Introduction

As women’s social participation increases, the importance of femininity in leadership is also increasing. According to a study conducted by McKinsey and Company and Leanin.org [1] in 2021, women leaders in 298 professional organizations showed 35.1% female representation. This study aims to define Korean medical leadership, investigate the gender ratio, and determine whether the proportion of women leaders differs in the academic and non-academic worlds.

Background: As female social participation increases, the importance of femininity in leadership also increases. In Korea in 2021, 26.8% of 132,013 doctors and 35.1% of 3,099 medical students were female. However, no research has been conducted on the gender demographics of medical leaders. This study aims to define Korean medical leadership, investigate the gender ratio, and determine whether the proportion of women leaders differs in the academic and non-academic worlds.

Methods: Korean medical leaders were defined as those in director or higher-level positions in organizations affiliated with the Korean Medical Association, 34 organizing societies under the Korean Academy of Medical Sciences (KAMS), and those who held dean and vice dean positions in 40 medical schools. Academic societies comprised KAMS, KAMS-affiliated societies, and medical schools; the rest were classified as non-academic organizations. Data were collected through website, e-mail, or telephonic surveys. Differences in the number of women leaders between academics and non-academics were analyzed using the chi-square test.

Results: In total, 1,863 medical leaders were evaluated, with females accounting for 12.6%. The difference in the ratio of female leaders between academic and non-academic societies was not statistically significant (13.1% academic vs. 11.8% non-academic; \( P=0.445 \)).

Conclusion: The proportion of women leaders in the Korean medical field is relatively low compared with that of female doctors and medical students. The number of women in leadership positions and their effect on medical society will be observed periodically.

Key Words: Medical societies; Leadership; Demography; Woman physicians; Republic of Korea
more than 400 companies in the United States (US) and Canada showed the following advantages: provisioning emotional support to employees, considering the well-being of employees, helping employees save their work-life and retirement, equity, and inclusion efforts. Accordingly, the proportion of women among leaders in various fields such as business and politics continues to be tracked and increased worldwide, including Korea.

In several studies, women physicians proved to manage the targeted values more suitably [2,3], provide preventive management (ex, pap smear) more often [4], and achieve enhanced clinical outcomes [5]. In the field of business, a higher proportion of women leaders was related to better performance. For example, a study found out the top management teams of the S&P 1,500 firms experienced an improvement of performance with women representatives [6], and another research demonstrated the Fortune 500 companies with the highest representation of women in senior management earned significantly higher returns on equity [7]. Considering all these, we can expect the merits of women leaders within the medical community.

According to the latest health statistics in 2021, 35,325 out of 132,013 Korean doctors were women, accounting for 26.8% of all doctors [8]. This is lower than 49% of 37 Organisation for Economic Co-operation and Development (OECD) countries in 2019 [9]. However, the proportion is expected to increase [1] because 35.1% of 3,099 students entering medical schools were women in 2021 [10]. Meanwhile, full-time women professors constituted 25.6% of all medical school professors [10], which was similar to the proportion of all women doctors,
Amid this global trend, we tried to find out whether the proportion of women leaders is appropriate in the Korean medical community, but there is no related data. Accordingly, we conducted a cross-sectional study to obtain the statistics regarding the gender ratio of Korean medical leaders. And also, we tried to find out if there was a difference in the ratio of women leaders in the academic and non-academic world.

Methods

1. Definition of Korean medical leadership

We defined Korean medical leadership as those who occupy a director or higher positions in affiliated organizations within the organizational chart of the Korean Medical Association (KMA), the Korean Academy of Medical Sciences (KAMS), and 34 organizing societies under KAMS, and those who hold the positions of deans and vice deans in 40 medical schools (Figure 1). Academic societies included board members of the KAMS, 34 organizing societies of KAMS, and the Dean’s club of 40 colleges of medicine, and non–academic societies included the KMA boards, 6 councils by occupation of KMA, and 16 provincial branches of KMA. Six councils by occupation of KMA are Korean Medical Practitioners Association, The Korean Society for Public Health and Medicine, Korean Intern Resident Association, Korean Hospital Doctors Association, Korean Association of Public Health Doctors, and Korean Military Medical Association. Among them, the last 2 were excluded because all members were male doctors recruited as soldiers or hired under the Armed Forces Medical Command and military medicine. At first, we planned to exclude the auditors from the research, But we respected the code of each association and included them if it accepted them as a part of the board.

The number and the gender ratio of presidencies of each association have been collected through their website, e-mail, or telephone survey from May 2022 to April 2023. All of the subjects of investigation replied.

