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Research Report

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Gender differences in burnout among resident physicians in Japan: a nationwide cross-sectional study

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Abstract

Purpose: **Researchers extensively studied burnout in the medical profession; however, findings on gender differences have remained inconsistent. Understanding well-being disparities between male and female resident physicians is essential for providing appropriate support and fostering a sustainable medical workforce. This study examined gender differences in burnout, depression, job stress, and job satisfaction among Japanese resident physicians in their first and second postgraduate years.**

Method: **The authors conducted a nationwide, cross-sectional study using data from the 2022 General Medicine In-Training Examination (GM-ITE). The analysis included resident physicians who completed the GM-ITE; it assessed burnout, job stress, and job satisfaction using single items from the Mini-Z 2.0 on a five-point Likert scale, and measured depression using the Japanese version of the Patient Health Questionnaire-2. This study categorized gender as male or female and estimated prevalence ratios (PRs) for well-being outcomes using clustered log-linear modified Poisson regression models.**

Results: **The final analysis included 5812 residents, of whom 31.8% were female. Compared with male residents, female residents were younger, less likely to pursue high-workload specialties, and reported fewer working hours, emergency duties, and self-study time. Well-being outcomes revealed that 17.9% experienced burnout, 29.5% reported depressive symptoms, 39.0% experienced high job stress, and 66.6% reported job satisfaction. Multivariable analysis indicated that female residents were significantly less likely to experience burnout (PR = 0.74; 95% CI, 0.65-0.84) and more likely to report job satisfaction (PR = 1.10; 95% CI, 1.05-1.13). Gender differences in depressive symptoms and high job stress were not significant.**

Conclusions: **Female residents in Japan experienced lower burnout rates and higher job satisfaction than their male counterparts. These findings challenged assumptions that female gender universally correlates with poor occupational well-being outcomes in the medical field and underscored the need for gender-sensitive support strategies.**

Keywords postgraduate resident, gender difference, burnout, satisfaction, depression

Burnout is more prevalent among physicians than in the general population, with medical trainees being particularly vulnerable.[1] A 2018 systematic review, based primarily on the United States (U.S.) studies, estimated that the overall prevalence of burnout among residents is 35.7%.[2] Resident physicians are especially at risk due to the multifaceted stress they encounter, including prolonged duty hours, sleep deprivation, dealing with patient illness or death, challenges in interpersonal relationships, and insufficient support systems.[3] As a result, burnout significant impacts occupational well-being, leading to low job satisfaction and increased work-related stress, and may also contribute to mental health problems such as depression, and suicidal ideation.[4,5] It also adversely affects patient care, contributing to compromised safety and decreased patient satisfaction.[6]

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The literature does not provide a unanimous perspective on the role of gender in predicting burnout; however, numerous studies conducted in the U.S. report a higher prevalence of burnout among female doctors, indicating a 20%-60% greater risk than their male counterparts.[7] Moreover, the symptoms of burnout may differ by gender, with emotional exhaustion being more prominent in women, while depersonalization is more frequently observed in men.[8] Studies on resident physicians have found that burnout is equally prevalent among female physicians.[9-12] Beyond burnout, female physicians are more likely to experience depression, sleep disturbances, and fatigue.[13,14] Conversely, some reports have suggested that male residents experience burnout at similar or higher rates.[15,16] These gender differences in burnout may stem from factors such as work-life balance, gender bias, sex discrimination, varying workloads, and levels of autonomy.[7] Discrepancies among studies can be attributed to variations in demographic characteristics and social environments across populations. For instance, although burnout is reported to be more prevalent among women in the U.S., this trend may not be consistent globally.[17-19] A small-scale study in Japan, for instance, found no significant gender differences in burnout among resident physicians, even after adjusting for multiple variables.[19]

Although physician well-being is a global issue, gender inequality in the representation, experience, and treatment of female doctors is particularly pronounced in Japan.[20] In 2022, Japan had a low proportion of female doctors among the Organisation for Economic Co-operation and Development countries, with women comprising only 23% of the physician workforce.[21] This disparity is largely attributed to the entrenched societal norms regarding parenting and family responsibilities, coupled with the long working hours in the medical profession.[20] In response, in April 2024, Japan implemented reforms aimed at addressing the excessive working hours and promoting a more diverse and inclusive workforce.[22] These reforms are especially crucial given the anticipated shortage of doctors in Japan driven by the declining birthrate and aging population, underscoring the urgent need to empower female doctors.

