

[ORIGINAL ARTICLE]

Prevalence of Burnout among Internal Medicine and Primary Care Physicians before and during the COVID-19 Pandemic in Japan

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Abstract:

Objective To evaluate the change in the prevalence of burnout during the COVID-19 pandemic among internists and primary care physicians in Japan, and to identify factors associated with the exacerbation of burnout among these populations during this period.

Methods This was a cross-sectional study based on two web-based surveys conducted in January 2020 (before the declaration of the COVID-19 pandemic) and June 2020 (during the pandemic). The participants were internists and primary care physicians of the Japanese Chapter of the American College of Physicians. The main outcome was the change in the prevalence of burnout between before and during the “first wave” of the pandemic. We also examined factors associated with the exacerbation of burnout during this period.

Results Among the 283 respondents in the first survey and 322 in the second survey, 98 (34.6%) and 111 (34.5%) reported symptoms of burnout, respectively. In June 2020, 82 respondents (25.5%) reported that their level of burnout exacerbated compared to January 2020. Only the experience of self-quarantine was associated with the exacerbation of burnout [odds ratio (OR) 3.12; 95% confidence interval (CI) 1.49-6.50; $p=0.002$], while being a woman, being a resident physician, and an experience of having worked in a prefecture under a state of emergency were not.

Conclusions No marked change in the prevalence of burnout among internists and primary care physicians in Japan was observed during the COVID-19 pandemic as a whole. However, self-quarantine was associated with the exacerbation of the burnout level.

Key words: burnout, professional, COVID-19, pandemics, quarantine

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Introduction

The COVID-19 pandemic has had detrimental effects on mental health among healthcare workers (1), which include

stress, anxiety, depression and burnout (2). A high prevalence of burnout among physicians has been a global issue for decades (3), and the ongoing pandemic may accelerate this situation. To deal with the burden and uncertainty among physicians caused by this pandemic, clarifying their

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level of burnout and identifying the potential risks factors for burnout are imperative.

Since the World Health Organization declared the COVID-19 as a pandemic on March 11, 2020 (4), there have been an increasing number of studies focusing on burnout among physicians from different specialties (5-8). In Japan, the first COVID-19 case was recorded on January 16, 2020, and a surge in the number of cases was seen thereafter (9). Although internal medicine and primary care physicians play a central role in the diagnosis and care of patients with COVID-19, few studies have reported how the pandemic has affected their burnout level. In Japan, internal medicine and primary care physicians comprise 40.1% of all physicians (10).

We compared the results of two surveys among these populations, the first of which was conducted in January 2020, before the onset of the pandemic, and the second of which was conducted in June 2020, in the midst of the pandemic, to see if there was a significant change in burnout prevalence over time and to identify potential factors of exacerbation of burnout in the era of the COVID-19 pandemic.

Materials and Methods

This study comprised a web-based survey conducted in January 2020 and again in June 2020. The participants were physicians, including residents and fellows, of the Japanese Chapter of the American College of Physicians (ACP). We asked the participants to answer the Japanese version of the Mini Z survey (11) and describe their demographics on an online platform. We further added two questions to the second survey: ‘Has your level of burnout increased compared to January?’ and ‘Have you quarantined yourself for at least one day for any reason within the past month?’ We delivered the surveys through the electronic mailing list of the Japanese Chapter of the ACP. For each survey, we sent four reminders during the survey period. This study was approved by the Ethics Committee of Kurashiki Central Hospital. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline (12).

We used the single-item Mini Z Burnout Assessment (range, 1-5), which was validated with good correlation to the Maslach Burnout Inventory (MBI)’s emotional exhaustion subscale (13), to assess burnout in this study, with burnout defined as a score ≥ 3 .

