Sakarya Üniversitesi Holistik Sağlık Dergisi
Sakarya University Journal of Holistic Health

ISSN : 2687-6078
Publisher : Sakarya University

Vol. 7, No. 1, 23-35, 2024
DOI: https://doi.org/10.54803/sauhsd.1330263

Research Article

# Healthcare Workers' Anxiety Levels and Mindful Attention Awareness Towards the Covid-19 Pandemic

Füsun Fakılı[1*], Nurgül Özdemir[2]

[*1] Department of Pulmonary Medicine, Gaziantep University, Sahinbey Research Hospital, Gaziantep, Türkiye
fusunfakili@yahoo.com

[2] Department of Psychiatric Nursing, Faculty of Health Sciences, Gaziantep University, Gaziantep, Türkiye
nuozdemir@hotmail.com

*Corresponding Author

**Abstract**

**Aim:** Mindful attention awareness and anxiety levels of healthcare workers during the COVID-19 pandemic were unknown. In this study, we aimed to measure the behavioral changes of healthcare workers together with their anxiety and mindful attention awareness levels during the pandemic.

**Methods:** A brief mental health examination was conducted on healthcare workers who were actively involved in the COVID-19 pandemic to identify any dysfunctional anxiety issues associated with COVID-19. A survey containing behavioral changes, as well as a coronavirus anxiety scale and mindful attention awareness scale were administered to healthcare workers during the pandemic.

**Results:** A total of 146 healthcare workers, 56.2% of women were included in the study. The coronavirus anxiety scale score values of the participants were a mean of 4±4.4 (Min=0-Max=20), and 13.7% of them had high levels of anxiety. The mean score for the mindful attention awareness scale score was a mean 59.4±13.9 (Min=22-Max=90). Females had higher coronavirus anxiety scale scores (p=0.003), but males had greater mindful attention awareness scale scores (p=0.001).

It was determined that the coronavirus anxiety scale total scores averages of healthcare workers whose sleep (p=0.001), out-of-hospital clothing (p=0.006), and eating habits (p=0.017) changed during the pandemic were statistically significantly higher (p<0.05). Healthcare workers with higher coronavirus anxiety scores used more prophylactic drugs and supplements/vitamins after contact with COVID-19 patients.

**Conclusions**: Although the coronavirus anxiety scale score was below average and the mindful attention awareness scale score was above average, healthcare workers' behaviors changed during the pandemic. Coronavirus anxiety and mindful attention awareness scale levels affected the behaviors of healthcare workers. Psychosocial support programs must be provided to healthcare workers during the pandemic.

**Keywords:** COVID-19, Anxiety, Healthcare workers, Mindfulness, Behavior, Pandemics

Received: 20.07.2023
Accepted: 29.03.2024
Available Online: 22.04.2024

## 1. Introduction

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is a newly detected infectious disease in humans. The first official case of novel coronavirus disease (COVID-19) was announced on 11th March 2020 in Türkiye, and on the same date, the World Health Organization (WHO) declared COVID-19 infection as a global epidemic (1). COVID-19 infection is mostly seen with mild symptoms or asymptomatic. However, while rapidly progressing causes severe pneumonia and acute respiratory distress syndrome (ARDS) in a small group of patients, it can also be mortal (2). Vaccines have changed the course of the pandemic. Studies showed that vaccination with a mRNA COVID-19 vaccine was significantly less likely among patients with COVID-19 hospitalization and disease progression to death or mechanical ventilation (3). However, COVID-19 is still seen all over the world and causes deaths (4).

**Cite as:** Fakılı F., Özdemir N. Healthcare Workers' Anxiety Levels and Mindful Attention Awareness Towards the Covıd-19 Pandemic. *Sakarya Üniversitesi Holistik Sağlık Dergisi*. 2024;7(1): 23-35. https://doi.org/10.54803/sauhsd.1330263

Although the vast majority of patients are followed up on an outpatient basis, symptomatic patients are followed up in the hospital. Healthcare workers (HCWs) are involved in all stages of diagnosis, follow-up, care, and treatment of COVID-19 patients. The COVID-19 outbreak poses an excellent risk for HCWs due to the frequency of contact with viruses. While no HCW in China was initially infected with COVID-19, 7% of COVID-19 patients between January 12 and 22, 2020, were HCWs (5). According to data from the Centers for Disease Control and Prevention (CDC), deaths due to COVID-19 infection have occurred among HCWs in the USA (6).

