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Gender disparities in career among internal medicine physicians: evidence from a national survey of members of FADOI

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Abstract
Despite notable progress in the representation of women in medicine globally, significant gender gaps in salary and career advancement persist. In 2014, women accounted for 41.2% of doctors across OECD countries, with Italy (40.3%) aligning closely with this average. While Italian Ministry of Health data show that female representation in the National Healthcare System has further increased to approximately 69% by 2021, professional progression remains asymmetrical. The primary endpoint of this study was to examine gender-based inequities in leadership roles and career trajectories within Italian internal medicine.
In 2024, we conducted a nationwide survey among hospital internists affiliated with the FADOI (Italian Scientific Society of Internal Medicine). Data were collected *via* an online platform with a 20% response rate. We analyzed the distribution of senior clinical and managerial positions, controlling for observed professional characteristics and demographics.
Our findings confirm a significant "glass ceiling" effect. Despite their predominance in the workforce, women occupy only 26.8% of general management and chief of medicine positions. Furthermore, women remain markedly underrepresented in the leadership of complex healthcare structures (37.4% female *vs*. 62.6% male). These vertical disparities are accompanied by horizontal inequalities, including a persistent gender pay gap and structural barriers related to work-life integration and organizational culture.
Although the trend points toward greater gender participation in the workforce, this has not yet translated into equitable representation in top-tier positions. The results underscore the necessity for targeted institutional reforms to dismantle the systemic barriers hindering women's career progression in internal medicine.

Introduction

Gender inequality within organizational structures is a multifaceted phenomenon grounded in systemic processes and institutional procedures. Inequalities is particularly pronounced in science, technology, engineering and mathematics fields, in which women are underrepresented in both education and employment.

In internal medicine, while clinical career paths are formally equitable, career advancement is moderated by an intricate constellation of socio-cultural and structural determinants.

To conceptualize these inequities, two frameworks are frequently utilized. The "glass ceiling" refers to the invisible, systemic, barriers that preclude women from attaining the highest leadership positions, despite having the necessary qualifications and experience.

In contrast, the "leaky pipeline" describes the progressive drop-off of female professionals from academic and research careers, despite parity at the entry level.

Together, these concepts highlight how structural, cultural, and organizational factors continue to limit women's career progression.

While the majority of these studies originates from the United States, emerging data from European Countries, including Italy, deserve increasing attention.

In Italy, a significant demographic shift is underway.[1] National data from 2021 indicate that women comprise approximately 69% of the National Healthcare System (SSN) workforce. However, this numerical majority does not correlate with institutional influence.[2]

A 2021 Italian study of 1779 doctors who completed an online questionnaire found that most doctors born between 1946 and 1964 were men, while women were more numerous among younger generations, (Generation X, born 1965-1980, and Millennials, born 1981-1996). In that sample, men were almost equally divided between management and subordinate positions; the same did not hold for women, of whom only one third held senior roles. Male chiefs of medicine were twice as common as female chiefs (26% *vs.* 13%).[3]

These observations are consistent with *Gender Leadership Index in Health* (GILH) report, which measures the representation of women in senior roles within the Italian healthcare sector, comparing their proportion in leadership positions with the overall gender composition of the workforce on a scale from 0 (fully male leadership) to 1 (fully female leadership). In 2023 Italy recorded a GILH of 0.21, signaling a persistent leadership gap.[4]

Some of the most harmful inequalities are often embedded within human resources processes, affecting recruitment, training, compensation,[5] and women's promotion to top-tier executive and clinical leadership roles.[6-8]

The academic sector closely mirrors these clinical disparities.[9] Despite a substantial share of female graduates in Italy, their representation significantly declines higher academic echelons, constrained by biased hiring practices, hindered career progression, and unequal access to research funding, as shown in recent studies.[10,11]

Worldwide, gender inequality within academia is a well-documented phenomenon. European Commission reports confirm that women remains underrepresented across scientific disciplines, with their progression toward senior academic positions being markedly more constrained than that of their male counterparts.[12]

On a national level, territorial heterogeneity further complicates the landscape. Although the literature on this topic remains limited, several studies further substantiate the presence of gender disparities within the medical profession.[13-15] Recent research on regional differences has identified higher disparity levels in regions such a Basilicata, Molise, Valle D'Aosta, Sardinia, Liguria and Veneto, compared to more balanced distributions in Piedmont, Trentino Alto Adige and Friuli Venezia Giulia.[16] However, these findings necessitate cautions interpretation due to the limitations of small sample sizes and the lack of comprehensive territorial representation in existing studies.

