

Covid-19, Anxiety, and Hopelessness: Quality of Life among Healthcare Workers in Turkey

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Abstract

Object: To investigate the effect of anxiety and hopelessness on the quality of life of healthcare workers.

Methods: This cross-sectional, online questionnaire-based study was conducted between August 31 - September 30, 2020, with 729 healthcare workers in Turkey. The Sociodemographic Information Form, the Turkish version of the Shorter Version of the World Health Organization Quality of Life Instrument (WHOQOL-BREF-TR), the State-Trait Anxiety Inventory (STAI-I) and the Beck Hopelessness Scale (BHS) were used for data collection.

Results: The study showed that hopelessness, the weekly working time, fatigue, and the workload experienced by healthcare workers negatively affected their quality of life, and those who needed knowledge on various issues to improve their skills had lower quality of life and higher anxiety and hopelessness levels.

Conclusion: Protective measures should be taken for the health of healthcare workers against the adverse effects of the intense anxiety, hopelessness, and workload during the pandemic period. To achieve sustainable success in the provision of health services, healthcare workers must be psychologically healthy. Therefore, taking protective measures to improve the resilience of healthcare workers in all health-related areas should be a priority.

1 Introduction

The COVID-19 pandemic causes stress, fear, and anxiety in people,¹⁻⁵ and as healthcare professionals (HCWs), the largest risk group, learn about the number of cases and deaths all over the world think of the possibility that the same thing may happen to them and thus experience higher levels of anxiety.⁶ Numerous studies show that HCWs who directly deal with the diagnosis, treatment, and care of Covid-19 patients, are adversely affected, especially in term of psychological and physical health and social well-being.⁷⁻¹³ Chew et al.¹⁴ conducted a multinational, multicenter study on physical symptoms and associated psychological outcomes in HCWs during the Covid-19 outbreak. 5.3% (n= 48) of the 906 HCWs who participated in the survey had moderate to very severe depression. The most common reported symptom was headache (32.3%); many participants reported more than four symptoms (33.4%); the older participants experienced these symptoms more; the patients with previous comorbid diseases had depression, anxiety, and stress; and the incidence of post-traumatic stress disorder (PTSD) was higher. The isolation of HCWs from their families, their changing routines, and the reduction of social support networks during the Covid-19 pandemic may cause mental problems. Various psychological effects such as feelings of loneliness, helplessness, stress, irritability, physical and mental fatigue, and hopelessness may also occur in this period.¹⁵ The protection of mental health status in addition to the physical health of HCWs can also contribute to better control of the disease.¹⁶

During the pandemic, the need for HCWs has boosted, and the busy pace of work has increased their anxiety level and unwillingness to work.¹⁷ To counteract the potential decrease in the number of HCWs due to fear, anxiety, and physical health problems and to prevent the possible increase in hospital infection, it is necessary to promote the safety of HCWs and to strengthen their trust in the system in which they operate and to make them hopeful.¹⁷ While hope evokes “independence, ability to adapt, control, imagination”, hopelessness evokes the “feeling of being trapped, impossibility and despair”. Öz notes that hope affects how an individual perceives a threat, her/his response to this threat, and the effectiveness of this response. Hope is essential for all people both in sickness and health.¹⁸ Although hopelessness has the opposite meaning to hope, it has also many definitions. What all these definitions have in common is that a hopeless person feels weak and helpless, believes that s/he cannot cope with the challenging situation they are in or the negative experiences they may face in the future, and their life energy and desire are lost.¹⁹

That the exact course of the pandemic is unknown, its severity and duration cannot be predicted, there is a high risk of infection and death, a definitive treatment method has not yet been found, vaccination studies have just started, new mutagenic effects have emerged, and the fear and anxiety have caused worry and despair about the future during the Covid-19 pandemic.²⁰⁻²¹ While our need for HCWs is increasing this much, it is of utmost importance to determine the factors that cause hopelessness during this urgent public health problem to take precautions against the risks affecting their willingness and power to work and improve their life quality. We must protect and maintain the well-being and competence of HCWs so that they can fulfill their roles and responsibilities in the care of the world's population in the proper and desired way.²² In line with this information, the study aimed to gain insight into the effects of intense anxiety and hopelessness levels of HCWs during the pandemic period on their physical, mental, social, and environmental well-being (quality of life) and the answers to the following questions were sought.

1. Does the HCWs' self-reported anxiety and hopelessness affect their physical, mental, social, and environmental well-being?
2. Do the work characteristics of HCWs affect their anxiety and hopelessness levels and physical, mental, social, and environmental well-being?
3. Do the cognitive skills of HCWs regarding Covid-19 affect their anxiety and hopelessness levels and physical, mental, social, and environmental well-being?

2 Methods

2.1 Study Design

This study was conducted in a cross-sectional and online questionnaire-based design. The study population consisted of the HCWs working in any hospital in Turkey between August 31 and September

30, 2020, who agreed to respond to the questionnaire via social media sites. The sample consisted of 729 HCWs who voluntarily filled in the questionnaire in the specified period.

2.2 Data Collection

The Personal and Occupational Information Form, the Turkish Version of the Shorter Version of the World Health Organization Quality of Life Instrument (WHOQOL-BREF-TR), the State-Trait Anxiety Inventory, and the Beck Hopelessness Scale (BHS) were used as data collection tools. After the questionnaire was created with Google Forms, they were delivered to HCWs by the researchers via social media sites (Instagram, Facebook, and WhatsApp). Those who completed the questionnaire were encouraged to forward the questionnaire to other HCWs. Our questionnaire was designed to have forced choices.

The participants were informed about the purpose of the study, that the data would be used for scientific purposes, and filling out the questionnaire would mean to approved to participate in the study. Inclusion criteria were (1) to be a healthcare staff, (2) to be a social network user, (3) to a volunteer, and (4) to respond to questions once using the same IP. Exclusion criteria were (1) to respond to all the questions. In the power analysis based on the statistics obtained from Hacimusalar et al. study,²⁰ it was accepted as "a = 0.05, 1-β = 0.94 and effect size = 0.1439"; As a result of the power analysis of the study, the total sample size was determined as n = 714 persons. The data of 729 participants were evaluated, but 52 participants were excluded as they did not complete the forms.

