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Gender Disparity in Vietnamese Radiological Societies: a Preliminary Observational Study

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ABSTRACT

Introduction: The advancement of gender equality within radiology, a predominantly male profession, has currently been a significant concern. **Aim:** Therefore, in this original study, we aimed to investigate the gender disparity in Vietnamese radiological societies.

Methods: No ethical committee or institutional review board approval was needed since the data were publicly available. In this retrospective study, we evaluated the faculties of four main radiological societies in Vietnam: Vietnamese society of radiology and nuclear medicine (VSRNM, n = 67); Radiological society of Ho Chi Minh City (RSHCM, n = 25); Vietnamese society of ultrasound in medicine (VSUM, n = 29); and Vietnamese society of interventional radiology (VSIR, n = 18). **Results:** There are significantly fewer women than men in faculties of four main radiological societies (15.1% vs. 84.9%). None of the women served as a professor and leader of any radiological societies. The women with a doctor of philosophy level are relatively low among the four main radiological societies. Also, female interventional and pediatric radiologists are seriously low among four main radiological societies. **Conclusions:** In Vietnamese radiological societies, gender disparities exist, especially about educational degrees and professorship positions. Future studies are essential to address the underlying roots of the gender gap and aid in the implementation of gender diversity programs and policies.

Keywords: Gender disparity, radiology, Vietnamese radiological societies.

1. INTRODUCTION

There has been a global push in the last decade to improve gender diversity in both the public and private workforce sectors. Furthermore, there is ample evidence suggesting that healthcare systems with greater gender parity are better organized and have effective clinical outcomes (1-3). However, gender disparity is still present among medical students, medical doctors, and medical faculty members (4-6). Despite similar prospective participation in academia, women are underrepresented in academic medicine and the percentage of women fortuitously progressing to professor rank is considerably minor (7, 8). Although 50% of physicians who graduated from medical schools are females, fewer females advance to chase academics and several specialties

and subspecialties in which men make up the most significant portion of the resident workforce such as surgery and radiology. Although the number of female radiologists has boosted over the past decade, women, nevertheless, are disproportionately underrepresented in both diagnostic and interventional radiology (9). Part of this resulted from the lack of adequate mentoring in the field, causing inconsistent and slower pace for women to gain a similar level of promotion as men. Fear of exposure to the radiation, particularly during female reproduction age might be one of the strong factors of such phenomena, and contribute to the relative scarcity of academic medicine leaders among women in the radiological field. The described gender disparity also results in the absence of mentors and role models from

	Overall n = 139	VSRNM n = 67	RSHCM n = 25	VSUM n = 29	VSIR n = 18	p
Gender						0.094
Female	21 (15.1%)	7	5	8	1	
Male	118 (84.9%)	60	20	21	17	
Position						0.789
Standing committee	33 (23.7%)	17	7	5	4	
Executive committee	106 (76.3%)	50	18	24	14	
Leadership						0.221
Yes	120 (86.3%)	60	21	22	17	
No	19 (13.7%)	7	4	7	1	
Professorship						0.176
Professor	3 (2.2%)	2	0	0	1	
Associate professor	27 (19.4%)	18	2	3	4	
No	109 (78.4%)	47	23	26	13	
Degree						0.019§
PhD	55 (39.6%)	35	6	4	10	
Master	32 (23.0%)	12	5	11	4	
Specialist II	38 (27.3%)	14	10	11	3	
Specialist I	9 (6.5%)	2	3	3	1	
Others	5 (3.6%)	4	1	0	0	
Hospital						0.739
Public	117 (84.2%)	58	20	25	14	
Private	22 (15.8%)	9	5	4	4	
Subspecialty						< 0.001§
Diagnostic and interventional radiology	19 (13.7%)	7	1	2	9	
Diagnostic radiology	95 (68.4%)	45	21	27	2	
Interventional Radiology	11 (7.9%)	2	2	0	7	
Nuclear medicine	12 (8.6%)	11	1	0	0	
Others	2 (1.4%)	2	0	0	0	
Served objectives						0.731
Adults	129 (92.8%)	61	23	27	18	
Children	8 (5.8%)	4	2	2	0	
Others	2 (1.4%)	2	0	0	0	
Region						< 0.001§
North	60 (43.2%)	38	0	13	9	
Middle	17 (12.2%)	9	0	5	3	
South	62 (44.6%)	20	25	11	6	

Table 1. Comparison of basic characteristics among four main radiological societies.

female faculty members (10). Lack of gender parity in medical faculty and the scientific committee could have a direct adverse impact on women's health training programs, collaborations, and study efforts even affecting the conception of the next generation. Increase of the diversity will enable a more creative, productive, inclusive, and active atmosphere to be generated (1-3). Hence, the knowledge of gender distribution among Vietnamese radiological societies will promote the implementation of appropriate solutions for future development.

2. AIM

Therefore, in this original study, we aimed to investigate the gender disparity in Vietnamese radiological societies.

3. METHODS

No Ethical committee or institutional review board approval was needed since the data were publicly available. In this retrospective study, we evaluated the fac-

ulties of four main radiological societies in Vietnam: Vietnamese society of radiology and nuclear medicine (VSRNM); Radiological society of Ho Chi Minh City (RSHCM); Vietnamese society of ultrasound in medicine (VSUM), and Vietnamese society of interventional radiology (VSIR). The assessed parameters were gender, position, leadership, professorship, degree, subspecialty, served objectives, and region. SPSS version 23 (IBM Corporate Headquarters, Armonk, New York, USA) was used for statistical analyses. Qualitative variables were described using frequency and percentage and compared by the Chi-square test or Fisher's exact test if appropriate. A p-value of less than 0.05 is statistically significant.

