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ORIGINAL ARTICLE

Association between mentorship and mental health among junior residents: A nationwide cross-sectional study in Japan

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Abstract

Background: Mentorship is a dynamic, reciprocal relationship in which an advanced careerist (mentor) encourages the growth of a novice (mentee). Mentorship may protect the mental health of residents at risk for depression and burnout, yet despite its frequent use and known benefits, limited reports exist regarding the prevalence and mental effects of mentorship on residents in Japan.

Methods: We conducted a cross-sectional study involving postgraduate year 1 and 2 (PGY-1 and PGY-2) residents in Japan who took the General Medicine In-Training Examination (GM-ITE) at the end of the 2021 academic year. Data on mentorship were collected using surveys administered immediately following GM-ITE completion. The primary outcome was the Patient Health Questionaire-2 (PHQ-2), which consisted depressed mood and loss of interest. A positive response for either item indicated PHQ-2 positive. We examined associations between self-reported mentorship and PHQ-2 by multi-level analysis.

Results: Of 4929 residents, 3266 (66.3%) residents reported having at least one mentor. Compared to residents without any mentor, those with a mentor were associated with a lower likelihood of a positive PHQ-2 response (adjusted odds ratio [aOR] 0.75; 95% confidence interval [95% CI] 0.65–0.86). Mentor characteristic significantly associated with negative PHQ-2 response was a formal mentor (aOR; 0.68; 95% CI 0.55–0.84).

Conclusions: A mentor-based support system was positively associated with residents' mental health. Further research is needed to determine the quality of mentorship during clinical residency in Japan.

KEYWORDS
clinical residency, formal mentor, Japan, mental health, mentorship

1 | INTRODUCTION

Mentorship is a dynamic, reciprocal relationship in which an advanced careerist (mentor) encourages the growth of a novice (mentee).[1] The term 'mentor' is derived from Mentor the Wise in Greek mythology who served as a teacher, coach, and supporter of Odysseus's son while Odysseus fought in the Trojan War.[2] Mentoring first gained attention in the business world through a 1979 Harvard Business Review article titled 'Much ado about mentors'.[3] Then, around 1990, interest in mentoring within the medical field began to increase.[4,5] Among physicians, a typical mentoring relationship occurs between resident physicians and their supervising attending physicians, through which the former develop expertise across multiple facets of healthcare in their journey as medical professionals.

Mentorship has been reported to protect residents' mental health in Western countries.[6,7] Residents are a group of individuals within healthcare that are especially at risk for depression and burnout.[8–10] One systematic review found that residents received psychosocial support through peer mentoring.[6] A small randomized controlled trial revealed that peer mentorship among residents in Australia was associated with their psychosocial well-being.[7] However, there is a dearth of research containing large enough sample sizes to determine associations between mentorship and residents' mental health.

Limited reports exist regarding mentorship among residents in Japan. The Japanese medical training program consists of a two-year period of postgraduate medical education (PGME), and postgraduate first-year (PGY-1) and second-year (PGY-2) trainees are called junior residents.[11,12] During these 2 years, junior residents acquire basic medical skills to diagnose and treat common diseases. A questionnaire study on mentorship among Japanese junior residents in a single university hospital revealed that most were satisfied with their assigned mentors.[13] However, the actual mentorship status, such as the prevalence of mentoring relationships and mentor characteristics, in PGME in Japan is unknown. We speculate that junior residents with at least one mentor are more likely to have better mental health than those without any mentor. Clarifying the association between mentorship and residents' mental health will inform residents and hospital directors that mentorship is effective in their training and will protect them from depression and burnout. Given the importance of mentorship on the residency experience, this nationwide study aimed to clarify how mentorship is implemented among Japanese residents and examine the associations with their mental health.

2 | METHODS

2.1 | Study design and study population

We conducted a nationwide, multicenter, cross-sectional study in Japan. We investigated the association between having one or more mentors and junior residents' mental health. We included PGY-1 and PGY-2 residents working in teaching hospitals throughout Japan who took the 2021 General Medicine In-Training Examination (GM-ITE) and who answered the self-reported clinical training environment survey immediately after GM-ITE completion. Junior residents with missing data from the survey were excluded from the analysis. We also excluded junior residents who declined to participate in the study.

