ARAŞTIRMA YAZISI / RESEARCH ARTICLE

COVİD-19'UN HASTANE ÖNCESİ ACİL SAĞLIK HİZMETLERİNDE ÇALIŞAN SAĞLIK PROFESYONELLERİ ARASINDA DEPRESYON ÜZERİNE ETKİSİNİN ANALİZİ

ANALYZING THE IMPACT OF COVID-19 ON DEPRESSION AMONG HEALTHCARE PROFESSIONALS WORKING IN PRE-HOSPITAL EMERGENCY MEDICAL SERVICES

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ÖZET

AMAÇ: Koronavirüs hastalığı 2019 (COVID-19) salgınının tüm insanlığın, özellikle de sağlık çalışanlarının ruh sağlığını etkilediği düşünülmektedir. En sık görülen psikiyatrik hastalıklardan biri olan depresyon açısından COVID-19 ile ön planda mücadele eden hastane öncesi sağlık çalışanlarının değerlendirilmesi ve etkileyen faktörleri belirlemek önemlidir. Bu çalışmada Hastane öncesi acil tıbbi hizmetlerinde çalışan sağlık uzmanları arasında COVID-19 ile ilişkili depresyon ve ilişkili faktörleri analiz etmeyi amaçladık.

GEREÇ VE YÖNTEM: Bu kesitsel çalışma, hastane öncesi acil tıbbi hizmetlerinde çalışan 552 sağlık mesleği mensubu üzerinde bir anket yöntemi kullanılarak gerçekleştirilmiştir. Beck'in Depresyon İndeksi (BDI) ile ölçülen infekte olma riski ve korkusu, bilgi kaynaklarına güven ve depresyon düzeyleri COVID-19 ile ilişkili olarak değerlendirildi.

BULGULAR: Kadınların BDI skorları erkeklerden daha yüksekti (p = 0.009). BDI puanları, eşi vefat etmiş veya boşanmışlarda evli veya bekarlara göre daha yüksekti. COVID-19 ile enfekte olma korkusu yüksek olanlar da BDI puanları daha yüksek saptandı Bilgi kaynaklarına güveni daha az olan ve hastalık hakkındaki bilgi düzeyi düşük olanlar katılımcıların BDI puanları daha yüksek tespit edildi.

SONUÇ: Boşanmış veya dul kalmış kadınlar, enfekte olma riski ve enfekte olma korkusu daha yüksek olanlar, bilgi kaynaklarına güveni düşük olanlar ve hastalık hakkında düşük düzeyde bilgisi olanlar COVID-19 ile ilişkili depresyona daha yatkındır ve bu nedenle desteklenmelidir.

ANAHTAR KELİMELER: Acil, Bilgi, COVID-19, Depresyon, Hastane öncesi

ABSTRACT

OBJECTIVE: Coronavirus disease 2019 (COVID-19) pandemic is thought to have affected the mental health of all humanity, especially health workers. It is important to evaluate prehospital healthcare workers fighting COVID-19 at the forefront in terms of depression, which is one of the most common psychiatric diseases, and to determine the factors that affect it. In this study, we aimed to analyze the COVID-19-related depression and associated factors among healthcare professionals working in pre-hospital emergency medical services (PEMS).

MATERIAL AND METHODS: This cross-sectional study was conducted using a survey method on 552 healthcare professionals working in PEMS. The perceived risk and fear of being infected, trust in information sources, and depression levels as measured by Beck's Depression Inventory (BDI) were evaluated in relation to COVID-19.

RESULTS: Women had higher BDI scores than men (p = 0.009). BDI scores were higher in widowed or divorced compared to married or single individuals. Those with greater perceived risk and fear of being infected with COVID-19 had also increased BDI scores. BDI scores were higher in those with low trust in information sources and a low level of knowledge about the disease.

CONCLUSIONS: Women, divorced or widowed, those with greater perceived risk and fear of being infected, those with low trust in information sources, and those with a low level of knowledge about the disease are more prone to depression associated with COVID-19 and hence should be supported.

KEYWORDS: Emergency, Information, COVID-19, Depression, Pre-hospital

INTRODUCTION

The coronavirus disease 2019 (COVID-19) was first identified in Wuhan, China, in December 2019 and has spread across the globe (1). As of May 2021, more than 150 million people were infected with COVID-19, thus resulting in the death of more than 3 million people (2). The fact that COVID-19 is a deadly disease and scientists claim that the mutations in the virus that cause human-to-human transmission have caused people to worry and constantly believe that they are at risk (3). This condition is not specific to COVID-19, but it can be observed in similar diseases. Indeed, during the Severe Acute Respiratory Syndrome (SARS) outbreak, which emerged in 2003, people felt as if they were at risk and exhibited various psychological disorders, especially depression (4).

