Prevalence of burnout among health care workers in the Federation of Bosnia and Herzegovina during the coronavirus disease-2019 pandemic: a cross-sectional study

**Aim** To investigate the prevalence of burnout syndrome among health care workers in the Federation of Bosnia and Herzegovina (FBiH) during the coronavirus disease 2019 (COVID-19) pandemic.

**Methods** This cross-sectional study was conducted in May and June 2021 using an online survey based on Copenhagen Burnout Inventory. The questionnaire underwent forward and backward translation, preliminary pilot testing, and was assessed for reliability and validity. Personal burnout, work-related burnout, and patient-related burnout were assessed. The survey was sent to the members of the Union of Physicians and Dentists in FBiH, who were asked to forward the link to their medical technicians and nurses.

**Results** A total of 77% of participants experienced some form of burnout. As many as 32% experienced all three forms of burnout. Those actively involved in tackling the COVID-19 pandemic more often experienced burnout. In personal and work-related burnout domains, higher level of burnout was reported among female respondents. Higher work-related and patient-related burnout was reported by physicians compared with medical technicians/nurses. Higher level of patient-related burnout was reported in health care workers aged 30-39 and 50-59 years, among respondents working in primary care, and among physicians.

**Conclusion** The majority of health care workers showed moderate or high levels of personal and work-related burnout, with a lower level of patient-related burnout. There is a need for further research into the causes of burnout, as well as for the implementation of organizational interventions aimed to minimize workplace burnout.
Burnout syndrome (BOS) was added to the 11th edition of the International Classification of Diseases (ICD-11) by the World Health Organization as “a syndrome resulting from chronic workplace stress that has not been successfully managed” (1). BOS is a frequent public-health and workplace issue, with rising prevalence and incidence (2). This issue has particularly come into focus during the coronavirus disease 2019 (COVID-19) outbreak. It can happen at any age, as well as during residency (3), and result in medical errors and poor patient care (4).

BOS has a variety of causes and predictions, both environmental and personal, which are not all related to workload. Administration, intrinsic factors of work, contact with patients, financial stressors, interference of work and social life, organizational structure and atmosphere, and relationships with coworkers, are only some of them (5,6).

Burnout among health care workers (HCWs) was frequent even before the COVID-19 pandemic, and it is a significant health concern for the global economy because of its effects on organizational and patient outcomes (7). BOS has also been linked to depression, anxiety, and posttraumatic stress disorder in HCWs, as well as to lower satisfaction and care quality, and a higher suicide rate (8,9).

The COVID-19 pandemic has put HCWs under a lot of stress (10). Burnout among HCWs is a significant problem since it affects not only HCWs themselves, but also their families, patients, and society. This is why it is necessary to create strategies for dealing with burnout (11). Burnout has been identified as one of the threats to the stability of health care professionals in the fight against COVID-19 (12-15).

Acute stress is more likely to cause sleep disturbances, anxiety, fear, mood changes, as well as posttraumatic stress disorder. Chronic stress, on the other hand, is more likely to cause BOS, which is a condition closely connected to poor job ability (16,17).

Job burnout can put the individual’s well-being and health at risk, but it can also result in medical errors and poor patient care (4). As a result, it is important to identify factors that lead to job-related burnout and stress among HCWs. This knowledge may be used to protect the workers while improving the quality of services provided to the patients (18).

The aim of our study was to assess the prevalence of burnout syndrome among health care workers in Federation of Bosnia and Herzegovina (FBiH), one of the two entities within Bosnia and Herzegovina, during the COVID-19 pandemic, as this issue has not been addressed so far.

MATERIAL AND METHODS

Study design

This cross-sectional study was carried out between May 26 and July 26, 2021 with the use of an online survey based on Copenhagen Burnout Inventory (CBI). Google Forms platform was used to collect data. An invitation to participate in the online survey was sent to the members of the Union of Physicians and Dentists in FBiH, who were asked to forward the link to their medical technicians and nurses (snowball sampling technique). The consent to use the communication channels of the Union was obtained previously (number: 01-8/2021, date: May 4, 2021). The online survey also included an introductory note stating the study aim. Research participation was voluntary and anonymous. Inclusion criteria were set to include health care workers in the FBiH, regardless of their age, health care status, job title, or employment status. Request to participate was resent again after one month, and data collection ended on July 26. The study was approved by the Committee for Medical Ethics of the Faculty of Medicine University of Mostar (01-I-854/21).