Global data further corroborate these European trends, particularly within highly specialized medical fields. Studies from the United Kingdom have highlighted severe gender imbalances in cardiology; while women represent a significant portion of the total medical workforce, they constitute as little

as 12% to 16,8% of cardiologists, with representation dropping even further in subspecialties like interventional cardiology.[17,18] Similar patterns of managerial underrepresentation have been documented by a study from Mexico.[19]
In response to these persistent gaps, the European Commission's Gender Equality Strategy 2020-2025 aims to promote an ecosystem in which men and women have equal opportunities across academic and scientific life.[20] Within this evolving context, our study seeks to provide updated data on the current state of gender equity and to evaluate gender disparities in leadership positions among Internists members of the Italian Federation of Associations of Hospital Doctors in Internal Medicine (FADOI).

Materials and Methods

Study population

This cross-sectional study was conducted in 2024 among the members of the FADOI Society. At the time of the study, the society comprised 2794 members, with a gender distribution of 1173 males (42%) and 1620 females (58%). To provide context on institutional leadership, the FADOI regional presidency board consisted of 19 members (9 women, 10 men), while the executive board included 30 members, of whom 9 were women (30%).
All 2794 FADOI members were invited to participate in an online, voluntary survey via the society's internal member-only digital platform. Data collection took over a 45-day period between April 2024 and May 2024. A total of 571 physicians completed the questionnaire consisting of 363 women (63,6%) and 208 men (37%). The cohort had a mean age of 48 years.

The questionnaire and study parameters

The questionnaire was developed by the Gender medicine Group of FADOI in collaboration with FADOI'S Study Centre. To collect the sociodemographic data, professional characteristics, seven questions were included about: i) work's geographical region; ii) age; iii) gender; iv) family and parental status; v) hospital type and location; vi) employment type, fixed-term contracts, freelance work; and vii) managerial position. A non-statistical analysis of the responses disaggregated by gender was performed.

Results

Out of 2794 invited FADOI members, 571 completed the survey (20.4% response rate). Among respondents, the majority were woman (64%) and aged over 45 years (58%). A significant generational gender gap was observed; women were disproportionately represented in the youngest cohort (under 30 years: 85.7% women *vs*. 9.5% men), whereas men predominated in the over-60 group (60.6% men *vs*. 39.4% women). The largest age bracket was 45-60 years (n=223), with a female-to-male ratio of 64.6% to 35.4%. The mean age was significantly lower for female respondents compared to males (45.6 *vs.* 52.4 years respectively) (Figure 1).
Regarding family status, 62.7% of participants had children (mean age of 52 years). Among childless respondents (mean age 40.9 years), the majority were women (72.8% *vs.* 26.2%).
According with hospital type definitions within the Italian healthcare system, primary hospital facilities are equipped with an emergency department (ED) and a limited number of specialties with widespread coverage across the region: internal medicine, general surgery, orthopedics, anesthesia, and support services in a network of on-call services or 24-hour emergency services for radiology, laboratory, and blood bank.
Level I hospital facilities are facilities with a level I ED, equipped with the following specialties: internal medicine, general surgery, anesthesia and intensive care, orthopedics and traumatology, obstetrics and gynecology, pediatrics, cardiology with an intensive care unit, neurology, psychiatry, ophthalmology, Ear, Nose and Throat, urology, radiology services with computed tomography and ultrasound, a laboratory, and an immunotransfusion service must be present or available online 24/7.

