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How COVID-19 Affected Healthcare Workers in the Hospital Locked Down due to Early COVID-19 Cases in Korea

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ABSTRACT

Background: The healthcare workers (HCWs) were exposed to never-experienced psychological distress during the early stage of the coronavirus disease 2019 (COVID-19) pandemic. The aim of this study was to investigate how the COVID-19 pandemic affected the mental health of HCWs during the hospital lockdown period due to mass healthcare-associated infection during the early spread of COVID-19.

Methods: A real-time online survey was conducted between April 14–18, 2020 among HCWs who worked at the university hospital where COVID-19 was confirmed in a patient, and the hospital was shut down for 3 weeks. Along with demographic variables and work-related information, psychological distress was measured using the Generalized Anxiety Disorder-7 (GAD-7), the Patient Health Questionnaire-9 (PHQ-9), the Maslach Burnout Inventory-General Survey scale, and the Stress and Anxiety to Viral Epidemics-9.

Results: The HCWs working in the cohort ward and those who have experienced social discrimination had significantly higher level of depression (PHQ-9 score; 5.24 ± 4.48 vs. 4.15 ± 4.38 ; $P < 0.01$ and 5.89 ± 4.78 vs. 3.25 ± 3.77 ; $P < 0.001$, respectively) and anxiety (GAD-7 score; 3.69 ± 3.68 vs. 2.87 ± 3.73 ; $P < 0.05$ and 4.20 ± 4.22 vs. 2.17 ± 3.06 ; $P < 0.001$, respectively) compared to other HCWs. Worries regarding the peer relationship and the skepticism about job were associated with depression (odds ratio [OR], 1.39; 95% confidence interval [CI], 1.07–1.79; $P < 0.05$ and OR, 1.69; 95% CI, 1.31–2.17; $P < 0.001$, respectively) and anxiety (OR, 1.73; 95% CI, 1.21–2.49; $P < 0.01$ and OR, 1.54; 95% CI, 1.09–2.17; $P < 0.05$, respectively), while fear of infection or worsening of health was not. Path analysis showed that work-related stress associated with the viral epidemic rather than anxiety about the viral epidemic mainly contributed to depression.

Conclusion: The present observational study indicates that mental health problems of HCWs exposed to COVID-19 are associated with distress in work and social relationship. Early intervention programs focusing on these factors are necessary.

Keywords: COVID-19; Psychological Distress; Social Discrimination; Healthcare Workers

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Disclosure

The authors have no potential conflicts of interest to disclosure.

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INTRODUCTION

Since severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) or coronavirus disease 2019 (COVID-19) was detected in December 2019 in China,¹ the virus has quickly spread worldwide. On January 19, 2020, first patient was diagnosed with COVID-19 infection in Korea; the number of COVID-19 patients soon drastically increased, exceeding 5,000 within 6 weeks. On February 21, 2020, the COVID-19 cases were first reported in Seoul Metropolitan area at the Eunpyeong St. Mary's Hospital, which caused massive public fear of the uncontrolled transmission of COVID-19 in the most populated area in Korea.² This first case resulting from healthcare-associated infections (HAI) at a university hospital in Korea hurried the government into announcing the highest alert level of infectious disease nationwide on February 23, 2020.³

The mental health of healthcare workers (HCWs) is a major concern during the outbreak of COVID-19.^{4,5} Before the development of vaccination and therapeutic options, fear of being infected with COVID-19^{6,7} along with anxiety, insomnia, and depression were prominent mental problems among HCWs.^{4,8,9} Specifically, lockdown of the hospital had significantly undermined the mental health of the quarantined HCWs.^{10,11} Previous studies consistently reported various problems including exhaustion, anxiety, depression, deterioration of work performance, and social discrimination related to work among HCWs who worked under quarantine or isolation.¹¹⁻¹⁵ The stress related to COVID-19 pandemic had several domains including fear of being infected or infecting others, being stigmatized, performing poorly or losing jobs.^{2,16,17} Currently, in March 2021, most countries are providing COVID-19 vaccination with its top priority being frontline HCWs. Though still prevalent, the mental health problems among the HCWs are now different from those during the early pandemic phase of COVID-19, both in feature and intensity. People have adapted to the threat posed by pandemic, and are less fearful of the virus as knowledge about its treatment and prevention is being communicated.¹⁸ Despite the abundance of studies reporting mental health problems among HCWs exposed to the early stages of the COVID-19 pandemic, few studies have measured what domains of pandemic-related stress caused anxiety and depression among quarantined HCWs during the early stages of COVID-19 pandemic.

