



## Gender gap or gender bias? That is the question

Fulvio Calise<sup>1</sup> · Gaya Spolverato<sup>2</sup> · Micaela Piccoli<sup>3</sup>

© Italian Society of Surgery (SIC) 2021

He was my host – he was my guest,

I never to this day  
If I invited him could tell,  
Or he invited me  
So infinite our intercourse  
So intimate, indeed,  
Analysis as capsule seemed,  
To keeper of the seed

In this short poem, written in the 1880s [1], Emily Dickinson examines parity between man and woman by subtly playing on the double meaning of she and he (the body). She was one of the greatest poets of modern times, living half of her life virtually alone in a middle-class home in a small town, writing, loving, even sacrificing her personal life. Though she was not a feminist, she supported, and dedicated most of her lifetime to gender parity. In addition, she had time to build her greatness.

To survive, humanity relies on procreation. Women, by creating life, have a unique experience that men can never share. However, motherhood involves infinite time and care in the years after childbirth. To minimize the difference in the burdens regarding the family, women can only seek to make up for the time and opportunities “lost” in their dedication to give continuity to *mankind*. Unfortunately, time and opportunities can’t always be (fully) regained, but in surgery and education they should.

---

✉ Gaya Spolverato  
gaya.spolverato@unipd.it

<sup>1</sup> Department of General Surgery, Center for Hepatobiliary and Pancreatic Surgery, Pineta Grande Hospital, Castel Volturno, CE, Italy

<sup>2</sup> Department of Surgical, Oncological, and Gastroenterological Sciences, First Surgical Clinic, University of Padua, Padua, Italy

<sup>3</sup> M. Piccoli: Unit of General, Emergency Surgery and New Technologies. OCB (Ospedale Civile Baggiovara), AOU (Azienda Ospedaliero, Universitaria Di Modena), Modena, Italy

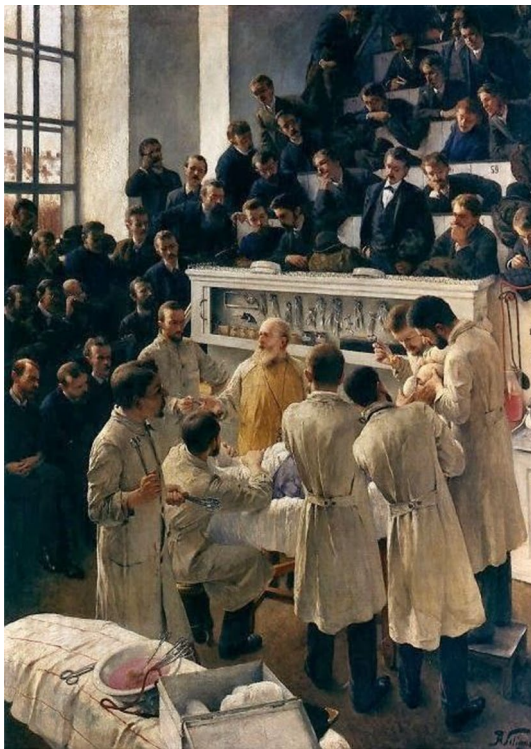
The learning curve in surgery is changing rapidly. To learn how to do our job, we have moved from looking from a distance (Fig. 1), the dominant approach in the first half of the last century, to *face-to-face* training. The establishment of well-organized residency programs and the option of engaging in dedicated and specialized post-residency training now offer once-inconceivable opportunities for young surgeons.

Furthermore, the introduction of minimally invasive approaches has provided new opportunities in terms of simulation-based training as well as proctorship and mentoring programs. An analysis of learning processes for advanced laparoscopic procedures demonstrates that surgeons can achieve proficiency with relatively short practice, provided that interventions are performed on a regular basis [2]. The process is clearly accelerated by the standardization of procedures [3]. For instance, the duration of the learning curve for laparoscopic liver resection has been cut by more than half, since its introduction for surgeons who have received specific training [4]. Finally, the advent of robotics has further reduced this time-gap through the use of an auxiliary console, allowing learners to gain sufficient experience and climb each one’s mountain to be considered competent surgeons.