The Behaviors and attitudes of healthcare professionals have also been affected by this outbreak. In particular, healthcare professionals' risk perception, stress, and anxiety levels increased due to incomplete information, leading to decreased compliance for with their medical decisions. Supporting this viewpoint, a study conducted on COVID-19 in a hospital environment revealed disease-related acute stress reactions experienced by healthcare professionals (5). In a similar vein, another study conducted with hospital professionals in China reported that 10.8% of healthcare professionals met the diagnostic criteria for post-traumatic stress disorder (PTSD) after the COVID-19 outbreak (6).

Although the extant literature examines the COVID-19-related mental state (such as depression, anxiety, and PTSD) of healthcare professionals in the hospital environment, no study investigated the healthcare professionals working in PEMS who perform the first intervention for patients (5 – 7). Thus, this study compared the perceived risk and fear of being infected with COVID-19, trust in information sources, and depression levels with the level of knowledge among healthcare professionals working in PEMS and provided suggestions.

MATERIALS AND METHODS

Study Design: This cross-sectional, analytical study was conducted with 552 healthcare professionals in PEMS (management, call center team, and ambulance team) between April and June 2020. The management group included administrators; the call center team included physicians and emergency medical technicians; and the ambulance team included physicians, emergency medical technicians, paramedics, and drivers. All participants voluntarily participated in this study, and they were informed about the quality of the work through verbal communication. Those with a known history of psychiatric disorders (based on the participants' disclosure) were excluded. Then, participants who agreed to participate in the study and whose informed consent was obtained were asked to complete the questionnaires. Demographic data were recorded for all participants.

Questionnaire: A 4-point Likert scale was used to evaluate the perceived risk and fear of being infected with COVID-19, and a 5-point Likert scale was used to assess the trust in information sources. The level of knowledge about COVID-19 was evaluated by utilizing the test used in the study by Taghrir et al. with medical school students, consisting of 15 items. The correct answer to each item was given 1 point (7). Depression levels were assessed using the Beck's Depression Inventory (BDI) developed by Beck et al. and consisted of 21 items designed to measure depressive symptoms. Items on the BDI are scored between 0 and 3, and the total score ranges from 0 to 63; the higher the score, the higher the level of depression. According to BDI, 10–16 points are considered mild, 17–29 points are considered moderate, and 30–63 points are considered severe depression (8).

Ethical Committee

This study was approved by Sakarya University Faculty of Medicine Ethical Committee. (71522473/050.01.04/90)

Statistical Analysis

IBM SPSS 21.0 software was used for the statistical analysis of the data. Numbers and percentages were used to present qualitative data, and mean ± standard deviation values were used to express quantitative data. The difference between the two groups was analyzed using the Independent Student t-test, while Tukey

HSD posthoc tests with one-way ANOVA were used for more than two groups. All tests were performed at a two-sided 5% level of significance. Absolute and relative effects for each endpoint and the corresponding 95% confidence intervals were calculated as suggested by Altman et al. (9).

RESULTS

Table 1 provides demographic data and the relationship between the demographic data and mean BDI scores. Accordingly, the study included 552 participants consisting of 311 men (56.3%) and 241 women (43.7%). The age of the participants varied between 19 and 60 years, with a mean age of 30.97 ± 5.67 years for women and 32.69 ± 7.34 years for men. In terms of marital status, 66.3% (n = 366) were married, 30.6% (n = 169) were single, and 3.1% (n = 17) were divorced or widowed. Among the participants, 316 (57.2%) had children, 385 (69.7%) were living in the city center, and 472 (82.5%) were working in the ambulance team. When the BDI scores of the participants were examined, they were found to be significantly higher in women (10.04 ± 9.42) according to gender, divorced or widowed (15.24 ± 13.69) according to marital status, and in the call center team (12.50 ± 7.70) compared to other groups (p = 0.009, p = 0.013, and p < 0.001, respectively).