2. Statistical analysis

Statistical analysis was performed using SPSS ver. 29.0 for Windows (IBM Corp., Armonk, NY, USA). The data were represented as number and ratio. A difference in academic and non–academic societies was analyzed with a chi-square test, and a two–tailed $P$–value $<0.05$ was considered statistically significant.

Results

This research showed the proportion of women medical leaders is 12.6% out of 1,863 leaders, which is 13.1% among 1,171 academic leaders and 11.8% among 692 non–academic leaders, respectively (Table 1).

Among the academic societies, 36 out of 142 deans
and vice deans (25.4%) were women in 40 medical schools. In boards of the KAMS, 3 women out of 27 total members (11.1%) were taking the roles as directors. The proportions of women leaders were 11.4% (86 out of 845) in 34 organizing societies of KAMS, 19.0% (37 out of 195) in 10 basic medicine societies, and 9.5% (77 out of 807) in 24 clinical medicine societies.

As for non-academic societies, 8 directors out of 54 members (14.8%) in the boards of directors of the KMA, 19 out of 154 board members (12.3%) of 4 occupational council leadership, and 55 out of 484 board members (11.4%) of 16 provincial branches of KMA were women.

The difference between the women ratio of leaders in academic and non-academic areas was not statistically significant (13.1% in academics vs. 11.8% in non-academics, \( P=0.445 \)).

**Discussion**

This study demonstrated the percentage of women medical leaders was 12.6%, 13.1% in academic and 11.8% in non-academic societies. Considering that 26.8% of doctors were women in Korea, this figure is significantly low.

Only 41% of the full-time faculties and 18% of the deans of the medical schools were women in the US in 2018, although 47.9% of medical school graduates were of the same gender [11]. In the United Kingdom, despite the fact that the ratio of women hit 57% among medical students, women who led general practitioners of Clinical Commissioning Groups was 26% in 2015 [12].

Looking into other careers, 57.1% of high school teachers in Korea were women, but only 15.1% of principals were women in 2022 [13]. Also, while women occupied over 30% of judges in 2019, the ratio of women leader (represented by justices of the Supreme Court and presiding judge of high courts) was 5.9% [14].

All these data suggest the low proportion of women leaders is a phenomenon, not unique to the medical profession in Korea, but common regardless of the nationalities or the occupations.

The current ratio of women medical leaders, 12.6%, seems relatively low compared to the ratio of women doctors (26.8%) [8]. But the number of women doctors has been increased since 1970 (14.0%) (Table 2) [15]. If the process of becoming a medical leader usually takes more than 30 years after admission to the medical school, it would have been useful to compare it with the young women doctor ratio of 30 years ago. However, the statistics on the sex ratio of the physicians by age group were insufficient at that time, so we couldn’t perform an appropriate analysis.

Women physicians proved to manage the targeted values more suitably [2,3], provide the preventive management (ex. pap smear) more often [4], and produce improved clinical results [5]. Nevertheless, there is no literature on the positive effects of women leaders in medicine, and moreover, the leadership performance indicators are not clearly decided in this field. The revenue of the company can be the outcome of leadership performance in business. But the economic

<table>
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<tr>
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<th>Total (n)</th>
<th>Women (n, %)</th>
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<tbody>
<tr>
<td>Medical school freshmen</td>
<td>3,099</td>
<td>1,088 (35.1)</td>
</tr>
<tr>
<td>Doctors</td>
<td>132,013</td>
<td>35,325 (26.8)</td>
</tr>
<tr>
<td>Full-time faculty of medical school</td>
<td>10,999</td>
<td>2,817 (25.6)</td>
</tr>
<tr>
<td>Korean medical leadership</td>
<td>1,863</td>
<td>235 (12.6)</td>
</tr>
</tbody>
</table>

The number of students, doctors, and full-time faculty are data from 2021, and the number of Korean medical leadership are data from 2022-2023.
rate of return cannot be an indicator of effective healthcare leadership since health care in Korea is a non-profit concept and the hospitals are based on non-profit foundations.

The indicators that appraise the effectiveness of the medical leadership need to be determined. In case of the hospitals, the degree of occupation satisfaction and the turnover rate of employees can be indicators, and in case of the schools, the leadership can be assessed through school accreditation evaluation, students’ academic achievement, various support systems or the activities to improve organizational culture. The impact factor of papers, the increase in social contribution activities, and the ease of academic activities felt by members can be indicators of the academic societies. We expect to analyze the effectiveness of women medical leadership using the above-mentioned indicators in future studies.

As for the medical fields, the efforts to increase the proportion of women leadership along with interest in it are important for the following reasons. Promoting women leadership will not only be an attempt to correct possible gender discrimination but a way to inject diversity into the medical community, which consists of relatively homogeneous members compared to other groups.

