an increasing shortfall of medical availability in the future if current work patterns are maintained.(33) Our study results project a similar phenomenon in Sri Lanka soon.

An individual's personal health demands and intended health results are the driving force behind all healthcare decisions in current practice. Providers assist patients from a clinical, emotional, mental, spiritual, social, and economic viewpoint.(34) Women will influence beneficial improvements in the personalization and humanization of patient care. Women's professional and personal interests and attitudes contribute to a more humanistic medical approach than men. More women entering the profession
will likely lead to a greater emphasis on psychosocial factors in patient care, patient education, and health counseling, resulting in a more humanistic and personalized approach to patient care. A higher ratio of women in the profession should have a positive qualitative effect.(14) Gaps in healthcare quality are a constant concern for the Sri Lankan healthcare system. Sri Lanka may conquer these challenges with a rising proportion of women provided appropriate training programs, policy measures, and incentives for praiseworthy behavior are implemented.

## CONCLUSION

This study analyses the feminization tendencies of Sri Lankan generalists, major, and subspecialisations from 2000 to 2020. Sri Lanka has no private medical schools, and all state medical schools' data from 1990-2020 were analyzed. Fiveyearly gender ratio changes in PGIM's specialized register were explored. Focus group discussions filled in missing gender-related data fields.

More women are attending medical school and becoming generalist doctors. Men dominate surgical specialties. Medico-diagnostic subspecialties are feminizing. Surgical subspecialties were mostly men. Currently, Sri Lanka has around 7500 medical students in the training pathway, of which nearly two-thirds are females. This trend is predicted to increase further; hence, there will be an increasing number of female generalist medical doctors in Sri Lanka.

Although female employment has historically been limited in Sri Lanka, doctors in the dominant state sector seemed unconcerned. Female physicians in the Sri Lankan health sector similarly balance a profession with family and other interests, as is the trend in the global labor market. Part-time, flexible hours and shift work are expected to become increasingly popular as more women seek time off for childcare and breastfeeding.

The authors foresee a future shortfall of maledominated surgical trainees as medical school graduates become feminized. This scarcity would stymie the establishment of the island's intended apex hospitals at the district and provincial levels of the island's universal healthcare coverage strategy. As the medical profession is getting feminized, there could be increased competition among female doctors to enter the specialties dominated by females in the future.

Sri Lankan Health policymakers should take serious note of the feminization of the medical doctor workforce and act proactively.

## RECOMMENDATIONS

Health policymakers in Sri Lanka should take the feminization of the medical doctor workforce seriously and be proactive. Policymakers and healthcare planners should design retention and support plans for women. Policies and benefits that must be revised to accommodate more women. The feedback of female physicians regarding maternity benefits should be revisited. The policies should be modified to provide flexible work hours. The Ministry of Health should reconsider its staff performance reviews, maybe shifting from a focus on time to a focus on tasks. With the rise of feminization, national health planners should think about how best to plan and manage health human resources. Research and development should be directed in the fields mentioned earlier.

