

Assessment of Gender Diversity Among Authors in the Journal of Turkish Thoracic and Cardiovascular Surgery Publications

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Abstract

Objectives: The number of female cardiovascular surgeons has been steadily increasing over the years in Türkiye. The number of female members in the Turkish Society of Cardiovascular Surgery was 57 (6.97% of the total number of surgeons) in 2010 and increased to 305 (13.97%) in 2022. It is unknown whether the contribution of female cardiovascular surgeons to the scientific literature has paralleled this increase. The aim of our study is to elucidate the proportion of female physician contributions in the publications of the Turkish Journal of Thoracic and Cardiovascular Surgery.

Methods: Between 2010 and 2022, a comprehensive review was conducted on the original articles, reviews, and case reports published in the Turkish Journal of Thoracic and Cardiovascular Surgery, focusing specifically on the field of cardiovascular surgery. The analysis involved determining the total number of authors, differentiating between female and male authors, and documenting whether female authors held positions as either the first or last author. In cases where gender identification based on names was inconclusive (unisex names), gender verification was performed by accessing the official websites of the authors' affiliated institutions. Authors who were not cardiovascular surgeons, publications in the field of thoracic surgery, and articles submitted from sources outside of Türkiye were excluded from the study.

Results: A total of 1027 publications from the Turkish Journal of Thoracic and Cardiovascular Surgery were included in the study, encompassing 3998 authors. Among these authors, 268 were female. Female authors were identified as the first author in 58 articles (5.65%) and as the last author in 46 articles (4.48%).

Conclusion: Despite the increasing number of female surgeons, it is observed that the contribution of female surgeons in publications remains relatively stable and lags behind the overall proportion. The reasons for the relatively low contribution of female authors to scientific literature should be examined, and authors should be encouraged to contribute more to the field of science.

Keywords: Surgeons; women; women's role.

Türk Göğüs ve Kalp Damar Cerrahisi Dergisi Yayınlarında Yazarlar Arasında Cinsiyet Çeşitliliğinin Değerlendirilmesi

Özet

Amaç: Türkiye'de kadın kalp damar cerrahlarının sayısı yıllar geçtikçe giderek artmaktadır. Literatürdeki bu artışa paralel olarak kadın kalp damar cerrahlarının bilime katkısı olup olmadığı bilinmemektedir. Çalışmamızın amacı Türk Göğüs ve Kalp Damar Cerrahisi Dergisi'nin yayınlarında kadın hekim katkılarının oranını aydınlatmaktır.

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Gereç ve Yöntem: 2010–2022 yılları arasında Türk Göğüs ve Kalp Damar Cerrahisi Dergisi'nde yayınlanan, özellikle kalp-damar cerrahisi alanındaki orijinal makaleler, derlemeler ve olgu sunumları üzerinde kapsamlı bir inceleme yapıldı. Değerlendirme, toplam yazar sayısının belirlenmesini, kadın ve erkek yazarlar arasında ayırım yapılmasını ve kadın yazarların ilk yazar mı yoksa son yazar mı olduğunu belirlemeyi içeriyordu.

Bulgular: Türk Göğüs ve Kalp Damar Cerrahisi Dergisi'nden toplam 1027 yayın çalışmaya dahil edilmiştir ve bu yayınlarda 3998 yazar yer almaktadır. Bu yazarlardan 268'i kadındır. Kadın yazarlar, 58 makalede (yüzde 5,65) birinci yazar, 46 makalede ise (yüzde 4,48) son yazar olarak yer almıştır.

Sonuç: Kadın cerrah sayısının artmasına rağmen kadın cerrahların yayınlara katkısının nispeten sabit ve genel oranın gerisinde kaldığı görülmektedir. Kadın yazarların bilimsel literatüre katkısının nispeten düşük olmasının nedenleri incelenmeli ve yazarların bilim alanına daha fazla katkıda bulunmaları teşvik edilmelidir.

Anahtar sözcükler: Cerrahlar; kadın; kadınların rolü.