The highly contagious COVID-19 virus, seen for the first time in humans, has caused concern in society. The health system is one of the most difficult institutions to manage during global outbreaks that cause mortality, such as the pandemic. Healthcare teams, who have significant professional responsibility, are affected by pandemics that have socioeconomic and mental impacts on society. In the first study conducted on HCWs in the city of Wuhan, where the COVID-19 outbreak first occurred, it was found that 71.3% of the HCWs had subthreshold and mild, 22.4% moderate, and 6.2% severe mental disorders (7). The mindfulness dimension is defined as the ability to grasp these feelings and thoughts with a balanced awareness rather than their excessive integration of transmissible painful emotions and thoughts. The most common definition of conscious awareness has been defined as mindfulness and awareness of what is happening in the present. Mindfulness is a quality of consciousness that has received a lot of attention in terms of well-being. Mindful awareness includes awareness of emotional processes and brain functions (8). Studies have shown that mindfulness is effective on anxiety, depression, and mental problems (9–11). Mindful awareness and focusing on the present can reduce negative expectations and bad feelings about the future in situations that cause anxiety and stress, such as the COVID-19 pandemic (12).

Individuals' mental health may suffer as a result of the COVID-19 pandemic. At the same time, protective variables like mindfulness, which is a moment-to-moment awareness of one's feelings without judgment, may have a favorable effect on a variety of psychological outcomes throughout the pandemic. The study supports the value of trait mindfulness for psychological consequences during the COVID-19 pandemic (13). Changes in nurse-patient ratios, care for high-risk patients, the risk of getting the disease, treatment for the virus, changes to work circumstances, giving patients intensive, prolonged care while wearing protective equipment, and the potential for the virus to spread to other patients or families can all contribute to the pandemic and cause unsettling emotions in nurses, including anxiety, stigma, burnout, and anger (14). Changes in mindful awareness and anxiety levels are expected in major epidemics such as the COVID-19 pandemic.

This study primarily aimed to investigate the mindful attention awareness (MAA) levels and anxiety levels of HCWs during the pandemic. Secondly, we intended to show HCWs' perspectives toward COVID-19, disease prevention strategies, and behavioral changes.

## 2. Methods

### 2.1. Study design and participants

This is a cross-sectional, observational, single-center study that was conducted in a tertiary university hospital. The STROBE standards for reporting observational studies were followed. This study was approved by the Gaziantep University Medical Ethics Committee (No: S-2020-264) and The Scientific Research Ethics Committee of the Turkish Ministry of Health.

HCWs who voluntarily agreed to participate in the study between August 15 and October 15, 2020, at Gaziantep University Sahinbey Research Hospital were included. Power analysis was used to compute the sample size, and the minimum number of patients in each group was determined as p=0.05, 1-=0.80 as 121 individuals in order for a difference of 1(±1) unit to be statistically significant in terms of visual equivalence scale. HCWs who were not actively working at the time of the study (on sick leave, on annual leave, or not delivering care services) were not included in the study.

Research questions of the study:

1. What are the attitudes of healthcare workers towards the COVID-19 pandemic?
2. What is the COVID-19 mindful attention awareness level of healthcare workers?
3. What is the COVID-19 coronavirus anxiety level of healthcare workers?

Inclusion criteria of the study: HCWs who are over 18 years old, work in an active hospital environment, and have patient contact. HCWs consisted of doctors, nurses, and emergency paramedics.

Exclusion criteria of the study: HCWs who had COVID-19 disease, were in the quarantine period, were not actively working in the hospital, and did not agree to participate in the study were excluded from the study.

The HCWs participating in the study filled out the three questionnaires below.

### 2.2. Measurements

#### 2.2.1. HCWs information form

A questionnaire measuring HCWs' socio-demographic characteristics and attitudes towards the COVID-19 pandemic: It consists of 25 questions measuring HCWs' socio-demographic characteristics and attitudes towards the COVID-19 outbreak.

#### 2.2.2. Coronavirus Anxiety Scale (CAS)

A brief mental health screening of the CAS, developed by S. Lee, was used in the study to identify possible dysfunctional anxiety cases associated with the COVID-19 crisis (15). According to the results obtained by Lee, when the reliability coefficient was 0.93, in studies in Türkiye, Cronbach's alpha reliability coefficient was calculated to be 0.83 (16). The scale consists of 5 questions and one dimension. Scoring the scale: 0=never, 1=rare, less than a day or two, 2=several days, 3=more than seven days, and 4=almost every day in the last two weeks. The highest score that can be obtained from the scale is 20. Scores of 9 and above indicate a high anxiety level (11).

#### 2.2.3. Mindful Attention Awareness Scale (MAAS)

This scale, which was developed by Brown and Ryan in 2003 (8), was adapted into Turkish by Özyeşil et al. in 2011(17). The internal consistency coefficient of the original scale was found to be $\alpha$=0.82(8). In our study, a form translated into Turkish was applied, and the validity and reliability of the scale were found to be appropriate (17). The MAAS is a 6-score Likert type (1=almost always, 2=most of the time, 3=sometimes, 4=rarely, 5=quite infrequently, 6=almost never). Higher scores on the scale show that conscious awareness is high. MAAS was applied to the sample group selected from Selcuk University students every three weeks, and the test-retest reliability of the scale was r=0.86. To calculate the scale's criterion-related validity, the Self-Understanding Scale, Depression, Anxiety, Stress Scale, and Positive and Negative Affect Scale were used and significant relationships were found between them (17).