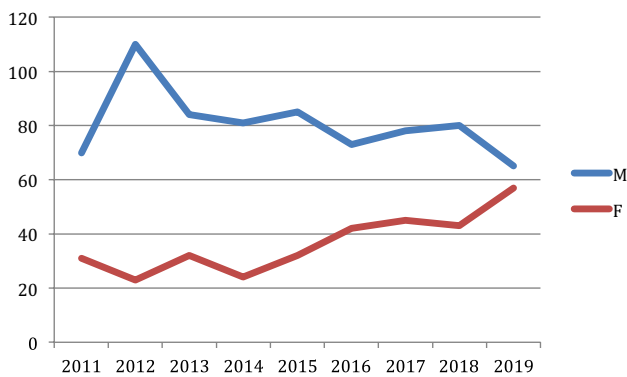
In summary, new technologies have shortened the learning curve, helping young surgeons, and in particular women, who account for the majority of residents. In fact, more and more women are now taking the opportunity to specialize at post-residency schools, as evinced by 10 years of data from the ACOI (Association of Italian Hospital Surgeons) National School of Minimally Invasive Surgery (MP) (Fig. 2).

On the other hand, women still represent a small percentage in the leading Italian Surgical Associations (Fig. 3): only 17% of chiefs of hospital units are women [5], with disconcerting differences between the country’s twenty regions (Fig. 4).

In some surgical specialties, there are no women whatsoever in leadership positions (Fig. 5), and there are only 10 women in charge of general surgical units, compared with 322 men. Perhaps not surprisingly, the number of women



**Fig. 1** “Lezione di chirurgia del prof. Theodor Billroth” by Adalbert Seligmann, 1890



**Fig. 2** Ten years of data from the ACOI National School of Minimally Invasive Surgery. The number of male surgeons enrolled has remained constant, while the number of females has increased dramatically, nearly doubling in just 8 years

**Fig. 3** Representation of women in some of Italy’s main Surgical Associations

National Associations of Surgeons	Members	Women
ACOI (Italian Association of Hospital Surgeons)	8358	17.4%
SIC (Italian Society of Surgeons)	5758	11.9%
SICO (Italian Society of Oncological Surgeons)	450	38%
SICE (Italian Society of Endoscopic Surgeons)	498	34.3%

chiefs of geriatric units and mother and child hospitals exceeds that of men.

It is clear that, to achieve parity in surgery, women need to be supported by those, mostly men, currently in leadership positions.

According to Marina Chiara Garassino, President of Women for Oncology, the COVID pandemic has worsened the already dire situation, since due to increased family commitments, women are now submitting and publishing fewer research projects than before.

She adds that, though women account for 70% of all oncologists, only 20% reach leadership positions. The goal of 40% representation, called for by women’s organizations, seems a long way off. Women in Surgery, co-founded and chaired by Gaya Spolverato in 2015, aims to represent and connect women surgeons in Italy, while at the same time fighting stereotypes by creating mentorship programs and supporting the leadership of valuable women surgeons [6]. On February 11, 2020, the Network of Women Leaders in Healthcare (LEADS) was founded in Italy, and soon began work on a manifesto for a “Greater Gender Balance in Healthcare.” The manifesto was submitted to the President of the Italian Republic, Sergio Mattarella, in September 2020 [7].

However, to be considered well-rounded surgeons, we also need to invest in continuous education to become lecturers, researchers and scientists. I (FC) remember, back when I was a senior at a high school in Oregon, USA, my enjoyment in attending a 1-year course on “Speech,” during which I learned how to speak before groups, and how to develop and write a paper.

Unfortunately, compared to men, far fewer women surgeons attend congresses: for example, at the last Joint Congress of Italian Surgical Societies, held in Rome in 2018, only 148 women were part of the faculty out of 1.193. Far fewer women surgeons go to post-residency schools or research labs during their careers, and fewer female surgeons attend courses on public speaking, or how to write a scientific paper, or how to become a reviewer. Training opportunities must be equal for men and women to overcome the implicit and explicit biases of having mostly male surgeons as chiefs.