Introduction

Although the number of female cardiovascular surgeons has steadily increased over the years, cardiovascular surgery remains one of the most unequal specialties in terms of gender.^[1] This rise is accompanied by the growing contributions of female surgeons to the scientific literature in this field. However, there have been limited studies examining whether the contributions of female surgeons to scientific publications are parallel to this increase.^[2]

The “Turkish Journal of Thoracic and Cardiovascular Surgery” has been publishing various types of articles in the fields of cardiovascular surgery, cardiovascular anesthesia, cardiology, and thoracic surgery since 1991. These publications include clinical, surgical, and experimental research, reviews, case reports, interesting images, original surgical techniques, and letters to the editor. The journal serves as the official publication of both the “Turkish Society of Cardiovascular Surgery” and the “Turkish Society of Thoracic Surgery.”^[3] The aim of this study is to shed light on the contributions of female cardiovascular surgeons in the articles published in the Turkish Journal of Thoracic and Cardiovascular Surgery.

Materials and Methods

This study was approved by the Ethics Committee of Koşuyolu High Specialization Training and Research Hospital (number: 2023/07/688, date: May 02, 2023). It was conducted in accordance with the ethical principles of the Declaration of Helsinki. Informed consent was waived due to the retrospective design of the study and the use of anonymized patient data. This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.^[4] The original articles, reviews, and case reports published in the Turkish Journal of Thoracic and Cardiovascular Surgery between 2010 and 2022 were examined to identify female authors.

The total number of female authors and whether they were listed as the first or last author was systematically recorded. Unisex names, used for both males and females, were clarified by visiting the respective authors' institutions' websites. Only papers submitted from Türkiye and written by cardiovascular surgeons were included in the study. Other types of articles, excluding original articles, reviews, and case reports, were not considered in our research, and studies conducted in the field of thoracic surgery were excluded. Authors who were not specialized in cardiovascular surgery or affiliated with institutions abroad were excluded from the analysis.

Two investigators performed the data extraction independently; a third investigator verified the data. Data extracted included the year of publication, the number, and the percentage of women.

However, it is important to acknowledge certain limitations. The study's focus on articles published in Türkiye introduces a geographic limitation, which may affect the broader applicability of the findings to an international context. In addition, the exclusion of authors not specializing in cardiovascular surgery or those affiliated with institutions outside of Türkiye further narrows the scope of the analysis. Despite these limitations, the data provide a valuable perspective on gender representation within the context of Turkish cardiovascular surgery publications.

Statistical Analysis

All statistical analyses were conducted with the Statistical Package for Social Sciences software (v 27; IBM Corp, Chicago, IL).^[5] Categorical variables were represented using frequency and percentage distributions. The distribution of variables over the years was visualized using line graphs and tables. Spearman's rank correlation test was employed to analyze the correlation between non-normally distributed numeric variables. A significance level of $p < 0.05$ was considered for statistical significance.

Results

Between the years 2010 and 2022, a total of 1027 research articles have been published. Within these articles, the collective number of female authors amounts to 268, whereas the total number of authors, inclusive of both genders, stands at 3998. Female authors were identified as the first author in 58 articles (5.64%) and as the last author in 46 articles (4.48%). As of 2022, the Turkish Society of Cardiovascular Surgery has a total membership of 2183, with 305 of these members being female.

The distribution of the female membership rate, female author rate, first-author female author rate, and last-author female author rate from 2010 to 2020 is examined through Figures 1-4. In 2010, the female membership rate, female author rate, first-author female author rate, and last-author female author rates were 6.97% (57/818), 5.43% (21/387), 2.30% (2/87), and 2.30% (2/87), respectively. By the end of 2022, these rates increased to 13.97% (305/2183), 6.7% (268/3998), 10.53% (4/38), and 10.53% (4/38), respectively. The proportion of first authorship for both genders and its variation over the years are presented in Figure 5.

Spearman correlation analysis was conducted to assess the distributions of total author count, total membership count, fe-

