Effect of COVID-19 Exposure and Concerns of Healthcare Workers on Their Hopelessness Levels

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Abstract: This study aims to determine the effect of COVID-19 exposure and concerns of healthcare workers on their hopelessness levels. The sample for this cross-sectional study comprised 290 healthcare workers (including physicians, nurses, technicians, etc.) selected through power analysis in a hospital in Eastern Türkiye. The study employed the use of an Information Form, a COVID-19 exposure form, the Scale of Concern for COVID-19, and the Hopelessness Scale as data collection tools. The mean age of the participants was 34.64 ± 8.51, and the mean working years were 12.04 ± 9.08. Among the participants, 71% were female, and 62.8% were married. About 49% of the healthcare workers had been employed in the health sector for 10 years or less. Additionally, 23.9% of the healthcare professionals participating in the research worked in the outpatient diagnosis and treatment unit. Furthermore, 63.5% of the healthcare professionals worked 40 hours or fewer per week. It was found that the concern level of healthcare workers was a significant variable affecting the level of hopelessness; however, COVID-19 exposures did not have an impact. As a result of this study, it has been determined that the anxiety level of healthcare professionals is a factor influencing the level of hopelessness. This study will provide data support to understand the effects of factors such as concern and exposure on hopelessness during the pandemic and to plan appropriate interventions to combat hopelessness.

Keywords: COVID-19, exposure, concerns, health workers, hopelessness

Sağlık Çalışanlarının COVID-19 Maruziyeti ve Endişelerinin Umutsuzluk Düzeylerine Etkisi

Özet: Bu çalışmanın amacı; sağlık çalışanlarının COVID-19 maruziyeti ve endişelerinin umutsuzluk düzeylerine etkisini belirlemektir. Bu araştırma, kesitsel tipte yapılmış bir araştırmadır. Araştırmanın örneklemini, Türkiye' nin Doğusundaki bir hastanede çalışmakta olan ve güç analizi ile belirlenen 290 sağlık çalışanı (hekim, hemşire, tekniker vb.) oluşturmuştur. Araştırmanın verilerini toplamak için "Kişisel Bilgi Formu", "COVID-19 Maruziyet Anketi", "COVID_19 Endişe Ölçeği" ve "Umutsuzluk Ölçeği" kullanılmıştır. Araştırmaya katılan sağlık çalışanlarının yaş ortalaması incelendiğinde 34.64±8.51 olduğu tespit edilmiştir. Katılımcıların, ortalama çalışma yılı 12.04± 9.08 olarak belirlenmiştir. Katılımcıların % 71' i kadın olmakla birlikte, % 62.8' i ise evlidir. Araştırmaya katılan sağlık çalışanlarının % 49'u 10 yıldan daha az süredir herhangi bir sağlık sektöründe çalışmaktadır. Sağlık çalışanlarının % 23.9' u ayaktan teşhis ve tedavi biriminde çalışmaktadır ve bu katılımcıların % 63.5'i haftalık 40

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saat yada altı çalışmaktadır. Sağlık çalışanlarının endişe düzeyinin umutsuzluk düzeyini etkileyen önemli bir değişken olduğu, COVID-19 maruziyetlerinin ise umutsuzluk düzeyine etki etmediği belirlenmiştir. Bu çalışmanın sonucunda; sağlık çalışanlarının endişe düzeyinin umutsuzluk düzeyini etkileyen bir faktör olduğu belirlenmiştir. Bu çalışmanın sonuçları; pandemi sırasında endişe, maruziyet gibi faktörlerin umutsuzluğa etkisini anlamak ve umutsuzlukla mücadelede uygun müdahaleler planlamak için veri desteği sağlayacaktır.

Anahtar kelimeler: COVID-19, maruziyet, endişe, sağlık çalışanı, umutsuzluk

INTRODUCTION

Coronavirus Disease 2019 (COVID-19) emerged in China and rapidly evolved into a worldwide public health concern. The COVID-19 pandemic, leading to millions of infections and numerous fatalities globally, was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 (WHO, 2021).

This disease, for which there is no treatment yet, has triggered widespread psychological effects in addition to its physical and economic impacts worldwide (Fiorillo & Gorwood, 2020; Hacımusalar et al., 2020). The COVID-19 pandemic has been associated with various psychological issues in humans, including post-traumatic stress disorder, depression, suicide, and acute stress disorder. Moreover, it has been indicated to induce psychological reactions such as tension, anxiety, fear, and hopelessness, which can contribute to the development of these psychological problems (Gao et al., 2020; Huang et al., 2020a; Kaplan Serin & Doğan, 2021; Wang et al., 2020).

The lack of knowledge about the exact course of the COVID-19 pandemic, its significant effects on society, high mortality rates, and the absence of a definitive treatment method are cited as reasons that may lead to concerns and hopelessness about the future (Hacımusalar et al., 2020).