Level II hospital facilities are equipped with a level II ED and are institutionally affiliated with local hospitals, university hospitals, certain IRCCS (research institutes), and large local health authority (ASL) facilities. These facilities are equipped with all the facilities required for a level I hospital and with the catchment areas: cardiology with 24-hour interventional hemodynamics, neurosurgery, cardiac surgery and cardiac resuscitation, vascular surgery, thoracic surgery, maxillofacial surgery, plastic surgery, highly complex digestive endoscopy, interventional bronchoscopy, interventional radiology, pediatric and neonatal intensive care, radiology services available 24 hours a day, nuclear medicine, laboratory, immunotransfusion service, and any other highly specialized disciplines.
Most participants were specialists practicing in first-level hospitals (34,7%), followed by second-level (20,8%), university (20,1%) and training or research hospitals (3,9%).
While the FADOI cohort specialist predominantly held full-time permanent contracts (83%), gender differences emerged in specific professional tracks. Residents accounted for 5.2% of the sample, 80% of whom were female. Conversely, men were more likely to engage in freelance medical practice (59% *vs.* 41%) (Figure 2).
Among the 571 internists, gender parity appeared stable, with 93% of all respondents holding at least first-level management positions and no significant gender difference reported.
A profound "glass ceiling" effect was identified at the highest institutional levels (Directors of Complex Units and Department Directors), where women accounted for only 26.8% of positions compared to 73.2% for men. More specifically, 46.3% of physicians held a "high specialty" position, 45.8% as "Director of Complex Structure" and 7.9% occupied the role of "Department Director". Women accounted for 65% of "high specialty" positions compared to 35% men. Conversely, the role of "Director of Complex Structures" was more frequently held by men (62.6% *vs*. 37.4%) and the position of "Department Director" was predominantly occupied by males (82.4% *vs*. 17.6%) (Figure 3).

Discussion

In this cohort of FADOI internists, female physicians were more numerous than male and were more likely to hold full-time permanent contracts. However, women were overrepresented among part-time contract holders (57% *vs.* 42%), while men were more likely to engage in freelance activities (59% *vs*. 41%), suggesting that women may face greater difficulty undertaking extra work and thus may have lower additional earnings compared to men.
Female representation decreased with increasing age, consistent with the greater prevalence of women in more recent cohorts. This demographic shift is mirrored on a national scale: the 2024 AlmaLaurea report indicates that, of 305,256 graduates in Italy that year; women accounted for 59.9%. Within the medical field specifically, 43,352 individuals completed their degrees; although gender-disaggregated data for this specific subset are not yet fully available, enrollment figures confirm that women represent approximately 70% of current medical students.[21]
Despite this numerical superiority at the entry level, senior hospital roles remain predominantly male, even though male respondents constituted only 36.4% (208 of 571) of our study sample.
Workplace discrimination against women remains an important challenge despite ongoing effort to promote gender equality. Medicine persists as one of the professional fields where gender-based disparities are most pronounced. While salary scales for physicians employed by the SSN appear broadly equivalent-governed by national collective labor agreements – the disparity is clearly manifest in the nature of the roles performed, and the hierarchical positions attained.
Numerically, about 70% of Complex Structure Directors are men, compared to roughly 30% women. Beyond these visible disparities in leadership roles, our study confirms the persistence of the "glass ceiling" phenomenon, which continues to hinder women's career progression despite possessing qualifications and clinical competencies equivalent to those of their male colleagues. skills equivalent to those of their male colleagues. This is reflected not only in the lower probability of attaining top-tier managerial roles but also in the structural barriers that shape the daily professional landscape of Internal Medicine.

A particularly salient finding relates to the "leaky pipeline paradox": although women now constitute the majority of medical students (exceeding 55% in numerous countries), this numerical predominance does not translate into equitable representation in senior positions. Indeed, only a minority of women successfully transition into top-tier academic or managerial roles. This vertical disparity is compounded by horizontal segregation across medical specialties. Women are more frequently represented in fields traditionally associated with caregiving, such as pediatrics or general practice, while remaining underrepresented in surgical or highly competitive disciplines. This segregation reinforces gender stereotypes and further constrains opportunities for professional advancement.