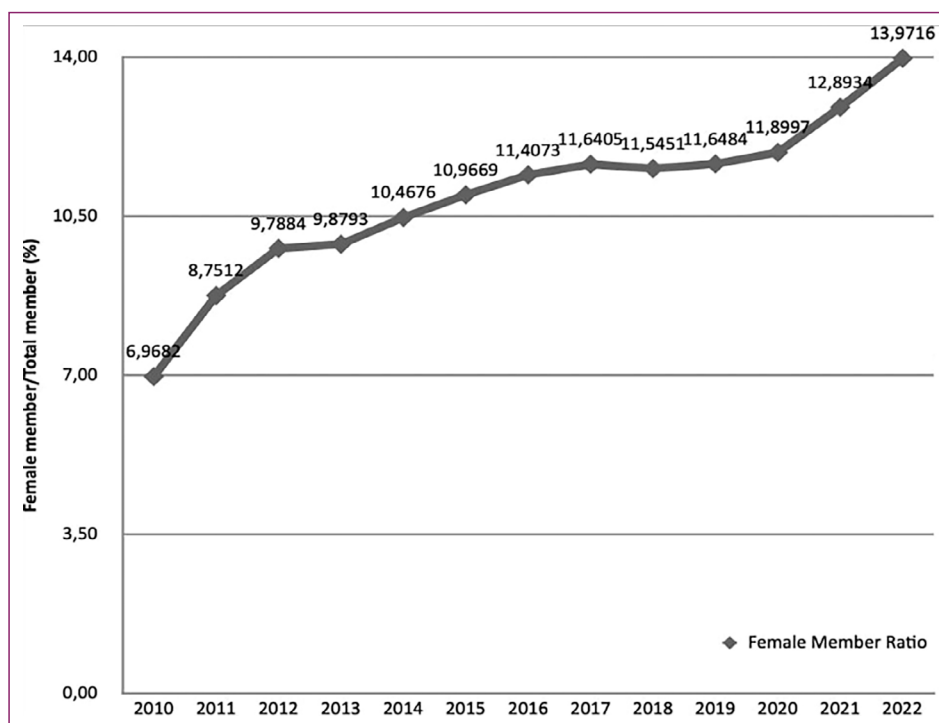


Figure 1. Female member ratio.

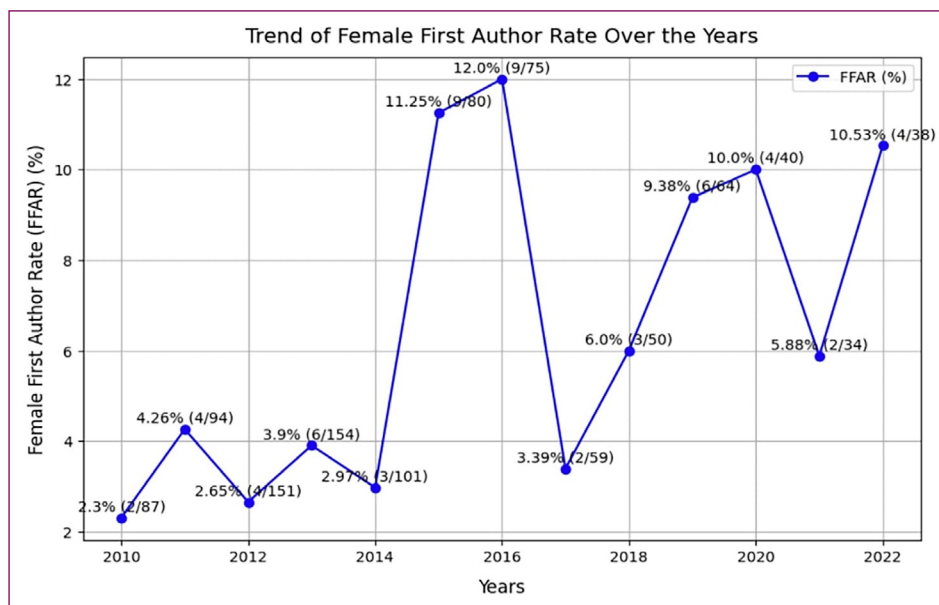


Figure 2. Female first-author rate.

male author rates, and female membership rates over the years. The results revealed statistically significant positive correlations ($p < 0.05$) between female membership rates and total author count, first-author female author rates, total female author rates, and last-author female author rates, indicating a strong positive association. However, there was no statistically significant correlation ($p > 0.05$) between journal membership count and other variables. The scatter plots demonstrate the positive correlation between female member ratio and various author roles: Female author ratio ($r = 0.92$, $p < 0.05$), first female author

ratio ($r = 0.94$, $p < 0.05$), and last female author ratio ($r = 0.98$, $p < 0.05$). These findings indicate a strong positive association between the proportion of female members and the contributions of female authors as first and last authors (Fig. 6).