2.2 | General medicine in-training examination

The general medicine in-training examination (GM-ITE) is a computer-based test consisting of 80 multiple-choice questions. It covers four areas of basic clinical knowledge, including 'medical interview and professionalism,' 'symptomatology and clinical reasoning,' 'physical examination and clinical procedures,' and 'disease knowledge'.[14,15] These areas correlate with the PGME objectives as established by the Japanese Ministry of Health, Labor and Welfare. The Japan Institute for Advancement of Medical Education Program (JAMEP), a nonprofit organization, developed the GM-ITE as an objective evaluation of residents' basic clinical knowledge. Residents take the GM-ITE voluntarily, and participation is often based on a hospital training site. Since the GM-ITE was introduced in 2012, the number of participants has increased each year, and a total of 7681 out of 18,302 possible residents took the examination in 2021.[16]

2.3 | Exposure: Mentorship

We defined mentorship as a dynamic, reciprocal relationship in which an advanced-career incumbent (mentor) encourages the growth of both them and a beginner (mentee). We collected the data on mentorship through the self-reported clinical training environment survey soon after GM-ITE completion.

We asked residents the following questions about their mentorship experiences on the survey: (1) the number of total mentors; (2) the number of formal mentors; (3) the mentor types; and (4) the academic position of the most trusted and valued mentors. We used four mentor types that have previously been described in the literature.[17] Residents were able to answer regarding several mentor types. Traditional mentors guide mentees toward success and growth through frequent hour-long meetings. Coaches provide mentees with expert advice in a specific area. Sponsors are people committed to the development of projects or individuals; they use their influence to recommend mentees for work opportunities and projects. Finally, connectors are excellent networkers with extensive social and political capital from years of academic success. They build the relationship between mentors and mentees. The mentor academic position was classified as PGY-2, PGY-3 to PGY-5, fellow (PGY-6 and above), and director or professor.

2.4 | Outcomes

The primary outcome was junior residents' mental health. We adopted the Patient Health Questionaire-2 (PHQ-2) score as the

primary outcome and collected it through the self-reported clinical training environment survey soon after GM-ITE completion. PHQ-2 was developed based on the Patient Health Questionaire-9 to reduce the time spent in the primary care setting; only depressed mood and loss of interest were extracted from the PHQ-9 questionnaire items.[18] Respondents answered yes or no to each item. A positive response for either item indicated possible major depression. We selected the shorter PHQ-2 screening tool to reduce psychological burden and fatigue for residents in the immediate period following the completion of the GM-ITE.

2.5 | Data collection

We collected covariates, through the self-reported clinical training environment survey soon after GM-ITE completion. We obtained individual resident variables: sex, PGY 1 or 2, number of emergency department duties per month, average number of inpatients under their care,[19] and duty hours worked per week.[20] Hospital variables such as hospital type,[21] location,[22] and number of beds[23] were collected from the Residency Electronic Information System website[24] and the Foundation for the Promotion of Medical Training website.[25] We divided hospital type into three categories: university hospital, university-affiliated hospital, and community hospital. We also divided hospital locations into two categories. Urban areas were defined as the 23 wards in Tokyo and 20 cities designated by the Ministry of Internal Affairs. Rural areas contained those other than urban.

2.6 | Statistical analyses

We summarized the resident- and hospital-level variables according to the presence or absence of mentors. Frequencies and percentages were calculated for dichotomous variables and ordered categorical variables. The primary purpose of our analysis was to assess the association between PHQ-2 responses and mentorship. We used mixed logistic regression analyses in which we assumed that constant terms differed by the hospital and that the odds ratio (OR) for mentors varied by the hospital. Therefore, we set random effects for both the hospital and the mentor. The secondary purpose was to determine the association between PHQ-2 and the mentor characteristics. For this purpose, we fitted the same analysis to estimate OR by including mentor characteristics and the same variables in the primary analysis. Statistical significance was set at $p<0.05$, and all reported p values were two-sided. All the analyses were performed using Stata/SE version 15 (Stata Corp. College Station, TX, USA).