The professional environment and career expectations faced by female doctors in Japan are notably more challenging than in other countries, partly due to enduring gender-role expectations, insufficient structural support for work-life balance, and the underrepresentation of women in leadership positions.[20,23] These factors can exert considerable pressure on the well-being of female medical trainees. Thus, this study investigates gender differences in burnout, depression, job stress, and job satisfaction among Japanese resident physicians. Understanding the well-being of female residents compared to that of their male counterparts may provide valuable insights into the potential impact of work-style reforms on the female medical workforce.

Method

Study setting

This multicenter, cross-sectional study was conducted in Japan between January 17 and January 30, 2023. We surveyed postgraduate residents who had completed the General Medicine In-training Examination (GM-ITE) during the 2022 academic year. We analyzed the 2022 GM-ITE dataset because it was the most recent dataset available at the time of study initiation, reflecting the timing of dataset release and availability. Participants were assured of voluntary participation and response anonymity through consent forms, and all participants provided written informed consent. This study adhered to the STROBE guidelines and received approval from the Ethical Review Committee of the Japan Institute for Advancement of Medical Education Program (JAMEP) under approval number 22-10.

The GM-ITE, an annual assessment developed by the JAMEP, measures general clinical knowledge and its application among postgraduate medical residents in Japan through 80 multiple-choice questions. The exam's objective is to evaluate both individual residents and their training programs, thereby facilitating continuous improvement. Training program units voluntarily apply for participation, and approximately half of the Japan's medical residents participate each year. To our knowledge, the results of the exam are not used for promotion decisions or for selection into specialty training programs.

Participants

We surveyed first-year (PGY-1) and second-year (PGY-2) medical residents in Japan who had taken the GM-ITE during the 2022 academic year. Participants with incomplete responses were excluded from the study.

Following graduation from a six-year medical school curriculum, students in Japan undertake a two-year postgraduate training program administered by the Ministry of Health, Labour and Welfare (MHLW).[24] The program is designed to develop essential clinical skills applicable to all specialties. Residents can apply for training hospitals in either community or university hospitals based on their preference. After completing this foundational program, most residents advance to specialty-focused training.

Measurements

Residents' demographic characteristics (age, postgraduate year), specialty preferences, work environment factors (weekly duty hours, residency hospital type, average number of assigned inpatients at any given time, number of emergency department duties per month, and daily self-study time), and well-being outcomes (burnout, depressive symptoms, job stress, and job satisfaction) were collected through the survey and examination application form, presented in Supplementary Material S1.

Residents were classified as male or female based on the information in the examination application form. GM-ITE applications were submitted by the training hospitals, with the responsible hospital administrator or designated staff member completing the form, which included details on gender (specified as male or female), PGY, and hospital information.

Well-being outcomes were assessed using concise scales due to the limited number of permissible questions in this study. Burnout, stress, and satisfaction were each measured with a single item from the Mini-Z 2.0 survey using a five-point Likert scale.[25] Responses were then categorized as either positive or negative according to predetermined scoring. The Mini-Z is designed to evaluate well-being and workplace stressors among physicians, and the Japanese version has been specifically validated for Japanese physicians.[26] Burnout items demonstrated strong

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correlations with the emotional exhaustion and depersonalization dimensions of the Maslach Burnout Inventory.[27] Depression was evaluated using the Japanese version of the Patient Health Questionnaire-2 (PHQ-2), a straightforward screening tool assessing loss of interest or pleasure and depressed mood over the previous two weeks through dichotomous responses.[28] A positive response to either item suggests a positive depression screening, with the tool exhibiting a sensitivity of 0.76 and a specificity of 0.87 in identifying clinically significant depression.[29]