Instrument/measurement

The first part of the questionnaire inquired about gender, age, children, job profile, work environment, and involvement in detection, surveillance, and treatment of patients with COVID-19.

The second part, the CBI, consists of 19 specific questions on burnout divided into three sections. The first section consists of six items on personal burnout, ie, general symptoms of exhaustion. The second section consists of seven items on work-related burnout, ie, symptoms of exhaustion associated to work. The third subscale consists of six items on client-related burnout, ie, symptoms of exhaustion associated with working with clients. The inventory was adapted by replacing the word “client” with the word “patient” given our target population. Twelve items of CBIs assess frequency (response categories: always, often, sometimes, seldom, never/almost never) and seven items assess intensity (response categories: to a very high degree, to a high degree, somewhat, to a low degree, to a very low degree). Scoring was performed as follows: always/to a very
high degree: 100; often/to a high degree: 75; somewhat/sometimes: 50; seldom/to a low degree: 25; never/almost never/to a very low degree: 0. According to the questionnaire instructions, reverse scoring was performed for one item/question. Total score on the scale and subscale is the average of the scores on the corresponding items/questions. Burnout was defined as CBI score >50, higher score represents a higher level of burnout (score 50 to 74 – moderate, 75 to 99 – high, and 100 – severe burnout) (19-22).

**Validity and reliability**

We conducted forward and backward translation and preliminary pilot testing of the questionnaire. The Kaiser-Meyer-Olkin measure of the sampling adequacy was 0.954, and Bartlett’s test of sphericity was significant \((P<0.001)\). Three factors explained 68.32% of the variance: factor 1 explained 54.01%, factor 2 explained 9.57%, and factor 3 explained 4.74% of the variance. The factor loadings varied from 0.541 to 0.850. The CFA confirmed the distribution of items from the questionnaire according to the defined dimensions. The Cronbach’s alpha for the whole scale was 0.936, and the interclass correlation was 0.954. The values of the Cronbach’s alpha coefficient for individual subscales were as follows: personal burnout scale 0.895, work-related burnout scale 0.909, and patient-related burnout scale 0.909.

**Respondents**

During the period when the survey was available 849 participants completed the questionnaire. Nine responses were excluded since those respondents were not HCWs. Finally, 840 responses were included in the analysis, out of which 520 were from the Union of Physicians and Dentists, and 320 were medical technicians/nurses and other HCWs. In 2019, the Union of Physicians and Dentists in FBiH had 4321 members (23), which is over 90% of the total number in FBiH (24). With these data, we calculated the response rate for physicians and dentists, which was 12% (520/4312). The sampling method (snowball sampling technique) prevented us from calculating the response rate for medical technicians/nurses and other HCWs.

Most of the respondents were women, were aged between 30 and 50 years, had up to 20 years of service, were physicians, had a college degree, were married, had children, and worked in primary care (Table 1). HCWs from each of the ten counties in FBiH took part in the survey. Among physicians, there were 291 (59.6%) specialists, 102 (20.9%) trainees, and 95 (19.5%) graduate physicians without specialization.

**Statistical analysis**

The normality of the distribution of quantitative data was assessed with the Kolmogorov-Smirnov test. Data are presented as mean and standard deviation (SD). Differences between groups were tested with a \(t\) test for independent samples and one-way ANOVA. For categorical data, frequencies and percentages were calculated. The validity of the used instrument was verified by confirmatory factor analysis (CFA). The internal consistency/reliability was checked with Cronbach’s alpha coefficient (CA) and inter-
class correlation. The significance limit was set at $P = 0.05$. Data were analyzed with IBM SPSS for Windows, version 25.0 (IBM Corp., Armonk, NY, USA).

RESULTS

The mean total burnout score was 49.5 ± 17.8. The mean score per CBI scale was 57.23 ± 17.13 for personal burnout, 49.68 ± 20.80 for work-related burnout, and 41.43 ± 21.12 for patient-related burnout. According to the results for total burnout, no respondent had a score of 100, while almost half of the respondents showed the symptoms of burnout (49.1%; $n = 413$).

