



# Gender equity in global surgery: the feminist mission to achieve the 2030 goals

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**Abstract:** Gender equity is a fundamentally a social justice issue, but it is also an indispensable means to achieve the goals of the 2030 global surgery agenda—the equitable provision of safe, affordable and timely surgical care to all those who need it. A growing body of research in the recent years have illuminated the structural barriers in surgical training and practice that hinder the career progress of individuals in non-dominant gender groups, especially cisgender women. Studies have demonstrated significant gender-based discrepancies in salary, academic promotions, and leadership positions in surgery. The lack of adequate parental leave policy in surgical departments has been found to disproportionately affect women such that pursuing parenthood can significantly hurt their careers. Systemic changes and policy reforms are needed to address gender-based discrimination in surgical fields. Mentorship is evidenced to also play an important role in empowering women students and trainees in surgery and mitigating some of the barriers in their path. Currently, there is a large knowledge gap in understanding the gender disparities in surgeons in the context of low- and middle-income countries. Gender-race intersectionality is another topic that necessitates more research worldwide. Lastly, the academic literature resides largely in the cisgender binary. The discourse on gender equity in global surgery must be inclusive of individuals in the transgender umbrella including binary trans men and women, and other gender identities outside the gender binary including non-binary, agender, genderfluid and genderqueer. More research is needed to illuminate the perspectives of these individuals.

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## Introduction

The rising number of woman physicians in the world is creating unprecedented opportunities for many medical fields to increase workforce and diversify culture (1-4). Ultimately, this will lead to better patient care among many other positive outcomes (5,6).

However, structured for and dominated by cisgender men, the field of surgery has historically been laden with obstacles that make success difficult for all other genders. A

systematic review published by U.K. researchers Hirayama and Fernando found that the barriers encountered by cisgender women in surgical fields were categorized into several patterns: organizational structure including the preserved dominance of cisgender men and lack of opportunities for cisgender women, work-family conflict which encompassed high burden of domestic responsibilities for cisgender women, pregnancy and parenthood, and career trade-offs for personal and family time (7). The study

suggested that certain facilitators could greatly improve work environments and career pathways for cisgender women, including flexibility over work shift patterns, part time practices and improved parental leave policy, provision of childcare facilities, and notably, social capital with access to collegial support and mentorship networks (7).

It is paramount to understand the state of gender minorities around the world and their relationship with the surgical disciplines, including anesthesia and obstetrics. Global surgery is an expanding movement that has diffused to every continent of the world and in order to achieve the goals of the 2030 agenda, which is to provide safe and timely surgery, anesthesia, and obstetrics to those that need it, the pursuit of gender equity is essential.

### **“Gender” is Inclusive**

It is important to note that, while the term “gender equity” is often thought of as a phrase pertaining to cisgender women, it is also inclusive of individuals in the transgender umbrella including binary trans men and women, and other gender identities outside the gender binary including non-binary, agender, genderfluid and genderqueer. These individuals fall under the broad category of “gender minorities” to indicate that their gender identities are different from the presumed majority of the population. Gender differs from biological sex in that gender is a social identity that is influenced by culture, population opinion, and the inner sense of self as one interacts within the social context of their environment (8). In essence the movement of gender equity seeks to create equity for not just cisgender women, but all other underrepresented genders as well that are not well defined in the binary schema of male-female.

Gender diversity and equity in the surgical workforce are not only a matter of justice, but are also beneficial for everyone as they create better work environments and policies and improve patient care. For example, individuals of certain gender identities may be uniquely poised to treat or educate their colleagues to treat patients who suffer from gender dysphoria or related problems and provide services for social work, counseling and education, hormone therapy, or surgery.

### **Why we need cisgender women and gender minorities in surgical anesthesia, and obstetric fields**

The Lancet Commission on Global Surgery reported that

5 billion people worldwide lack access to safe, timely, and affordable surgery when necessary (9). Further, there are 143 million additional surgical procedures needed in low- and middle-income countries (LMICs) each year to save lives and prevent disability.