Residents were presented with a list of potential future specialties, with multiple selections allowed, including internal medicine, surgery, pediatrics, obstetrics and gynecology, psychiatry, dermatology, ophthalmology, otorhinolaryngology, urology, orthopedics, neurosurgery, plastic surgery, emergency medicine, anesthesiology, radiology, rehabilitation medicine, pathology, clinical laboratory, general medicine, others, and undecided. The 19 specialties listed represented those eligible for specialist certification through specialty training after completing the two-year clinical residency program. For this study, specialties such as surgery, obstetrics and gynecology, urology, orthopedics, neurosurgery, emergency medicine, and general medicine were categorized as high-work-demand (HWD) specialties. This classification was based on a previous extensive observational study that analyzed working hours across specialties in Japan.[30]

Statistical analyses

Descriptive statistics, including counts, proportions, means, medians, and interquartile ranges, were used to analyze the datasets. Chi-squared or Fisher's exact tests assessed differences in dichotomous and categorical data. We explored the relationship between gender and well-being outcomes, with prevalence ratios (PRs) estimated using clustered log-linear "modified" Poisson regression models. The association between residents' gender and well-being outcomes was quantified through PRs. The models incorporated hospital variations as clusters via generalized estimating equations and were adjusted for variables such as age, PGY, hospital type, weekly work hours, inpatient load, number of monthly ED shifts, daily self-study duration, and pursuit of HWD specialties. All tests were two-tailed, with statistical significance was set at $P < .05$. All analyses were conducted using STATA software version 18 (STATA Corporation, College Station, TX, USA).

Results

Basic characteristics and gender differences

Initially, 9011 residents across 639 hospitals were enrolled to participate in the GM-ITE in the academic year 2022. However, 3099 were excluded due to nonresponse or lack of consent. An additional 251 were excluded for incomplete responses. Following these exclusions, the analysis included 5812 residents, resulting in a complete response rate of 64.4% (Figure 1). Of these, 31.8% were female, 48.2% were PGY-2, and 83.0% were employed in community hospitals (Table 1).

Female residents differed from their male counterparts in several respects. Specifically, they were younger, more frequently affiliated with university hospitals, and reported shorter working hours, fewer ED duties, and less time allocated for self-study. Gender differences also emerged in specialty preferences: overall, 39.0% of residents intended to pursue HWD specialties, with a higher proportion among males than females (40.6% vs 34.5%). Among the HWD specialties, internal medicine (39.6% vs 35.9%), surgery (12.3% vs 9.3%), orthopedics (10.2% vs 3.2%), neurosurgery (3.8% vs 1.3%), and emergency medicine (6.6% vs 4.0%) were more frequently chosen by male residents, whereas obstetrics and gynecology (3.6% vs 13.6%) were more commonly selected by female residents. Details of these differences are presented in Table 1.

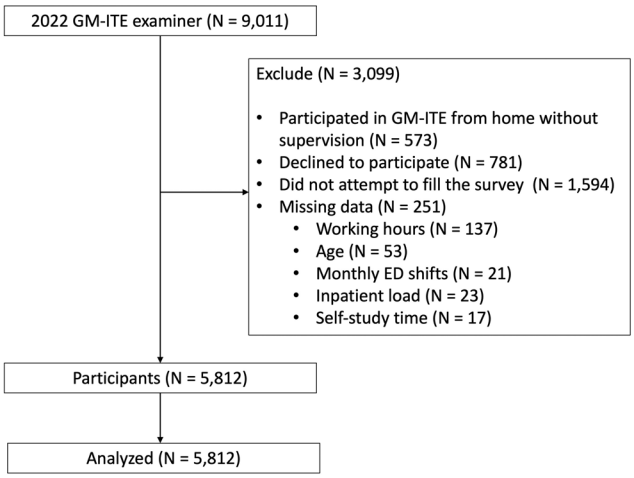

Figure 1 Illustration of the inclusion process for Japanese postgraduate year (PGY) 1 and 2 resident physicians who participated in the 2022 General Medicine In-Training Examination (GM-ITE). Of the original 9011 residents assessed, 3099 were excluded due to various reasons, including unsupervised participation from home ($n = 573$), refusal to participate ($n = 781$), incomplete survey responses ($n = 1594$), and missing data ($n = 251$). The final analytic sample comprised 5812 residents. Abbreviation: ED, emergency department.