Differences in burnout were observed according to age, active involvement in detection and treatment of COVID-19 patients, and qualification. Among respondents with burnout, there were more physicians, and HCWs aged 30–39 involved in the detection, follow-up, and treatment of COVID-19 patients (Table 2).

Respondents showed a higher level of personal and work-related burnout compared with the level of patient-related burnout. A total of 72.9% of respondents ($n = 612$) had moderate or high score on the personal burnout domain, 50.9% of respondents ($n = 428$) experienced moderate or high work-related burnout, and 38.3% respondents ($n = 322$) reported a lower level of patient-related burnout (Table 3).

Overall, 77% of participants experienced some form of burnout (in at least one dimension of burnout they had a score higher than 50%). A total of 24.2% of participants experienced only one form of burnout, 20.6% two forms of burnout, and 32.3% participants experienced all three forms of burnout.

| Table 2. Demographic characteristics of respondents with burnout vs without burnout |
|---------------------------------------------------------------|
|                                | Number (%) of respondents |
|                                | with burnout ($n = 413$) | without burnout ($n = 427$) | $P^*$ |
| Sex                            |                           |                           |      |
| male                          | 90 (21.8)                 | 110 (25.8)                | 0.177 |
| female                        | 323 (78.2)                | 317 (74.2)                |      |
| Age (year)                    |                           |                           |      |
| ≤30                           | 62 (15.0)                 | 79 (18.5)                 | 0.009 |
| 31-39                         | 163 (39.5)                | 130 (30.4)                |      |
| 40-49                         | 89 (21.5)                 | 123 (28.8)                |      |
| 50-59                         | 73 (17.7)                 | 60 (14.1)                 |      |
| 60+                           | 26 (6.3)                  | 35 (8.2)                  |      |
| Work experience (years)       |                           |                           |      |
| 0-10                          | 158 (38.3)                | 179 (41.9)                | 0.144 |
| 11-20                         | 146 (35.4)                | 124 (29.0)                |      |
| 21-30                         | 57 (13.8)                 | 75 (17.6)                 |      |
| 30+                           | 52 (12.6)                 | 49 (11.5)                 |      |
| Active in detection and treatment of COVID-19 patients |                           |                           |      |
| yes                           | 377 (91.3)                | 313 (73.3)                | <0.001 |
| no                            | 36 (8.7)                  | 114 (26.7)                |      |
| Level of health care          |                           |                           |      |
| primary care                  | 245 (61.9)                | 238 (57.3)                | 0.190 |
| secondary care                | 151 (38.1)                | 177 (42.7)                |      |
| Qualification                 |                           |                           |      |
| physicians                    | 257 (68.4)                | 231 (60.9)                | 0.033 |
| medical technicians/nurses    | 119 (31.6)                | 148 (39.1)                |      |
| Specialization                |                           |                           |      |
| no specialization             | 54 (21.0)                 | 41 (17.7)                 | 0.613 |
| trainees                      | 51 (19.8)                 | 51 (22.1)                 |      |
| specialists                   | 152 (59.1)                | 139 (60.2)                |      |
* $\chi^2$ test.
More than 80% of participants were involved in the detection, follow-up, and treatment of COVID-19 patients (n = 690). Over half of the respondents reported that they had had COVID-19 infection (54%, n = 459), 61% (n = 516) had been vaccinated against SARS-CoV-2 virus, while 16% (n = 134) had been neither vaccinated nor had had COVID-19 infection.

Out of 745 respondents who answered to the question: “If you feel you have burnout professionally, do you think it started before or after the onset of the COVID-19 pandemic?”, 36% (n = 268) answered that they experienced it before, and 64% (n = 477) answered that they experienced it after the onset of the pandemic.

Female respondents reported a higher burnout level in the personal and work-related burnout domains. Respondents who were involved in detection, follow-up, and treatment of COVID-19 patients had a higher burnout incidence in all domains. Higher work-related burnout was reported by physicians. Higher patient-related burnout was reported by HCWs aged 30-39 and 50-59 years, by respondents working in primary care, and by physicians (Table 4).