Beyond career trajectory, another essential dimension of this inequality concerns working conditions and professional well-being. Female physicians report higher exposure to burnout, disproportionate workloads, and significant pressures related to the work-life interface.[22] Consequently, women are more likely to reduce their clinical hours or exit academic medicine during mid-career stages, often due to a lack of institutional support and a perceived scarcity of advancement opportunities.

Limitations

This study has several limitations. First, the low response introduces potential non-response bias which may affect generalizability of the findings due to inherent differences between responders and nonrespondents. Specifically, the high proportion of female suggests a selection bias. Second, the absence of standardized psychometric measures to evaluate the impact of gender discrimination on work performance, self-efficacy, and emotional well-being limits the dept of our conclusion. Nonetheless, these findings provide preliminary data on gender inequality and a framework for assessing attitudes and experiences of gender discrimination among physicians an internal medicine.

Conclusions

This study aims to address existing gaps in the literature by focusing specifically on the Italian context. According to the European Institute for Gender Equality (EIGE), segregation and discrimination persists: the 2020 Gender Equality Index explicitly highlighted women's underrepresentation in decision-making roles and the resulting pay gap. While the Italian Gender Equality Index showed a notable progress between 2020 and 2024, rising from 63.5% to 69.2% it remains marginally below the EU-27 average of 70.0%.[22]

The EIGE report also underscores restricted access to research funding for women. Since the 2010 reform of the Italian university system (Law 240/2010 –Gelmini Reform), the gap between women entering academia and those advancing to senior positions has persisted. Data from 2023 indicate a continued decline in female representation at higher academic ranks, culminating in significant underrepresentation among full professors.

Although progress toward gender equality in medicine is evident, systemic inequalities continue to hinder women's full integration and career progression. These disparities are visible not only in leadership representation but also in the unequal distribution of research finding and career opportunities.

To dismantle structural barriers, new strategies are needed. Institutional policies should hiring practices and promote transparent, inclusive processes. Furthermore, policies that support work-life, balance and address entrenched prejudices, norms, and behaviors are essential to achieving true gender equity.

Diversity in leadership yields positive externalities-better decision-making, more innovative research, and improved outcomes across fields including healthcare. Structural reforms, greater transparency in selection processes, and monitoring programs are necessary.

A recent study proposes five solutions:[23] treat gender equality as an innovation challenge; change institutional norms; foster a culture of personal responsibility for change; implement behavioral guidelines and action plans; and promote organizational raccountability.

Recognizing the problem is the first step toward meaningful change.

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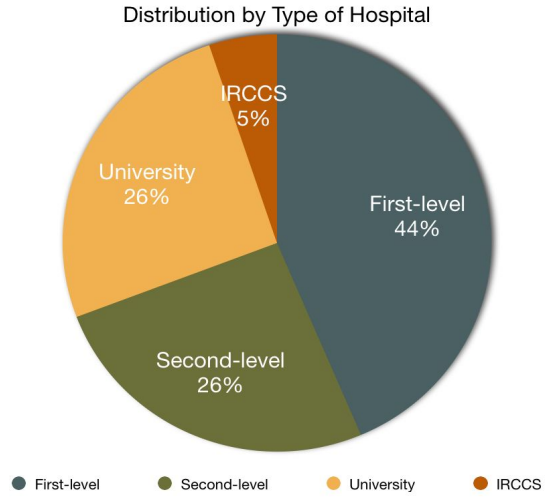

Figure 1. Distribution of study participants by type of healthcare facility. The chart displays the professional setting of the internists Most respondents worked in first-level hospitals (44.7%) and second-level hospitals (20.8%). University hospitals accounted for 26.1%, while 3.9% were employed in training and research hospitals.