4. RESULTS

Basic characteristics among four main Vietnamese radiological societies

Table 1 indicates that there are 139 targets evaluated in this analysis including: VSRNM (n = 67), RSHCM (n = 25), VSUM (n = 29), and VSIR (n = 18). The general ratio

of male to female was 118/21. In detail, the male to female ratios of VSRNM, RSHCM, VSUM, and VSIR were 60/7, 20/5, 21/8, and 17/1, respectively. Representatives of the standing committee accounted for 23.7%. Almost all standing and executive members play a leading role in the department of radiology in public hospitals and their subspecialties were predominantly adult diagnostic radiology. Among the communities, compared to other levels such as master's degree, doctor of philosophy (Ph.D.), Specialist I, and Specialist II, the ratio of the professor was relatively low, while the ratios of Ph.D. and Specialist II were among the highest of all. The members from the North and South were deemed superior to those from the middle region. In detail, other features of four radiological societies were displayed in Table 1. The number of women in VSRNM, RSHCM, VSUM, and VSIR standing committee boards was 0, 1, 2, and 0, respectively. The number of women in VSRNM, RSHCM, VSUM, and VSIR executive committee boards was 7, 4, 6, and 1, respectively.

5. DISCUSSION

In this study, we examined the distribution of gender among the faculty members in four main radiological societies in Vietnam. Generally, there is a full disparity in the figure of male and female faculty members among the four radiological societies. The percentages of women in VSRNM, RSHCM, VSUM, and VSIR were 10.4%, 20%, 27.5%, and 5.6%, respectively. Study findings showed that the plurality of senior faculty members in VSRNM including 2 professors and 17 associate professors were predominantly male (2.9% and 25.3%, respectively). By contrast, there was only one female associate professor in the nuclear medicine field accounting for 1.4%. In RSHCM, VSUM, and VSIR, there are no women with a Ph.D. level, which will lead to no professorship as such. The female percentages of VSRNM, RSHCM, VSUM, and VSIR standing committee boards were 0%, 14.2%, 40%, and 0%, respectively. Astonishingly, there was no woman in both VSRNM and VSIR standing committee boards. Also, the woman percentages of VSRNM, RSHCM, VSUM, and VSIR executive committee boards were 14%, 22.2%, 25%, and 7.1%, respectively. It is an apparent fact that no women served as a leader of any Vietnamese radiological societies. Our results agree with previous reports that studied the allocation of gender across academic ranks and manifested that there are larger gaps in the higher academic positions (11, 12). It is noticeable that the proportions of female interventional and pediatric radiologists are seriously low within the four boards of radiological societies. Some studies also revealed that there was a critical lack of female pediatric and interventional radiologists (13–15). Thus, in pediatric and interventional radiology fields, the gender discrepancy might be worse than any subspecialties. Gender disparities in medicine are widespread and recognized but the extent of radiology is greater than that of many other medical specialties (16, 17). In a previous study, even the ratio of male to female students is approximately equal among

North American medical schools; nevertheless, women with higher academic or leadership level in radiology were relatively low (18). This is fairly indeterminate, with a deficiency of role models for the students in the female academic faculty patterns and female medical students failing to promote the career path (19). Within the radiological culture, there are some possible explanations for the gender gap. First, the duration of radiation exposure, which may lead to pregnant risks, is regarded as a restricted cause for women to pursue the long-term radiological career (18, 20). Second, most women are primarily responsible for rearing children and other family duties like looking after elderly people. To achieve a successful career in academic medicine, the time commitment necessitated to carry out these works is generally incoherent with the often anticipated 70 hours per week (21). Helping female radiologists in covering their multiple responsibilities as women will help minimize gender disparities. Initiatives such as off-site screening programs (telerradiology), portable learning systems, on-site day-care facilities for children and elderly relatives, and even immersive learning are all viable options for many medical centers. Providing additional research funding to organizations that are making progress toward reducing gender disparity in the academic workplace. It is also essential that medical universities and radiological societies should cooperate to consult medical students about the pediatric and interventional radiology fields to help them more confident in the selection of these career paths (22–25). Limitation of the study: This study had several limitations. First, this is a retrospective and qualitative study with small sample size. Second, the data collected from four main radiological societies do not represent all of the current Vietnamese radiologists. There was a small uncontrolled bias due to some members coworking in some radiological subspecialties and co-participating among radiological societies. Thus, further prospective studies with large-scale samples need to be carried out to validate our findings and follow the trend of gender discrepancy among not only Vietnamese radiological societies but also international radiological associations.

6. CONCLUSION

Gender disparity exists in Vietnamese radiological societies, evident overall and within at all educational degrees and professorship positions. We propose that early mentorship may act as a crucial role in generating a diversity of clinical medicine outcomes, resulting in increased direct incentives and groomed career development of the female faculty. Future studies are crucial to tackle the underlying roots of the gender gap and to improve diversity initiatives and policies.

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ributed equally to this article. Nguyen Minh Duc and Huynh Quang Huy gave a substantial contribution to the acquisition, analysis, and data interpretation. Each author had a part in preparing the article for drafting and revising it critically for important intellectual content. Each author gave final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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