Knowledge, Attitude, and Depression Assessment Among Healthcare Workers During Covid-19 Pandemic

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ABSTRACT

The pandemic caused many psychological problems such as anxiety disorder, panic disorder, phobias, depression, post-traumatic stress disorder, and other mood disorders. We aimed to assess the level of information about COVID and the depression rate among the healthcare workers.

Our study was conducted on 89 healthcare workers. This survey was held among healthcare workers who worked in COVID-19 service during the pandemic in Turkey. As a guideline to adequately identify depression rates we used Beck Depression Inventory. Each question was scored in the Beck depression questionnaire.

The service period length of the healthcare personnel participating in the study were 0-2 years in 34 (38.2%), 2-5 years in 25 (28.1%), 5-10 years in 12 (13.5%), and >10 years in 18 (20.2%) healthcare workers. There was a statistically significant difference between the service period of healthcare workers and their COVID-19 knowledge scores (p<0.05). Thirty (33.7%) of 89 healthcare workers had minimal depression, 30 (33.7%) had mild depression, 19 (21.3%) had moderate depression, and 10 (11.2%) had severe depression. There was no statistically significant difference between the knowledge levels of healthcare professionals and their depression scores (p>0.05).

The survey results about COVID -19 highlighted that psychological support should be ensured, adequate education/training should be provided. Additionally, psychosocial needs should be determined, and psychosocial services should be given to healthcare workers.

Keywords: COVID-19, depression, pandemic

Introduction

Coronavirus disease 2019 (COVID-19) is a viral infectious disease caused by a type of coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (1). First report of coronavirus was alarmed all of the world and started concerns of healthcare provider systems in 2019 (1-3). It has been aggressively spreading countries, and healthcare systems has collapsed or near-collapsed, getting havoc globally.

First case of COVID-19 in Turkey diagnosed on March 11, 2020. Coronavirus may cause symptoms including respiratory symptoms, enteric system symptoms, renal system symptoms, hepatic and neurological symptoms (4). Additionally, the pandemic has mental effects on the patients (5).

The pandemic resulted in fear, anxiety, stigma, and/or prejudice to the people. Quarantine and curfew caused battling anxiety, worry, and fear in healthcare workers. Medical healthcare workers who have contact with suspected or confirmed coronavirus patients are at more risk of psychological problems and COVID-19 infection.

Healthcare workers concern about their own health, fear, anxiety, panic attacks can occur due to mass quarantine, isolation from family and social support. They may also have a fear of spreading the virus to their families (6,7). Most of healthcare workers do not look for and cannot receive mental healthcare regularly. Moreover, mental health problems of healthcare workers can adversely affect their attention, cognitive function, clinical decision-making, resulting in an increased incidence of medical mistakes.

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In this study we evaluated the prevalence of depression and other health conditions in healthcare workers. In other hand our research comprises the level of information about COVID among the healthcare workers. Also, we aimed to assess the depression rate among the healthcare workers and confront this rate with the service time of healthcare workers.

Materials and Methods

Our study was conducted on 89 healthcare workers. This survey was held among healthcare workers who worked in COVID-19 service during the pandemic in Turkey. The service periods of the healthcare personnel participating in the research were determined. A questionnaire containing 4 questions was presented to healthcare workers: 1. How is COVID -19 is transmitted? 2. What are the symptoms of COVID-19? 3. What is the Covid 19 incubation period after exposure? 4. Tick the correct ones against COVID-19 protection. The scores of healthcare workers were calculated from these four questions.

As a guideline to adequately identify depression rates we used Beck Depression Inventory (BDI). This 21-item questionnaire was used to asses the healthcare workers' mental state. In the Beck depression test, questions such as pessimism, history of failure, lack of pleasure, feeling guilty, feeling punished, and self-praise were especially taken into account. 2 of participants refused to answer some questions about depression. Because of that we took into account 87 participant in that questionnaire.

The percentage of answers given to other Likert-type questions in the Beck depression questionnaire was calculated. Each question was scored in the Beck depression questionnaire. The scores of the answers given by each healthcare worker were collected and the depression levels of the healthcare workers were determined.