2.2.1 Personal and occupational information form: The form, developed by the researchers by reviewing the literature, includes 4 questions regarding the sociodemographic characteristics of HCWs including age, gender, marital status, and presence of chronic health problems. And 17 questions about the occupational characteristics such as the place of work, the weekly working hours, and the way of working^{7,23,24} to measure the HCWs' knowledge, awareness, and perceptions about the Covid-19 pandemic.

2.2.2 WHOQOL-BREF-TR: The Health-related Quality of Life Instrument developed by the WHO in 1996.²⁵ The scale has two versions as long (WHOQOL-100) and short (WHOQOL-27) forms. It consists of 26 questions in four sub-dimension, physical, psychological, social relations, and environmental, including one question about the general perceived quality of life and one question about perceived health satisfaction. The scale is in the form of 1-5 points on a 5-point Likert scale, and the field scores are converted to scoring on the scale of 100. The Turkish validity and reliability of the questionnaire were carried out by Eser et al.²⁶ The 27th question was added to the Turkish version and included in the calculation of the environmental sub-dimension. Therefore, the environmental sub-dimension score is named "Environment-TR". The WHOQOL-BREF-TR scale does not have a total score; that is, a single quality of life score cannot be obtained by adding the scores of all four sub-dimensions. Four different sub-dimension scores were calculated with the scale:

The Physical (physical) sub-dimension evaluates daily living activities, needs for medical care, fatigue, mobility, pain, sleep, rest, and work capacity, etc.

The Psychological (spiritual) sub-dimension evaluates issues such as body perception, positive and negative thoughts, self-confidence, religious and personal beliefs, thinking, learning, memory, and concentration.

The Social Well-being sub-dimension evaluates interpersonal relationships and social support.

The Environment sub-dimension evaluates financial resources, physical security, accessibility and quality of health and social services, home environment, opportunities to access new knowledge and skills, physical environment (pollution, noise, traffic, climate), and transportation.

The Cronbach alpha's coefficients calculated for the internal consistency of the scale were 0.83 for the physical well-being (PH), 0.66 for the psychological well-being (PSH), 0.53 for the social well-being (SW), and 0.73 for the environmental well-being (E-TR). Pearson coefficients calculated for each question to determine test-retest reliability vary between 0.57 and 0.81. In scoring, the four sub-dimension scores were calculated separately, and the higher scores indicate a higher level of life quality.²⁶

2.2.3 State-Trait Anxiety Inventory (STAI-I): Spielberger et al.²⁷ divided anxiety into two as State and Trait Anxiety according to the Two-Factor Anxiety Theory. State Anxiety occurs when encountering a dangerous, undesirable situation. Trait anxiety occurs even when there is no reason, and it is disproportionately long-lasting and severe when there is a reason. The State-Trait Anxiety Inventory (STAI-I) is a self-assessment questionnaire consisting of short expressions. It was adapted to Turkish by Öner and Le Compte in 1983. The STAI-I has 20 items, and there is no time limit for responding to the scale. Emotions or behaviors expressed in the STAI-I items are answered by choosing one of the options such as (1) almost never, (2) sometimes, (3) often, (4) almost always, according to their severity of the experiences. In this study, only the State Anxiety subscale was used because it describes how the individual feels at a certain time and under certain conditions and the responses include the feelings about the current situation,^{27,28} which is consistent with our study. The internal consistency reliability coefficients of the Turkish version of the State-Trait Anxiety Inventory were calculated using Kuder-Richardson Formula 20 and range between 0.94 and 0.96. The scale consists of 20 items with scores ranging from 1-4. The total score to be obtained on the scale is between 20 and 80. A high score indicates a high level of anxiety.²⁸

2.2.4 The Beck Hopelessness Scale (BHS): The Cronbach's alpha reliability coefficient of the BHS, which was developed by Beck, Lester, Trexler in 1974²⁹ and whose validity and reliability study was conducted by Seber in 1991³⁰ and Durak and Palabıyıkkoğlu in 1994,³¹ was calculated as 0.75-0.85. The participants mark 'true' for expressions that are appropriate for them, and 'false' for the others. According to the scale, which includes 11 'true' and 9 'false' answers, correct answers get '1' point, and wrong answers get '0' point. A 'yes' response to the questions 2, 4, 7, 9, 11, 12, 14, 16, 17, 18, 20, and a 'no' response to the questions 1, 2, 5, 6, 8, 10, 13, 15 and 19 receive 1 point each. "0" is given to the opposite responses.

The items that make up the scale are examined in three sub-dimensions. Feelings about the future (items 1, 6, 13, 15, 19), loss of motivation (items 2, 3, 9, 11, 12, 16, 17, 20), and expectations for the future (items 4, 7, 8, 14, and 18). The total score shows the score of "hopelessness."²⁹⁻³¹ The scores to be obtained from the 20-item scale varies between 0 and 20. High scores indicate hopelessness, and low scores indicate hope. 0-3 points indicate no or minimal level of hopelessness, 4-8 points indicate a low level of hopelessness, 9-14 points indicate a moderate level of hopelessness, and 15+ points indicate a high level of hopelessness.²⁹

2.3 Ethical Statement

The written permissions were granted by the institution and nursing services directorate of the hospital before the study; the ethical committee approval was also obtained from XXX University's Non-Invasive Clinical Research Ethics Committee (Date: 28.08.2020, Number: GOKAEK-2020/14.11).

2.4 Statistical Analysis

The statistical analyses were made with IBM SPSS 20.0 (IBM Corp. Armonk, NY, USA) package program. The distribution normality was evaluated with the Kolmogorov-Smirnov Test. The numerical variables without normal distribution were presented as median (25th - 75th percentiles), and the categorical variables were presented as frequency (%). The Mann-Whitney U test was used to test the difference between the groups, Kruskal-Wallis One Way Variance analysis, and Dunn's Multiple Comparison Test for numerical variables that do not show a normal distribution. The relationships between the variables were determined by Spearman's Correlation Analysis. For the testing of two-sided hypotheses, $p<0.05$ was considered statistically significant.