Discussion

This study aimed to investigate the contribution of female surgeons to publications in cardiovascular surgery in Türkiye. Several factors may influence the publication contribution of female surgeons. Gender-based discrimination, family responsibilities, and

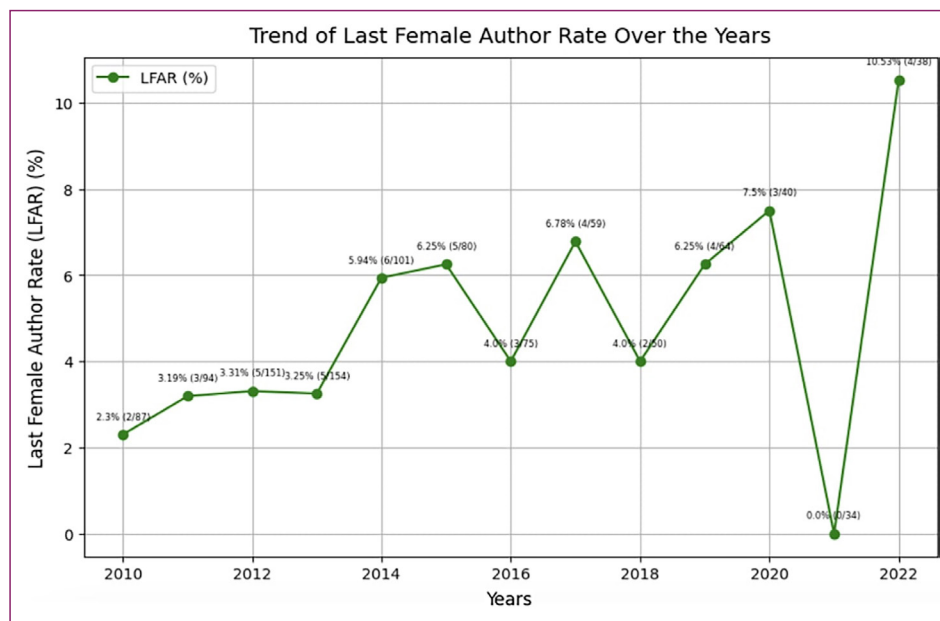


Figure 3. Last female author rate.

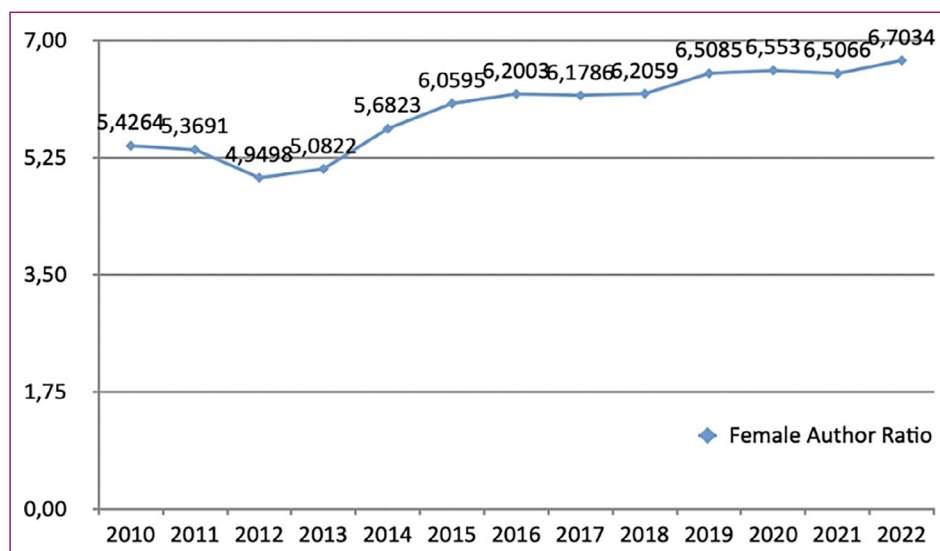


Figure 4. Female author ratio.

the lack of diversity in institutional, professional, and editorial positions can be the reasons for the limitation of the participation of female surgeons in scientific publications.^[6] There is a decline in interest worldwide for cardiovascular surgery specialization.^[1] Positive factors, such as saving lives and engaging in high-level academic work, as well as negative factors, such as the demanding nature of surgeries, long and exhausting night shifts, and the relatively poor work-life balance, are affecting medical students. Gender equality in working conditions is also an important factor that should be considered in influencing these decisions.