Burnout and other well-being outcomes

Among participants, 17.9% experienced burnout, 29.5% reported depressive symptoms, 39.0% reported high job stress, and 66.6% reported job satisfaction. Male residents were more likely to experience burnout (19.5% vs 14.5%) and were less likely to be satisfied with their jobs than female residents (65.1% vs 69.9%).

Table 2 presented the results of clustered log-linear modified Poisson regression model analysis. Female residents were less likely to experience burnout (prevalence ratio [PR] 0.74; 95% CI 0.65-0.84) and more likely to be satisfied with their jobs (PR 1.10; 95% CI 1.05-1.13). These differences remained significant after adjusting for age, postgraduate year, hospital type, HWD specialty preference, weekly duty hours, inpatient load, monthly ED duties, and self-study duration. No significant gender differences were observed for depressive symptoms or job stress.

The factors associated with burnout are presented in Supplementary Material S2. Burnout was more common among older residents, PGY-1 residents, those with longer work hours, higher inpatient loads, and shorter self-study time. Interest in HWD specialties was associated with a lower risk of burnout (PR 0.80; 95%CI, 0.71-0.90).

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Table 1 Baseline characteristics of Japanese resident physicians by gender: data from the 2022 general medicine in-training examination (GM-ITE) survey.

Characteristic	Total (*N* = 5695)	Gender		*P* value[a]
		Male (*N* = 3883)	Female (*N* = 1812)	
Age—no. (%)				<.001
≤25	1334 (23.4%)	836 (21.5%)	498 (27.5%)	
26-29	3752 (65.9%)	2566 (66.1%)	1186 (65.5%)	
≥30	609 (10.7%)	481 (12.4%)	128 (7.1%)	
PGY-2—no. (%)	2743 (48.2%)	1860 (47.9%)	883 (48.7%)	.56
Hospital type—no. (%)				.02
Community	4725 (83.0%)	3259 (83.9%)	1466 (80.9%)	
University	600 (10.5%)	382 (9.8%)	218 (12.0%)	
University-affiliated	370 (6.5%)	242 (6.2%)	128 (7.1%)	
Weekly work hours—no. (%)				<.001
<60 h	2913 (51.2%)	1961 (50.5%)	952 (52.5%)	
≥60-<80 h	2013 (35.3%)	1440 (37.1%)	623 (34.4%)	
≥80 h	769 (13.5%)	532 (13.7%)	237 (13.1%)	
Number of assigned patients—no. (%)				.11
0-4	2216 (38.9%)	1491 (38.4%)	725 (40.0%)	
5-9	2820 (49.5%)	1914 (49.3%)	906 (50.0%)	
10-14	419 (7.4%)	309 (8.0%)	110 (6.1%)	
≥15	121 (2.1%)	86 (2.2%)	35 (1.9%)	
Unknown	119 (2.1%)	83 (2.1%)	36 (2.0%)	
Monthly ED duties—no. (%)				<.001
0	154 (2.7%)	104 (2.7%)	50 (2.8%)	
1 to 2	956 (16.8%)	624 (16.1%)	332 (18.3%)	
3 to 5	4042 (71.0%)	2752 (70.9%)	1290 (71.2%)	
6 or more	524 (9.2%)	393 (10.1%)	131 (7.2%)	
Unknown	19 (0.3%)	10 (0.3%)	9 (0.5%)	
Daily self-study time—no. (%)				.002
None	98 (1.7%)	67 (1.7%)	31 (1.7%)	