Service length of healthcare professionals and their health scores from Covid-19 questionnaire were compared. Depression rates of healthcare workers and their health scores from Covid-19 questionnaire, service length and depression scores, health scores from Covid-19 questionnaire and depression rates, BDI scores and depression levels were confronted.

Data were analyzed using SPSS statistics (Version 20.0. 2011, IBM SPSS Statistics for Windows; IBM Corp. Armonk, NY). Percentage, standard deviation, median, and minimum-maximum values were used for the descriptive data. Analysis of the characteristics of patients was performed using descriptive studies. The data were calculated using the Kruskall-Wallis H non-parametric test. A $p<00.5$ value was considered statistically significant.

Results

This study was conducted on 89 healthcare workers to measure the level of knowledge about COVID-19 and to obtain information about their depression status. The service period length of the healthcare personnel participating in the study were 0-2 years in 34 (38.2%), 2-5 years in 25 (28.1%), 5-10 years in 12 (13.5%), and >10 years in 18 (20.2%) healthcare workers. The answers given to the question "Choose the correct ones about COVID-19" are shown in Table 1. A 21-question Beck depression questionnaire (BDI) was administered to healthcare professionals, and the numbers and percentages of each item were determined. Responses of healthcare professionals about to the Beck depression questionnaire were shown in Table 2. The percentage of answers given to other Likert-type questions in the Beck depression questionnaire is shown in Table 3. Most of the healthcare professionals reported that they did not experience tremor, trembling, cowardice, fear of losing control, difficulty in breathing, fainting, flushing of the face and hot flashes without sweating. However, some of the healthcare workers stated that they were afraid of losing their balance, terrified, feeling nervous, suffocated, to get scared and could not relax. Each question was scored in the Beck depression questionnaire. The scores of the answers given by each healthcare worker were collected and the depression levels of the healthcare workers were determined. Thirty (33.7%) of 89 healthcare workers had minimal depression, 30 (33.7%) had mild depression, 19 (21.3%) had moderate depression, and 10 (11.2%) had severe depression. In the Beck depression questionnaire, the mean score and standard deviation were 15.4±10.8. The mean scores of each item have been extracted and are shown in Figure 1. There was a significant difference between the service period of healthcare workers and their COVID-19 knowledge scores ($p<0.05$). There was no significant difference between the knowledge levels of healthcare professionals and their depression scores ($p>0.05$) (Table 4). The knowledge levels of healthcare workers and their depression scores are shown in Table 5.

Table 1. The Rate of Correct Answers Given To The Question

True/False questions	n	%
Social isolation can drastically reduce the spread of COVID- 19.	82	92.1
The sick person's wearing a mask is more protective for you than you're wearing a mask.	60	67.4
There is no vaccine for COVID-19.	70	78.7
COVID-19 treatment consists of supportive treatment.	60	67.4
COVID-19 mortality decreased towards the end of May 2020 in our country.	70	78.7
COVID-19 definitive diagnosis can be made with chest tomography.	32	36
COVID-19 is a fatal disease only for people over 60 years of age with a chronic illness.	30	33.7
With the use of gloves and masks, COVID-19 can be largely protected.	60	67.4
COVID-19 is a virus that can hang in the air for a long time and can be transmitted through the respiratory tract for days.	39	43.8
COVID-19 is a virus that can survive on surfaces for a long time and can be transmitted through the respiratory tract for days.	45	50.6
In summer, COVID-19 virus will decrease with the air temperature.	21	23.6
I think the COVID-19 vaccine will be available in a few months	10	11.2
COVID-19 is not transmitted by eating well-cooked food.	28	31.5
One of the things that should be done to protect from COVID-19 is to get a flu vaccine.	3	3.4
COVID-19 can be transmitted from person to person through mosquitoes.	5	5.6
I think I had COVID-19 disease before.	14	15.7
COVID-19 can be transmitted more easily to pregnant patients.	42	47.2
COVID-19 disease is a disease that can be passed without symptoms.	58	65.2
COVID-19 diagnostic test should be done to all healthcare workers.	70	78.7
The use of certain pain relievers increases the fatality of COVID-19.	19	21.3
COVID-19 diagnosis can be made with blood tests.	15	16.9
COVID-19 is a virus that was first transmitted from bat to human.	49	55.1
COVID-19 disease can be fatal for infants (<1 year old).	21	23.6
I think that people who are not health workers comply enough protection measures taken for COVID-19.	10	11.2
Children (<18 years old) are an important factor in the spread of COVID-19 disease.	37	41.6
A person who has COVID-19 will not get sick again because of this virus.	7	7.9
Antibodies in the blood of people who have had the disease can be used in the treatment of COVID-19 disease.	63	70.8
COVID-19 virus can change shape and become more fatal.	47	52.8