Gender equality refers to the elimination of discrimination based on social gender and ensuring that everyone has equal rights. This concept varies across societies and evolves over time, holding significant importance, especially in the field of medicine, for female surgeons and their contributions.^[7] Women surgeons of-

ten bear the primary responsibility for childcare and household tasks. Despite these challenges, women in cardiovascular surgery demonstrate remarkable dedication in effectively managing both their professions and family responsibilities. They maintain comparable work hours and achieve high levels of professional commitment and satisfaction. While the overall representation of women in cardiovascular surgery remains limited, the number of women pursuing this specialization is steadily increasing.^[8] Our finding that the rate of female first authors in publications increased from 2.30% in 2010 to 10.53% in 2022 can be seen as a reflection of the increasing job satisfaction and professional commitment of female surgeons. The only wealthy nation without guaranteed paid parental leave is the United States. California took the lead in 2004 by offering 6 weeks of paid leave, and seven other states have since adopted comparable policies.^[9] In states

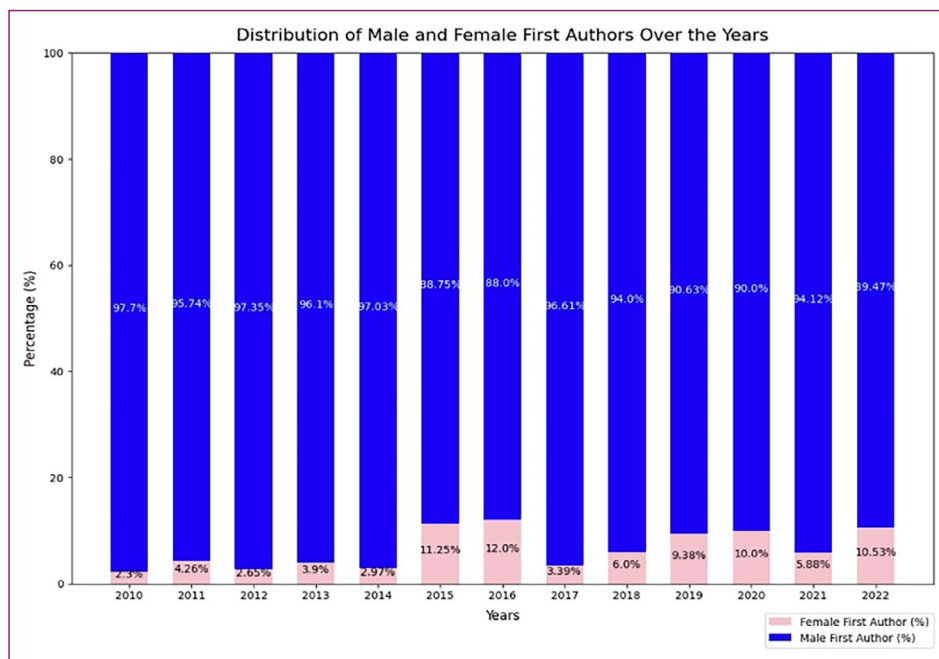
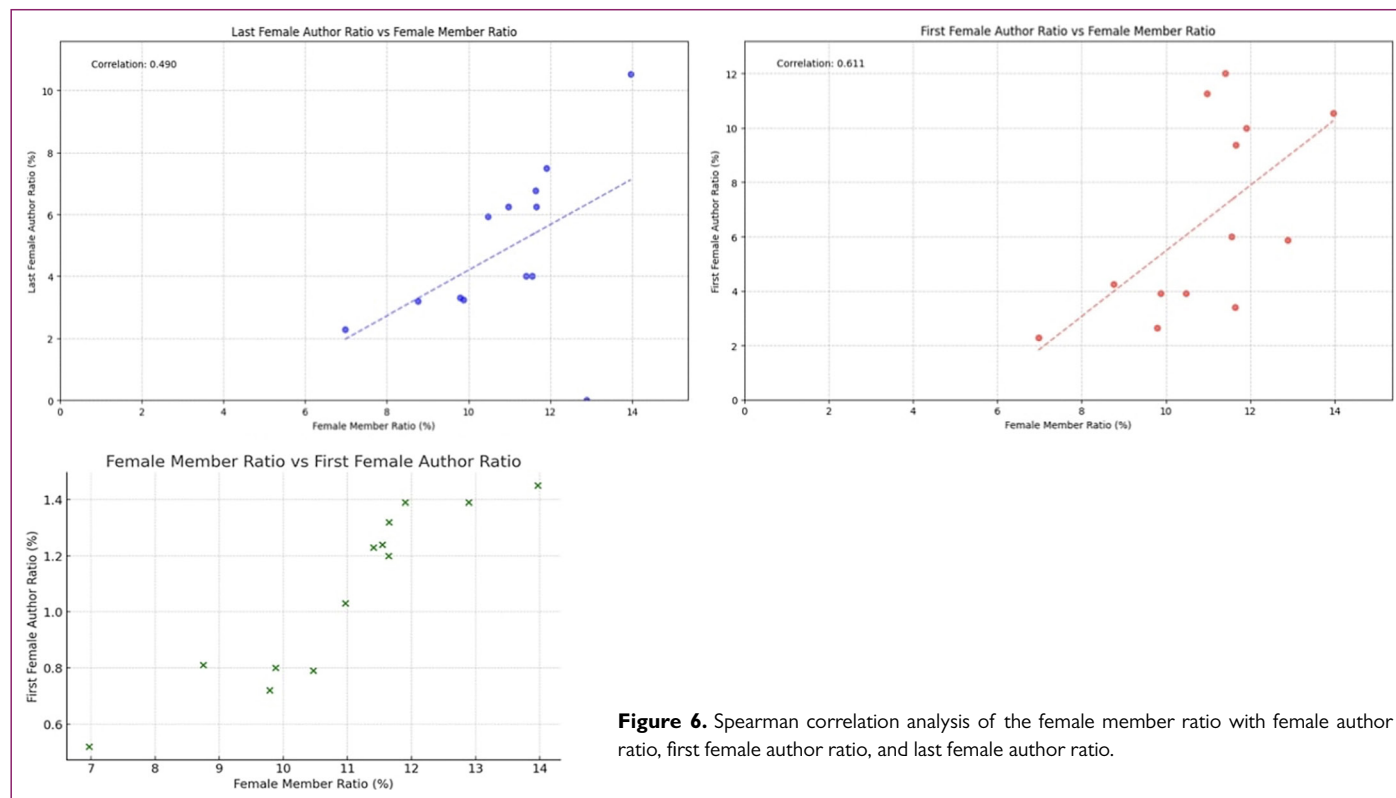