In April 2020, the second mass HAI in Korea occurred at the Uijeongbu St. Mary's Hospital,¹⁹ which is the sister hospital of Eunpyeong St. Mary's Hospital which had reported the first mass HAI in Korea. Using real-time online survey, we measured COVID-19-related stress and events, the levels of depression, anxiety, and burnout among HCWs of Uijeongbu St. Mary's Hospital. This study evaluated the HCWs working at a university hospital during the lockdown period during the early spread of COVID-19 and provides a unique opportunity to explore how COVID-19 affected the mental health of HCWs.

METHODS

Hospital and participants

This study was performed to evaluate mental health status for the psychological support program for HCWs working at Uijeongbu St. Mary's Hospital, The Catholic University of Korea from April 14, 2020 to April 18, 2020. The hospital is a tertiary general hospital with 706 beds, located in Uijeongbu, Gyeonggi-do, Korea. The hospital was shut down for 3 weeks after a patient was confirmed to be COVID-19 positive on March 1, 2020. The restoration of

the hospital to full function took 40 days following the outbreak of the first COVID-19 case in the hospital. All HCWs were asked to anonymously answer an online self-rated questionnaire during the lockdown period. Demographic data including age, gender, and marital status were gathered. Work-related data including information about their jobs, the experience of being quarantined, and working at the cohort wards were obtained.

Measures of COVID-19-related stress and anxiety

The COVID-19-related events

COVID-19-related events including the experience of being quarantined at home and working at the cohort ward were obtained. Experiences of social discrimination were determined by the following question: "Have you experienced any social discrimination because of working at a hospital where COVID-19 cases were confirmed?"

The Stress and Anxiety to Viral Epidemics-9 (SAVE-9) scale

The 9-item SAVE-9 scale was originally developed for the assessment of HCWs work-related stress response to the viral epidemic.²⁰ The scale has two domains: 1) anxiety about the viral epidemic, and 2) work-related stress associated with the viral epidemic. Respondents can answer each item on a 5-point Likert scale ranging from 0 (never) to 4 (always). The appropriate cut-off score of SAVE-9 scale according to a mild degree of anxiety symptoms (Generalized Anxiety Disorder-7 [GAD-7] score ≥ 5) was observed as 22.

Measures of depression, anxiety, and burnout

Patient Health Questionnaire-9 (PHQ-9)

The PHQ-9²¹ is a self-report screening test and consists of nine items to assess for the presence of the nine diagnostic criteria for major depressive disorder according to Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5).²² Each item of PHQ-9 can be scored on a 4-point Likert scale as follows: 0 (not at all), 1 (several days), 2 (more than a week), 3 (nearly every day). The total score of the PHQ-9 scale can range from 0 to 27, and higher scores reflect severe degrees of depressive symptoms. The Korean version of the PHQ-9 was validated by various studies in the general population and in a primary care setting.^{23,24} In this study, clinical depression was defined as PHQ-9 score ≥ 10 points.²⁵

GAD-7

The GAD-7 was developed to screen and measure the severity of GAD symptoms in primary healthcare settings.^{26,27} It consists of seven items rated on a 4-point Likert scale as follows: 0 (not at all), 1 (several days), 2 (more than a week), 3 (nearly every day). The total score of the GAD-7 scale can range from 0 to 21, and higher scores reflect severe degrees of anxiety symptoms. In this study, clinical anxiety symptom was defined as GAD-7 score ≥ 10 points.²⁶

Maslach Burnout Inventory-General Survey (MBI-GS)