### 2.3. Data collection

The study data were collected by the researcher by interviewing the healthcare professionals at the hospital face-to-face, giving information about the purpose of the study, and obtaining their verbal and written consents. It took HCWs an average of 25-30 minutes to fill out this form.

### 2.4. Statistical analysis

The data's compliance to normal distribution was tested with the Shapiro-Wilk test, the Mann-Whitney U test was used to compare the scores of the non-normally distributed scale in two groups, and the Kruskal-Wallis and Dunn multiple comparison tests were used for the comparison of more than two independent groups. Spearman rank correlation coefficient was used to test the relationships between numerical variables, and the chi-square test was used to test the relationships between categorical variables. The reliability of the items of the scales was tested with the Cronbach alpha internal consistency coefficient. As descriptive statistics, mean ± standard deviation for numerical variables, number and % values for categorical variables are given. SPSS for Windows version 24.0 package program was used for statistical analysis, and $p < 0.05$ was considered statistically significant

## 3. Results

A total of 146 HCWs (56.2% female) were enrolled in the study. Participants; 83 (56.8%) were married, 77 (52.7%) were physicians, 65 (44.5%) were nurses, four (2.7%) emergency paramedics. It was determined that 90 (61.6%) of the HCWs were undergraduate or associate degree graduates, and the rest had postgraduate education. Considering the distribution of the workplaces of the participants in the hospital, 81 (55.5%) were in non-surgical units, 49 (33.6%) were in surgical units, seven (4.8%) were in outpatient units, five (3.4%) were in emergency services, four (2.7%) were working in intensive care units (ICU). In the study, 18 (12.3%) of the HCWs had a chronic disease, and 31 (21.2%) were active smokers (Table 1).

**Table 1.** Characteristics of the participants

| **Baseline characteristics** | | **N** | **%** |
|---|---|---|---|
| Age | 18-25 | 13 | 8.9 |
| | 25-29 | 64 | 43.8 |
| | 30-34 | 27 | 18.5 |
| | 35-39 | 26 | 17.8 |
| | ≥ 40 | 16 | 11.0 |
| Gender | Woman | 82 | 56.2 |
| | Man | 64 | 43.8 |
| Marital status | Married | 83 | 56.8 |
| | Single | 63 | 43.2 |
| Profession | Physician | 77 | 52.7 |
| | Nurse | 65 | 44.5 |
| | Emergency paramedic | 4 | 2.7 |
| Education | Undergraduate or associate degree | 90 | 61.6 |
| | Postgraduate | 56 | 38.4 |
| Position in hospital | Surgical units | 49 | 33.6 |
| | Non-surgical units | 81 | 55.5 |
| | Emergency clinic | 5 | 3.4 |
| | Intensive care | 4 | 2.7 |
| | Outpatient clinic | 7 | 4.8 |
| Chronic illness | Yes | 18 | 12.3 |
| Smoking | Yes | 31 | 21.2 |
| COVID-19 information | Yes | 99 | 67.8 |
| PPE use | Yes | 141 | 96.6 |
| COVID-19 case definition | Yes | 125 | 85.6 |
| Suspicious COVID-19 case theme | Yes | 124 | 84.9 |
| Drug use after COVID-19 contact | Yes | 20 | 13.7 |

| | | | |
|---|---|---|---|
| Use of vitamins/supplements after COVID-19 contact | Yes | 63 | 43.2 |
| Hand washing habit | Same | 16 | 11.0 |
| | More often | 128 | 87.7 |
| | Less | 2 | 1.4 |
| | Never | 3 | 2.1 |
| Use of mask in hospital | Always | 115 | 78.8 |
| | Sometimes | 10 | 6.8 |
| | Often | 18 | 12.3 |
| The mask use in COVID-19 patient contact | Surgical mask | 65 | 44.5 |
| | N95/FF2 mask | 78 | 53.4 |
| | Cloth mask | 3 | 2.1 |
| | Never | 30 | 20.5 |
| Use of PPE in COVID-19 patients' care | Always | 58 | 39.7 |
| | Sometimes | 37 | 25.3 |
| | Often | 21 | 14.4 |
| Uniform at the hospital | Yes | 115 | 78.8 |
| Sleeping habits | Yes | 78 | 53.4 |
| Staying away from family | Yes | 96 | 65.8 |
| Isolation | Yes | 78 | 53.4 |
| Out-of-hospital clothing habits | Yes | 98 | 67.1 |
| Eating habits | Yes | 76 | 52.1 |
| Social media habits | Same | 67 | 45.9 |
| | More often | 61 | 41.8 |
| | Less | 18 | 12.3 |

Considering the answers of the HCWs to the questions about COVID-19; 99 of the participants (67.8%) received medical information about COVID-19 in their department and/or clinics, 141 (96.6%) knew which personal protective equipment (PPE) to use for COVID-19, 125 (85.6%) knew the COVID-19 case definitions, 124 (84.9%) had suspected COVID-19 case contact, 20 (13.7%) used prophylactic drug after COVID-19 case contact. It was seen that 63 (43.2%) of them used supplements of vitamins/nutrients after contact with a COVID-19 case.