For those involved in global health, we are tasked to use these statistics as starting points to guide research, policy, and advocacy with the year 2030 in mind to reach minimum benchmarks for delivery of surgical care to all people around the world. One of the core indicators is to ensure that 100% of all countries have at least 20 surgical, anesthesia, and obstetric (SAO) providers per 100,000.

The world is woefully behind in these metrics, and even more worrisome is the fact that SAO force is extremely unevenly distributed across continents. Only 12% of the world’s surgical workforce practice in Africa and Southeast Asia (9). The authors state that to meet SAO workforce targets, the present global surgical workforce from 2015 would need to double a minimum.

Fortunately, there exists a large and untapped potential in every country to boost the workforce and reach these loft goals: cisgender women and gender minorities. In many countries, cisgender men have predominately made up the SAO workforce, but simply expediting their training or creating more residency positions will not fix this problem.

Cisgender women and gender minorities are a diverse, skilled, and educated population that can and should receive quality training that is excellent, but also respects their contextually specific backgrounds. They can make valuable contributions to SAO fields and most importantly, be extra hands in the struggle to provide surgical care to all people in the world.

In addition to the practical reasons for promoting cisgender women and gender minorities to enter SAO fields, these actions also fall under our duties as constituents of The Sustainable Development Goals (SDGs) and the 2030 agenda (10). As citizens of the world and stakeholders of the SDGs, we reaffirm that SDG 5 supports worldwide gender equality. This mission addresses poverty and human rights, and empowers all women.

### **The gender pay gap**

Differences in salary and low-income potential for cisgender women and gender minorities have been a longstanding burden of inequality since they joined the workforce. This problem of unequal pay is pervasive throughout all cultures,

continents, and surgical specialties (11-17).

A U.S. study of otolaryngologists found that even when controlling for type of practice and years since completion of residency, women earned about 15–20% less than their male colleagues (12). Another U.S. survey based study with general surgeons evaluated salary differences between genders before and after a structured compensation plan was implemented in a large academic department (13). Even after the plan was put in place, there were huge discrepancies in salary for men and women.

Similar studies outside the U.S. mirrored these findings. A Japanese study indicated that men surgeons made significantly more than women, even when adjusting for age, marital status, number of children, current position, and working hours (14). In fact, this study indicated that men earn more after marriage, contrasted to most women, who earn less after marriage. Another study conducted in India by Saurabh and colleagues found that over half of the male ophthalmologists earned Rs. 1 lakh/month (equivalent to 1,336.9 dollars/month) more than female ophthalmologists.

Countless studies demonstrate this pay gap; however, most are conducted in high income countries. Much work is needed to be done to fully investigate the pay gaps and salaries based on gender so that equitable policies and culture changes can be prioritized. Departments need to adopt transparent pay schemes that are not simply hours based, but merit-based.

### The leaky pipeline

Numerous studies cite discrepancies seen based on gender across the board related to career advancement promotional pathways, and academic support (16-20). For example, in many cases, cisgender men are more likely to hold positions of professor and associate professor rather than assistant professor.

One study of American cardiothoracic surgeons by Dresler *et al.* found that 13.6% of women were full professors, while in men, over double that proportion, 27%, are full professors (17). Another survey of members of the American College of Surgeons found that for senior surgeons, 43% of women had been hospital chairs compared to 73% for men. The same pattern was observed for being section chief. In this study, women were less likely to believe that career advancement opportunities were equally available to them as their male surgical colleagues (19). A similar investigation of almost 1,500 practicing academic

ophthalmologists found consistent underrepresentation of women in senior academic roles (19).

For cisgender women and gender minorities who enter surgical fields, there are often unfavorable structural problems in the departments where they work. That, coupled with unequal opportunities for advancement, overt and covert discrimination, microaggression, and social norms that result in heavy burden of childcare and home activities can lead to obstructed career pathways and stalled advancement. Mentorship and academic support are critical to solving this problem, but we also need to actively build pathways for promotion and forge new academic opportunities for the underrepresented genders in SAO fields. This will allow for new and previously overshadowed minds to contribute to better research and education of the next generation of providers.