2.5 Limitations of the Study

The limitation of this study is that an insufficient number of doctors and paramedics were included in the study. There are 1 million 61 thousand 635 HCWs in Turkey; however, in this study, only 729 HCWs responded to the questionnaire. The participation ratio was calculated as 0.07%.

3 Results

3.1 Sociodemographic characteristics of HCWs

The median age of the HCWs was 35.00 (28.00 - 42.00), 70.9% of them were female; 59.3% were married; 79% had no chronic health problems (Table 1).

3.2. The knowledge, awareness, and perceptions of HCWs regarding the Covid-19 pandemic

59% contacted Covid-19 suspects or infected patients, and 44.3% evaluated their knowledge and ability as fully competent and ready while fulfilling their roles. 28.7% had a skin disorder caused by the protective equipment used during the pandemic. 51.7% found the protective measures in their working

environment during the pandemic partially sufficient, and 81.8% needed psychological or other types of support due to contact with infected people or fear of being infected. 59.3% stated that there was no physical/emotional/social strain on them during the pandemic; 60.1% had no chance to sleep/rest during the shift they work (Table 2).

3.3 Correlation between the HCWs' WHOQOL-BREF-TR, STAI-I, and BHS median scores

A significant positive correlation was found between PH ($r=0.118$, $p=0.002$), PSH ($r=0.142$, $p<0.001$) and E-TR score ($r=0.206$, $p<0.001$) and STAI-I scores of participants, and a significant negative correlation was seen between PS ($r=-0.486$; $p<0.001$), PSH ($r=-0.605$; $p<0.001$), SW (-0.419; $p<0.001$) and E-TR ($r = -0.533$; $p<0.001$) scores and BHS scores (Table 3).

3.4 Correlation between the HCWs' WHOQOL-BREF-TR, STAI-I, and BHS median scores and their occupational characteristics

Regarding the occupational characteristics, the following results were revealed: a significant positive correlation between the working experience and PSH score ($r=0.077$, $p=0.044$); a significant negative correlation between weekly working hours and E-TR score ($r=-0.114$, $p=0.003$); a positive significant relationship between weekly working hours and BHS score ($r=0.114$; $p=0.004$); a significant negative correlation between the workload and the E-TR ($r=-0.172$, $p<0.001$); a positive significant correlation between the workload and the BHS score ($r=0.161$, $p<0.001$); a significant negative correlation between the fatigue and PS ($r=-0.263$, $p<0.001$), PSH ($r=-0.124$, $p=0.001$) and E-TR ($r=-0.272$, $p<0.001$) scores; and a positive significant correlation between the fatigue and the BHS score ($r=0.210$, $p<0.001$) (Table 4).

3.5 Comparison of the subjects HCWs need to improve their skills and their WHOQOL-BREF-TR, STAI-I, and BHS their median scores

The PH ($p=0.008$), PSH ($p=0.033$), and E-TR ($p=0.016$) scores of those who needed information about "infection prevention control" in developing their skills among HCWs were found to be significantly lower while the BHS score was significantly higher ($p=0.028$). The PH ($p=0.015$) and E-TR ($p=0.001$) scores of those who needed information on "the use of personal protective equipment (PPE)" were significantly lower while their BHS ($p=0.029$) scores were significantly higher. Besides, the STAI-I score ($p=0.039$) was found to be significantly higher in those who needed information about "case management" (Table 5).

3.6 Comparison of the HCWs' knowledge and skills regarding Covid-19 during working and WHOQOL-BREF-TR, STAI-I, and BHS median scores

While performing their roles, HCWs indicating that their knowledge about COVID-19 and their ability to do their jobs as "completely competent and ready" had statistically significantly different PS, PSH, SW, and E-TR scores. On the other hand, a statistically significant difference was found between those who described themselves as not prepared and completely competent and ready in terms of BHS score ($p=0.011$) (Table 6).

4 Discussion

When caring for COVID-19 patients, HCWs are at risk for physical, mental, and social health.³² For this reason, protecting the health of HCWs has been highlighted as a crucial component of public health measures against the Covid-19 outbreak.⁹ This is the first study in Turkey and the international arena to examine the effects of anxiety and hopelessness experienced during the Covid-19 pandemic on the physical, mental, and social health of HCWs.

Properly applied PPE creates a physical barrier between microorganisms and the user and prevents contamination of hands, eyes, clothes, and hair. However, the requirement for health care professionals to wear PPE for infection control has led to an increased incidence of PPE-related complications.³³ In the study in which Atay and Üzen-Cura³³ examined the problems faced by nurses due to the use of PPE during the coronavirus pandemic (n=307), the most frequently reported problems were reported as sweating due to surgical (50.9%) or N95 (64.2%) masks, dry hands due to gloves (73.9%), sweating due to overalls/gowns (84.1%) and vision problems (47.9%) due to glasses/face shields. It is reported that the use of PPE for more than four hours causes physical problems. In another study³⁴ exploring the effect of PPE on the physical and mental health of HCWs during Covid-19 (n=72), fatigue, headache, skin changes, shortness of breath, and vision problems, communication difficulties, sleep condition, negative impact on general performance, and difficulties in using surgical equipment were reported as PPE's physical effects. This study determined that 28.7% of the HCWs had skin problems, 27.6% had fatigue, and 23.7% had physical health problems such as headaches due to the use of PPE. The results obtained in this study are consistent with the literature. It is considered that taking measures such as mandatory regular breaks, providing optimum temperature and ventilation in the working environment, ensuring adequate hydration, and equipment designed to minimize the physical discomfort caused by PPE use will be beneficial in reducing the negative effects.