DISCUSSION

The CBI questionnaire revealed that 77% of participants experienced some form of burnout, and as many as 32% experienced all three forms of burnout. This leads to the conclusion that burnout is a frequent issue among HCWs in FBiH.

The majority of HCWs showed moderate or high levels of personal and work-related burnout, and lower levels of patient-related burnout. Similar results were obtained among Portuguese HCWs working at the time of the COVID-19 pandemic, with a high level of personal (52.5%) and work-related burnout (53.1%), and a lower level of patient-related burnout (35.4%) (25). Before the pandemic, lower scores of patient-related burnout were observed compared with other domains (26,27). Burnout was mainly related to increased quantitative workload, increased job insecurity, and lower job satisfaction (26).

In a meta-analysis by Batra et al (28), the overall prevalence of burnout among HCWs was 37.4%. During SARS and MERS outbreaks, BOS was experienced by approximately one-third of HCWs (29). Although the connection between BOS and COVID-19 is still being investigated, the prevalence rates are similar to those in prior epidemics (29). The pooled burnout prevalence in HCWs during SARS/MERS/SARS-CoV-2 epidemics was 34.4% (30). As most of the mentioned research assessed burnout with the Maslach Burnout Inventory (MBI), a comparison of these prevalence rates with our results should be made with caution.

In our study, female respondents reported a higher burnout level in the personal and work-related burnout domains. Although this may be explained by the majority of the respondents being women, these findings are consistent with earlier reports (11,31). Higher work-related burnout was reported by physicians. In the patient-related burnout domain, higher level of burnout was reported by HCWs aged 30-39 and 50-59 years, by respondents working in primary care, and by physicians compared with medical technicians/nurses.

Respondents who were involved in the detection, follow-up, and treatment of COVID-19 patients had a higher burnout prevalence in all domains. Over 64% of respondents considered that their burnout started after the onset of the pandemic. A high prevalence of pandemic-related burnout was reported in India (32). In a rapid global survey conducted during the COVID-19 pandemic, half of the respondents from 33 countries experienced burnout as a result of their work (31). Physicians in primary care in Portugal experienced a higher rate of burnout in comparison with pre-COVID-19 levels (33).

According to the research on mental health disorders (MHD) among family physicians in Croatia during the COVID-19 pandemic, respondents with positive MHD history had lower scores on resilience, healthy lifestyle, and satisfaction with life and work, but higher scores on burnout (34). Nearly 50% of MHD positive physicians developed these disturbances in the COVID-19 pandemic era (34). These results support the

| Burnout | personal burnout | work related burnout | patient related burnout | total burnout |
|---------|------------------|---------------------|-------------------------|---------------|
| No      | 228 (27.1)       | 412 (49.0)          | 518 (61.7)              | 427 (50.8)    |
| Moderate| 449 (53.5)       | 300 (35.7)          | 263 (31.3)              | 348 (41.4)    |
| High    | 157 (18.7)       | 126 (15.0)          | 53 (6.3)                | 65 (7.7)      |
| Severe  | 6 (0.7)          | 2 (0.2)             | 6 (0.7)                 | 0             |

TABLE 3. Level of burnout, in general and by dimensions
idea of a healthy lifestyle and resilience as key protective factors against work-related burnout (34).

A study from China reported a higher frequency of insomnia, depression, anxiety, and mental distress among HCWs actively engaged in the detection, diagnosing, and treatment of COVID-19 patients (35).

Burnout among BiH physicians was investigated before the pandemic among physicians in primary health care from Banja Luka. The study was based on the MBI, and 20.9% of respondents had a high level of emotional exhaustion, 43.2% had a high level of depersonalization (36), and emotional exhaustion and depersonalization were suggested to be the foundation of burnout (5). Another survey based on MBI, conducted among primary health care providers in the Sarajevo Canton, showed that 25.3% of HCWs experienced a high level of emotional exhaustion and 17.7% experienced depersonalization (37). Research conducted among physicians in Croatia on a national level before the