Women physicians differ from their male colleagues in several ways: They usually have to reconcile their career ambitions with motherhood, face higher standards, lack their role models, and confront both conscious and unconscious biases. They also spend more time doing the housework, and this might lead to increased time pressures and fewer opportunities for professional self-care. If the reasons for the lack of women leaders in the medical field are the same as suggested in various literatures, this study can be a starting point of solving these problems and developing a better work-life balance and a more mature culture.

What can be the key to narrowing the gender ratio gap of the medical leadership? To find an answer to this, we investigated other areas besides medicine. First, it is necessary to determine the hiring criteria which are important for the leadership and apply them to the appointment. Setting objective standards and evaluating them can decrease the bias. Secondly, career breaks could be reduced by encouraging shift work.

A successful example is the pharmacy, which showed a large-scale employment of pharmacists enables better work-life balance in the US. In addition to these, we believe the communications between senior women physicians and students are crucial in the medical society. As women members are rapidly increasing, while their role models who are successful in both their careers and family affairs are relatively few, seniors’ advice and sharing of their experiences will help the growth of young doctors and students.

Our study has some limitations. Firstly, this research is just a cross-sectional study investigating the proportion of women leaders in Korean medical society. Since this study does not demonstrate the advantage of women’s medical leadership, in-depth discussion cannot be held. But the ratio 12.6% is relatively low, not enough to reach the critical mass. Therefore, achieving a sufficient proportion should be proceeded before discussing the effectiveness of women medical leaders. Second, since this research was not conducted by a public institution, it was difficult to obtain cooperation from participants, and it took one year to obtain answers. And moreover, the academic societies included only the board member societies of the KAMS, not all 194 academic societies in the KAMS.

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However, this research is the first manuscript defining the leadership position in Korean medical society, and
showing the demography of the leaders, therefore has undeniable value. Further studies conducted at the level of organizations like KMA or KAMS will be needed in Korea. In the US, the Association of American Medical Colleges (AAMC) has been publishing the report, ‘The State of Women in Academic Medicine’ every other year since 2015 [11]. This report encompasses the data such as the sex ratio of medical school applicants, graduates, full-time faculties, professors, and department chairs. Next, although our investigation is the first statistical research on women medical leadership, it was impossible to determine whether the proportion of women leaders had increased or not as this study was cross-sectional and the proportion of women doctors by age of 20 years ago had not been known. If it is to be conducted at regular intervals (ex. every 5 or 10 years), the changes in women leadership ratio according to time can be monitored, compared, and analyzed.

In conclusion, the percentage of women medical leadership is low, both in academic and non-academic societies. Considering its advantages, periodic statistics following this research and the policies to promote women leadership should be suggested. And the studies determining evaluation indicators of medical leadership also should be performed.

**References**


**ORCID**

Surim Hong, https://orcid.org/0009-0001-7131-7916
Yun-Hee Kim, https://orcid.org/0000-0002-7407-6361
Choon Hak Lim, https://orcid.org/0000-0003-0089-7682

**Conflict of Interest**

No potential conflict of interest relevant to this article was reported.

**Peer Reviewers’ Commentary**

이 논문은 한국 의료계의 여러 분야의 리더 중에서 의사의 차지하는 비율을 전체 의사 비율과 인구통계학적 분석법으로 비교하여 우리나라 의료계에서 의사 리더십의 현황을 정리한 연구논문이다. 의료계의 리더 현황 분석을 위한 의료계 구분은 대한의사협회(의협)와 산하단체인 시도의사회 등의 의료계 직능단체, 대한의학회와 산하 학회들의 학술단체, 각 의과대학 보직 교수들로 구분하여 분석하였다. 의협과 같은 직능 단체, 의학회와 같은 학술단체, 의과대학 등 모든 의료계 분야에서 의사의 리더십 비율이 전체 의사 비율에 비해 많이 낮은 것을 확인할 수 있었다. 이 논문의 연구 결과를 토대로 우리나라의 각종 의료계 단체의 리더 중에서 의사의 비율이 낮은 원인과 그 해결 방안에 대한 추가 연구가 필요할 것이다. 과거에 비해 의과대학 학생에서 여학생의 비율이 많이 증가한 상황이므로 전체 의사에서 의사가 차지하는 비율을 점차 증가할 것이다. 따라서 의료계 단체의 리더에서 의사의 비율을 높이기 위한 의료계 내부의 고민이 필요함을 이 논문은 잘 지적하고 있다.

[정리: 편집위원회]