The effect of anxiety and hopelessness on the quality of life of HCWs

The Covid-19 epidemic can affect HCWs who work under stress, which may negatively affect their quality of life.³² An increasing amount of published research^{20,21,35-37} suggest that the Covid-19-induced anxiety and hopelessness negatively affects the well-being of the individual in many physical, psychological, and social areas. In the study by Nishad and Kurian³⁶ on aggression and hopelessness in the general population in India during the Covid-19 lockdown period (n=250), it was emphasized that aggression and hopelessness among people raised during the pandemic period, and the level of aggression and hopelessness in men and women increased, respectively. It is also noted that hopelessness can cause negative feelings in the person that can turn into depression and other psychological problems.

Hacimusalar et al.²⁰ explored the level of anxiety and hopelessness in the groups with and without HCWs (n=1121: HCWs, 52%) and found a higher level of hopelessness and anxiety in the group with HCWs and a positive relationship between hopelessness and anxiety and argued that anxiety and uncertainty can cause an increase in hopelessness. The literature cites that hopelessness is associated with reduced

physical function and lower physical activity in people with heart disease,³⁵ HCWs with a high level of hopelessness will attribute less meaning to life and this worsens depression,³⁸ there is a positive significant relationship between health anxiety and hopelessness seen in the early stages of the Covid-19 pandemic ($r=0.35$, $p<0.01$),³⁹ hopelessness is negatively correlated with life satisfaction,⁴⁰ hopelessness is a negative predictor of quality of life among older adults⁴¹ and a negative predictor of resilience to stressful events.⁴² In this study, as the state anxiety levels of HCWs increased, the quality of life in the physical, psychological, and environmental health areas increased, but as the hopelessness increased, the quality of life in the physical, psychological, social well-being, and environmental health areas decreased. That is hopelessness in HCWs impaired health-related quality of life.

In the study, the reason why the quality of life in various health-related areas increased as the anxiety level of HCWs increased may be explained by the fact that HCWs could cope with the anxiety during the pandemic period, and because the country was experiencing the first wave in the Covid-19 pandemic and the well-being of HCWs continued. However, as hopelessness increased in HCWs, the quality of life decreased in all health-related areas. Therefore, hopelessness in HCWs is considered a risk factor for health-related quality of life. The source of a healthy mind is a healthy body, and it is essential to keep society, especially HCWs, hopeful during this pandemic because hope gives us the positive mindset needed to move forward. Hope, which is both motivating and beneficial, increases self-confidence and leads to the realization of the goal. It contributes to a future full of hope by moving the person away from the tragedy.^{18,43} During the Covid-19, sufficient psycho-social support and medical care should be provided by local authorities to make HCWs physically, mentally, and socially healthy, and to keep them as people who can look at the future in a hopeful way.

The effect of the work environment characteristics on the quality of life, anxiety, and hopelessness in HCWs

Working as a social activity can affect health and quality of life positively or negatively.⁴⁴ The Covid-19 outbreak, which has led to dramatic health alarms, caused an explosion in the health care burden,⁴⁵ HCWs have been physically and mentally affected by this situation,⁴⁶ thus their workload, anxiety, depression, compassion fatigue, and despair have increased.^{45,47} In the study conducted by Liang et al.⁴⁸ on mental health screening on the subject, it is stated that having sufficient rest intervals can help HCWs relieve stress. It is also stated that the mental health of HCWs should not be neglected during the pandemic; maintaining physical and psychological health is essential in the fight against Covid-19; and depression and anxiety scales are simple and significant tools in monitoring personal health. In a study by Teles et al.⁴⁴ exploring psychosocial working conditions and quality of life among primary health care workers ($n=797$), it was found that HCWs with high effort-low reward conditions have a poor quality of life in general, physical, and environmental health and those with low effort/low reward conditions are likely to have a lower quality of life in the social field and that there is a relationship between negative psychosocial working conditions and low quality of life. Hacimusalar et al.²⁰ indicated that the increase in weekly working hours causes an increase in hopelessness and state anxiety levels in HCWs.

Consistent with the above-mentioned results,^{20,44} the increase in weekly working hours, workload, and fatigue in this study negatively affects the quality of life in various areas related to health and increases hopelessness. Unfavorable working conditions (such as weekly working hours, workload, and increase in fatigue) can be said to negatively affect health-related quality of life and hope, therefore it is a significant determinant of the low quality of life and hopelessness in HCWs. Favorable working conditions that increase employee health and safety can improve employees' emotions, help them improve their mental and physical health in the workplace, thus improving their quality of life and hope. In the Covid-19 pandemic, healthcare providers and health policy officials need to pay more attention to seeking out unhealthy working conditions, addressing problems, and providing effective solutions to improve professional performance and quality of life.

The effect of knowledge-skills of HCWs about Covid-19 on their quality of life, anxiety, and hopelessness

HCWs need to struggle with the issues of provision of PPE, training about Covid-19, fatigue experienced during this period, and the psychosocial consequences of all these problems throughout the world.³² Zhou and Zang⁴⁹ investigated the impact of workload, mental health, and professional quality of life on hand hygiene behavior during the Covid-19 outbreak and reported that poor mental health is linked to higher burnout, and higher burnout is associated with poor hand hygiene behavior. The study also emphasizes that adequate equipment and training support for PPE use, strict infection control practices, shorter shift times, and provision of mental health and support services will reduce negative health consequences. In the study by Güngör and Gül Uçman³⁸ on the compassion fatigue, indirect trauma, burnout, and hopelessness due to Covid-19 in HCWs (n=102), it was seen that stress and hopelessness were lower at the college level, and high education level can be a protective factor against hopelessness. In this study, those who needed information on "infection prevention control" and "PPE use" in developing their skills had lower quality of life, but higher hopelessness in various health-related areas. Besides, those who needed information on "case management" had higher state anxiety levels, which is parallel with the literature.^{3,38,49} During the Covid-19 pandemic, hope is one of the main coping strategies and a resource that affects HCWs' ability to interact in stressful life-threatening situations.⁵⁰ Therefore, in this period, to raise the hope of HCWs and strengthen effective coping mechanisms, supporting the initiatives to prevent infection (education, hand hygiene, equipment support, etc.) may increase their well-being.