Looking at the responses to the questions about PPE use and behavior change during the COVID-19 pandemic period, 115 (78.8%) of inpatient contacts with no COVID-19 case definition use masks all the time in the hospital, 78 (53.4%) use N95/FF2 masks in COVID-19 patient contact, and 58 (39.7%) also use PPE, which includes visors, overalls, and goggles. There was no significant relationship between the workplace in the hospital and PPE use (P = 0.760). During the pandemic period, it was observed that 128 of the HCWs (87.7%) washed their hands more frequently than usual, 115 (78.8%) wore the uniform in the hospital, and 98 (67.1%) had a change in their out-of-hospital clothing habits. During the pandemic period, 96 (65.8%) of the HCWs in the study were separated from their families for at least one week, and 78 (53.4%) were isolated for at least one week. HCWs (53.4%) changed their sleeping

habits, 76 (52.1%) changed their eating habits, and 61 (41.8%) utilized social media more frequently than usual (Table 1).

The mean ± SD in the CAS score evaluation of the participants was 4.07 ± 4.41 (Min=0-Max=20); 20 (13.7%) of them had high anxiety (score ≥ 9). The mean SD in MAAS score evaluation was found to be 59.42 ± 13.93 (Min=22-Max=90) (Table 2).

**Table 2.** Anxiety and Mindful Attention Awareness Scale Score

| Scales | N | Mean ± SD | Min-Max | Median | Cronbach alfa |
|---|---|---|---|---|---|
| Corona Virus Anxiety Scale* | 146 | 4.07 ± 4.41 | 0 -20 | 3 | 0.888 |
| Mindful Attention Awareness Scale** | 146 | 59.42 ± 13.93 | 22 -90 | 58.5 | 0.901 |
| Corona Virus Anxiety Scale | | | | | |
| High anxiety (score≥9) | 20 | 13.7% | | | |
| Score < 9 | 126 | 86.3% | | | |

*Scoring the Corona Virus Anxiety Scale (CAS); 0=never, 1=rare, less than a day or two, 2=several days, 3=more than seven days, and 4=almost every day in the last two weeks. The highest score that can be obtained from the scale is 20. Scores of 9 and above indicate a high anxiety level.
**The Mindful Attention Awareness Scale (MAAS) is a 6-score Likert Type (1=almost always, 2=most of the time, 3=sometimes, 4=rarely, 5=quite infrequently, 6=almost never). Higher scores on the scale show that conscious awareness is high.

There was no statistical significance in CAS scores between age groups. CAS scores were significantly higher in females (p=0.003), and MAAS scores were significantly higher in males (p=0.001). CAS and MAAS scores were found to be significantly higher in those who were married (p=0.007, p=0.005). CAS scores were found to be significantly higher in patients with COVID-19 case contact (p=0.039) and those using post-exposure drugs (p=0.044). CAS showed a significant difference in the levels of PPE use responses in COVID-19 patient contact (p=0.006). HCWs who never used PPE had a low CAS score (1.73 ± 2.15), while HCWs who always used PPE had a high score (4.59 ± 4.5) (Table 3). According to the multiple comparison test, it was observed that the CAS scores of those who said "I never used PPE" were significantly lower than the other three PPE categories (p=0.047).

MAAS scores were significantly lower in those who used supplemental vitamins/nutrients after COVID-19 contact (p=0.026). In terms of MAAS scores, a significant difference was found between the types of masks used in contact with patients diagnosed with COVID-19 (p=0.024). According to Dunn's multiple comparison test results, the MAAS scores of those using N95/FF2 masks were found to be significantly higher than those using surgical masks (p=0.018).

CAS scores of those whose sleep habits (p=0.001), out-of-hospital clothing habits (p=0.006), and eating habits (p=0.017) were changed during the pandemic period were found to be significantly higher. CAS scores showed a significant difference between the answers given to social media habits (p=0.017) (Table 3). According to Dunn's multiple comparison test results, the scores of those who said: "more often than normal" were found to be significantly higher than those who said, "at the same frequency" (p=0.009). There was no statistically significant difference between sleeping, eating, out-of-hospital clothing, and social media habits changes with MAAS scores.