2.7 | Ethics

This study was conducted under the Japanese Ethical Guidelines for Medical and Health Research involving Human Subjects, and the protocol was approved by the Ethics Review Board of the JAMEP (22-7). All participants provided written consent for the study.

3 | RESULTS

A total of 4929 out of 7681 residents who participated in the 2021 GM-ITE were included in this study (Figure 1). We excluded the following residents: declined participation in this study ($n=2102$), incomplete answer for mentorship questions ($n=520$), and incomplete answer for clinical training environment questions ($n=130$).

Characteristics of included residents are shown in Table 1. A total of 3266 out of 4929 residents (66.3%) had at least one mentor. Among all residents with an identified mentor, 30.1% were women. Compared to those without mentors, residents with mentors had more emergency department duties. Mentor characteristics are shown in the Tables S1–S4. The most common mentor type identified was traditional (48.5%), followed by coaches (40.0%), connectors (16.3%), and sponsors (11.7%). A total of 2742 of the 3266 (84.0%) residents with mentors had a formal mentor. The frequencies of mentor academic positions were as follows: fellow 48.2%, PGY-3 to PGY-5 22.9%, PGY-2 15.9%, and director or professor 13.0%.

In total, 738 residents with mentors (22.6%) and 461 residents without mentors (27.7%) responded positively to at least one PHQ-2 item. Having at least one mentor was significantly associated with a positive PHQ-2 response in the univariate analysis (unadjusted OR 0.76; 95% CI 0.66–0.87) and in the multivariate analysis (aOR 0.75;

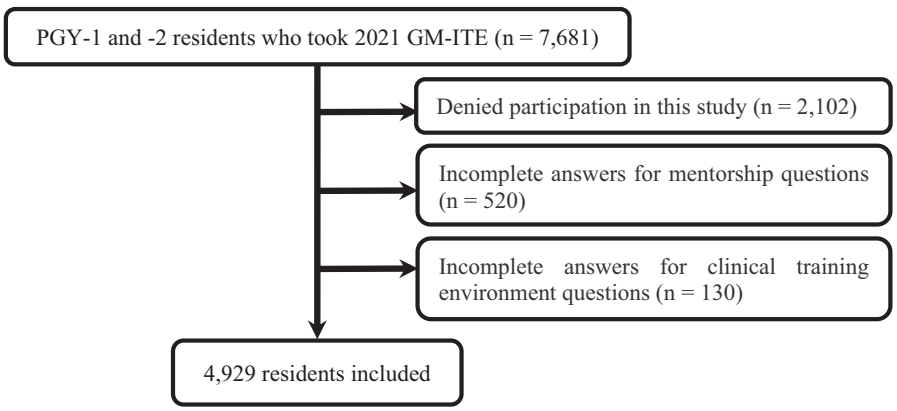

FIGURE 1 Flow diagram of the study patients.

TABLE 1 Residents' characteristics categorized by mentors.