| Table 4. Dimensions of burnout in regard to the respondents’ characteristics |
|---------------------------------------------------------------|
|                                                                 |
| **Mean (standard deviation)**                                  |
| **personal burnout** | **work-related burnout** | **patient-related burnout** |
|---|---|---|
| Sex | | | |
| male | 51.63 (18.48) | 46.50 (21.88) | 41.89 (22.20) |
| female | 58.98 (16.59) | 50.67 (20.37) | 41.28 (20.78) |
| P* | <0.001 | 0.017 | 0.729 |
| Age (year) | | | |
| ≤30 (A) | 56.42 (15.44) | 49.09 (20.92) | 39.36 (19.14) |
| 31-39 (B) | 58.08 (16.74) | 51.35 (20.28) | 43.91 (21.06) |
| 40-49 (C) | 56.99 (18.12) | 47.39 (20.26) | 36.26 (20.69) |
| 50-59 (D) | 58.05 (17.54) | 51.13 (21.29) | 46.39 (21.02) |
| 60+ (E) | 53.96 (20.79) | 47.78 (23.48) | 41.39 (23.58) |
| P* | 0.482 | 0.220 | <0.001 (C-B,D) |
| Work experience (years) | | | |
| 0-10 | 56.58 (17.09) | 49.12 (20.73) | 40.50 (20.19) |
| 11-20 | 58.35 (17.39) | 51.20 (20.18) | 42.45 (21.45) |
| 21-30 | 57.26 (16.09) | 47.97 (20.99) | 40.03 (21.52) |
| 30+ | 56.39 (19.52) | 49.68 (22.42) | 43.61 (22.69) |
| P* | 0.607 | 0.461 | 0.402 |
| Active in detection, follow-up, and treatment of COVID-19 patients | | | |
| yes | 58.94 (16.61) | 52.21 (20.27) | 43.35 (21.04) |
| no | 49.39 (18.44) | 38.02 (19.26) | 32.61 (19.23) |
| P* | <0.001 | <0.001 | <0.001 |
| Level of health care | | | |
| primary care | 57.58 (16.79) | 49.91 (20.56) | 44.00 (21.11) |
| secondary care | 56.22 (18.10) | 48.84 (21.08) | 37.20 (20.40) |
| P* | 0.274 | 0.515 | <0.001 |
| Qualification | | | |
| physicians | 57.90 (17.38) | 51.44 (20.93) | 43.09 (21.43) |
| medical technicians/nurses | 56.16 (17.20) | 47.57 (20.28) | 38.29 (20.04) |
| P* | 0.192 | 0.016 | 0.003 |
| Specialization | | | |
| no specialization(A) | 59.56 (16.55) | 52.97 (20.79) | 47.15 (22.66) |
| trainees (B) | 57.03 (17.17) | 49.72 (20.89) | 37.30 (19.33) |
| specialists (C) | 57.56 (17.67) | 51.34 (21.07) | 43.67 (21.16) |
| P* | 0.527 | 0.554 | 0.004 (B-A,C) |

* t test for independent samples.† one-way ANOVA.
pandemic showed that 63% of all physicians experienced burnout, and 16% of physicians experienced all three forms of burnout (38). The research on the levels of burnout syndrome in critical care nurses in Croatia showed that 22.1% of nurses expressed a high level of emotional exhaustion, with a lower level of depersonalization (7.9%), and 34.5% had a low level of personal accomplishment (39).

There are several potential limitations to this study. Our sample may not entirely represent all the HCWs in FBiH, and may be biased toward HCWs whose working circumstances are unsatisfactory. Those who did not experience burnout may have opted not to respond. Furthermore, we did not investigate the causes or effects of burnout.

In conclusion, burnout is worryingly common in the population of HCWs in FBiH. Further research into the causes of burnout is needed. Active measures are required to minimize high burnout prevalence among HCWs in FBiH.

Acknowledgments We thank the Union of Physicians and Dentists in FBiH for their cooperation and consent to use their communication channels.

Funding None.

Ethical approval given by the Committee for Medical Ethics of the Faculty of Medicine University of Mostar (01-I-854/21).