Dichotomous outcomes were compared between the respondents of the two surveys using the χ^2 -test. Multivariate logistic regression analyses were used to identify risk factors for exacerbation of burnout. We hypothesized that the following four factors might have detrimental effects on physicians’ mental health, leading to exacerbation of burnout in the midst of the pandemic: 1) being a woman (14), 2) being a resident physician or clinical fellow (15), 3) working in one of the prefectures collectively referred to as ‘Prefectures under Specific Cautions’ by the Japanese government be-

tween April 7 and May 25, 2020 (16), and 4) having self-quarantined to avoid infecting one’s family (17, 18). We used these factors as explanatory variables. The Stata software program, version 16.1 (StataCorp, College Station, USA), was used for the analyses.

Results

Response rates in the first and second surveys were 22.6% (283 out of 1,251) and 25.9% (322 out of 1,241), respectively. There were no significant differences in the characteristics of the respondents of the two surveys except for career duration (Table 1). Compared with the first survey, the proportion of physicians with a longer career duration increased in the second survey.

Among the 283 respondents in the first survey and 322 in the second one, 98 (34.6%) and 111 (34.5%) reported symptoms of burnout, respectively. In the second survey, 82 respondents (25.5%) reported that their level of burnout had increased compared to January (Table 1). A history of self-quarantine was seen in 34 (10.6%), and 223 (69.3%) who reported that they had worked in a prefecture under specific cautions between the two surveys.

A multivariate logistic regression analysis suggested that exacerbation of burnout was associated only with a history of self-quarantine [odds ratio (OR) 3.12; 95% confidence interval (CI) 1.49-6.50; $p=0.002$] (Table 2), while being a woman (OR 1.88; 95% CI 0.93-3.79; $p=0.080$), being a clinical resident (OR 1.13; 95% CI 0.50-2.60; $p=0.77$), and having worked in a prefecture under a state of emergency (OR 1.24; 95% CI 0.70-2.20; $p=0.46$) were not associated with exacerbation of burnout.

Discussion

Our study revealed two important findings. First, the prevalence of burnout was approximately 34% among respondents and did not differ markedly between before and after the announcement of the COVID-19 pandemic. Second, one in four respondents reported an exacerbation of their level of burnout compared to before the pandemic had reached Japan. Self-quarantine was associated with the exacerbation of burnout.

A meta-analysis on burnout among healthcare workers during the COVID-19 pandemic suggested that the prevalence of burnout was 37.4% (95% CI 14.8-67.2%) (19). The only similar study from a single institution in Japan using the MBI-General Survey reported that the prevalence of burnout was 31.4% (20). The burnout rate of 34.5% in our second survey with respondents from all across Japan was quite similar to that reported in previous studies.

There have been few studies on the comparison of burnout prevalence before and after the COVID-19 pandemic, the results of which have varied. Gomez et al. reported that it increased from 35% in July 2019 to 57% in March 2020 among medical critical care physicians at 4 hospitals in the

Table 1. Characteristics and Prevalence of Burnout in Survey Respondents, and the Number of Respondents Who Felt ‘Exacerbation of Burnout’ in July 2020 Compared to January 2020.

Characteristic	January 2020	July 2020	p value
Participants, No. (%)	283	322	
Female	39 (13.8)	44 (13.7)	0.95
Residents and fellows	25 (8.8)	32 (9.9)	0.64
Career duration (years)			
1-5	22 (7.8)	30 (9.3)	0.004
6-15	75 (26.5)	47 (14.6)	
16-25	71 (25.1)	87 (27.0)	
26-	115 (40.6)	158 (49.1)	
Practice location			
Urban	151 (53.3)	160 (49.7)	0.66
Suburban	57 (20.1)	71 (22.0)	
Rural	75 (26.5)	91 (28.3)	
Burnout	98 (34.6)	111 (34.5)	0.97
Exacerbation of burnout compared to January 2020	NA	82 (25.5)	

NA: not applicable

United States (21). de Wit et al. reported that burnout prevalence did not change markedly, hovering around 15% in a survey performed weekly between March to May 2020 among emergency physicians across Canada (6). The lack of progression in burnout prevalence in our study may be due to several reasons. First, our cohort might not have experienced a large number of sick patients with COVID-19 as of the time of the survey, when the number of patients with COVID-19 in Japan was relatively low compared to the rest of the world (Figure). Second, we may simply have measured burnout too soon after the start of this pandemic (22). Third, the pandemic may have caused different influences on each physician based on their situation and on their mindset. Some people may develop self-esteem and resilience when they confront adversity (23). Finally, the pandemic may have actually reduced the workload for some physicians due to the decrease in the number of outpatients in some clinics and hospitals during this pandemic (24, 25).