0-30 min	2600 (45.7%)	1657 (42.7%)	943 (52.0%)	
31-60 min	2179 (38.3%)	1524 (39.2%)	655 (36.1%)	
61-90 min	635 (11.2%)	477 (12.3%)	158 (8.7%)	
>91 min	183 (3.2%)	158 (4.1%)	25 (1.4%)	
Pursuing future specialities—no. (%)				
HWD specialties[b]	2203 (38.7%)	1577 (40.6%)	626 (34.5%)	<.001
Internal medicine	2187 (38.4%)	1536 (39.6%)	651 (35.9%)	.009
Surgery	647 (11.4%)	478 (12.3%)	169 (9.3%)	.001
Pediatrics	469 (8.2%)	266 (6.9%)	203 (11.2%)	<.001
Orthopedics	454 (8.0%)	396 (10.2%)	58 (3.2%)	<.001
Obstetrics & Gynecology	385 (6.8%)	141 (3.6%)	244 (13.5%)	<.001
Anesthesiology	357 (6.3%)	205 (5.3%)	152 (8.4%)	<.001
Emergency medicine	331 (5.8%)	258 (6.6%)	73 (4.0%)	<.001
General medicine	299 (5.3%)	217 (5.6%)	82 (4.5%)	.09
Psychiatry	299 (5.3%)	234 (6.0%)	65 (3.6%)	<.001
Urology	253 (4.4%)	195 (5.0%)	58 (3.2%)	.002
Radiology	200 (3.5%)	152 (3.9%)	48 (2.6%)	.02
Dermatology	188 (3.3%)	81 (2.1%)	107 (5.9%)	<.001
Ophthalmology	188 (3.3%)	117 (3.0%)	71 (3.9%)	.08
Neurosurgery	172 (3.0%)	148 (3.8%)	24 (1.3%)	<.001
Plastic surgery	167 (2.9%)	95 (2.4%)	72 (4.0%)	.001
Otorhinolaryngology	157 (2.8%)	97 (2.5%)	60 (3.3%)	.08
Rehabilitation medicine	78 (1.4%)	60 (1.5%)	18 (1.0%)	.11
Pathology	64 (1.1%)	41 (1.1%)	23 (1.3%)	.50
Clinical laboratory	8 (0.1%)	6 (0.2%)	2 (0.1%)	>.99
Other	141 (2.5%)	113 (2.9%)	28 (1.5%)	.002
Not decided	402 (7.1%)	236 (6.1%)	166 (9.2%)	<.001

Abbreviations: PGY, postgraduate year; ED, emergency department; HWD, high-work-demand specialties.
[a]Chi-square, or Fisher's exact test, was used to compare dichotomous and categorical variables.
[b]Specialties such as surgery, obstetrics & gynecology, urology, orthopedics, neurosurgery, emergency medicine, and general medicine are categorized as high-work-demand (HWD) specialties.

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Table 2 Association between resident gender and well-being outcomes: findings from the 2022 general medicine in-training examination (GM-ITE) survey in Japan.

		Univariable model			Multivariable model[a]		
Well-being outcome	**Prevalence**	**PR**	**95% CI**	***P* value**	**PR**	**95% CI**	***P* value**
Burnout	Male: 19.5%, Female: 14.5%	0.74	0.65, 0.84	<.001	0.74	0.65, 0.84	<.001
Depressive symptoms	Male: 29.5%, Female: 29.3%	0.99	0.91, 1.08	.90	1.00	0.92, 1.09	.98
High stress	Male: 38.5%, Female: 40.1%	1.04	0.97, 1.16	.25	1.06	0.99, 1.13	.12
Satisfaction	Male: 65.1%, Female: 69.9%	1.07	1.03, 1.11	<.001	1.10	1.05, 1.13	<.001

Abbreviations: PR, prevalence ratio; CI, confidence interval.
[a]Adjusted for age, postgraduate year, hospital type, high-work-demand specialty preference, weekly duty hours, number of assigned inpatients, monthly emergency department duties, and daily self-study time.