Declaration of authorship AMM and SK conceived and designed the study; all authors acquired the data; AMM and MM analyzed and interpreted the data; AMM and MM drafted the manuscript; MR AZ, MBen, NR SK critically revised the manuscript for important intellectual content; all authors gave approval of the version to be submitted; all authors agree to be accountable for all aspects of the work.

Competing interests SK is an executive editor in the Croatian Medical Journal. To ensure that any possible conflict of interest relevant to the journal has been addressed, this article was reviewed according to best practice guidelines of international editorial organizations. All authors have completed the Unified Competing Interest form at www.cmj.hr/coi_disclosure.pdf (available on request from the corresponding author) and declare: no support from any organization for the submitted work; no financial revenue.

Guidelines of international editorial organizations. All authors have contributed to revising the manuscript for important intellectual content; all authors gave approval of the version to be submitted; all authors agree to be accountable for all aspects of the work.

References

1. WHO. Burn-out an "occupational phenomenon": International Classification of Diseases. WHO; Geneva, Switzerland: 2019. Available from: https://www.who.int/mental_health/evidence/burn-out/en/ Accessed: August 11, 2021.

2. Al-Haddad A, Al-Omar F, Al-Khaleel A, Al-Khalaf A. Prevalence of burnout syndrome and its related risk factors among physicians working in primary health care centers of the Ministry of Health, Al Ahsa region, Saudi Arabia, 2018-2019. J Family Med Prim Care. 2020;9:571-9. Medline:32318384 doi:10.4103/jfmpc.jfmpc_743_19

3. Cubero DI, Fumis RR, de Sa TH, Dettino A, Costa FO, Van Eyll BM, et al. Burnout in medical oncology fellows: a prospective multicenter cohort study in Brazilian institutions. J Cancer Educ. 2016;31:582-7. Medline:25952940 doi:10.1007/s13187-015-0850-z

4. Kumar S. Burnout and doctors: prevalence, prevention and intervention. Healthcare (Basel). 2016;4. Medline:27417625 doi:10.3390/healthcare4030037

5. Maslach C, Schaufeli WB, Leiter MP. Job burnout. Annu Rev Psychol. 2001;52:397-422. Medline:11148311 doi:10.1146/annurev.psych.52.1.397

6. Hudak-Kezevic J, Kalebic Maglica B, Krapic N. Personality, organizational stress, and attitudes toward work as prospective predictors of professional burnout in hospital nurses. Croat Med J. 2011;52:538-49. Medline:21853549 doi:10.3325/cmj.2011.52.538

7. Tawfik DS, Scheid A, Proft J, Shanafelt T, Trockel M, Adair KC, et al. Evidence relating health care provider burnout and quality of care: a systematic review and meta-analysis. Ann Intern Med. 2019;171:555-67. Medline:31590181 doi:10.7326/M19-1152

8. Salvagioni DAJ, Melanda FN, Mesas AE, Gonzalez AD, Gabani FL, Andrade SM. Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. PLoS One. 2017;12:e0185781. Medline:28977041 doi:10.1371/journal.pone.0185781

9. Rothenberger DA. Physician burnout and well-being: a systematic review and framework for action. Dis Colon Rectum. 2017;60:567-76. Medline:28481850 doi:10.1097/DCR.0000000000000844

10. Chirico F, Nucera G, Magnavita N. COVID-19: Protecting healthcare workers is a priority. Infect Control Hosp Epidemiol. 2020;41:1117. Medline:32299519 doi:10.1017/ice.2020.148

11. Afzali SA, Ramezankhani R, Khabazkhoob M. The impact of COVID-19 on physician burnout globally: a review. Healthcare (Basel). 2020;8. Medline:33105757 doi:10.3390/healthcare8040421

12. Liu X, Chen J, Wang D, Li X, Wang E, Jin Y, et al. COVID-19 outbreak can change the job burnout in health care professionals. Front Psychiatry. 2020;11:563781. Medline:33363480 doi:10.3389/fpsyt.2020.563781

13. Sarbooi Hoseniabadi T, Kakhi S, Teimori G, Nasyeri S. Burnout and its influencing factors between frontline nurses and nurses from other wards during the outbreak of Coronavirus Disease -COVID-19- in Iran. Invest Educ Enferm. 2020;38. Medline:33047546 doi:10.1111/iee.12760