The MBI-GS²⁸ is a self-rating scale widely used for assessing burnout. It includes 3 subscales: exhaustion, cynicism, and professional efficacy. The exhaustion scale relates to physical and emotional resource depletion caused by workplace stress. The cynicism scale describes an impersonal and distant attitude toward the work overall. The professional efficacy scale measures feelings of achievement at work. The degree of burnout is determined to be higher when the score is high in exhaustion and cynicism and low in professional efficacy. High levels of exhaustion (> 3.5) and either high cynicism (> 3.5) or low professional efficacy (< 2.5) were selected as the primary criteria to estimate degree of burnout.²⁹

Statistical analysis

The Student's *t*-test was used to compare mental health as measured by PHQ-9, GAD-7, MBI-GS, and SAVE-9 between HCWs who were exposed to COVID-19-related events and those who were not. Binary logistic regression was applied to examine the COVID-19-related events and items of SAVE-9 that are associated with the HCWs' depression and anxiety. The HCWs' depression vs. no depression was defined by PHQ-9 total score (≥ 10 points) and anxiety versus no anxiety was defined by GAD-7 total score (≥ 10 points). Age and sex were included in the regression model to adjust the results accordingly. For further analysis to explore how COVID-19-related stress, measured by SAVE-9, affects mental health, path analysis was performed based on the total scores of PHQ-9, GAD-7, MBI-GS, and the scores of the two known factors of SAVE-9: 1) anxiety about the viral epidemic and 2) work-related stress associated with the viral epidemic. The software R (R Foundation for Statistical Computing, Vienna, Austria) and AMOS 27 (SPSS Inc., Chicago, IL, USA) were used for binary logistic regression analysis and path analysis, respectively. All tests were 2-tailed and statistical significance was set at $P < 0.05$.

Ethics statement

This study was approved by the Institutional Review Board of the Uijeongbu St. Mary's Hospital, College of Medicine at The Catholic university of Korea (Approval No. UC20RADIO090). The requirement of written informed consent was waived.

RESULTS

Study survey period

The survey dates for the study, from April 14, 2020 to April 18, 2020, were in the early phase of the COVID-19 pandemic in South Korea. The COVID-19 outbreaks in the Uijeongbu St. Mary's Hospital, the second set of HAI in South Korea, received national attention.¹⁹ Fig. 1 provides the peaked Google trend for the term "Uijeongbu St. Mary's Hospital" right before the survey during the lockdown of the hospital, which shows the context of vulnerability

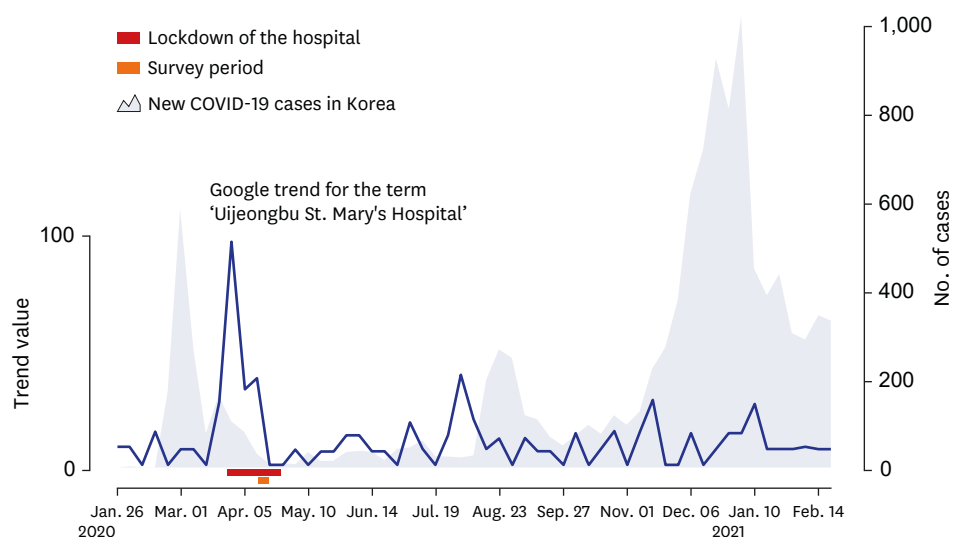


Fig. 1. Trend value on Google trend for 'Uijeongbu St. Mary's Hospital' and newly confirmed COVID-19 cases. Two bars represent the period of lockdown of the hospital and survey period, respectively. COVID-19 = coronavirus disease 2019.

among HCWs facing unprecedented threats due to the COVID-19 outbreaks soon after the time of the first peak in the number of new COVID-19 cases in South Korea.