	All (*N* = 4929)	With mentor (*N* = 3266)	Without mentor (*N* = 1663)
Hospital-level variables			
Hospital types (%)			
University	554 (11.2)	334 (10.2)	220 (13.2)
University branch	361 (7.3)	217 (6.6)	144 (8.7)
Community	4047 (81.5)	2715 (83.1)	1299 (78.1)
Located urban area (%)			
Urban	1529 (31.0)	992 (30.4)	537 (32.3)
Rural	3400 (69.0)	2274 (69.6)	1126 (67.7)
Number of beds (%)			
1–299	397 (8.1)	284 (8.7)	113 (6.8)
300–599	2735 (55.5)	1768 (54.1)	967 (58.2)
600–899	1259 (25.5)	890 (27.3)	369 (22.2)
900 or more	538 (10.9)	324 (9.9)	214 (12.9)
Resident-level variables			
Sex (%)			
Men	3391 (68.8)	2283 (69.9)	1108 (66.6)
Women	1538 (31.2)	983 (30.1)	555 (33.4)
PGY (%)			
PGY-1	2474 (50.2)	1686 (51.6)	788 (47.4)
PGY-2	2455 (49.8)	1580 (48.4)	875 (52.6)
ED duty per month (%)			
None	178 (3.6)	102 (3.1)	76 (4.6)
1–2	770 (15.6)	468 (14.3)	302 (18.2)
3–5	3516 (71.3)	2376 (72.8)	1140 (68.6)
6 or more	440 (8.9)	304 (9.3)	136 (8.2)
Unknown	25 (0.5)	16 (0.5)	9 (0.5)
Number of inpatients in charge (%)			
0–4	1489 (30.2)	986 (30.2)	503 (30.3)
5–9	2730 (55.4)	1854 (56.8)	876 (52.7)
10–14	439 (8.9)	268 (8.2)	171 (10.3)
15 or more	137 (2.8)	85 (2.6)	52 (3.1)
Unknown	134 (2.7)	73 (2.2)	61 (3.7)
Duty hour per week (%)			
59 or less	1950 (39.6)	1302 (39.9)	648 (39.0)
60–79	1791 (36.3)	1158 (35.5)	633 (38.1)
80 or more	1188 (24.1)	806 (24.7)	382 (23.0)

Note: Data are presented as frequency (%).

Abbreviations: ED, emergency department; PGY, postgraduate year.

95% CI, 0.65–0.86). In addition, resident training in hospitals located in rural areas (aOR 1.18; 95% CI 1.01–1.39), PGY-2 status (aOR 0.73; 95% CI 0.64–0.83), caring for an average of 15 or more inpatients (aOR 1.73; 95% CI 1.18–2.55), and working 80 or more duty hours per week (aOR 1.29; 95% CI 1.09–1.55) were associated with a positive PHQ-2 response (Table 2). The mentor characteristic found to be associated with a positive PHQ-2 response was formal mentor (aOR 0.68; 95% CI 0.55–0.84) (Table 3).

4 | DISCUSSION

Our nationwide, cross-sectional study of nearly 5000 residents is the largest study to identify the self-reported prevalence of mentorship and its association with mental health among resident physicians in Japan. We found that two-thirds of the PGY-1 and PGY-2 residents considered in this study had at least one mentor. Among PGY-1 and PGY-2 residents, having a mentor was identified as a

TABLE 2 Association between mentorship and PHQ-2.

Variables	Unadjusted OR (95% CI)	*p*	Adjusted OR (95% CI)	*p*
Mentorship				
No	Reference		Reference	
Yes	0.76 (0.66–0.87)	<0.001	0.75 (0.65–0.86)	<0.001
Hospital-level variables				
Hospital types				
University	Reference		Reference	
University branch	0.88 (0.61–1.27)	0.487	0.76 (0.51–1.14)	0.192
Community	0.90 (0.71–1.14)	0.373	0.79 (0.58–1.07)	0.131
Located urban area (%)				
Urban	Reference		Reference	
Rural	1.21 (1.04–1.42)	0.015	1.18 (1.01–1.39)	0.040
Number of beds				
1–299	Reference			
300–599	0.95 (0.74–1.23)	0.708	0.90 (0.70–1.17)	0.430
600–899	0.89 (0.68–1.17)	0.410	0.84 (0.63–1.11)	0.218
900 or more	0.88 (0.63–1.23)	0.442	0.73 (0.50–1.08)	0.115
Resident-level variables				
Gender				
Men	Reference		Reference	
Women	1.03 (0.89–1.19)	0.679	1.05 (0.91–1.21)	0.506
PGY				
PGY-1	Reference		Reference	
PGY-2	0.74 (0.65–0.84)	<0.001	0.73 (0.64–0.83)	<0.001
ED duty per month				
None	Reference		Reference	
1–2	0.73 (0.50–1.07)	0.108	0.80 (0.54–1.18)	0.257
3–5	0.74 (0.52–1.05)	0.093	0.82 (0.56–1.20)	0.302
6 or more	1.06 (0.71–1.58)	0.793	1.08 (0.71–1.68)	0.700
Unknown	1.69 (0.70–4.08)	0.241	1.65 (0.68–4.02)	0.264
Average number of inpatients in charge				
0–4	Reference		Reference	
5–9	0.85 (0.73–0.99)	0.035	0.89 (0.76–1.03)	0.124
10–14	1.02 (0.79–1.31)	0.884	1.05 (0.81–1.36)	0.724
15 or more	1.91 (1.32–2.78)	0.001	1.73 (1.18–2.55)	0.005
Unknown	1.06 (0.71–1.59)	0.766	1.03 (0.69–1.56)	0.875
Duty hour per week				
59 or less	Reference		Reference	
60–79	1.10 (0.94–1.29)	0.217	1.10 (0.93–1.28)	0.263
80 or more	1.33 (1.12–1.58)	0.001	1.29 (1.09–1.55)	0.004