In addition, in this study HCWs who defined themselves as completely competent and ready in terms of their knowledge about Covid-19 and their ability to perform their job and their competence while performing their roles had a higher health-related quality of life in PH, PSH, and E-TR areas compared to those who defined themselves as competent and not prepared (Table 6). That shows the importance of the knowledge and skills of HCWs on their well-being during the pandemic. In our country, the knowledge, and skills of HCWs in managing the cases are evaluated during the pandemic, and online training is organized by the infection control nurses for their deficiencies on issues such as the use of PPE and patient care with Covid. HCWs are also observed in clinics and training is also carried out in clinics when necessary in Turkey.

5 Conclusion And Suggestions

The study revealed that anxiety and hopelessness negatively affected the quality of life of HCWs in physical, psychological, social relations, and environmental health; the increase in weekly working hours, workload, and fatigue negatively affected the quality of life in health areas such as physical, psychological and environment and increased anxiety and hopelessness; those who needed information on developing their knowledge-skills in “infection prevention control”, “the use of PPE” and “case management” during the Covid-19 pandemic had lower quality of life in various health-related areas and higher anxiety and hopelessness. In addition, those who expressed their knowledge-skills as “completely competent and ready” while fulfilling their roles had higher quality of life and lower hopelessness in all health-related areas. Considering these results, it is recommended to:

- provide online training for HCWs who has less experience in the profession and needs knowledge and skills regarding the Covid-19 process,
- evaluate the anxiety and hopelessness levels of HCWs regularly with reliable measurement tools during the pandemic, and implement psychological support services to strengthen mental health,
- take measures to reduce workload and fatigue in the working environment (increasing rest intervals, increasing the number of employees, etc.),
- take urgent measures to regulate working conditions by health policymakers,
- compare the anxiety and health-related quality of life issues of HCWs in Turkey compared to those in other countries.

Declaration

The authors declare there is no conflict of interests in this study.

References

1. Gupta AK, Mehra A, Niraula A, et al. Prevalence of anxiety and depression among the healthcare workers in Nepal during the COVID-19 pandemic. *Asian J Psychiatr.* 2020;54:102260. <https://doi.org/10.1016/j.ajp.2020.102260>
2. Liu CY, Yang Yun-zhi, Zhang XM, et al. The prevalence and influencing factors in anxiety in medical workers fighting COVID-19 in China: a cross-sectional survey. *Epidemiology and Infection.* 2020a;148, e98, 1–7. <https://doi.org/10.1017/S0950268820001107>
3. Pappa S, Ntella V, Giannakas T, et al. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity.* 2020;88:901-907.

4. Wilson W, Raj JP, Rao S, et al. Prevalence and predictors of stress, anxiety, and depression among healthcare workers managing COVID-19 pandemic in India: A nationwide observational study. *Indian J Psychol Med.* 2020;42(4):353–358. <https://doi.org/10.1177/0253717620933992>
5. Shanafelt T, Ripp J, Trockel M. Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. *JAMA.* 2020 Apr 7. <https://doi.org/10.1001/jama.2020.5893>
6. Sakaoğlu HH, Orbatu D, Emiroglu M, Çakır Ö. Spielberger State and Trait anxiety level in healthcare workers during the Covid-19 outbreak: An example of Tepecik Hospital. *Tepecik Train. and Research. Hospital Journal.* 2020; 30 (Additional issue): 1-9.
7. Kang L, Ma S, Chen M, 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 Mar 30. <https://doi.org/10.1016/j.bbi.2020.03.028>
8. Dubey S, Biswas P, Ghosh R, et al. Psychosocial impact of COVID-19. *Diabetes & metabolic syndrome.* 2020;14(5):779–788. <https://doi.org/10.1016/j.dsx.2020.05.035>
9. Lai J, Ma S, Wang Y, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open.* 2020;3(3):e203976. <https://doi.org/10.1001/jamanetworkopen.2020.3976>
10. Liu Z, Han B, Jiang R, et al. Mental health status of doctors and nurses during COVID-19 epidemic in China. *The Lancet.* 2020b. <http://dx.doi.org/10.2139/ssrn.3551329>
11. Mukhtar PS. Mental well-being of nursing staff during the coronavirus disease 2019 outbreak: A cultural perspective. *J Emerg Nurs.* 2020;46(4): 426-427. <https://doi.org/10.1016/j.jen.2020.04.003>
12. Haskell B, Schroer M, Zsamboky M. Easing the psychological impact of COVID-19 for nurses. Accessed May 5, 2020. <https://www.myamericannurse.com/easing-the-psychological-impact-of-Covid-19-for-nurses/>
13. Torales J, O'Higgins M, Castaldelli-Maia JM, et al. The outbreak of COVID-19 coronavirus and its impact on global mental health. *Int J Soc Psychiatry.* 2020;66(4):317-320. <https://doi.org/10.1177/0020764020915212>
14. Chew NWS, Lee GKH, Tan BYQ, et al. A multinational, multicentre study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain Behav Immun.* 2020 Apr 21:S0889-1591(20)30523-7. <https://doi.org/10.1016/j.bbi.2020.04.049>
15. Huang JZ, Han MF, Luo TD, et al. Mental health survey of medical staff in a tertiary infectious disease hospital for COVID-19. *Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi,* 2020;38(3):192-195. <https://doi.org/10.3760/cma.j.cn121094-20200219-00063>
16. Chen Q, Liang M, Li Y, et al. Mental health care for medical staff in China during the COVID-19 outbreak. *Lancet Psychiatry,* 2020;7(4):e15-e16. [https://doi.org/10.1016/S2215-0366\(20\)30078-X](https://doi.org/10.1016/S2215-0366(20)30078-X)