It is emphasized that hopelessness, defined as one of the main symptoms of depression, may also be observed in suicide attempts, schizophrenia, drug/alcohol addiction, sociopathy, and physical illnesses (Kaplan Serin & Doğan, 2021; Kazan Kızılkurt et al., 2021; Kliem et al., 2017; Kocalevent et al., 2017; Sarıçalı et al., 2020).

Healthcare workers represent a group in which all negative effects of COVID-19 are observed in every aspect. Undoubtedly, healthcare workers are at a higher risk of exposure to infection than other individuals in society. Healthcare workers can acquire COVID-19 within the hospital environment and may transmit this infection to those around them (CDC, 2020; Qarawi et al., 2020). Many healthcare workers around the world, including in Türkiye, fell ill and lost their lives during the pandemic (Hacımusalar et al., 2020). There are studies examining the psychological problems and negative feelings of healthcare workers, who play an indispensable role in the fight against epidemic diseases, due to the challenges posed by this situation (Erkal Aksoy & Koçak, 2020; Huang et al., 2020b). In the literature, there is a limited number of studies on hopelessness, a feeling that negatively affects the mental health of healthcare workers and may lead to psychopathological problems during the COVID-19 pandemic (Hacımusalar et al., 2020; Kazan Kızılkurt et al., 2021; Franza et al., 2020).

In the study conducted by Hacımusalar et al. (2020) during the COVID-19 pandemic in Türkiye, the hopelessness levels of healthcare workers were found to be higher than those of other individuals in society (Hacımusalar et al., 2020). During the pandemic, it is crucial for employees to have adequate healthcare and paid sick leave to perform their jobs safely and maintain their health. However, during the COVID-19 pandemic, healthcare workers often work long hours, and their leave is canceled. Hope

is identified as one of the primary coping strategies for healthcare workers facing such stressful, life-threatening situations and other challenges (Jones-Schenk et al., 2020).

It is considered that increased exposure to/contact with COVID-19 patients and concern for COVID-19 may affect the hopelessness level of healthcare workers. During pandemic periods such as COVID-19, some people, especially at-risk groups, may experience extreme concern and various psychological problems (Kaplan Serin & Doğan, 2021). Concern is defined as the anxiety or uneasiness caused by the fear or expectation of danger or misfortune directly related to stress. In other words, concern is a cognitive activity that accompanies anxiety about future events, the outcomes of which are uncertain but believed to have negative consequences (Yılmaz, 2015).

In the literature reviews, no study examining the effect of COVID-19 concern and exposure on hopelessness was found. This study was conducted to determine the impact of COVID-19 exposure and the concerns of healthcare workers on their hopelessness levels.

Research Hypotheses

H1; COVID-19 concern levels of healthcare workers affect the level of hopelessness.
H2; COVID-19 exposure of healthcare workers affect the level of hopelessness.

MATERIAL and METHOD

This cross-sectional study was conducted to determine the effect of COVID-19 exposure and concerns of healthcare workers in a city hospital in eastern Türkiye on their hopelessness levels.

Population and Sample

1794 healthcare staff (physicians, nurses, technicians, etc.) working in a city hospital in eastern Türkiye constituted the population of the study. The sample consisted of 290 individuals determined by power analysis (95% confidence interval, 5% error level, and 95% representative power). The random sampling method was used in the selection of samples from the population.

Data Collection

The data of the study were collected digitally by the researchers between April and May 2020. The data were collected using the Personal Information Form, the COVID-19 exposure questionnaire, the Scale of Concern for COVID-19, and the Hopelessness Scale. The time to answer the questionnaire was 5-10 minutes. In this study, a pilot study was conducted with 20 healthcare workers in another health institution to determine the comprehensibility of the questionnaire form. The questionnaire forms were prepared in the digital environment and distributed to the healthcare staff in the institution by sending via a phone application (WhatsApp), and they were collected in the digital environment.

Data Collection Tools

Personal Information Form: It was developed by the researchers to collect introductory information of the participants who agreed to participate in this study. This form consists of a total of six questions (age, gender, marital status, working year, working clinic, work hour) including socio-demographic characteristics and working conditions.

COVID-19 Exposure Questionnaire

It is a study-specific questionnaire prepared by the researchers by reviewing the literature. It consists of four questions (answered as yes or no) examining the exposure status. The questions about COVID-19 exposure are as follows;

COVID-19 Exposure-1; Have you had exposure to/contact with a patient isolated due to COVID-19?

COVID-19 Exposure-2; Do you have a COVID-19 infection?

COVID-19 Exposure-3; Do any family members have COVID-19 infection?

COVID-19 Exposure-4; Do any of your colleagues have COVID-19 infection?