Note: Mixed logistic regression analysis was performed to estimate odds ratios with adjustments for hospital type, hospital location, number of hospital beds, residents' sex, residents' postgraduate year, residents' emergency department duty per month, residents' average number of inpatients in charge, and residents' duty hours per week. Random effect was set for both the hospital and the mentor.

Abbreviations: CI, confidence interval; ED, emergency department; OR, odds ratio; PGY, postgraduate year; PHQ-2, Patient Health Questionnaire-2.

TABLE 3 Explanatory analysis between mentor characteristics and PHQ-2.

Variables	Unadjusted OR (95% CI)	*p*	Adjusted OR (95% CI)	*p*
Mentor characteristics				
The number of mentors	0.97 (0.94–1.01)	0.127	1.01 (0.97–1.06)	0.518
Formal mentor	0.69 (0.60–0.79)	<0.001	0.68 (0.55–0.84)	<0.001
Traditional type	0.87 (0.75–1.00)	0.048	0.99 (0.74–1.58)	0.957
Coach type	0.92 (0.79–1.07)	0.297	1.05 (0.62–1.30)	0.712
Connector type	0.91 (0.73–1.13)	0.389	0.99 (0.72–1.43)	0.944
Sponsor type	0.78 (0.60–1.01)	0.065	0.83 (0.72–1.60)	0.181
The academic position of the most trusted and valued mentors				
No mentor	Reference		Reference	
PGY-2	0.90 (0.72–1.13)	0.370	1.08 (0.74–1.58)	0.678
PGY-3 to 5	0.69 (0.56–0.85)	<0.001	0.90 (0.62–1.30)	0.563
Fellow	0.75 (0.63–0.88)	<0.001	1.01 (0.72–1.43)	0.941
Director or professor	0.76 (0.59–0.98)	0.033	1.07 (0.72–1.60)	0.734
Hospital-level variables				
Hospital types				
University	Reference		Reference	
University branch	0.88 (0.61–1.27)	0.487	0.75 (0.50–1.12)	0.160
Community	0.90 (0.71–1.14)	0.373	0.78 (0.57–1.07)	0.120
Located urban area				
Urban	Reference		Reference	
Rural	1.21 (1.04–1.42)	0.015	1.18 (1.00–1.39)	0.044
Number of beds				
1–299	Reference		Reference	
300–599	0.95 (0.74–1.23)	0.708	0.91 (0.70–1.17)	0.453
600–899	0.89 (0.68–1.17)	0.410	0.85 (0.64–1.71)	0.261
900 or more	0.88 (0.63–1.23)	0.442	0.73 (0.50–1.08)	0.114
Resident-level variables				
Sex				
Men	Reference		Reference	
Women	1.03 (0.89–1.19)	0.679	1.05 (0.91–1.22)	0.499
PGY				
PGY-1	Reference		Reference	
PGY-2	0.74 (0.65–0.84)	<0.001	0.73 (0.64–0.84)	<0.001
ED duty per month				
None	Reference		Reference	
1–2	0.73 (0.50–1.07)	0.108	0.80 (0.55–1.18)	0.268
3–5	0.74 (0.52–1.05)	0.093	0.83 (0.56–1.20)	0.319
6 or more	1.06 (0.71–1.58)	0.793	1.10 (0.71–1.70)	0.676
Unknown	1.69 (0.70–4.08)	0.241	1.62 (0.66–3.94)	0.290
Average number of inpatients in charge				
0–4	Reference		Reference	
5–9	0.85 (0.73–0.99)	0.035	0.89 (0.76–1.04)	0.139
10–14	1.02 (0.79–1.31)	0.884	1.05 (0.81–1.37)	0.692
15 or more	1.91 (1.32–2.78)	0.001	1.73 (1.17–2.54)	0.006
Unknown	1.06 (0.71–1.59)	0.766	1.02 (0.68–1.55)	0.909