Figure 5. Distribution of male and female first authors over the years.



that provide paid family leave, both exclusive breastfeeding and any breastfeeding are more common than in those that do not. This suggests that, since all forms of breastfeeding are more prevalent in states with paid family leave, enacting additional legislation could lead to even higher breastfeeding rates.^[10] Conversely, in Türkiye, one of the rights granted to working mothers with children under the age of one is a daily breastfeeding leave of 1½

h. The legal history of breastfeeding leave dates back to 1930 and has undergone many changes and advancements to the present day.^[11] An example of women's position in society that can be understood from history is the right to vote and be elected. In New Zealand, women were granted the right to vote in 1893 and the right to stand for election in 1918. In the United States, the right to vote was established in 1920, whereas full voting rights were

granted in the United Kingdom in 1928. Our country has also undergone a process regarding women's rights that resembles that of the West, yet has significant differences. The acceptance of the Civil Code on October 4, 1926, secularized the concept of family and brought about many changes that significantly improved women's social status. In the context of women's rights, a regulation was made in 2011 with Law No. 6111, stating that female civil servants, if indicated by a medical report, cannot be assigned night shifts or night duty before the 24th week of pregnancy and for 1 year following childbirth.^[12] In addition, inequality in research funding can also be a problem. Although research and publication are crucial for academic success, women face discrimination right from the beginning when it comes to obtaining start-up funds. Sege et al.^[13] analyzed application data from two New England biomedical research programs managed by the Medical Foundation Division of Health Resources in Action. In this study, junior faculty women receive significantly less startup support compared to men, with a median of \$350,000 versus \$889,000, and this difference cannot be attributed to factors such as degree, years of experience, or institutional characteristics.