Characteristics of study population

About half of total HCWs at the hospital (n = 764, 45.7%) completed the survey and among them, 548 participants (71.7%) were female. Regarding marital status, 410 (53.7%) were single, 340 (44.5%) were married, and 14 (1.8%) were divorced or widowed. The majority of the participants were nurses (n = 394, 51.6%), followed by paramedics (n = 174, 22.8%), physicians (n = 107, 14.0%) and office workers (n = 70, 9.2%) (Table 1). Nineteen people at the hospital comprising HCWs, patients, and their caregivers were confirmed to be infected with COVID-19. They were cohort-isolated in a ward with 88 patients to stop spreading the infection. Of the participants, 6 (0.8%) were confirmed with COVID-19, 218 (28.5%) reported being quarantined, 142 (18.6%) were working at the cohort ward, and 320 (41.9%) reported

Table 1. Demographic and psychological characteristics of participants

Variables	Value
Age	35.0 ± 9.5 (20–60)
Sex	
Male	216 (28.3)
Female	548 (71.7)
Marital status	
Single	410 (53.7)
Married	340 (44.5)
Divorced/widowed	14 (1.8)
Healthcare workers	
Doctors	107 (14.0)
Nurses	394 (51.6)
Paramedics	174 (22.8)
Office workers	70 (9.2)
Others	19 (2.5)
Experienced of being quarantined	
Yes	218 (28.5)
No	546 (71.5)
Work at the cohort ward	
Yes	142 (18.6)
No	622 (81.4)
Experiences of prejudice (or social discrimination)	
Yes	320 (41.9)
No	444 (58.1)
SAVE-9	29.17 ± 7.05 (9–45)
Anxiety subscale	3.63 ± 0.84
Work-related stress subscale	2.62 ± 0.79
PHQ-9	4.35 ± 4.42 (0–24)
Clinically depressed (PHQ-9 score ≥ 10)	87 (11.4)
Not depressed (PHQ-9 score < 10)	677 (88.6)
GAD-7	3.02 ± 3.73 (0–21)
Clinically anxious (GAD-7 score ≥ 10)	50 (6.5)
Not anxious (PHQ-9 score < 10)	714 (93.5)
MBI-GS	36.30 ± 15.08 (0–76)
Exhaustion	3.12 ± 1.62
Cynicism	1.77 ± 1.40
Professional efficacy	2.26 ± 1.16
Burnout	
Yes	81 (10.6)
No	683 (89.4)

Values are presented as mean ± standard deviation (range) or number (%).

SAVE-9 = Stress and Anxiety to Viral Epidemics-9, PHQ-9 = Patient Health Questionnaire-9, GAD-7 = Generalized Anxiety Disorder-7, MBI-GS = Maslach Burnout Inventory-General Survey.

that they had experienced social discrimination because they were working at the hospital where COVID-19 patients were confirmed and contained.

The total score of the SAVE-9 was 29.17 ± 7.05 , and anxiety subscale and work-related stress subscale scores were 3.63 ± 0.84 and 2.62 ± 0.79 , respectively (Table 1). Regarding the psychological distress of the HCWs, the percentage of the HCWs who had depression (PHQ-9 total scores ≥ 10) was 11.4%. The percentage of the HCWs who had generalized anxiety (GAD-7 total scores ≥ 10) was 6.5%. The proportion of the HCWs who had experienced burnout based on MBI-GS scores was 10.6%.