(Continues)

TABLE 3 (Continued)

Variables	Unadjusted OR (95% CI)	*p*	Adjusted OR (95% CI)	*p*
Duty hour per week				
59 or less	Reference		Reference	
60–79	1.10 (0.94–1.29)	0.217	1.09 (0.93–1.28)	0.268
80 or more	1.33 (1.12–1.58)	0.001	1.28 (1.07–1.54)	0.006

Note: Mixed logistic regression analysis was performed to estimate odds ratios with adjustments for hospital type, hospital location, number of hospital beds, residents' sex, residents' postgraduate year, residents' emergency department duty per month, residents' average number of inpatients in charge, and residents' duty hours per week. Random effect was set for both the hospital and the mentor.

Abbreviations: CI, confidence interval; ED, emergency department; OR, odds ratio; PGY, postgraduate year; PHQ-2, Patient Health Questionnaire-2.

protective factor for mental health as assessed by the lower likelihood of a positive result on the PHQ-2 instrument. Contrastingly, residents were more likely to have a positive PHQ-2 score if they had a PGY-1 status, worked in a rural area, cared for higher numbers of inpatients, and worked more hours per week. Mentor formality was also protective toward residents' mental health.

This study is the first to report mentorship status among junior residents in Japan. The 66.3% self-reported prevalence of mentorship is similar to findings from a previous systematic review which reported 50%–84% mentorship.[26] This is also the first report describing the frequency of mentor archetypes as they were described by Chopra and colleagues.[17] In our study, 39.7% of junior residents with at least one mentor had a traditional mentor, which might be because junior residents were in the early stages of their careers. Another possible explanation was apprenticeship. The apprentice system is a means of passing on skills from master to apprentice among artisans, and physicians in Japan were historically among the groups that employed this style of development.[27] Among the four mentor archetypes, the traditional mentor has characteristics reminiscent of the apprenticeship system, and as such, our results might reflect this aspect unique to Japanese culture.

This study found that mentorship was associated with residents' mental health. Previous studies including a randomized controlled trial[7] and a systematic review[6] reported that peer mentoring provides residents with needed psychosocial support. Similar to our study, a senior physician's support has been shown to be associated with a lower risk for a junior resident's depressive episode in Japan.[28] Furthermore, a person or place for residents to freely express their concerns has also been noted as a stress-relieving factor.[29] Mentors may be able to ease their mentees' stress through sharing their own life experiences or lending a supportive ear,[30] and the results of this study reflected these findings.

This study also found that mentor formality is protectively associated with residents' mental health. Formal mentoring is feasible,[31] and the PGME guidelines also recommend mentoring programs.[32] These results support this recommendation. In a previous study, questions about daily work and interpersonal relationships were among the most common topics discussed with mentors[13]; this may be reflected in these results.