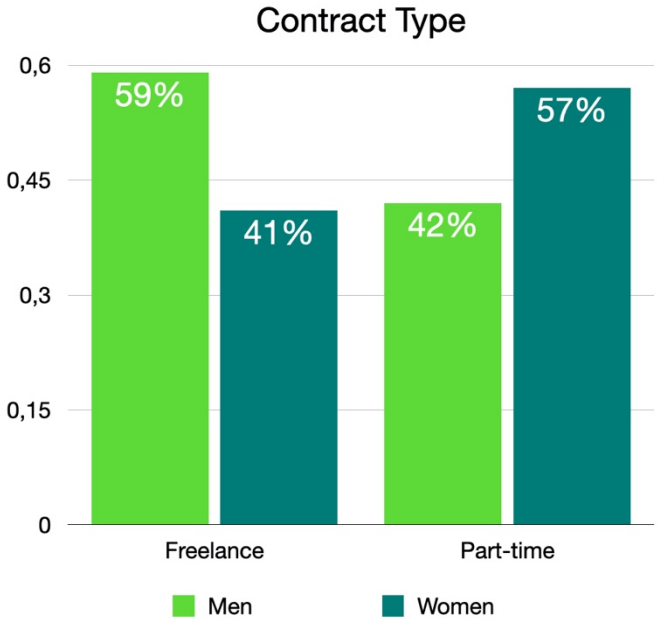

Figure 2. Gender distribution by contract type and professional status. The bar chart illustrates gender disparities among FADOI internists across different employment categories. While the majority of participants held full-time permanent contracts (83.0%), significant gender differences emerged in other roles. Men were more represented in freelance practice (59.0% vs. 41.0% for women), whereas part-time were predominantly female (57.0%).

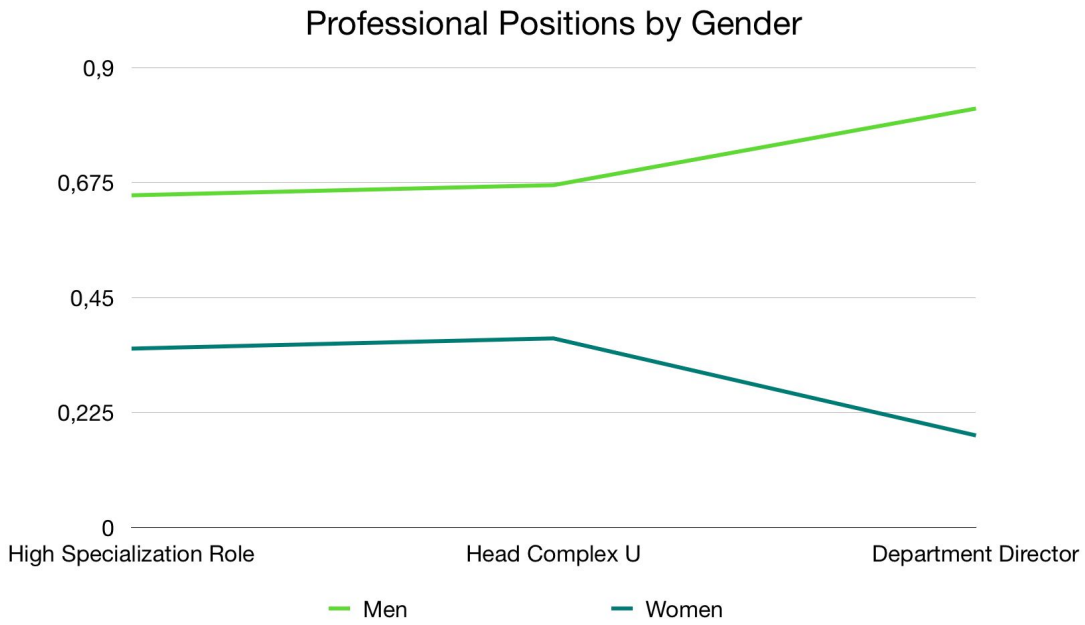

Figure 3. Gender distribution across senior professional and leadership positions. The line graph illustrates the progressive gender gap as professional responsibility increases. While no significant gender difference was found in general management positions (93% of the total 571 participants), a clear "glass ceiling" effect is visible in top-tier roles. Women represent 65.0% of "High Specialization" roles but their presence drops significantly to 37.4% for "Directors of Complex Units" and 17.6% for "Department Directors". Conversely, men hold 82.4% of the highest leadership positions (Department Directors). ***Note: Roles are listed in ascending order of hierarchical responsibility within the Italian healthcare framework: "High Specialization Role", "Head/Director of Complex Unit" and "Department Director"*** **.**