## REFERENCES

1. Reis LVD. Causes and effects of a changed gender ratio in medicine. Med Teach. 2004 Sep;26(6):506-9.
2. Shelby Ross. The Feminization of Medicine. AMA J Ethics [Internet]. 2003 Sep 1 [cited 2023 May 25];5(9). Available from: https://journalofethics.ama-assn.org/article/feminization-medicine/200309
3. Adams TL. Gender and Feminization in Health Care Professions: Gender and Feminization in Health Care Professions. Social Compass. 2010 Jul;4(7):454-65.
4. Russo G, Gonçalves L, Craveiro I, Dussault G. Feminization of the medical workforce in low-income settings; findings from surveys in three African capital cities. Hum Resour Health. 2015;13(1):64.
5. International Labour Organization (ILO). Factors affecting women's labor force participation in Sri Lanka [Internet]. 2023. Available from: https://www.ilo.org/colombo/whatwedo/publi cations/WCMS_551675/lang--en/index.htm
6. International Monetary Fund Copyright. Female Labor Force Participation: a New Engine of Growth for Sri Lanka? [Internet]. 2018. Available from: https://www.elibrary.imf.org/view/journals/00 2/2018/176/article-A002en.xml?ArticleTabs=fulltext
7. The Women Count Data Hub. Women CountSri Lanka [Internet]. 2023. Available from: https://data.unwomen.org/country/sri-lanka
8. Nursing Times. Why are there so few men in nursing? [Internet]. Nursing Times. 2008 [cited 2020 Nov 19]. Available from: https://www.nursingtimes.net/archive/why-are-there-so-few-men-in-nursing-03-03-2008/
9. Human Resource Development and Coordination Unit. HR Profile- Ministry of Health Sri Lanka.
10. Zulkifli A, Rogayah J. Career preferences of male and female medical students in Malaysia. Med J Malaysia. 1997;52:76-81.
11. Ministry of Health, Nutrition and Indigenous Medicine, Sri Lanka. Road Map for the Primary Healthcare System Strengthening Project (PSSP). 2019.
12. University Grants Commission of Sri Lanka. University Grants Commission - Sri Lanka [Internet]. 2022 [cited 2022 Dec 22]. Available from: https://www.ugc.ac.lk/index.php?option=com _joomap\&Itemid=224\&lang=en
13. Mohamed NA, Abdulhadi NN, Al-Maniri AA, Al-Lawati NR, Al-Qasmi AM. The trend of feminization of doctors' workforce in Oman: is it a phenomenon that could rouse the health system? Hum Resour Health. 2018 Dec;16(1):19.
14. Notzer N, Brown S. The feminization of the medical profession in Israel. Med Educ. 1995;29(5):377-81.
15. McKinstry B, Colthart I, Elliott K, Hunter C. The feminization of the medical work force, implications for Scottish primary care: a survey of Scottish general practitioners. BMC Health Serv Res. 2006;6(1):56.
16.: Québec Medical Association (QMA). The positive effects of feminizing medicine: visible changes that modify the profession [Internet]. 2007. Available from: https://fmwc.ca/docs/Feminization_English.p df
16. Shannon G, Minckas N, Tan D, HaghparastBidgoli H, Batura N, Mannell J. Feminisation of the health workforce and wage conditions of health professions: an exploratory analysis. Hum Resour Health. 2019 Dec; 17(1):72.
17. Sibbald B. Feminization of medicine - people say it like it's a bad thing. CMAJ Can Med Assoc J J Assoc Medicale Can. 2002 Oct 15;167(8):914.
18. Tran HN, Chin EL. Celebrating Women in Medicine. Perm J. 2020 Sep;24:1-2.
19. Gibson H. Are part-time doctors better doctors? BMJ. 1997 Oct 10;315(7113):2-2.
20. Frank E, Zhao Z, Sen S, Guille C. Gender Disparities in Work and Parental Status Among Early Career Physicians. JAMA Netw Open. 2019 Aug 2;2(8):e198340.
21. Nandi A, Jahagirdar D, Dimitris MC, Labrecque JA, Strumpf EC, Kaufman JS, et al. The Impact of Parental and Medical Leave Policies on Socioeconomic and Health Outcomes in OECD Countries: A Systematic Review of the Empirical Literature. Milbank Q. 2018 Sep;96(3):434-71.
22. Eskeland M, Knutsen SF, Forsdahl A. [Shortage of physicians, leave of absence because of pregnancy and child care. A survey of physicians 1993]. Tidsskr Den Nor Laegeforening Tidsskr Prakt Med Ny Raekke. 1997 Feb 10;117(4):520-3.
23. Friedrich BU, Hackmann MB. The Returns to Nursing: Evidence from a Parental-Leave Program. Schoenberg U, editor. Rev Econ Stud. 2021 Sep 11;88(5):2308-43.
24. George K, Kamath M. Fertility and age. J Hum Reprod Sci. 2010;3(3):121.
25. Faculty of Medicine. Faculty of Medicine, University of Colombo [Internet]. MBBS Bachelor of Medicine, Bachelor of Surgery. 2022. Available from: https://med.cmb.ac.lk/mbbs/\#1548751293777 -828023b9-2e34
26. Jayawickramarajah PT. Medical education in Sri Lanka: perspective of a medical educationist. J Postgrad Inst Med. 2017 Jul 18;4(1):47.
27. Ministry of Public Services, Sri Lanka. No Pay Leave for Public Officers who require to Obtain Treatments for Sub Fertility [Internet]. Ministry of Public Services, Sri Lanka; 2021. Available from: https://www.pubad.gov.lk/web/images/circula rs/2021/E/1613539604-07-2017-i-e.pdf
28. Rajapaksa L, De Silva P, Abeykoon P, Somatunga L, Sathasivam S, Perera S, et al. Sri Lanka health system review. 2021;
29. Govindaraj R, Navaratne K, Cavagnero E, Seshadri SR. Health care in Sri Lanka: What can the private health sector offer? 2014;
30. Parliament of the Democratic Socialist Republic of Sri Lanka. Maternity Benefits (Amendment) Act, No. 15 of 2018. [Internet]. 2018. Available from: https://www.ilo.org/dyn/natlex/natlex4.detail? p_lang=\&p_isn=106759\&p_classification=16 \#:~:text=Name\%3A-
,Maternity\%20Benefits\%20(Amendment) $\% 2$ 0Act\%2C\%20No.,15\%20of\%202018.\&text= Abstract\%2FCitation\%3A,employers\%20liab ility\%20to \%20pay\%20benefits.
31. Steiner-Hofbauer V, Katz HW, Grundnig JS, Holzinger A. Female participation or "feminization" of medicine. Wien Med Wochenschr [Internet]. 2022 Sep 2 [cited 2022 Dec 23]; Available from: https://link.springer.com/10.1007/s10354-022-00961-y
32. Allen I. Women doctors and their careers: what now? BMJ. 2005 Sep 10;331(7516):569-72.
33. NEJM catalyst innovations in care delivery. What Is Patient-Centered Care? [Internet]. 2019. Available from: https://catalyst.nejm.org/doi/full/10.1056/CA