Differences in mental health status among HCWs

Those HCWs who were quarantined due to exposure to the COVID-19 patients had significantly higher total scores of the SAVE-9 (30.08 ± 6.60 vs. 28.80 ± 7.19 , $P < 0.05$) and MBI-GS scores (38.67 ± 14.15 vs. 35.35 ± 15.35 , $P < 0.01$). Compared to HCWs working in general wards, those working in the cohort ward had significant higher psychological distress on all measures: SAVE-9 (31.54 ± 6.33 vs. 28.63 ± 7.09 , $P < 0.001$), PHQ-9 (5.24 ± 4.48 vs. 4.15 ± 4.38 , $P < 0.01$), GAD-7 (3.69 ± 3.68 vs. 2.87 ± 3.73 , $P < 0.05$), and MBI-GS (42.81 ± 12.69 vs. 34.81 ± 15.20 , $P < 0.001$). Additionally, HCWs who had experienced social discrimination showed significantly higher psychological distress as compared to those who had not: SAVE-9 (32.72 ± 5.89 vs. 26.61 ± 6.70 , $P < 0.001$), PHQ-9 (5.89 ± 4.78 vs. 3.25 ± 3.77 , $P < 0.001$), GAD-7 (4.20 ± 4.22 vs. 2.17 ± 3.06 , $P < 0.001$) and MBI-GS (40.39 ± 15.02 vs. 33.34 ± 14.44 , $P < 0.001$) (Table 2). HCWs working at the cohort ward had experienced higher levels of social discrimination ($\chi^2 = 3.935$, $P < 0.05$).

Compared with male HCWs, female HCWs had significant psychological distress as evidenced by higher scores on the SAVE-9 (30.28 ± 7.63 vs. 26.33 ± 7.29 , $P < 0.001$), PHQ-9 (4.93 ± 4.56 vs. 2.90 ± 3.66 , $P < 0.001$), GAD-7 (3.43 ± 3.86 vs. 1.99 ± 3.15 , $P < 0.001$) and MBI-GS (12.69 ± 2.95 vs. 11.52 ± 2.87 , $P < 0.001$). Compared with the other HCWs ($n = 370$), the nurse group ($n = 394$) had significantly higher scores on SAVE-9 (29.79 ± 7.20 vs. 27.98 ± 6.59 , $P < 0.005$) and MBI-GS (38.90 ± 14.22 vs. 29.69 ± 15.22 , $P < 0.001$).

Depression and anxiety according to COVID-19-related stress

Fig. 2 shows the association between the experience of COVID-19-related stress and having depression or anxiety. The COVID-19-related stress include the items of SAVE-9 and whether HCWs experienced COVID-19-related social discrimination, quarantine, or working at cohort ward. As depicted in Fig. 2, the skepticism about their job (Q6) (odds ratio [OR], 1.69; 95% confidence interval [CI], 1.31–2.17; $P < 0.001$), worries of the social discrimination (Q5) (OR, 1.41; 95% CI, 1.09–1.82; $P < 0.01$), and peer relationship (Q9) (OR, 1.39; 95% CI, 1.07–1.79; $P < 0.05$) were associated with depression; the skepticism about their job (Q6) (OR, 1.54; 95% CI, 1.09–2.17; $P < 0.05$), worries of the peer relationship (Q9) (OR, 1.73; 95% CI, 1.21–2.49; $P <$

Table 2. Differences in mental health according to the COVID-19-related events

Variables	Quarantined			Working at cohort ward			Socially discriminated		
	Yes (n = 218, 18.6%)	No (n = 546, 71.5%)	P value	Yes (n = 142, 18.6%)	No (n = 622, 81.4%)	P value	Yes (n = 320, 41.9%)	No (n = 444, 58.1%)	P value
SAVE-9	30.08 ± 6.60	28.80 ± 7.19	< 0.05	31.54 ± 6.33	28.63 ± 7.09	< 0.001	32.72 ± 5.89	26.61 ± 6.70	< 0.001
PHQ-9	4.47 ± 4.15	4.31 ± 4.52	0.642	5.24 ± 4.48	4.15 ± 4.38	< 0.01	5.89 ± 4.78	3.25 ± 3.77	< 0.001
GAD-7	3.14 ± 3.48	2.97 ± 3.83	0.585	3.69 ± 3.68	2.87 ± 3.73	< 0.05	4.20 ± 4.22	2.17 ± 3.06	< 0.001
MBI-GS	38.67 ± 14.15	35.35 ± 15.35	< 0.01	42.81 ± 12.69	34.81 ± 15.20	< 0.001	40.39 ± 15.02	33.34 ± 14.44	< 0.001

Data are presented as mean \pm standard deviation.