Scale of Concern for COVID-19

The scale was created by the researchers specifically for this study. It is a 5-point Likert-type and single-factor scale consisting of 5 items that measure the concern levels of healthcare staff. The scale items are scored as Strongly agree (1), Partially agree (2), Undecided (3), Partially disagree (4), Strongly disagree (5). It was determined that the alpha coefficient of the scale was 0.65, with factor loadings of the items ranging between 0.49 and 0.76, and the item-total correlation coefficient ranging between 0.30 and 0.51. The scale is assessed based on the total score, where the level of concern increases as the scale score decreases.

Beck Hopelessness Scale

The scale, created by Beck et al. (1974) aims to identify the individual's level of pessimism (Beck, 1974). It consists of 20 items, answered as yes or no, with 11 true and 9 false answer keys. The score range of the scale is 0-20, and the total score obtained from the scale represents the hopelessness score. A higher total score indicates a greater level of hopelessness in the individual. The Turkish validity and reliability study of this scale was initially conducted by Seber et al. (1993). It was found that the internal consistency coefficient was 0.86, the item-total correlations ranged between 0.07 and 0.72, and the test-retest reliability coefficient was 0.74 (Seber et al., 1993). In the current study, the internal consistency coefficient (Cronbach alpha) was determined to be 0.88.

Data analysis

The data were analyzed using the SPSS 23 Package Program. Frequency, Mean, Linear Regression, and Auto Linear Regression tests were used.

Ethical Principles

Ethical permission was obtained from the Medicine Non-Interventional Ethics Committee of a University (numbered 391234) to conduct the study. Permission was obtained from the hospital and the data were collected by the principles of voluntariness and confidentiality. The principles of the Declaration of Helsinki were followed during the study.

RESULTS

Descriptive variables of healthcare workers are presented in Table 1. The mean age of healthcare workers who participated in the study was 34.64 ± 8.51, and the mean working years were 12.04 ± 9.08. Of the participants, 71% were female, and 62.8% were married. Additionally, 49% of the healthcare workers had been working in the health sector for 10 years or less. While 23.8% of the healthcare workers who participated in the study worked in the outpatient diagnosis and treatment department, 63.4% of them worked 40 hours or less in a week.

In the linear regression performed in Table 2, it was determined that concern was a significant variable affecting the total level of hopelessness; however, the independent variables were not effective in total ($R^2=0.068$, p=0.046; $p<0.05$).

According to the results of the regression analysis obtained in Table 3, the model testing the effect of COVID-19 concern and COVID-19 exposure on hopelessness level was found to be statistically significant (F: 2.47; $P \leq 0.05$). This result meant that it was statistically possible to estimate the effect of COVID-19 concern and COVID-19 exposure, which were independent variables in the study, on

Hopelessness, addressed as the dependent variable in the study. Independently of the other variables in the model, COVID-19 concern was found to be a significant variable affecting the level of hopelessness (β=0.437, p<0.005). It was determined that not all exposures to COVID-19 affected the level of hopelessness (p>0.05).

Table 1. Characteristics of the health worker.

Descriptive Variables			
Mean Age	34.64 ± 8.51		
Mean Working Year	12.04± 9.08		
		n	**%**
	20-29 age	102	35.2
Age	30-39 age	89	30.
	40-49 age	8	30.0
	50 age and over	12	4.1
Gender	Female	206	71.0
	Male	84	29.0
Marital Status	Married	182	62.8
	Single	108	36.6
	0-10 year	142	49.0
Working Year	11-20 year	99	34.1
	21-30 year	41	14.1
	31 year and over	8	2.8
	Outpatient Diagnosis and Treatment	69	23.8
	Emergency Group	65	22.4
Working Clinic	Intensive care	39	13.4
	Internal Services	50	17.2
	Surgical Services	41	14.1
	Other	26	9.0
Work hour	40 hours and less	184	63.4
	Over 40 hours	106	36.6

Table 2. Factors affecting hopelessness.

Model 1	Variables	B	Std. Error	Beta	t	Sig.
	(Constant)	-6.196	4.149		-1.493	.137
	Age	-.453	.604	-.078	-.750	.454
	Gender	-.082	.710	.007	.116	.908
	Marital Status	1.139	.720	.105	1.582	.115
	Working Year	.610	.643	.094	0.949	.343
	Working Clinic	.059	.154	.024	.384	.701
	Work hour	1.133	.642	.104	1.764	.079
	Concern Scale Total	.391	.150	.155	2.613	**.009**
	COVID-19 Exposure-1	.381	.733	.031	0.520	.604
	COVID-19 Exposure-2	1.359	3.886	.021	.350	.727
	COVID-19 Exposure-3	.097	1.958	.003	.049	0.961
	COVID-19 Exposure-4	.801	.630	.075	1.272	.205
	R: 0.261					
	R Square: 0.068					
	F: 1.850					
	P: 0.046					

a. Dependent Variable: Hopelessness Scale Total.

b. Predictors: (Constant), Age, Gender, Marital Status, Working Year, Working Clinic, Work hour.