17. Schwartz J, King CC, Yen MY. Protecting healthcare workers during the Coronavirus Disease 2019 (COVID-19) outbreak: Lessons from taiwan's severe acute respiratory syndrome response. *Clin Infect Dis.*, 2020;71(15):858-860. <https://doi.org/10.1093/cid/ciaa255>
18. Öz F. Sağlık Alanında Temel Kavramlar. Ankara: 229 -268, 2004.
19. North America Nursing Diagnosis Association (NANDA), Nursing Diagnosis: Definitions and Classification, Wiley Blackwell publication, Indianapolis. 2009.
20. Hacimusalar Y, Kahve AC, Yasar AB, Aydin M S. Anxiety and hopelessness levels in COVID-19 pandemic: A comparative study of healthcare professionals and other community sample in Turkey. *Journal of psychiatric research*, 2020;129:181-188.
21. Sarcali M, Satici SA, Satici B, et al. Fear of COVID-19, mindfulness, humor, and hopelessness: A multiple mediation analysis. *International journal of mental health and addiction*, 2020:1–14. <https://doi.org/10.1007/s11469-020-00419-5>
22. Turale S, Meechanan C, Kunaviktikul W. Challenging times: ethics, nursing and the COVID-19 pandemic. *International Nursing Review*, 2020;67(2):164-167. <https://doi.org/10.1111/inr.12598>
23. Parikh PA, Shah BV, Phatak AG, et al. COVID-19 pandemic: knowledge and perceptions of the public and healthcare professionals. *Cureus*, 2020;12(5):e8144. <https://doi.org/10.7759/cureus.8144>
24. Zhang C, Yang L, Liu S, et al. Survey of insomnia and related social psychological factors among medical staff involved in the 2019 novel coronavirus disease outbreak. *Frontiers in psychiatry*, 2020;11:306. <https://doi.org/10.3389/fpsyg.2020.00306>
25. WHOQOL-BREF: Introduction, administration, scoring and generic version of the assessment: field trial version, December 1996. <https://www.who.int/publications/i/item/WHOQOL-BREF>
26. Eser SY, Fidaner H, Elbi H, et al. Measure of quality of life WHOQOL-100 and WHOQOL-Bref. *3P Journal*, 1999;7(2):5-13.
27. Spielberger CD, Gorsuch RC, Luschene RE. Manual for the State-Trait Anxiety Inventory. Consulting Psychologists Press, California, 1970.
28. Öner N, Le Compte A. State-Trait Anxiety Inventory Handbook. Boğaziçi University Publication, İstanbul, 1983.
29. Beck AT, Weissman A, Lester D, Trexler L. The measurement of pessimism: The hopelessness scale. *Journal of Consulting and Clinical Psychology*, 1974;12(6):861-865. <https://doi.org/10.1037/h0037562>
30. Seber G, Dilbaz N, Kaptanoğlu C, Tekin D. Umutsuzluk Ölçeği: Geçerlilik ve güvenilirliği. *Kriz Dergisi*, 1993;1:139-142.
31. Durak A, Palabıyıkoglu R. Beck Umutsuzluk Ölçeği Geçerlilik Çalışması. *Kriz Dergisi*, 1994;2(2):311-319. https://doi.org/10.1501/Kriz_0000000071
32. Shaukat N, Ali DM, Razzak J. Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review. *Int J Emerg Med*, 2020;13(1):40. <https://doi.org/10.1186/s12245-020-00000-0>

33. Atay S, Cura ŞÜ. Problems encountered by nurses due to the use of personal protective equipment during the coronavirus pandemic: Results of a survey. *Wound Manag Prev*, 2020;66(10):12-16. <https://doi.org/10.25270/wmp.2020.10.1216>
34. Swaminathan R, Mukundadura BP, Prasad S. Impact of enhanced personal protective equipment on the physical and mental well-being of healthcare workers during COVID-19. *Postgraduate Medical Journal*. 2020. <https://doi.org/10.1136/postgradmedj-2020-139150>
35. Boterman L. Hopelessness in heart patients study to factor in COVID-19. 2020. Accessed date: January 14, 2020. <https://today.uic.edu/hopelessness-in-heart-patients-study-to-factor-in-covid-19>
36. Nishad N, Kurian A. Aggression and hopelessness in general population during COVID-19 lockdown period. *International Journal of Indian Psychology*, 2020;8(2):347-351. <https://doi.org/10.25215/0802.246>
37. Shaw SCK. Hopelessness, helplessness and resilience: The importance of safeguarding our trainees' mental wellbeing during the COVID-19 pandemic. *Nurse Education in Practice*, 2020;44:102780.
38. Güngör A, Gül Uçman A. Depression and hopelessness in Turkish healthcare workers: The moderating and mediating roles of meaning in life, *Global Public Health*, 2020;15(2):236-246. <https://doi.org/10.1080/17441692.2019.1656273>
39. Kazan Kızılkurt O, Yılmaz A, Noyan CO, Dilbaz N. Health anxiety during the early phases of COVID-19 pandemic in Turkey and its relationship with postpandemic attitudes, hopelessness, and psychological resilience. *Perspect Psychiatr Care*, 2021;57(1):399-407. <https://doi.org/10.1111/ppc.12646>
40. Kliem S, Lohmann A, Mößle T, Brähler E. Psychometric properties and measurement invariance of the Beck hopelessness scale (BHS): Results from a German representative population sample. *BMC Psychiatry*, 2018;18(1):110–111.
41. Scogin F, Morthland M, DiNapoli EA, et al. Pleasant events, hopelessness, and quality of life in rural older adults. *Journal of Rural Health*, 2016;32(1):102–109. <https://doi.org/10.1111/jrh.12130>.
42. Hjemdal O, Friberg O, Stiles TC. Resilience is a good predictor of hopelessness even after accounting for stressful life events, mood and personality (NEO-PI-R). *Scandinavian Journal of Psychology*, 2012;53(2):174–180. <https://doi.org/10.1111/j.1467-9450.2011.00928.x>.
43. Arslantaş H, Adana F, Kaya F, Turan D. Hopelessness and social support level in the inpatients and factors affecting them. *İ.U.F.N. Hem. Derg*, 2010;18(2):87-97.
44. Teles MAB, Barbosa MR, Vargas AMD, et al. Psychosocial work conditions and quality of life among primary health care employees: a cross sectional study. *Health Qual Life Outcomes*, 2014;12:72. <https://doi.org/10.1186/1477-7525-12-72>
45. Franzia F, Basta R, Pellegrino F, et al. The role of fatigue of compassion, burnout and hopelessness in healthcare: experience in the time of COVID-19 outbreak. *Psychiatr Danub*, 2020;32(1):10-14.