It is reasonable that having experienced self-quarantine increases an individual’s anxiety and stress level (26). However, although recent studies have suggested that self-quarantine is associated with mental distress (27, 28), its direct association with burnout has not previously been reported. Self-quarantine may exacerbate physicians’ level of burnout in several ways, including fear for their own risk of COVID-19 infection (29), anxiety that they might transmit COVID-19 to their loved ones (17), bullying and stigma from their community (30) and financial insecurity (29). Our finding that self-quarantine was associated with the exacerbation of burnout provides an important notion about who is most at risk for suffering from burnout in the pandemic era.

Although being a woman or resident physician/clinical fellow has been considered to be associated with burnout among internal medicine and primary care physi-

Table 2. Factors Associated with ‘Exacerbation of Burnout’.

Variable	OR (95% CI)	p value
Female	1.88 (0.93-3.79)	0.080
Self-quarantine	3.12 (1.50-6.52)	0.002
Residents and fellows	1.13 (0.50-2.60)	0.77
Prefectures under specific cautions	1.24 (0.70-2.20)	0.46

cians (31-33), neither was associated with the exacerbation of burnout in our study. The lack of an association between being a woman and exacerbation of burnout may be due to the small sample size of our study. There are potentially valid reasons to believe that female physicians shoulder a greater burden than their male colleagues in this pandemic, such as the fact that women, as a group, spend proportionately more time on home and family care activities than men (34). However, in a study from Turkey during the COVID-19 pandemic, the level of burnout among physicians working at a public hospital did not differ markedly between men and women or between married and single individuals (35). Regarding clinical residents, a study conducted in northeast Italy when the area was suffering mightily from the virus reported that being a clinical resident increased the risk of burnout by nearly 2.5-fold (36). However, the stressors for clinical residents vary, including worries over their risk of infection and concern that the pandemic might hinder their achievement of career milestones, depending on their situation (7, 37). Further studies are therefore needed to clarify the associations of women and clinical residents with burnout under different circumstances during the COVID-19 pandemic.

Finally, we assumed that the experience of working in a COVID-19-dense area might influence physicians’ mental health in several ways, such as by imbuing them with worries about the potential risk of infection (38) and the financial threat faced by physicians in private practice (39). The lack of an association in our study might be due to the relatively small number of patients who actually had COVID-19 at the time of the second survey (Figure). In addition, the timing of the survey may have been too early for physicians to experience burnout exacerbation.

Several limitations associated with the present study warrant mention. First, the groups of respondents in January and June were not exactly the same; therefore, they do not represent an identical cohort. However, the membership of the Japan Chapter of the ACP to whom we reached out for the surveys did not change significantly during the study period. Second, the response rates were low, and there might have been some non-responder bias. However, the response rates in other studies using web-based unincitvized studies of burnout (40-42) ranged from 25.3% to 31.7%. In a feasibility study of burnout survey conducted before the COVID-19 pandemic, a response rate of greater than 30% was defined as acceptable (43). Given that burnout has become a more sensitive topic than ever among physicians due to the