Table 3. Effect of COVID-19 concern and exposure on total hopelessness level.

Model 1	Variables	B	Std. Error	Beta	t	p
	(Constant)	-4.946	3.460		-1.140	.255
	Concern Scale Total	.437	.147	173	2.963	**.003**
	COVID-19 Exposure-1	.591	.725	.048	1.815	.416
	COVID-19 Exposure-2	2.017	3.861	.032	.503	.602
	COVID-19 Exposure-3	-.172	1.932	-.005	-.089	.929
	COVID-19 Exposure-4	.726	.629	.068	1.154	.250
	R: 0.204					
	R Square: 0.042					
	F: 2.47					
	p: 0.032					

a. Dependent Variable: Hopelessness Scale Total.
b. Predictors: (Constant), Concern Scale Total, COVID-19 Exposure-1, COVID-19 Exposure-2, COVID-19 Exposure-3, COVID-19 Exposure-4.

DISCUSSION

During pandemics, it is necessary to protect the health of healthcare workers to control infectious diseases and increase the effectiveness of treatment (Bayülgen et al., 2021). During these periods, especially healthcare workers have a great responsibility; their workload increases, and psychological resilience becomes important (Franza et al., 2020). Hopelessness is a concept that should be emphasized in terms of the energy, performance, and health of healthcare workers. During periods of high stress such as COVID-19, it is known that hope strongly reduces the effects of stress on mental and physical health (Kazan Kızılkurt et al., 2021).

In the literature review, no study on the effect of healthcare workers' exposure to COVID-19 disease agents and concerns about it on their hopelessness levels was found. The data from the study are important as they were collected during the period when COVID-19 first reached the highest case rates in Turkey, measuring the initial reactions.

In this section, the effects of exposure and concern levels of healthcare workers on hopelessness were discussed along with similar studies. In the regression model established in this study, it was determined that healthcare workers' concern was a factor affecting the level of the hopelessness scale (Table 3). In the literature, no study investigating the concern for COVID-19 and its effect on hopelessness was found. This study was compared with similar anxiety studies in the literature.

In the study on anxiety and hopelessness levels of nurses conducted by Bayülgen et al., it was determined that there was a relationship between the coronavirus anxiety scale levels of nurses and their hopelessness levels (Bayülgen et al., 2021). In the study conducted by Hacımusalar et al. during the COVID-19 pandemic in Turkey, it was indicated that the general anxiety level of the participants was an important indicator of hopelessness (Hacımusalar et al., 2021). In the study conducted by Kızılkurt et al. on the elderly during the COVID-19 pandemic, a relationship was found between the health anxiety and hopelessness levels of the participants (Kazan Kızılkurt et al., 2021). Although these studies did not reveal the effects of COVID-19 anxiety level on hopelessness level, they support our study in that they explain the relationship between anxiety and hopelessness. In this study, healthcare workers' concern for COVID-19 was determined as a significant factor affecting the level of hopelessness, and hypothesis H1 was accepted. It is considered that the concern for COVID-19 during the pandemic period affects the level of hopelessness by reflecting the anxiety of healthcare workers in general.In the regression model established in this study, it was determined that the exposure/contact

of healthcare workers, their families, and friends to COVID-19 was not a factor affecting the level of the hopelessness scale (Table 3). In the literature, no study on the effect of exposure on the level of hopelessness was found.

In the study conducted by Bayülgen et al. to determine the anxiety and hopelessness levels of nurses in Turkey, it was determined that there was no significant difference between the levels of hopelessness in nurses who encountered and did not encounter a COVID-19 patient. Furthermore, in the same study, it was also determined that there was no significant difference between nurses caring for COVID-19 patients and hopelessness (Bayülgen et al., 2021). This study reveals that exposure and contact with the patient or the presence of a patient with COVID-19 in the environment of the healthcare worker (family, colleague) do not affect the level of hopelessness and support our study. In this study, hypothesis H2 was rejected. This result can be explained by the effect of another stronger factor influencing the hopelessness of healthcare workers during the pandemic period.

CONCLUSION and RECOMMENDATIONS

In conclusion, according to this study, concern emerges as a significant predictor of hopelessness for healthcare workers. During pandemic periods, examining the concern levels of healthcare workers and other at-risk groups for psychological health is crucial. Education and support programs can be planned to provide psychosocial support, thereby reducing concern and hopelessness levels. This approach ensures that healthcare workers can more easily cope with the current psychological challenges of the pandemic, and it prevents potential psychological problems arising from hopelessness in the future. Contrary to popular belief, exposure did not impact the level of hopelessness during the pandemic period. It is recommended to conduct similar studies in different groups, considering various factors that may affect the concepts of concern and hopelessness.

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