Discussion

Healthcare professionals' responsibilities have increased meanwhile pandemic. In addition of being exposed to the same mental problems and societal shifts as the public, healthcare workers in frontline have faced many additional challenges due to the pandemic. Generally, they feel burdened with a great personel risk of virus exposure.

A prospective study reported in March 2020 found that healthcare workers especially frontline workers had a significantly increased risk of COVID-19 infection (8).

Similar to our study, Aly et al. (9) investigated the psychological states of the healthcare workers in Egypt. Among these participants only 1.3% of them had low stress levels, while 98.5% had moderate to severe stress levels. Their study indicsted that 9.5% have no generalised anxiety, and 90.5% have different degrees of anxiety, whereas 40% of participants have mild anxiety, 32% of them have moderate anxiety, and 18.5% of them have severe anxiety.

Additionally, a higher rate of psychological problems among healthcare workers was determined in the previous studies in different countries due to working longer hours, and

Table 2. Responses of Healthcare Professionals About To The Beck Depression Questionnaire

	n (%)
Sadness level	
I am not sad and distressed.	32 (36.8)
I feel sad and distressed.	38 (43.7)
I am always sad and distressed. I can't get rid of it.	7 (8.0)
I am so sad and distressed that I can't stand it anymore.	10 (11.5)
Pessimism	
I am not hopeless and pessimistic about the future.	42 (48.3)
I'm pessimistic about the future.	19 (21.8)
There is nothing I expect from the future.	18 (20.7)
I'm hopeless about the future and it feels like nothing will get better.	8 (9.2)
Failures in past	
I don't see myself unsuccessful.	73 (83.9)
I feel myself less successful than others.	8 (9.2)
I see past full of failures.	4 (4.6)
I consider myself completely unsuccessful person.	2 (2.3)
Lack of pleasure	
I enjoy many things as much as I used to.	21 (24.1)
I can't enjoy everything the way I used to.	39 (44.8)
Nothing gives me full pleasure anymore.	13 (14.9)
I'm bored of everything	14 (16.1)
Guiltiness	
I don't feel guilty in any way.	75 (86.2)
I feel guilty from time to time.	11 (12.7)
I feel guilty most of the time.	1 (1.1)
Feeling punished	
It doesn't feel like I've been punished	72 (82.7)
I sense that I may be punished.	8 (9.3)
I am waiting to be punished.	3 (3.4)
I feel that I have been punished.	4 (4.6)
Self-esteem	
I am satisfied with myself.	58 (65.2)
I am not very happy with myself.	25 (28.1)
I am angry at myself.	6 (6.7)

*2 of participants refused to answer the questions about depression

stressful (10). A previous study, authors investigated the mental health symptoms during pandemic among healthcare workers and reported a considerable rate of stress, anxiety and depression (21.9%, 19.8%, and 24.7%, respectively) (11). Similar to this study, in a systematic review by Luo et al. (12) demonstrated that the rates of anxiety and depression among the healthcare workers were 33% and 28%, respectively.

There are many evidences of a high psychological effect of the COVID-19 pandemic in healthcare workers. Olaya et al. (13) in their study identified 57 studies from 17 countries. The rates of depression in healthcare workers were 25% for nurses, 24% for medical doctors, and 43% for frontline professionals.