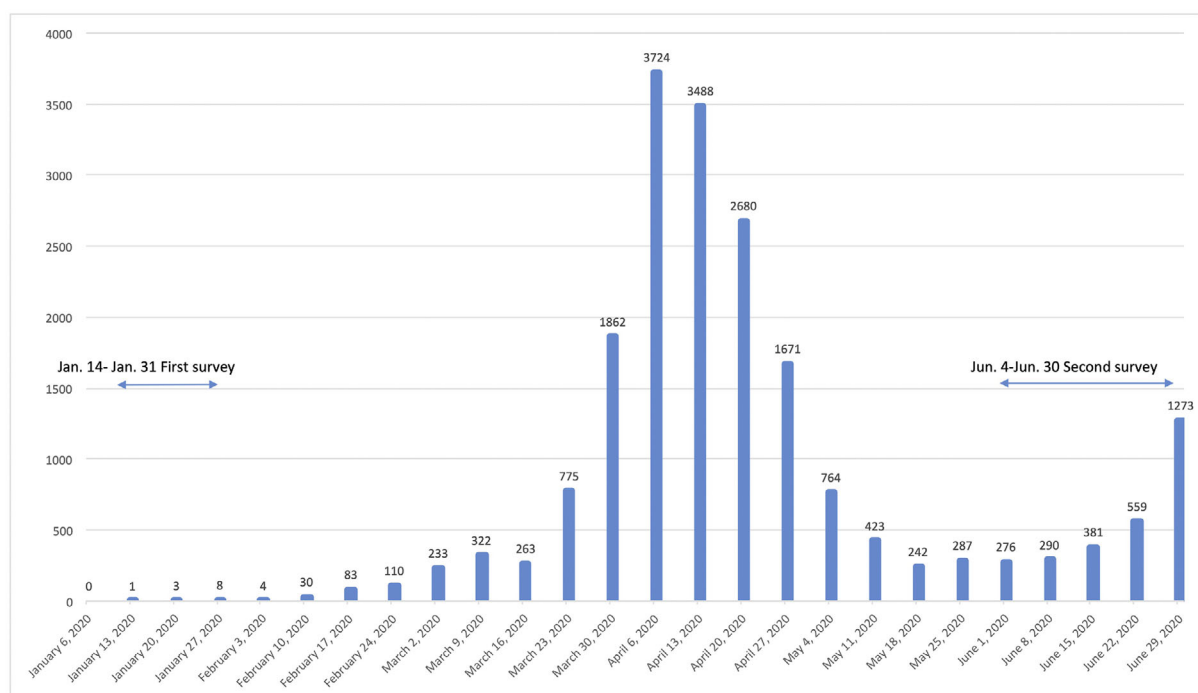


Figure. The trend in COVID-19 PCR-positive results in Japan. Source: Ministry of Health, Labour and Welfare. The trend in COVID-19 PCR-positive results in Japan. <https://www.mhlw.go.jp/stf/covid-19/open-data.html>. Accessed Feb 1 2021. PCR: polymerase chain reaction

pandemic, the low response rates in our study do not lessen the significance of the results. Finally, our study failed to reference any direct association of COVID-19-related clinical practice with burnout. Notwithstanding these limitations, however, to our knowledge, this is the first study among internal medicine and primary care physicians to compare the prevalence of burnout before and during the COVID-19 pandemic.

In conclusion, no notable change was observed in the prevalence of burnout pandemic among internal medicine and primary care physicians in Japan after the start of the COVID-19 pandemic. Self-quarantine may be associated with the exacerbation of burnout among internal medicine and primary care physicians. It is necessary to detect those at high-risk for burnout in this COVID-19 pandemic era.

The authors state that they have no Conflict of Interest (COI).