COVID-19 = coronavirus disease 2019, SAVE-9 = Stress and Anxiety to Viral Epidemics-9, PHQ-9 = Patient Health Questionnaire-9, GAD-7 = Generalized Anxiety Disorder-7, MBI-GS = Maslach Burnout Inventory-General Survey.

SAVE-9

- Q6. Do you feel skeptical about your job after going through this experience?
- Q4. Are you more sensitive towards minor physical symptoms than usual?
- Q5. Are you worried that others might avoid you even after the infection risk has been minimized?
- Q9. Do you think that your colleagues would have more work to do due to your absence from a possible quarantine and might blame you?
- Q1. Are you afraid the virus outbreak will continue indefinitely?
- Q7. After this experience, do you think you will avoid treating patients with viral illnesses?
- Q3. Are you worried that you might get infected?
- Q8. Do you worry your family or friends may become infected because of you?
- Q2. Are you afraid your health will worsen because of the virus?

COVID-19 Events

- Socially discriminated
- Working at cohort ward
- Quarantined

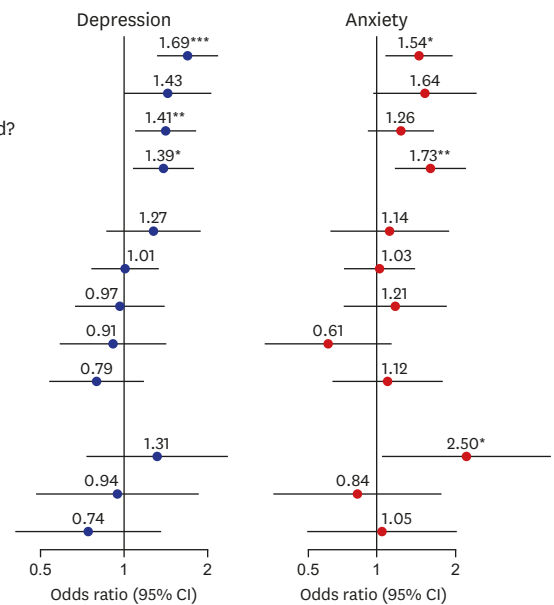


Fig. 2. Odds ratio of the COVID-19-related events and items of the SAVE-9 in a binary logistic regression model of depression and anxiety. COVID-19 = coronavirus disease 2019, SAVE-9 = Stress and Anxiety to Viral Epidemics-9. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

0.01), and the experience of the social discrimination (OR, 2.50; 95% CI, 1.06–5.91; $P < 0.05$) were associated with anxiety. Notably, Q6 and Q9 belong to the SAVE-9 work-related stress subscale and Q5 belongs to the SAVE-9 infection anxiety subscale.

Path model

Fig. 3 illustrates the path model for the data from SAVE-9, MBI-GS, GAD-7, and PHQ-9. The path model yielded the acceptable fit indices ($\chi^2/df = 4.508$, $P = 0.004$; root mean square error of approximation = 0.068, normed fit index = 0.991, comparative fit index = 0.993, goodness-of-fit-index = 0.993 and incremental fit index = 0.993). The SAVE-9's subscale of infection anxiety had direct positive effect only on generalized anxiety (GAD-7) ($\beta = 0.148$, $P < 0.005$), and the work-related stress subscale had direct positive effect on both generalized anxiety (GAD-7) ($\beta = 0.392$, $P < 0.005$) and burnout (MBI-GS) ($\beta = 0.381$, $P < 0.005$). While generalized anxiety (GAD-7) had direct positive effect on depression (PHQ-9) ($\beta = 0.668$, $P < 0.005$) and burnout (MBI-GS) ($\beta = 0.198$, $P < 0.005$), burnout had direct positive effect only on depression (PHQ-9) ($\beta = 0.165$, $P < 0.005$).