46. Zhao Y, Cui C, Zhang K, et al. COVID19: A Systematic Approach to Early Identification and Healthcare Worker Protection. *Frontiers in Public Health*, 2020;8:205. <https://doi.org/10.3389/fpubh.2020.00205>
47. HR Daily Advisor Content Team. Burntout, hopeless, drained - mental health concerns are prevalent during COVID-19 Jun 8, 2020. Accessed date: January 17, 2021.
<https://hrdailyadvisor.blr.com/2020/06/08/burnt-out-hopeless-drained-mental-health-concerns-are-prevalent-during-covid-19/>
48. Liang Y, Chen M, Zheng X, Liu J. Screening for Chinese medical staff mental health by SDS and SAS during the outbreak of COVID-19. *Journal of psychosomatic research*, 2020;133:110102.
<https://doi.org/10.1016/j.jpsychores.2020.110102>
49. Zhou Q, Zhang X. Infuence of workload, mental health and professional quality of life on healthcare workers' hand hygiene behavior in medical aid during COVID-19 pandemic. *Research Square*, 2020.
<https://doi.org/10.21203/rs.3.rs-30058/v1>
50. Jones-Schenk J. Hope as a Generative Force: Lifting Our Gaze to the Future. *J Contin Educ Nurs.* 2020;51(5):203-204. <https://doi.org/10.3928/00220124-20200415-03>

Tables

Table 1. Sociodemographic characteristics of HCWs (n=729) (median (25.-75. percentile) / n (%))

Characteristics	Median (25. - 75. Percentiles)	
	n	%
Age	35.00 (28.00 - 42.00)	
Gender		
Female	536	73.5
Male	193	26.5
Marital Status		
Married	432	59.3
Single	297	40.7
The presence of chronic health problems		
Yes	153	21.0
No	576	79.0
Total	729	100.0

Abbreviations: HCWs, Healthcare Workers

Table 2. The knowledge, awareness and perceptions of HCWs on Covid-19 pandemic (n=729)
(median (25.-75. percentile) / n (%))

Characteristics		Median (25. - 75. Percentiles)
	n	%
Weekly working hours	40.00 (40.00-48.00)	
Daily patient number	10.00 (7.00 -20.00)	
Profession		
Physician	130	17.8
Nurse	332	45.7
Health Technician	200	27.4
Data entry personnel/ secretary	14	1.9
Other	53	7.2
Working place		
COVID policlinics	24	3.3
COVID service	92	12.6
Other services	435	59.7
Group working from home	20	2.7
Accepting unit/ emergency service	158	21.7
Way of working		
Nighttime	38	5.2
Daytime	315	43.2
Shift	376	51.6
Have you ever been with Covid-19?		
Yes	14	1.9
No	715	98.1
Have you ever contacted with a person with Covid -19 or suspicion of Covid-19?		
Yes	430	59.0
No	126	17.3
I don't know	173	23.7
How do you evaluate your knowledge of Covid-19 and your ability to do your job as you fulfill your role?		
Partially competent	282	38.7
Not prepared	124	17.0
Completely competent and ready	323	44.3
What physical ailments do you experience due to the use of protective equipment during the pandemic?		
Allergic reactions	108	14.8
Skin problems (sweating, erythema, dryness, etc.)	209	28.7
Fatigue	201	27.6
Headache, vertigo	173	23.7
Trouble breathing	12	1.6
Other (insomnia, visual problems, anxiety, etc.)	26	3.6
What do you think about the measures taken in your workplace environment during the pandemic? (personal protective equipment, working time, etc.)		
Partially competent	377	51.7
Competent	242	33.2
Incompetent	110	15.1
Did you need psychological or other help because of contact with infected people or fear of getting infected?		
Yes	596	81.8
No	133	18.2
Was there any physical/ emotional/ social strain or an event that affected you during the pandemic?		
Yes	297	40.7
No	432	59.3
Did you have the opportunity to sleep / rest during your shift?		
Yes	438	60.1
No	291	39.9
Total	729	100.0

Abbreviations: HCWs, Healthcare Workers

Table 3. HCWs' WHOQOL-BREF-TR, STAI-I and BHS scale score medians and the relationship between the score medians (n=729) (median (25.-75. percentile)

Scale and subscales	Median (25. - 75. Percentiles)	*	1	2	3	4	5
1. PH	64.28 (50.00-75.00)	r					
		p					
2. PSH	62.50 (54.16-75.00)	r	0.653
		p	p<0.001				
3. SW	58.33 (41.66-75.00)	r	0.501	0.568	.	.	.
		p	p<0.001	p<0.001			
4. E-TR	59.37 (50.00-68.75)	r	0.624	0.591	0.516	.	.
		p	p<0.001	p<0.001	p<0.001		
5. STAI-I	41.00 (38.00-43.00)	r	0.118	0.142	0.067	0.206	.
		p	0.002	p<0.001	0.094	p<0.001	.
6. BHS	5.00 (2.00-11.00)	r	-0.486	-0.605	-0.419	-0.533	-0.054
		p	p<0.001	p<0.001	p<0.001	p<0.001	0.174

Abbreviations: HCWs, Healthcare Workers; WHOQOL-TR, the Turkish version of the Shorter Version of the World Health Organization Quality of Life Instrument; PH, Physical Health; PSH, Psychological Health; SW, Social Well-being; E-TR, Environment-TR; STAI-I, State-Trait Anxiety Inventory; BHS, Beck Hopelessness Scale