**Table 3.** Relationship between COVID-19 Anxiety Scale (CAS) and Mindful Attention Awareness Scale (MAAS) and Demographic Characteristics

| Demographic Characteristics | N | CAS Mean ± SD | MAAS Mean ± SD |
|---|---|---|---|
| **Age** | | | |
| 18-25 | 13 | 2.92 ± 2.33 | 51.08 ± 13.73 |
| 25-29 | 64 | 4.06 ± 5.19 | 59.45 ± 14.63 |
| 30-34 | 27 | 4.52 ± 4.35 | 58.19 ± 13.92 |
| 35-39 | 26 | 4.19 ± 3.92 | 62 ± 13.17 |
| ≥ 40 | 16 | 4.06 ± 3.26 | 63.94 ± 10.26 |
| | KW-H | 1.733 | 6.837 |
| | P | 0.785 | 0.145 |
| **Gender** | | | |
| Woman | 82 | 4.85 ± 4.46 | 55.59 ± 12.79 |
| Man | 64 | 3.06 ± 4.17 | 64.33 ± 13.89 |
| | Z | -2.945 | -3.441 |
| | P | 0.003* | 0.001* |
| **Marital status** | | | |
| Married | 83 | 4.84 ± 4.63 | 62.34 ± 13.68 |
| Single | 63 | 3.05 ± 3.91 | 55.57 ± 13.42 |
| | Z | -2.692 | -2.825 |
| | P | 0.007* | 0.005* |
| **Suspicious COVID-19 case theme** | | | |
| Yes | 124 | 4.36 ± 4.54 | 59.58 ± 13.56 |
| | Z | -2.067 | -0.036 |
| | P | 0.039* | 0.972 |
| **Drug use after COVID-19 case contact** | | | |
| Yes | 20 | 5.95 ± 5.09 | 60.35 ± 15.56 |
| | Z | -2.012 | -0.194 |
| | P | 0.044* | 0.846 |
| **Use of vitamins/supplements after COVID-19 contact** | | | |
| Yes | 63 | 4.17 ± 3.86 | 57.02 ± 12.41 |
| | P | | 0.026* |
| **Masks type in COVID-19 patients** | | | |
| Surgical mask | 65 | 3.82 ± 4.28 | 57.14 ± 14.94 |
| N95/FF2 mask | 78 | 4.32 ± 4.59 | 61.73 ± 12.73 |
| Cloth mask | 3 | 3 ± 3 | 48.67 ± 12.34 |
| | KW-H | 0.507 | 7.465 |
| | P | 0.776 | 0.024* |
| **Use of PPE in COVID-19 patients** | | | |
| Never | 30 | 1.73 ± 2.15 | 57.8 ± 16.09 |
| Always | 58 | 4.59 ± 4.5 | 60.43 ± 13.07 |
| Sometimes | 37 | 5.35 ± 5.39 | 58.57 ± 13.68 |
| Often | 21 | 3.71 ± 3.52 | 60.43 ± 14.09 |
| | KW-H | 12.530 | 0.815 |
| | P | 0.006* | 0.846 |

| | | | |
|---|---|---|---|
| **Sleeping habits** | | | |
| Yes | 78 | 5.49 ± 4.88 | 57.77 ± 14.14 |
| | Z | -4.352 | -1.594 |
| | P | 0.001* | 0.111 |
| **Out-of-hospital clothing habits** | | | |
| Yes | 98 | 4.83 ± 4.84 | 60.13 ± 13.23 |
| | Z | -2.770 | -0.181 |
| | P | 0.006* | 0.856 |
| **Eating Habits** | | | |
| Yes | 76 | 4.79 ± 4.58 | 57.99 ± 13.24 |
| | Z | -2.378 | -1.338 |
| | P | 0.017* | 0.181 |
| **Social media habits** | | | |
| Same | 67 | 2.87 ± 3.36 | 60.96 ± 14.69 |
| More often | 61 | 4.8 ± 4.5 | 57.21 ± 13.38 |
| Less | 18 | 6.06 ± 6.24 | 61.17 ± 12.51 |
| | KW-H | 8.145 | 2.617 |
| | P | 0.017* | 0.270 |

*Significant <0.05 level; KW-H-H: Kruskal Wallis test, Z: Mann Whitney u test.
#Corona Virus Anxiety Scale (CAS); The Mindful Attention Awareness Scale (MAAS)

## 4. Discussion

Undoubtedly, HCWs are most likely to contact the SARS-CoV-2 virus and are most affected by the COVID-19 outbreak. In this study, 85% of HCWs have frequent contact with suspected COVID-19 patients. Male gender, chronic obstructive pulmonary disease, hypercholesterolemia, type 2 diabetes, malignancy, hypertension, and interstitial lung diseases were found to be risk factors for COVID-19-related mortality (18–20). In this study, 12.3% of the HCWs had a chronic disease, and 21.2% of them were smokers, putting them in the COVID-19 disease risk category. HCWs' median MAAS score was higher than the average, whereas the median CAS score was lower in this study. In studies conducted with surveys from Türkiye, mindfulness was found to be negatively associated with depression and anxiety. Mindfulness has been proven to be negatively related to anxiety and despair during the COVID-19 pandemic (21). In this study, it was found that HCWs' mindfulness score levels while working in the pandemic were negatively associated with COVID-19 anxiety levels. A high level of Mindful Attention Awareness (MAAS) is required to alleviate distress, reduce worry, and accept what is happening (22). A high level of MAA also positively affects the quality of life by increasing the mechanism of coping with factors such as anxiety, depression, and stress in a positive way (23). Looking at pooled data from 44 studies conducted with HCWs in China, where the pandemic first emerged, pooled prevalence rates of moderate to severe post-traumatic stress symptoms, anxiety, depression, and sleep disorders were 27% (95% CI 16%-38%), 17% (13-21%), 15% (13-16%), and 15% (7-23%) (24). Raising the MAA of HCWs is important in terms of coping with the COVID-19 process, reducing stress levels, and increasing mental health in this process. Psychological factors are an important factor in the success of public health strategies used to manage outbreaks (25). In this study, the finding that the level of anxiety of HCWs with high mindfulness is low supports the literature.