Table1: Relationship between demographic variables and working conditions and BDI level

		n (%)	Beck's Depression Inventory	p
Gender	Male	311 (56.3)	7.96 ± 9.02	**0.009***
	Female	241 (43.7)	10.04 ± 9.42	
Age	19-30	252 (45.6%)	9.08 ± 9.48	0.076
	31-40	248 (44.9%)	9.26 ± 9.41	
	41-50	47 (8.5%)	5.51 ± 6.19	
	51-60	5 (1.0%)	10.00 ± 8.86	
Marital Status	Married	366 (66.3)	8.81 ± 9.47[a]	**0.013****
	Single	169 (60.6)	8.36 ± 7.96[b]	
	Divorced or Widowed	17 (3.1)	15.24 ±13.69[a,b]	
Children	Yes	316 (57.2)	8.40 ±9.14	0.171
	No	236 (42.8)	9.49 ± 9.37	
Working Area	Town Center	385 (69.7)	8.57 ± 8.66	0.245
	Country	167 (30.3)	9.56 ± 10.46	
Working Experience	< 1 year	32 (5.8)	9.09 ± 7.78	0.093
	1-5 year	110 (19.9)	10.55 ± 10.49	
	> 5 year	410 (74.3)	8.40 ± 8.96	
Working Unit	Management	20 (3.6)	5.80 ± 6.50[a]	**<0.001****
	Call Center Worker	60 (10.9)	12.50 ± 7.70[a,b]	
	Ambulance Team	472 (85,5)	8.54 ± 9.42[b]	

*Student's t test p<0.05; **one-way ANOVA p<0.05

[a,b] Within the same measurement category, values with the same lowercase letter are statistically different with Tukey's post hoc analysis..

Table 2 shows the results of the BDI analysis based on the perceived risk and fear of being infected with COVID-19, information sources,

level of trust in information sources, and level of knowledge. Accordingly, most participants answered "unlikely" to the questions about the perceived risk and fear of being infected with COVID-19 (n = 236, 42.8%; n = 270, 48.6%, respectively). It was found that the most preferred source of information was the "internet" (n = 228, 41.3%), and the most frequent answer to the question of how much you trust in information sources was "much" (n = 199, 36.1%). The assessment of the knowledge level test scored out of 15 revealed that 485 (87.9%) of the participants were in the range of 13–15, and the mean score for all participants was 13.53 ± 7.74.

The results of the BDI analysis according to perceived risk and fear of being infected with COVID-19, information sources, level of trust in information sources, and level of knowledge revealed that the perceived risk and fear of being infected with COVID-19 increased with increasing BDI scores (p = 0.032 and p < 0.001, respectively). Regarding information sources, the BDI score increased in radio listeners, while decreased in those who received information from organizations and official institutions, and increased in those who answered "not at all" to the question of trust in information sources (p < 0.001 and p = 0.005, respectively). It was found significantly higher in participants with a knowledge level score of 10–12 than in other groups (p = 0.039).

Table 2: BDI analysis results according to risk perception and fear of getting COVID-19, information sources, levels of trust in information sources and levels of knowledge

		n (%)	Beck's Depression Inventory	p
Perceived Risk of being infected with COVID-19	Very Unlikely	67 (12.1)	6.10 ± 9.60[a]	**0.032***
	Unlikely	236 (42.8)	9.21 ± 8.52[a]	
	Likely	145 (26.3)	8.37 ± 8.89	
	Very Likely	104 (18.8)	9.41 ± 10.72	
Fear of being infected with COVID-19	Very Unlikely	45 (8.2)	5.00 ± 10.24[a]	**<0.001***
	Unlikely	270 (48.9)	8.23 ± 8.22[b]	
	Likely	142 (25.7)	8.89 ± 7.17[c]	
	Very Likely	95 (17.2	12.48 ±12.65[a,b,c]	
Information Sources	Newspaper	8 (1.4)	10.38 ± 5.37	**<0.001***
	Television	182 (33.0)	7.73 ± 8.53	
	Radio	6 (1.1)	17.50 ± 24.34	
	Internet	228 (41.3)	10.24 ± 9.53[a]	
	Doctor	31 (5.6)	10.48 ± 9.21	
	Associations / Official institutions	94 (17.0)	6.27 ± 7.61[a]	
	Friends and Relatives	3 (0.5)	17.33 ± 8.39	
	None	14 (2.5)	12.79 ± 20.32	
Level Of Trust in Information Sources	Little	105 (19.0)	10.45 ± 8.97[a]	**0.005***
	Some	159 (28.8)	9.99 ± 9.29[b]	
	Much	199 (36.1)	7.24 ± 7.51[a,b]	
	Very Much	75 (13.6)	7.87 ± 9.93	
Level of Knowledge	0-9 point	24 (4.3)	7.33 ± 7.82	**0.039***
	10-12 point	43 (7.8)	12.19 ± 10.48[a]	
	13-15 point	485 (87.9)	8.65 ± 9.15[a]	

*one way ANOVA p<0.05

[a,b,c] Within the same measurement category, values with the same lowercase letter are statistically different with Tukey's post hoc analysis.