*: Spearman Correlation Analysis

Table 4. Correlation between the median scores of the HCWs on the WHOQOL-BREF-TR, STAI-I, BHS and their work characteristics (n=729)

Scale and subscales *	Age	Working experience (years)	Weekly working hours	Daily patient number	The score given to workload	The score given to fatigue
PH	r	0.020	-0.012	0.034	-0.065	-0.071
	p	0.616	0.757	0.379	0.105	0.064
PSH	r	0.053	0.077	0.052	-0.062	0.050
	p	0.178	0.044	0.178	0.123	0.185
SW	r	-0.016	0.014	0.016	-0.066	0.010
	p	0.695	0.716	0.686	0.114	0.805
E-TR	r	0.074	0.039	-0.114	-0.074	-0.172
	p	0.059	0.308	0.003	0.064	p<0.001
STAI-I	r	-0.006	0.005	-0.025	0.054	0.012
	p	0.889	0.906	0.534	0.183	0.756
BHS	r	-0.063	-0.036	0.114	0.071	0.161
	p	0.115	0.358	0.004	0.083	p<0.001

Abbreviations: HCWs, Healthcare Workers; WHOQOL-TR, the Turkish version of the Shorter Version of the World Health Organization Quality of Life Instrument; PH, Physical Health; PSH, Psychological Health; SW, Social Well-being; E-TR, Environment-TR; STAI-I, State-Trait Anxiety Inventory; BHS, Beck Hopelessness Scale

*: Spearman Correlation Analysis

Table 5. Comparison of the subjects HCWs need to improve their skills and their median scores on the WHOQOL-BREF-TR, STAI-I and BHS (n=729) (median (25.-75. percentile)

Subjects	Need of Information Yes / No	PH	PSH	SW	E-TR	STAI-I	BHS
Infection Prevention Control	No	64.28 (53.57-75.00)	66.66 (54.16-75.00)	58.33 (50.00-75.00)	59.37 (53.12-68.75)	40.50 (38.00-43.00)	4.00 (2.00-9.00)
	Yes	60.71 (50.00-71.42)	62.50 (54.16-70.83)	58.33 (41.66-66.66)	59.37 (50.00-65.62)	40.00 (38.00-43.00)	5.00 (2.00-11.00)
p*		p=0.008	p=0.033	p=0.616	p=0.016	p=0.876	p=0.028
Using Personal Protective Equipment	No	64.28 (53.57-75.00)	62.50 (54.16-75.00)	58.33 (50.00-75.00)	59.37 (50.00-68.75)	41.00 (39.00-43.00)	4.00 (2.00-10.00)
	Yes	60.71 (46.42-67.85)	62.50 (50.00-72.91)	58.33 (41.66-66.66)	53.12 (43.75-62.50)	40.00 (37.00-42.00)	5.00 (3.00-13.00)
p*		p=0.015	p=0.209	p=0.340	p=0.001	p=0.055	p=0.029
Case Management	No	64.28 (53.57-75.00)	62.50 (54.16-75.00)	58.33 (50.00-75.00)	59.37 (50.00-68.75)	40.00 (38.00-43.00)	4.00 (2.00-11.00)
	Yes	64.28 (50.00-71.42)	62.50 (54.16-75.00)	58.33 (41.66-66.66)	59.37 (50.00-68.75)	41.00 (39.00-43.00)	5.00 (2.00-10.00)
p*		p=0.295	p=0.570	p=0.567	p=0.316	p=0.039	p=0.337

Abbreviations: HCWs, Healthcare Workers; WHOQOL-TR, the Turkish version of the Shorter Version of the World Health Organization Quality of Life [Instrument](#); PH, Physical Health; PSH, Psychological Health; SW, Social Well-being; E-TR, Environment-TR; STAI-I, State-Trait Anxiety Inventory; BHS, Beck Hopelessness Scale

*: Mann-Whitney U Test

Table 6. Comparison of the Covid-19 related knowledge and skills of HCWs during working and their median scores on the WHOQOL-BREF-TR, STAI-I and BHS (n=729) (median (25.-75. percentile)

Their knowledge and skills related to Covid-19		PH	PSH	SW	E-TR	STAI-I	BHS
Competent (n=282)	Median	60.71	62.50	58.33	59.37	40.00	5.00
	Percentiles	25 75	50.00 71.42	54.16 70.83	45.83 75.00	50.00 65.62	38.00 43.00
Completely competent and ready (n=323)	Median	64.28	68.75	58.33	62.50	41.00	4.00
	Percentiles	25 75	57.14 75.00	58.33 75.00	50.00 75.00	53.12 68.75	39.00 43.00
Not prepared (n=124)	Median	53.57	58.33	50.00	53.12	40.00	6.50
	Percentiles	25 75	39.28 64.28	43.75 66.66	33.33 64.58	40.62 62.50	39.00 44.00
p value *		p<0.001	p<0.001	p<0.001	p<0.001	p=0.592	p=0.012
p ^a		p<0.001⁺	p<0.001⁺	p<0.001⁺	p<0.001⁺		p=0.011⁺
		p=0.033⁺⁺	p=0.001⁺⁺	p=0.003⁺⁺⁺	p=0.030⁺⁺		
		p=0.001⁺⁺⁺	p=0.05⁺⁺⁺		p=0.013⁺⁺⁺		

Abbreviations: HCWs, Healthcare Workers; WHOQOL-TR, the Turkish version of the Shorter Version of the World Health Organization Quality of Life [Instrument](#); PH, Physical Health; PSH, Psychological Health; SW, Social Well-being; E-TR, Environment-TR; STAI-I, State-Trait Anxiety Inventory; BHS, Beck Hopelessness Scale

*: Kruskal-Wallis Test

p: Multiple Comparison Test

⁺: Not prepared – Completely competent and ready; ⁺⁺: Competent – Completely competent and ready; ⁺⁺⁺: Not prepared – Competent