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References

- Shapiro J, McDonald TB. Supporting clinicians during COVID-19 and beyond - learning from past failures and envisioning new strategies. *New Eng J Med* **383**: e142, 2020.
- Çelmeçe N, Menekay M. The effect of stress, anxiety and burnout levels of healthcare professionals caring for COVID-19 patients on their quality of life. *Front Psychol* **11**: 597624, 2020.
- Rotenstein LS, Torre M, Ramos MA, et al. Prevalence of burnout among physicians: a systematic review. *JAMA* **320**: 1131-1150, 2018.
- Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. *Acta Biomed* **91**: 157-160, 2020.
- Treluyer L, Tourneux P. Burnout among paediatric residents during the COVID-19 outbreak in France. *Eur J Pediatr* **180**: 627-633, 2021.
- de Wit K, Mercuri M, Wallner C, et al. Canadian emergency physician psychological distress and burnout during the first 10 weeks of COVID-19: a mixed-methods study. *J Am Coll Emerg Physicians Open* **1**: 1030-1038, 2020.
- Khalafallah AM, Lam S, Gami A, et al. Burnout and career satisfaction among attending neurosurgeons during the COVID-19 pandemic. *Clin Neurol Neurosurg* **198**: 106193, 2020.
- Varani S, Ostan R, Franchini L, et al. Caring advanced cancer patients at home during COVID-19 outbreak: burnout and psychological morbidity among palliative care professionals in Italy. *J Pain Symptom Manage* **61**: e4-e12, 2021.
- Watanabe M. The COVID-19 pandemic in Japan. *Surg Today* **50**: 787-793, 2020.
- Ministry of Health Labour and Welfare. Statistics of physicians, dentists and pharmacists [Internet]. [cited 2021 Feb 11]. Available from: <https://www.mhlw.go.jp/toukei/list/33-20.html> (in Japanese)
- Nagasaki K, Kiyoshi S, Nishimura Y, et al. Translation, cultural adaptation, and validation of the Mini-Z 2.0 survey among Japanese physicians and residents. *Intern Med* **60**: 2405-2411, 2021.
- von Elm E, Altman DG, Egger M, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *J Clin Epidemiol* **61**: 344-349, 2008.
- Rohland BM, Kruse GR, Rohrer JE. Validation of a single-item measure of burnout against the Maslach Burnout Inventory among physicians. *Stress Health* **20**: 75-79, 2004.
- Puffer JC, Knight HC, O'Neill TR, et al. Prevalence of burnout in board certified family physicians. *J Am Board Fam Med* **30**: 125-126, 2017.