Discussion

This cross-sectional study analyzed data from 5812 resident physicians in Japan to investigate gender differences in burnout, depressive symptoms, job satisfaction, and job stress. Female residents reported significantly lower levels of burnout and higher job satisfaction than their male counterparts, while no significant gender differences were observed for depressive symptoms or high job stress. These findings remained consistent even after adjusting for work-related factors, including working hours and number of night shifts.

In this study, being female was not associated with higher burnout levels. Although previous studies have produced conflicting results, many studies—particularly those conducted in the U.S.—have identified female gender as a potential risk factor for burnout.[9-12] Some research has questioned whether gender alone directly causes burnout, instead suggesting that gender-related factors, such as discrimination, bias, work-life balance challenges, and harassment, play a more significant role.[7,31] One prominent form of gender-based workplace discrimination is the "glass ceiling," which limits women's career advancement.[32] Reports have indicated that female physicians in Japan face obstacles in obtaining academic positions.[33,34] A notable example emerged in 2018, when several private universities in Japan were found to have unfairly lowered the exam scores of female applicants to medical schools.[35] These universities justified discrimination by claiming that female physicians were more likely to leave the profession or take career breaks, whereas male physicians were expected to endure longer working hours.

In addition, a study by Takahashi et al.found that over half of Japanese female medical students expected to either work part-time or leave the workforce after having children.[36] The perception that female doctors are treated unequally and that their time in the workplace is determined by marital or childcare status is likely a strong deterrent to women entering the medical field. However, male physicians in Japan are often expected to work long hours and manage intense workloads without complaint. In exchange for higher income and greater promotion opportunities, men are subject to the so-called "glass cellar," which pressure them into taking extended working hours and more demanding tasks.[37] These societal expectations may contribute to poor occupational well-being among male residents.[38] Additionally, mistreatment and harassment contribute to burnout. While sexual harassment is more commonly reported by female residents, a study by Watari et al.found that male residents are more likely to experience workplace mistreatment—such as being condescended or excluded from patient discussions—which may also contribute to their elevated burnout levels.[39] These findings suggest that gender-based expectations in the medical profession—such as assumptions that women should bear domestic responsibilities while men must compensate with heavier professional workloads—can undermine the well-being of both sexes. Mitigating these structural inequalities could help reduce burnout across genders.

Research on gender differences regarding burnout may yield varying results, depending on the measurement scale employed. In this study, burnout was assessed using a single-item measure of burnout (SMB). While the SMB has gained popularity in recent years, it differs in certain aspects from the gold standard Maslach Burnout Inventory (MBI). Specifically, the SMB primarily measures the core component of burnout—emotional exhaustion—but may not accurately reflect depersonalization.[40] Moreover, studies validating the Japanese-version SMB suggest that it may be less sensitive than the MBI in identifying burnout, potentially leading to a lower estimated prevalence.[27] Given that previous research frequently found women to be more prone to emotional exhaustion and men to depersonalization,[8,16] the SMB could underestimate burnout among men when compared to the MBI. In other words, if the MBI had been used in this study, male residents might have exhibited even higher burnout rates than female residents.

Higher job satisfaction among female residents, accompanied by lower levels of burnout, suggests a positive relationship with work. However, a U.S. survey reported lower satisfaction levels among women.[41] This discrepancy between countries may indicate that the conditions in Japan exacerbate occupational well-being issues among male physicians more than their female counterparts. In other words, certain factors may diminish male residents' satisfaction, resulting in relatively higher satisfaction among female residents. High satisfaction can also be interpreted from an alternative perspective. Within the framework of work engagement, high job satisfaction in the absence of corresponding levels of vigor or dedication may reflect a comfortable but less engaged work state—characterized by low strain but also low motivation and involvement.[42] One prior study found that female residents in Japan allocated less time to self-study.[43] Additionally, Nomura et al.found that female residents expressed greater interest in family matters than work and demonstrated lower clinical confidence.[44] Future studies should measure work engagement alongside job satisfaction to provide a more comprehensive understanding of work-related attitudes and perceptions.