14. Martinez-Lopez JA, Lazarro-Perez C, Gomez-Galan J, Fernandez-Martinez MDM. Psychological impact of COVID-19 emergency on health professionals: burnout incidence at the most critical period in Spain. J Clin Med. 2020;9. Medline:32962258 doi:10.3390/jcm9093029

15. Sernao C, Duarte I, Castro L, Teixeira A. Burnout and depression in Portuguese healthcare workers during the COVID-19 pandemic: the mediating role of psychological resilience. Int J Environ Res Public Health. 2021;18. Medline:33451083 doi:10.3390/ijerph18020636

16. Hall LH, Johnson J, Watt I, Tsipa A, O’Connor DB. Healthcare staff wellbeing, burnout, and patient safety: a systematic review. PLoS One. 2016;11:e0159015. Medline:27391946 doi:10.1371/journal.
28 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 Res Public Health. 2020;17. Medline:33291511 doi:10.3390/ijerph17239096

29 Magnavita N, Chirico F, Garbarino S, Bragazzi NL, Santacroce E, Zaffina S. SARS/MEIS/SARS-CoV-2 outbreaks and burnout syndrome among healthcare workers. An umbrella systematic review. Int J Environ Res Public Health. 2021;18. Medline:33924026 doi:10.3390/ijerph18084361

30 Salazar de Pablo G, Vaquerizo-Serrano J, Catalán A, Arango C, Moreno C, Ferre F, et al. Impact of coronavirus syndromes on physical and mental health of health care workers: Systematic review and meta-analysis. J Affect Disord. 2020;275:48-57. Medline:32658823 doi:10.1016/j.jad.2020.06.022

31 Morgantini LA, Naha U, Wang H, Francavilla S, Acafg O, Flores JM, et al. Factors contributing to healthcare professional burnout during the covid-19 pandemic: a rapid turnaround global survey. medRxiv. 2020.

32 Khasne RW, Dhakulkar BS, Mahajan HC, Kulikarni AP. Burnout among healthcare workers during COVID-19 pandemic in India: results of a questionnaire-based survey. Indian J Crit Care Med. 2020;24:664-71. Medline:33024372 doi:10.5005/jp-journals-10071-23518

33 Baptista S, Teixeira A, Castro L, Cunha M, Serrao C, Rodrigues A, et al. Physician burnout in primary care during the covid-19 pandemic: a cross-sectional study in Portugal. J Prim Care Community Health. 2021;12:21501327211008437. Medline:33840276 doi:10.1177/21501327211008437

34 Vilovic T, Bozic J, Zuzic Furlan S, Vilovic M, Kumric M, Martinovic D, et al. Mental health well-being and attitudes on mental health disorders among family physicians during COVID-19 pandemic: a connection with resilience and healthy lifestyle. J Clin Med. 2022;11:438. Medline:35054130 doi:10.3390/jcm11204348

35 Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3:e203976. Medline:32202646 doi:10.1001/jamanetworkopen.2020.3976

36 Stanetic K, Petrovic V, Markovic B, Stanetic B. The presence of stress, burnout syndrome and the most important causes of working stress among physicians in primary health care - an observational study from Banja Luka, Bosnia and Herzegovina. Acta Med Acad. 2019;48:159-66. Medline:31718216 doi:10.5643/ama2006-124.254

37 Dzubur A, Liska D, Abdulahovic D, Avdlic D, Smajovic M, Mlici M. Burnout syndrome in primary healthcare professionals. Journal of Health Sciences. 2018;8:122-7. doi:10.5005/jp-journals-10071-pch/16.7.409

38 Pintaric Japec V, Vucemilo L, Kust D, Babacanli A, Dodig D, Stefancic V, et al. Burnout among Croatian physicians: a cross sectional national survey. Croat Med J. 2019;60:255-64. Medline:31187954 doi:10.3325/cmj.2019.60.255

39 Friganovic A, Selic P. Levels of burnout syndrome in Croatian Critical care nurses: a cross-sectional study. Psychiatr Danub. 2020;32 Suppl 4:478-83. Medline:33212452 doi:10.31219/osf.io/xdeyh