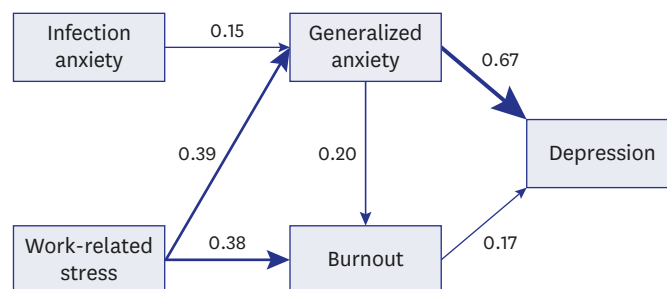


Fig. 3. Path analysis model for the predictors of depression in healthcare workers during the early stage of the COVID-19 pandemic. Only significant effects are shown. COVID-19 = coronavirus disease 2019.

DISCUSSION

Using a real-time online survey, the present study investigated the psychological impact of COVID-19 and predictors of depression in HCWs working at a university hospital which had been locked down during the early spread of COVID-19 pandemic. During COVID-19 outbreak, HCWs engaged in treating or managing patients with COVID-19 experienced significantly higher psychological distress than HCWs who did not, as evidenced by higher scores on the SAVE-9, PHQ-9, GAD-7, and MBI-GS scales. This is consistent with previous studies reporting that HCWs who have been in contact with patients with pandemic diseases including COVID-19, the severe acute respiratory syndrome (SARS), and the Middle East Respiratory Syndrome (MERS) experienced an acute traumatic response.³⁰⁻³⁵

However, our study shows that the predictor of depression of HCWs was not due to fear or anxiety of COVID-19 infection, but the work-related social stress that they might be shunned (Q5 item in SAVE-9) or blamed (Q9) due to the COVID-19 infection. The HCWs working at the cohort ward experienced higher levels of social discrimination than those not working in the ward and the HCWs who had experienced social discrimination showed increased mental distress; these findings emphasize the social nature of the distress caused by COVID-19 in HCWs. The skepticism about their job among the HCWs (Q6) showed the highest OR predicting depression and anxiety, suggesting that work-related stress could be the main source of distress in HCWs during infectious disease pandemics.

The experiences of social discrimination and prejudice were predictors of generalized anxiety. Social stigma had various negative consequences such as higher prevalence of stress or burnout in HCWs treating patients with MERS³⁶ and COVID-19.³⁷ In our analysis using a path model, work-related stress including fear of social discrimination was the main contributor of generalized anxiety that had a direct effect on depression. Although previous studies also reported that feelings of vulnerability, changes in workload, fear of being blamed and isolated, and worries of adapting to changing environments were the factors responsible for psychological distress among HCWs managing infectious diseases³⁸⁻⁴⁰; they rarely suggested that distress regarding work and social relations were the main source of mental problems including depression and anxiety among HCWs. The COVID-19 pandemic is now becoming a crisis with regards to work and social relations in the general population.^{41,42} Our results show that COVID-19 had disturbed the work and social relations of HCWs during the early phase of the pandemic.

The present study showed that 11.4% (n = 87) of HCWs employed at hospitals with COVID-19 cases exhibited depressive symptoms (PHQ-9 score ≥ 10) and 6.5% (n = 50) had generalized anxiety symptoms (GAD-7 score ≥ 10). Previous studies showed that symptoms of anxiety and depression were reported in 25.5–44.6% and 12.1–50.4% of HCWs treating patients with COVID-19^{4,16,43} and in 46.5–77.4% and 22.8–74.2% of HCWs treating patients with SARS,^{33,44-46} respectively. The relatively lower rate of psychological distress compared to that in other countries, especially generalized anxiety of the HCWs in the present study, may be due to the differences in the number of confirmed cases, differences in working environment, using different measures, and varying organizational communication and support,^{47,48} etc.

The present study has several limitations. As this was a cross-sectional study, the causality between depression and work-related stress or worries of social discrimination could not be established. To increase the response rate in the survey, we did not include questionnaires evaluating previous psychiatric history, personality traits, or details of workload and lifestyle

factors, which might elaborate the relationship between work-related social stress and mental health of HCWs. Finally, since this study was conducted at a tertiary university hospital, the results may not be generalized to HCWs in community settings. However, despite the limitations, the results of the study provide a novel case showing that HCWs engaged in treating or managing patients with suspected COVID-19 were at a higher risk of displaying psychiatric symptoms due to the worries and anxiety about work and social relations. Thus, early screening and effective intervention programs focusing on work-related social stress among HCWs are required.

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