### Barriers created by lack of parental leave policies

Equitable and adequate parental leave policies during the training period of surgical residency and also the early career years is so vital for surgeons of all genders. This is the time during many people's lives when they start their families and begin to have biological children, foster, or adopt. Biological mothers are particularly vulnerable given the long process of pregnancy and tasking burdens on their bodies and mental health. However, all types of parents must be considered. Individuals of all sexes, gender identities, and sexual orientations need time and institutional infrastructure to start their families and spend time with and support new children in their lives.

Without such policies in place, many highly qualified trainees may forgo the pursuit of a surgical career if it is not compatible with family life. Perhaps worse so, many may still embark on journeys of surgical training while attempting to have children, and without proper protective policies in place, they can easily be stretched thin in both roles of parent and surgical trainee and experience undue stress, burnout and can be at risk for mental illness or leaving the field altogether.

In what was self-described as a qualitative feminist study conducted in New Zealand and Australia, Liang *et al.* interviewed women who had previously been surgeons but had decided to leave the field (21). While there were many influencing factors, such as poor mental health, absence of interactions with the women in surgery section of their professional body and other supports, fear of repercussion, and lack of pathways for independent and specific support,

many cited discrimination and lack of support from surgical training programs during pregnancy and childbirth (21).

Unfortunately, few policies exist in the U.S. or elsewhere that support expectant or new parents, and even in programs that have formal parental leave policies in place, often the culture and pressure to perform makes it very difficult for parents, especially mothers, to take advantage of them.

A landmark 2018 study about pregnancy during surgical training in the U.S. by Rangel and colleagues surveyed 347 women surgeons around the country and found that 85.6% of women worked with an unmodified schedule until birth and 63.6% respondents were concerned that their work schedules adversely affected their health of the health of their unborn child (22). In regards to maternity leave, 78.4% of women received maternity leave of 6 weeks or less (22).

In parallel, a 2019 survey study conducted about U.S. orthopedic surgery residents found that almost 50% of residents deferred having children because they were in residency (23). More worrisome is that 59.5% reported experiencing bias from co-residents about women having children in residency and 49.5% reported the same bias attitudes from attendings (23).

There are only a few studies that have addressed paternity leave during training (24,25), and although anecdotal, this is often less than what is afforded for maternity leave. Additionally, there are huge gaps of knowledge that exist in low- and middle-income countries. As more diverse genders with different biological and psychosocial needs surrounding parenthood join the surgical workforce in all countries, careful investigation should be performed about the availability of parental leave, or lack thereof. With this data, positive policy initiatives can be evidence-based and tailored to fit the needs of surgeons of all genders embarking on parenthood.

## Mentorship

Although the significance of effective mentorship has been widely recognized and its secrecy has been constantly reported, there is still much more needed to be done. A study highlighting the mentorship programs in US surgical departments has reported that 33% of the programs included in the study have nonexistent mentor-mentee relationships (26). There is little literature reporting the status of surgical mentorship in LMICs and more research is needed to identify the needs to help improve the quality

of mentorship.

A U.S survey asked 160 medical students about same-gender mentorship for women pursuing surgery, and it has been found that women would likely consider same-gender mentorship as a positive influence (27). Another study done by Wolfert *et al.* on women neurosurgeons in Europe has reported that 58% of women neurosurgeons recognize the importance of same-gender mentorship and 76% of them lack a same-gender mentor (28).

Social media has an increased popularity in the surgical society. It serves as a connecting channel between mentors and mentees globally, especially in subspecialties with very small numbers of women surgeon role models. An online survey in the US showed women in surgery will more likely use social media to seek connections with women mentors compared to women in other medical specialties (29-31).