It was revealed that 67.8% of the HCW participants received medical information about COVID-19 in the hospital, but a high rate of 96.6% knew how to use PPEs, and 85.6% knew the COVID-19 case definitions. This situation may result from intensive information with the increased use of social media during the pandemic period and increased anxiety. It has been shown that people quarantined at home,

those with high levels of anxiety, used social media more and comply with quarantine and hygiene measures more (26). Similarly, in studies conducted with nurses in the same period as our study, nurses used social media to collect and share information about COVID-19, as well as support each other by highlighting the need for education, changes in care delivery, and redeployment (27).

Although there is no prophylactic drug, nutrient, or vitamin recommended for COVID-19 yet, we have seen that 13.7% of HCWs used prophylactic drugs after COVID-19 patient contact, and 43.2% of them used supplements/vitamins. According to the results of our study, HCWs who took vitamins or supplements after interacting with a COVID-19 patient had significantly lower MAAS scores than those who did not. High MAAS seems to prevent the use of vitamins/supplements with unproven prophylactic or therapeutic effects. It is likely that the high awareness of HCWs about COVID-19 prevents the use of incorrect drug use and supplements that have no therapeutic effect in the management of the pandemic. Randomized studies on the use of supplements/vitamins after COVID-19 contact are still insufficient. A randomized controlled study with high-dose zinc and ascorbic acid found that SARS-CoV-2 infection did not significantly reduce the duration of symptoms (28). Comparative studies show that high-dose Calcifediol or 25-hydroxyvitamin D administration decreases the need for intensive care and decreases the disease's severity (29,30). It has been shown that the use of hydroxychloroquine drug after COVID-19 exposure does not prevent the disease, and the side effects seen in drug users were more than the placebo group (31). We found that HCWs using drugs after exposure to COVID-19 cases had significantly higher CAS scores. We think that this is an uncontrolled individual trial for a viral disease whose treatment is unknown. The fact that the MAAS scores were significantly low in those who used supplements/vitamins after COVID-19 contact supports this situation.

Regardless of the units in our hospital, the use of masks is at similar rates. It was observed that HCWs used more N95/FF2 masks for COVID-19 patient contact, and they "always used PPE" at a lower rate. The fact that the MAAS score of those using N95/FF2 masks was significantly higher than those using surgical masks changed the mask preferred for COVID-19 patient contact. The mask use was found to increase with higher MASS and CAS scores. Participants with low CAS scores also have low PPE use. During the pandemic, the rates of mask use in the hospital were quite high. It was shown that the use of HCWs masks prevented the transmission of COVID-19 by 70% in meta-analyses (32).

Hand washing has become more common, which is one of the methods being taken to limit virus transmission during the pandemic. This may have contributed to the reduction of hospital infections. It has been shown that the hand washing habits of HCWs were also affected by the pandemic. In general, the frequency of HCW hand washing had increased at the onset of the pandemic (33). There was no significant difference in HCWs hand washing habits variability and CAS and MAAS scores. HCWs preferred to wear the uniform while working in the hospital, but 67.1% also changed their clothing habits outside the hospital during the pandemic period.

We have seen that some HCWs do not see their families and remain isolated due to virus exposure. Although the CAS scores of those who were away from their families during the pandemic period and those who were isolated were higher, no significant difference was found. However, the fact that the CAS scores of those who change their sleeping, eating, out-of-hospital clothing habits and who use social media more frequently show that life outside of work is affected by the pandemic and causes behavioral changes in a short time. Although the HCWs' MAAS scores were above average, the pandemic had changed HCWs' behaviors. It is believed that HCWs' understanding of COVID-19 in their knowledge, attitudes, and behaviors can differentiate the epidemic's control phase, expectations, and view scores.

The high anxiety rate of 13.7% among the HCWs indicates that women and married people primarily need psychological support due to the significantly high CAS scores. We see that patients with COVID-19 case contact have higher CAS scores and increase the use of drugs and supplements, whose effectiveness after contact has not been proven. Uncertainty about SARS-CoV-2 can bring along unnecessary drug use and side effects.

## 5. Conclusions and Recommendations

Working conditions in health institutions became more complex and riskier in terms of infections with the pandemic. In our study, high anxiety was detected in 13.7% of HCWs. Although the average anxiety level of HCWs was normal, some of them had severe anxiety. Anxiety levels were shown to be significantly higher in women, married, those who had contact with a COVID-19 case, and HCWs who took medication following case contact in the present research. Increases in the anxiety levels of healthcare professionals were found to be associated with behavioral changes in their in-hospital and out-of-hospital lives during the pandemic period.