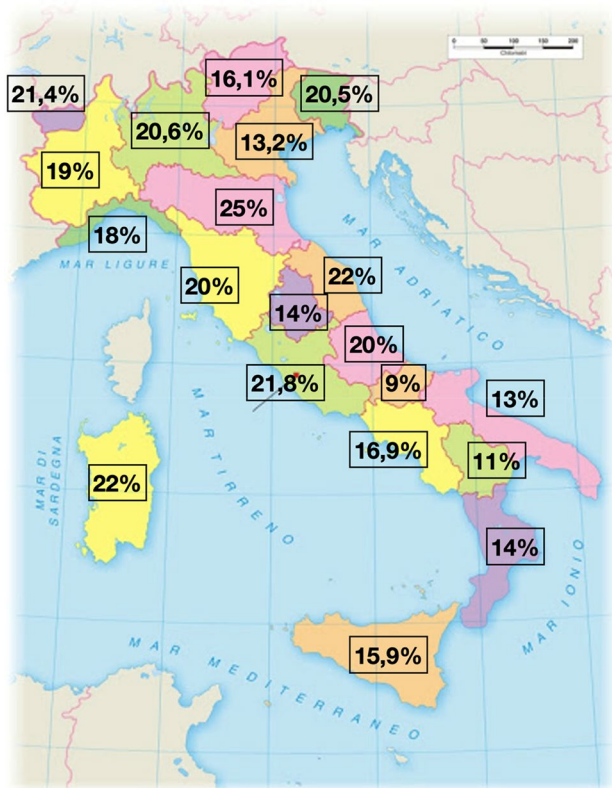


Fig. 4 Distribution of women chiefs of surgical units

Fig. 5 Percentage of women chiefs of surgical units in Italy, by specialty

Cardiac Surgery	0%
General Surgery	3.1%
Maxillofacial Surgery	0%
Pediatric Surgery	8%
Plastic Surgery	0%
Thoracic Surgery	0%
Vascular Surgery	3.5%
Gynecology	14%
Neurosurgery	1.5%

According to Simone de Beauvoir, a great French woman writer of our time, “the embodied experience is not a universal given essentially the same for all human beings, but rather it distinctively differs according to the subjects’ social roles and status” [8]. It is a matter of opportunities: in Italy, for example, in the context of regional elections, voters have two candidates to choose from for each party—a male and a female. Should we also introduce quotas for women

in surgery? This is an extreme option, but we have to start somewhere.

The only way to overcome the gender bias is to give women priority in terms of having sufficient time and opportunities. We need concrete improvements and close monitoring in the surgical units, as well as up-to-date institutional courses that are inclusive towards the other half of the moon if we really want to achieve parity between men and women surgeons.

### Compliance with ethical standards

**Conflict of interest** The authors declare that they have no competing interests.

**Human and animal rights** This article does not contain any studies with human participants or animals performed by any of the authors.

**Informed consent** For this type of study, formal consent is not required.

### References

1. Harvard University Press (1953) The poems of Emily Dickinson. Harvard University Press, Cambridge
2. Aldrighetti L, Ratti F, Cillo U, Ferrero A, Ettorre GM, Guglielmi A, Giuliani F, Calise F, Italian Group of Minimally Invasive Liver Surgery (I GO MILS) (2017) Diffusion, outcomes and implementation of minimally invasive liver surgery: a snapshot from the I Go MILS (Italian Group of Minimally Invasive Liver Surgery) Registry. *Updates Surg.* 69(3):271–283
3. Viganò L, Cimino M, Aldrighetti L, Ferrero A, Cillo U, Guglielmi A, Ettorre GM, Giuliani F, Dalla Valle R, Mazzaferro V, Jovine E, De Carlis L, Calise F, Torzilli G (2020) Italian Group of Minimally Invasive Liver Surgery (I Go MILS). Multicentre evaluation of case volume in minimally invasive hepatectomy. *Br J Surg.* 107(4):443–451
4. Halls MC, Alseidi A, Berardi G, Cipriani F, Van der Poel M, Davila D, Ciria R, Besselink M, D’Hondt M, Dagher I, Aldrighetti L, Troisi RI, Abu HM (2019) A comparison of the learning curves of laparoscopic liver surgeons in differing stages of the IDEAL paradigm of surgical innovation: standing on the shoulders of pioneers. *ann Surg* 269(2):221–228
5. Open data from [www.dati.salute.gov.it](http://www.dati.salute.gov.it). Accessed Oct 2020
6. [www.womeninsurgeryitalia.it](http://www.womeninsurgeryitalia.it). Accessed Oct 2020
7. [www.donneleaderinsanita.it](http://www.donneleaderinsanita.it). Accessed Oct 2020
8. Shusterman R, Consciousness B (2008) A philosophy of mindfulness and somaesthetics. Cambridge University Press, Cambridge

**Publisher’s Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.