Our study must be interpreted in the context of several limitations. First, it involved a relatively small sample size compared to the possible number of participants. Only 4929 of the 18,302 total PGY-1 and PGY-2 residents in Japan participated in this study.[16] Additionally, program directors were responsible for the decision regarding whether to participate in the GM-ITE. Therefore, a sampling bias might have existed in which a disproportionately higher number of highly motivated residents may have participated in the GM-ITE and thus participated in our study. Nonetheless, a notable strength of our study is the large overall sample size. Second, the documentation accuracy of mentorship as reported by participants was unable to be discerned. In our study, 520 residents were excluded for inappropriate answers to our questionnaire. We collected the data on mentorship through the self-reported clinical training environment survey soon after GM-ITE completion. To minimize survey fatigue and psychological burden, we asked residents as few questions as possible since they had just completed a taxing standardized examination; thus, our data are likely not as comprehensive as they could have been had we employed more robust survey techniques. Third, the quality of residents' mentorship was not assessed. We did not ask residents about specifics regarding structures, techniques, and content of mentoring meetings and elements of the mentor-mentee relationship. Fourth, we did not precisely evaluate participants' mental health via the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5).[33] The PHQ-2 is just a screening tool to detect depression. However, the DSM-5 could not be performed on all participants in this study and could cause them much fatigue. Finally, we did not collect participants' previous history of depression or anxiety, which could be possible confounding factors. This information was too sensitive to collect through the self-reported clinical training environment survey.

Our results have several implications for residents and hospital directors. Residents may be encouraged and empowered to seek out meaningful mentoring relationships during their training. In this study, one-third of residents had no mentor, and female residents were less likely to have established mentors, even if they regarded mentorship as valuable for their career success.[34] Perhaps a formal mentoring program, if established, might place special emphasis on ensuring mentorship for those groups of residents, like women, who are less likely to have a mentor. The finding that mentorship was a protective factor for resident mental health is important, particularly given the threat of depression and burnout in the resident population.[8,9] Indeed, mentorship may be used as one potential contributor to both professional development but also to mental health and

overall well-being. Considering that possession of formal mentors was associated with residents' mental health, hospital directors in Japan and other countries should consider widespread endorsement of mentorships in their respective institutes.

In conclusion, we found that the self-reported prevalence of an established mentoring relationship among PGY-1 and PGY-2 residents in Japan was 66.3% and that having a mentor was a positive protective factor associated with their mental health. Further research is needed to determine the quality of mentorship in PGME in Japan.

AUTHOR CONTRIBUTIONS

Kohta Katayama: conceptualization, methodology, formal analysis, and writing—original draft. **Yuji Nishizaki:** conceptualization, methodology, formal analysis, and writing—review and editing. **Toshihiko Takada:** formal analysis and writing—review and editing. **Koshi Kataoka:** formal analysis. **Nathan Houchens:** writing—review and editing. **Takashi Watari:** conceptualization, methodology, and writing—review and editing. **Yasuharu Tokuda:** conceptualization, methodology, and writing—review and editing. **Yoshiyuki Ohira:** conceptualization, methodology, writing—review and editing. All authors read and approved the manuscript.

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CONFLICT OF INTEREST STATEMENT

Dr. Yuji Nishizaki received an honorarium from the JAMEP as the General Medicine In-Training Examination (GM-ITE) project manager. Dr. Yuji Nishizaki and Dr Takashi Watari are Editorial Board members of Journal of General and Family Medicine and co-authors of this article. To minimize bias, he was excluded from all editorial decision-making related to the acceptance of this article for publication. Dr. Yasuharu Tokuda is the JAMEP director, and he received an honorarium from JAMEP as a speaker of the JAMEP lecture.

DATA AVAILABILITY STATEMENT

Junior residents who joined in this study did not give consent for their data to be shared publicly, so supporting data is not available. The corresponding author will respond to inquiries on the data analyses in this study.

ETHICS STATEMENT

This study was conducted under the Japanese Ethical Guidelines for Medical and Health Research involving Human Subjects, and the protocol was approved by the Ethics Review Board of the JAMEP (22-7). All participants provided written consent for the study.

PATIENT CONSENT STATEMENT

We obtained informed consent to participate in this study from all participants before the survey. The research consent document stated that the questionnaire results would be anonymized.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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