Pandemic medical publications, videos, and photos made by official health institutions and medical specialist associations on social media can be more effective and safer for nutritional information about the disease during pandemic periods. The groups with higher anxiety scores are prioritized, and the psychosocial support programs, telemedicine methods, and interviews with HCWs in the hospital seem to be a mandatory need during the pandemic period.

Strategic plans should be prepared for HCWs in healthcare institutions to prepare for future pandemics. Pandemic plans should determine duty locations, sick leave regulations, change of duty rules, protective equipment rules, and infection control measures. The mental health of healthcare workers is as important as physical health. For this reason, psychiatrists and psychologists should also take part in the pandemic. Strategies to reduce stress during the pandemic should be planned.

## Limitations

Our study has limitations due to its single-centered design and the low participation of HCWs in emergency and intensive care units. Due to the heavy workload of HCWs in emergency and intensive care units, survey participation was low. The findings obtained in the study can be generalized to HCWs working in a tertiary university hospital during the first period of pandemics, when the treatment was unclear, no effective vaccine was available, and the epidemic spread around the world.

## Acknowledgements

We thank Prof. Seval Kul for the statistical assistance of the study.

**References**


1. World Health Organisation. WHO's COVID-19 response [Internet]. [cited 2022 Jul 5]. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline (Erişim Tarihi:5 Temmuz 2022)
2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020 Feb 15;395(10223):497–506.
3. Tenforde MW, Self WH, Adams K, Gaglani M, Ginde AA, McNeal T, et al. Association Between mRNA Vaccination and COVID-19 Hospitalization and Disease Severity. JAMA. 2021 Nov 23;326(20):2043–54.
4. World Health Organisation. [cited 2024 Jan 6]. COVID-19 cases | WHO COVID-19 dashboard. Available from: https://data.who.int/dashboards/covid19/cases (Erişim Tarihi:6 Ocak 2024)
5. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. N Engl J Med. 2020 Mar 26;382(13):1199–207.
6. Centers for Disease Control and Preventitaion (CDC). Centers for Disease Control and Prevention. 2020 [cited 2022 Jul 5]. COVID Data Tracker. Available from: https://covid.cdc.gov/covid-data-tracker (Erişim Tarihi:5 Temmuz 2022)
7. Kang L, Ma S, Chen M, Yang J, Wang Y, Li R, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: A cross-sectional study. Brain Behav Immun. 2020 Jul;87:11–7.
8. Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. J Pers Soc Psychol. 2003 Apr;84(4):822–48.
9. Demir V. Bilinçli Farkındalık Temelli Kognitif Terapi Programının Bireylerin Depresif Belirti Düzeyleri Üzerine Etkisi. Psikoloji Çalışmaları. 2015 Jul 13;35(1):15–26.
10. Winnebeck E, Fissler M, Gärtner M, Chadwick P, Barnhofer T. Brief training in mindfulness meditation reduces symptoms in patients with a chronic or recurrent lifetime history of depression: A randomized controlled study. Behav Res Ther. 2017 Dec;99:124–30.
11. Hofmann SG, Gómez AF. Mindfulness-Based Interventions for Anxiety and Depression. Psychiatr Clin North Am. 2017 Dec;40(4):739–49.
12. Ritvo P, Vora K, Irvine J, Mongrain M, Azargive S, Azam MA, et al. Reductions in Negative Automatic Thoughts in Students Attending Mindfulness Tutorials Predicts Increased Life Satisfaction. International Journal of Educational Psychology. 2013 Oct 24;2(3):272–96.
13. Schmiedeler S, Reichhardt A, Schneider L, Niklas F. Trait mindfulness, self-efficacy, and coping strategies during COVID-19. Anxiety Stress Coping. 2023 Nov;36(6):674–89.
14. Yıldırım D, Çiriş Yıldız C. The Effect of Mindfulness-Based Breathing and Music Therapy Practice on Nurses' Stress, Work-Related Strain, and Psychological Well-being During the COVID-19 Pandemic: A Randomized Controlled Trial. Holist Nurs Pract. 2022 Jun 1;36(3):156–65.
15. Lee SA. Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. Death Stud. 2020;44(7):393–401.
16. Biçer İ, Çakmak C, Demir H. Coronavirus Anxiety Scale Short Form: Turkish Validity and Reliability Study. Anadolu Kliniği Tıp Bilimleri Dergisi. 2020 May 22;216–25.
17. Özyeşil Z, Arslan C, Kesici Ş, Deniz ME, Üniversitesi S. Bilinçli Farkındalık Ölçeği'ni Türkçeye Uyarlama Çalışması Adaptation of the Mindful Attention Awareness Scale into Turkish. :12. Eğitim ve Bilim, 2011; 36 (160), 225-235.