15. Dyrbye LN, West CP, Satele D, et al. Burnout among U.S. medical students, residents, and early career physicians relative to the general U.S. population. *Acad Med Assoc Am Med Coll* **89**: 443-451, 2014.
16. Ministry of Health Labour and Welfare. Basic policies for novel coronavirus disease control by the government of Japan (summary) [Internet]. [cited 2021 Mar 23]. Available from: <https://www.mhlw.go.jp/content/10900000/000634753.pdf>.
17. Robertson E, Hershenfield K, Grace SL, Stewart DE. The psychosocial effects of being quarantined following exposure to SARS: a qualitative study of Toronto health care workers. *Can J Psychiatry* **49**: 403-407, 2004.
18. Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styrar R. SARS control and psychological effects of quarantine, Toronto, Canada. *Emerg Infect Dis* **10**: 1206-1212, 2004.
19. Batra K, Singh TP, Sharma M, Batra R, Schvaneveldt N. Investigating the psychological impact of COVID-19 among healthcare workers: a meta-analysis. *Int J Environ Research Public Health* **17**: 2020.
20. Matsuo T, Kobayashi D, Taki F, et al. Prevalence of health care worker burnout during the coronavirus disease 2019 (COVID-19) pandemic in Japan. *JAMA Netw Open* **3**: e2017271, 2020.
21. Gomez S, Anderson BJ, Yu H, et al. Benchmarking critical care well-being: before and after the coronavirus disease 2019 pandemic. *Crit Care Explor* **2**: e0233, 2020.
22. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol* **52**: 397-422, 2001.
23. Brooks S, Amlôt R, Rubin GJ, Greenberg N. Psychological resilience and post-traumatic growth in disaster-exposed organisations: overview of the literature. *BMJ Mil Health* **166**: 52-56, 2020.
24. Ueda K, Ota I, Yamanaka T, Kitahara T. The impact of the COVID-19 pandemic on follow-ups for vertigo/dizziness outpatients. *Ear Nose Throat J* **100**: 163S-168S, 2020.
25. Wosik J, Clowse MEB, Overton R, et al. Impact of the COVID-19 pandemic on patterns of outpatient cardiovascular care. *Am Heart J* **231**: 1-5, 2021.
26. Waris Nawaz M, Imtiaz S, Kausar E. Self-care of frontline health care workers: during COVID-19 pandemic. *Psychiatr Danub* **32**: 557-562, 2020.
27. Firew T, Sano ED, Lee JW, et al. Protecting the front line: a cross-sectional survey analysis of the occupational factors contributing to healthcare workers' infection and psychological distress during the COVID-19 pandemic in the USA. *BMJ Open* **10**: e042752, 2020.
28. Lee MCC, Thampi S, Chan HP, et al. Psychological distress during the COVID-19 pandemic amongst anaesthesiologists and nurses. *Br J Anaesth* **125**: e384-e386, 2020.
29. Desclaux A, Badji D, Ndione AG, Sow K. Accepted monitoring or endured quarantine? Ebola contacts' perceptions in Senegal. *Soc Sci Med (1982)* **178**: 38-45, 2017.
30. Gomez-Duran EL, Martin-Fumado C, Forero CG. Psychological impact of quarantine on healthcare workers. *Occup Environ Med* **77**: 666-674, 2020.
31. West CP, Shanafelt TD, Kolars JC. Quality of life, burnout, educational debt, and medical knowledge among internal medicine residents. *JAMA* **306**: 952-960, 2011.
32. Linzer M, Smith CD, Hingle S, et al. Evaluation of work satisfaction, stress, and burnout among US internal medicine physicians and trainees. *JAMA Netw Open* **3**: e2018758, 2020.
33. Cohen Aubart F, Lhote R, Steichen O, et al. Workload, well-being and career satisfaction among French internal medicine physicians and residents in 2018. *Postgrad Med J* **96**: 21-27, 2020.
34. Brubaker L. Women physicians and the COVID-19 pandemic. *JAMA* **324**: 835-836, 2020.
35. Dinibutun SR. Factors associated with burnout among physicians: an evaluation during a period of COVID-19 pandemic. *J Healthc Leadersh* **12**: 85-94, 2020.
36. Lasalvia A, Amaddeo F, Porru S, et al. Levels of burn-out among healthcare workers during the COVID-19 pandemic and their associated factors: a cross-sectional study in a tertiary hospital of a highly burdened area of north-east Italy. *BMJ Open* **11**: e045127, 2021.
37. Coleman JR, Abdelsattar JM, Glocker RJ; RAS-ACS COVID-19 Task Force. COVID-19 pandemic and the lived experience of surgical residents, fellows, and early-career surgeons in the American College of Surgeons. *J Am Coll Surg* **232**: 119-135 e120, 2021.
38. Kannampallil TG, Goss CW, Evanoff BA, Strickland JR, McAlister RP, Duncan J. Exposure to COVID-19 patients increases physician trainee stress and burnout. *PloS One* **15**: e0237301, 2020.
39. Jha SS, Shah S, Calderon MD, Soin A, Manchikanti L. The effect of COVID-19 on interventional pain management practices: a physician burnout survey. *Pain Physician* **23**: S271-S282, 2020.
40. Nishimura K, Nakamura F, Takegami M, et al. Cross-sectional survey of workload and burnout among Japanese physicians working in stroke care: the nationwide survey of acute stroke care capacity for proper designation of comprehensive stroke center in Japan (J-ASPECT) study. *Circ Cardiovasc Qual Outcomes* **7**: 414-422, 2014.
41. Roberts DL, Shanafelt TD, Dyrbye LN, West CP. A national comparison of burnout and work-life balance among internal medicine hospitalists and outpatient general internists. *J Hosp Med* **9**: 176-181, 2014.
42. Shanafelt TD, Balch CM, Bechamps GJ, et al. Burnout and career satisfaction among American surgeons. *Ann Surg* **250**: 463-471, 2009.
43. Ong J, Swift C, Ong S, Lim WY, Al-Naeb Y, Shankar A. Burnout in gastroenterology registrars: a feasibility study conducted in the East of England using a 31-item questionnaire. *BMJ Open Gastroenterol* **7**: 2020.

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