When examining studies conducted in other countries regarding gender disparities, one survey study reveals gender bias in Latin America in the field of cardiology, with women facing lower remuneration, more barriers, and limited professional development. Gender difference in the field of cardiology in Latin America is mainly caused by labor discrimination, sexual harassment, family-related concerns, and the absence of professional growth opportunities for female cardiologists.^[14] In contrast, our study in Türkiye demonstrates a positive trend in the increasing rate of female authors in cardiovascular surgery publications, reflecting a shift toward greater academic contributions by female surgeons, potentially overcoming similar barriers. In 2018, another study investigated sex differences in top-ranked academic neurology programs by comparing the number of men and women at each faculty rank and their publication records. The study found that men outnumbered women at all faculty ranks, and this discrepancy increased with advancing rank. Men had more publications than women at all ranks, but the gap narrowed with advancing rank. However, other measures of academic productivity did not show significant differences between men and women.^[15]

To advance gender equality, several measures can be implemented. Mentorship programs, the implementation of supportive policies for female surgeons, and awareness-raising campaigns all hold the potential to increase the publication contributions of female surgeons. In addition, conducting thorough and advanced research can lead to a deeper comprehension of gender equality challenges and the formulation of impactful strategies. Regularly monitoring salaries, tracking assignments, start-up packages, and promotions is important in any organization or academic institution. It helps to identify any disparities and track progress among faculty members. In addition, having a system in place to mentor and advise junior faculty members early in their professional development about promotion requirements can greatly support their advancement. These practices create a fair and supportive environment where all faculty members have equal opportuni-

ties to succeed and grow.^[16] The growth in the number of female members within the Turkish Society of Cardiovascular Surgery, with no formally established mentoring programs, may foster a form of mentorship and mutual support, as women in such organizations have the opportunity to connect and collaborate. The positive correlation between the Female Member Ratio and various author roles observed in our study may be indicative of this dynamic. Over the years, the number of women who have entered medical schools has increased, but leadership roles still show a noticeable gender gap. For instance, back in 1980, only about 28.7% of those entering the U.S. medical schools were women. By 2017, this had increased to 50.7%, marking a big shift. As of 2017, women made up 46% of assistant professors, 37% of associate professors, and only 24% of full professors. This trend highlights that, even with a higher presence in the field, women are still underrepresented in top leadership positions compared to men. Based on studies examining the observed increase in gender representation in academic writing, it has been concluded that there has been a rise in both genders over time. This situation is regarded as a positive advancement toward gender equality within the academic community. This increase can be attributed to the growing awareness of gender equality and the easier access women have gained to educational rights over the years, which have contributed to their increased visibility in academic fields. In addition, conducting more research on the continuity and sustainability of this increase in future studies could shed more light on this issue.^[17]

This study highlights the existing disparities in the publication contribution of female surgeons. Greater emphasis should be placed on the academic achievements and publication efforts of female surgeons. Implementing supportive policies and programs for gender equality can enable female surgeons to fully unleash their potential and lead to a more equitable representation in our field.

This study was conducted based solely on articles published in the Turkish Journal of Thoracic and Cardiovascular Surgery. Therefore, the fact that there might be publications submitted to other domestic or international journals should be acknowledged as a limitation of this study. In addition, it should be noted that this study does not directly demonstrate the academic achievements of female cardiovascular surgeons in Türkiye.

Conclusion

Our results reveal the contributions and roles of female surgeons based on publications in the Turkish Journal of Thoracic and Cardiovascular Surgery. The findings of this study will serve as a valuable guide to assess the representation and contributions of female cardiovascular surgeons in the scientific literature in Türkiye. Despite an increase in the number of female surgeons, their contribution to publications has been observed to remain relatively stable and lag behind the overall average. The reasons for the relatively lower contributions of female authors to the scientific literature should be examined, and efforts should be made to encourage their greater involvement in the field of science. Creating a supportive environment for women will benefit future generations of surgeons and also improve patient care.

Disclosures

Ethics Committee Approval: The study was approved by the Koşuyolu High Specialization Training and Research Hospital Ethics Committee (no: 2023/07/688, date: 02/05/2023).

Informed Consent: Informed consent was obtained from all participants.

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