18. Grasselli G, Greco M, Zanella A, Albano G, Antonelli M, Bellani G, et al. Risk Factors Associated With Mortality Among Patients With COVID-19 in Intensive Care Units in Lombardy, Italy. JAMA Intern Med. 2020 Oct 1;180(10):1345–55.
19. Jordan RE, Adab P, Cheng KK. Covid-19: risk factors for severe disease and death. BMJ. 2020 Mar 26;368:m1198.
20. Kokturk N, Babayigit C, Kul S, Duru Cetinkaya P, Atis Nayci S, Argun Baris S, et al. The predictors of COVID-19 mortality in a nationwide cohort of Turkish patients. Respir Med. 2021 Jul;183:106433.
21. Belen H. Fear of COVID-19 and Mental Health: The Role of Mindfulness in During Times of Crisis. Int J Ment Health Addict. 2022;20(1):607–18.
22. Aktepe İ, Tolan Ö. Bilinçli Farkındalık: Güncel Bir Gözden Geçirme. Psikiyatride Güncel Yaklaşımlar. 2020 Dec 28;12(4):534–61.
23. Arslan İ. BİLİNÇLİ FARKINDALIK, DEPRESYON DÜZEYLERİ VE ALGILANAN STRES ARASINDAKİ İLİŞKİ. Birey ve Toplum Sosyal Bilimler Dergisi. 2018 Dec 30;8(2):73–86.
24. Xiong N, Fritzsche K, Pan Y, Löhlein J, Leonhart R. The psychological impact of COVID-19 on Chinese healthcare workers: a systematic review and meta-analysis. Soc Psychiatry Psychiatr Epidemiol. 2022 Aug;57(8):1515–29.
25. Asmundson GJG, Taylor S. How health anxiety influences responses to viral outbreaks like COVID-19: What all decision-makers, health authorities, and health care professionals need to know. J Anxiety Disord. 2020 Apr;71:102211.
26. Rodriguez-Besteiro S, Beltran-Velasco AI, Tornero-Aguilera JF, Martínez-González MB, Navarro-Jiménez E, Yáñez-Sepúlveda R, et al. Social Media, Anxiety and COVID-19 Lockdown Measurement Compliance. Int J Environ Res Public Health. 2023 Mar 1;20(5):4416.
27. Glasdam S, Sandberg H, Stjernswärd S, Jacobsen FF, Grønning AH, Hybholt L. Nurses' use of social media during the COVID-19 pandemic-A scoping review. PLoS One. 2022;17(2):e0263502.
28. Thomas S, Patel D, Bittel B, Wolski K, Wang Q, Kumar A, et al. Effect of High-Dose Zinc and Ascorbic Acid Supplementation vs Usual Care on Symptom Length and Reduction Among Ambulatory Patients With SARS-CoV-2 Infection: The COVID A to Z Randomized Clinical Trial. JAMA Netw Open. 2021 Feb 1;4(2):e210369.
29. Entrenas Castillo M, Entrenas Costa LM, Vaquero Barrios JM, Alcalá Díaz JF, López Miranda J, Bouillon R, et al. Effect of calcifediol treatment and best available therapy versus best available therapy on intensive care unit admission and mortality among patients hospitalized for COVID-19: A pilot randomized clinical study. J Steroid Biochem Mol Biol. 2020 Oct;203:105751.
30. Ling SF, Broad E, Murphy R, Pappachan JM, Pardesi-Newton S, Kong MF, et al. High-Dose Cholecalciferol Booster Therapy is Associated with a Reduced Risk of Mortality in Patients with COVID-19: A Cross-Sectional Multi-Centre Observational Study. Nutrients. 2020 Dec 11;12(12):E3799.
31. Boulware DR, Pullen MF, Bangdiwala AS, Pastick KA, Lofgren SM, Okafor EC, et al. A Randomized Trial of Hydroxychloroquine as Postexposure Prophylaxis for Covid-19. N Engl J Med. 2020 Aug 6;383(6):517–25.
32. Li Y, Liang M, Gao L, Ayaz Ahmed M, Uy JP, Cheng C, et al. Face masks to prevent transmission of COVID-19: A systematic review and meta-analysis. Am J Infect Control. 2021 Jul;49(7):900–6.
33. Huang F, Armando M, Dufau S, Florea O, Brouqui P, Boudjema S. COVID-19 outbreak and healthcare worker behavioural change toward hand hygiene practices. J Hosp Infect. 2021 May;111:27–34

**Article Information Form**

**Author(s) Notes:** The author(s) would like to express their sincere thanks to the editor and the anonymous reviewers for their helpful comments and suggestions.

**Author(s) Contributions:** All authors contributed equally to the writing of this paper. All authors read and approved the final manuscript (The article has a single author. The author has read and approved the final manuscript).

**Conflict of Interest Disclosure:** No potential conflict of interest was declared by the author.



**Supporting/Supporting Organizations:** No grants were received from any public, private or non-profit organizations for this research.

**Ethical Approval and Participant Consent**: It is declared that during the preparation process of this study, scientific and ethical principles were followed and all the studies benefited from are stated in the bibliography.

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