Additionally, many organizations have been playing a major role advocating gender equity and providing support and mentorship for cisgender women and gender minorities. Founded in 1981 by Dr. Patricia Numann, the Association of Women Surgeons (AWS) has been providing ceaseless support to nearly 3,000 members including all genders from 40 countries. Over the years, AWS has succeeded in achieving many outstanding initiatives including the AWSF/Ethicon Fellowship, The AWS coaching project and the AWS underrepresented minorities (URM) mentorship program (32).

A stunning initiative in Africa is Women in Surgery Africa (WiSA) that was established in 2015 with the goal to empower and support women in surgery in East Central and Southern Africa by their mentorship program and creating many grants like the Faith Muchemwa Legacy Grant, Shield Maiden Award and travel grants through partnership with the royal college of surgeons in Ireland (RCSI) and AWS (33). WiSA is endorsed by and operates as a sub-group of the College of Surgeons of East, Central and Southern Africa (COSECSA), which provides surgical training in 14 countries in the Sub-Saharan region.

Another example is Gender Equity Initiative in Global Surgery (GEIGS), an initiative established in partnership with the Global Surgery and Social Change (PGSSC) at Harvard medical school in 2019, aiming to advocate for gender equity and support cisgender women and gender minorities in SAO fields through research and mentorship network. More than 325 students, trainees and surgeons representing over 55 countries have been involved in the initiative, and 129 mentees have been matched to mentors worldwide (34,35).

## Future directions

Although substantial progress has been made over the years in reducing gender-based barriers in surgical fields, gaps persist. A recent scoping review of the global literature on gender-based systemic inequity in surgery, anesthesia, and obstetrics cited a large knowledge gap pertaining to gender disparities in the context of LMICs (36). However, LMIC perspectives on gender equity are critical to the global surgery discourse. A recent study by Inam *et al.* revealed the unique challenges and barriers experienced by women surgeons in the cultural context of Pakistan (37). Another study presented medical students' perception of surgical careers worldwide, including the perspectives of students from LMICs (38). More of such studies conducted and authored by researchers in LMICs need to be supported and published.

Another research gap that pertains to both LMICs and HICs is on the topic of gender-race intersectionality (39). Students, trainees and surgeons who identify as Black, Indigenous, and People of Color (BIPOC) and as cisgender women or gender minority are subject to compounded forms of inequality due to structural racism and gender injustice. Yet, studies on gender-based barriers experienced by BIPOC individuals pursuing surgical careers are extremely scarce. The dual effect of gender- and race-based injustices in surgery must be investigated by research and by centering the voices of BIPOC surgeons and researchers in the gender equity movement.

Currently, the discussion and advocacy surrounding gender equity in surgery resides largely in the gender binary. Transgender, non-binary, agender, genderfluid, or genderqueer individuals and individuals of other gender identities are so vastly underrepresented in surgical fields that statistics on these groups are not found in the literature. Progress towards true gender equity requires systemic efforts to recruit and retain individuals of all minoritized genders into surgery. It also warrants more gender-inclusive research that not only focus on cisgender women but illuminate the experiences of gender minorities. Promoting the use of gender-inclusive language is a starting point. Ultimately the medical institution and academia would need to shift away from the traditional framework of male-female binary and towards implementation of more gender-inclusive medical practice and research.

## Conclusions

To achieve equitable access to safe, affordable, and timely

surgical care for all those who need it, scaling up the global surgical workforce is critical. To do this, we need to ensure a more equitable and inclusive environment for those currently underrepresented in surgery. This requires the dismantling of long-standing structures in the surgical institution that have perpetuated a dominant culture favoring cisgender men and have fueled discrimination against all other genders. Systemic efforts for gender equity and justice in surgery will also improve patient care; a global surgical workforce that mirrors the heterogeneous population of patients that reflect our society will be best equipped to serve their needs.

At the very core of global health and the global surgery movement lies the principles of equity and justice. As global citizens and stewards of global health, it is all of our responsibility to promote gender equity in surgery as a goal of justice and also as a logical and indispensable means to improve global access to surgical care.

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