DISCUSSION

COVID-19 causes many mental problems, especially anxiety and depression, among people due to its high transmissibility and mortality rate, the absence of any reduction in the number of patients, and mortality rate in the meantime the mutation of the virus. The literature review suggested that BDI is among the most common scales used to assess depression during such outbreaks. Therefore, the present study used BDI to evaluate the levels of depression associated with the COVID-19 outbreak.

Considering the demographic data of the studies on COVID-19, the disease seems to be more severe and mortal, especially among the older population. The gender-based assessment revealed that mortality was more common among men than women (10, 11). Based on these data, the rate of exposure and depression are expected to be higher in the older population and men. Contrary to expectations, both the present study and the extant literature have demonstrated that being old does not make any difference in the level of depression associated with COVID-19 (12, 13). Regarding the gender difference, the study by Yıldırım et al. on healthcare workers revealed a higher rate of depression among women (14). Likewise, another study conducted by Liu et al. on healthcare professionals during the COVID-19 outbreak reported more depressive symptoms in women (15). The study findings are also consistent with the abovementioned studies, i.e., higher BDI scores were observed in women than in men. This finding may be due to the differences in the anatomical structure; sex hormones; women's family problems, the challenge of building a career, concerns about caring for elderly family members and fulfilling their responsibilities; and being more at the frontline, compared to men, in performing several additional responsibilities, such as taking care of their children's development (16).

One of the factors affecting depression levels is marital status. The study found that the level of depression associated with COVID-19 was highest in widowed or divorced participants. A similar result was reported by Yıldırım et al. The review of the respective literature identified studies indicating that this finding was due to the transition of widows or divorced into a stressful life and the impairment in their mental health (14, 17).

The extant literature on COVID-19 and SARS has reported more negative effects on the mental health of healthcare professionals who work in the units in direct contact with patients (18 – 20). Contrary to these findings, the present study found that depression was higher in call center workers who did not come into direct contact with patients. Juan et al., as stated in their research among healthcare professionals on COVID-19, this finding may be because healthcare professionals who come into direct contact with patients have a stronger psychological backup and are aware that their contribution to society will be valuable (18).

The present study found higher levels of depression among healthcare professionals with greater perceived risk and fear of being infected with COVID-19. Consistent with the present study, Tan et al. and Ding et al. regarding COVID-19 in the general population established more depressive symptoms in those with a greater perceived risk of contracting the disease (7, 21).

The extant literature revealed that television is the most preferred source of information about new infectious diseases that emerged in previous years (22, 23). Contrary to these findings, the most preferred source was the internet in the present study. We believe that the most frequently used source of information was determined differently in our study because the previous studies were conducted at different time intervals, and the internet was not as widely used as it is today.

People want to trust the source they use while obtaining information on any subject. When it comes to health, the issue of trust in sources of data becomes even more critical. The studies by Voeten et al. and Brug et al. regarding SARS have concluded that people trust the information sources they use (23, 24). Our study results also support this finding. However, what makes our study different is that this is the first study to demonstrate the relationship between trust

in information sources on COVID-19 and levels of depression. Considering our study findings, the level of depression increases with decreasing trust in the source of information.

A realistic risk perception and undertaking effective measures are needed to eliminate the concerns that emerge during outbreaks. For this purpose, healthcare professionals and society need to use information sources effectively and be thoroughly aware of the disease; this aspect should hence be encouraged (24). Considering our study findings, the level of depression decreases with an increasing level of knowledge. This finding is in agreement with the study by Yıldırım et al. (14).

The limitations of our study were that the study's cross-sectional design did not interpret the causality, the questionnaire employed was self-administered by the participants due to strict infection control protocols, and the socio-economic status and education level that could affect the study results were not recorded.

The study findings suggested that women, divorced or widowed, those with greater perceived risk and fear of being infected, those with a low level of trust in the source of information, and those with a low level of knowledge about the disease were more prone to depression and thus should be supported. As this is the first study to establish the relationship between COVID-19 and depression among healthcare professionals working in PEMS, further studies should support its findings.

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