This study also explored the career aspirations of Japanese residents for HWD specialties characterized by longer working hours.

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As expected, female residents expressed less interest in HWD specialties than their male counterparts. However, reports indicate that the number of female physicians entering fields such as surgery and urology in Japan has increased slightly over the past 20-30 years, with gynecology showing a particularly sharp rise (from 15.4% to 66.2%).[45,46] Although historical data remain limited, it is plausible that the number of women pursuing careers in HWD specialties is increasing. Interestingly, this study found that interest in HWD specialties was associated with lower burnout levels. This finding contrasts with prior research reporting higher rates of burnout in fields such as surgery, obstetrics, and gynecology.[2] One possible explanation is reverse causality: residents experiencing burnout may choose to avoid high-intensity specialties. A U.S. study by Enoch et al.found that burnout among medical students was associated with selecting specialties perceived to offer a controllable lifestyle, suggesting that well-being may influence career choice even before specialty training begins.[47] Together, these findings imply that burnout may not only stem from specialty-specific stressors but may also influence career decision-making in complex, bidirectional ways. To elucidate the causal relationship between burnout and specialty preference, prospective longitudinal studies are warranted.

This study has several limitations. First, well-being outcomes were assessed using brief scales that did not provide formal diagnoses of burnout or depression. These simplified measures were chosen to minimize the burden on resident physicians, as the study was conducted after their examinations. Consequently, these findings may not fully capture the actual levels of burnout or depression. Second, no data were collected on participants' pre-existing mental health conditions or personality traits. This is significant because previous mental health issues during medical school have been shown to predict depression and burnout during residency training.[48] Third, participants' gender information was obtained from the examination application forms, which may have been completed by a hospital administrator or a designated staff member. This approach may result in misclassification, particularly for transgender or nonbinary individuals. Moreover, the binary gender options on the form do not represent the full spectrum of gender identities. In Japan, a large-scale survey has estimated that 0.7% of the population self-identify as transgender.[49] Fourth, only half of residents participated in the GM-ITE, raising the possibility of selection bias. Participation in the GM-ITE is voluntary in training hospitals that prioritize education, and residents with mood or anxiety disorders may avoid such hospitals in favor of those that emphasize work-life balance over educational programs. Residents with poor mental health may also have opted out of the exam.

In conclusion, male residents in Japan demonstrated poorer occupational well-being—manifested as higher burnout and lower job satisfaction—than female residents. Therefore, this study suggests that being female is not an independent risk factor for poor well-being among residents. Rather, gender differences may stem from how gender-related factors, such as bias, discrimination, work-life balance, and harassment, affect men and women differently within the cultural context. Given these complexities, support strategies should account for the diverse ways in which gender-related factors shape occupational well-being. While this observational study cannot directly recommend specific interventions, its findings highlight the importance of addressing gender inequality and the unjust treatment associated with gender-related factors when considering approaches to promote resident well-being.

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Supplementary material

Supplementary material is available at *Academic Medicine* online.

Conflicts of interest

Y.N. received an honorarium from the Japan Organization of Advancing Medical Education (JAMEP) for serving as the project manager of the General Medicine In-training Examination (GM-ITE). Y.T. served as the JAMEP director. H.K. received an honorarium from the JAMEP for serving as a speaker at JAMEP lectures. Y.N., Y.T., and H.K. were not involved in the data analysis for this study.

Funding

None declared.

Ethical approval

This study was approved by the Ethical Review Committee of the Japan Institute for Advancement of Medical Education Program (JAMEP) (Approval Number: 22-10; Date: January 6, 2023). Informed consent was obtained from all participants prior to data collection.

Disclaimers

None declared.

Previous presentations

None declared.

Data availability

All authors had full access to the study data. Dr. Nagasaki performed all data analyses. Due to the nature of this research, participants did not consent to public data sharing; therefore, supporting data are not available.

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