In a systematic review and meta-analysis by Al Moqbali et al. (14) the overall rates of stress, anxiety, depression, and sleep disturbance were 43% (95% CI 37-49), 37% (95% CI 32-41), 35% (95% CI 31-39), and 43% (95% CI 36-50), respectively. This meta-analysis demonstrated that approximately 30% of nurses working during the pandemic were suffering from psychological symptoms. This highlights the importance of

Table 3. Responses of Healthcare Professionals About Other Questions In The Depression Questionnaire

Other items related to depression	None		Mild level Do not affect me much		Medium level Was not so nice but I can stand it.		High level Was hard to overcome		Total	
Fear of imbalance	35	39,3	21	23,6	25	28,1	7	7,9	88	98,9
To be terrified	26	29,2	30	33,7	26	29,2	7	7,9	89	100
Anger	11	12,4	26	29,2	39	43,8	13	14,6	89	100
To feel suffocating	37	41,6	17	19,1	27	30,3	8	9	89	100
Tremor	65	73	16	18	8	9	0	0	89	100
Shakiness, cowardice	54	60,7	22	24,7	12	13,5	1	1,1	89	100
Fear of losing control	53	59,6	19	21,3	14	15,7	3	3,4	89	100
Breathing difficulties	59	66,3	20	22,5	9	10,1	1	1,1	89	100
Fear of death	45	50,6	21	23,6	19	21,3	3	3,4	88	98,9
To get scared	31	34,8	28	31,5	20	22,5	10	11,2	89	100
Stomach discomfort	50	56,2	15	16,9	19	21,3	5	5,6	89	100
Faint	69	77,5	13	14,6	6	6,7	0	0	88	98,9
Flushing in the face	64	71,9	16	18	7	7,9	1	1,1	88	98,9
Heat without sweating	61	68,5	19	21,3	7	7,9	2	2,2	89	100
İnability to relax	47	52,8	23	25,8	14	15,7	5	5,6	89	100

Table 4. Comparison of Depression Degrees and Health Knowledge Scores of Health Workers

Depression levels	N	$\bar{x} \pm$ S.H	Median (Min.-Max.)	Kruskal-Wallis H test (Chi-square test)	P	Significant difference
Minimal depression (A)	30	71,73±3,03	73 (26,5-95)			
Mild depression (B)	30	71,90±2,56	72,5 (43-93)	1,07	0,784	No
Moderate depression (C)	19	68,34±3,75	72 (25,5-94,5)			
Severe depression (D)	10	69,40±4,47	69,75 (46-89)			

providing wide support strategies to reduce the psychological effect of the COVID-19 outbreak on healthcare workers during the COVID-19 pandemic.

Bashir et al. (15) demonstrated that healthcare workers at COVID-19 centers had higher depressive symptoms measured by Beck's Depression Inventory-II. Additionally, they found that males had more depressive symptoms (42.5%) than females (12.5%) (p<0.0001).

In addition, WHO estimates that about 100000 healthcare workers could have died from COVID-19 during pandemic. This may also illustrate the higher level of stress, anxiety, and depression among the healthcare workers (16). That is a tragic loss. It is also an irreplaceable gap in the world's pandemic response.

Bashir et al. (17) reported a cross-sectional observational study that was conducted on 597 participants, including physicians, nurses, medical students, and pharmacists. Most of participants indicated that they pay attention to personal hygiene and lifestyle change, such as washing their hands, avoiding touching their face, and avoiding crowded places to defend themselves against contamination. Most participants also indicated that the symptoms of COVID-19 include fever, cough, and shortness of breath and there is no

Table 5. Comparison of The Knowledge Levels of Health Workers and Their Depression Scores

Knowledge levels	N	$\bar{X}$ ± S.H	Median (Min.-Max.)	Kruskal-Wallis H test (chi square test)	P	Significant difference
Low (A)	8	17,62±3,46	20 (5-33)			
Medium(B)	29	17,21±2,48	13(0-52)	4,71	0,194	None
Good (C)	24	13,74±1,62	11(0-37)			
Excellent (D)	18	14,88±2,29	14(0-33)			

*p<0,05, **p<0,01, Min.: Minimum, Max.: Maximum
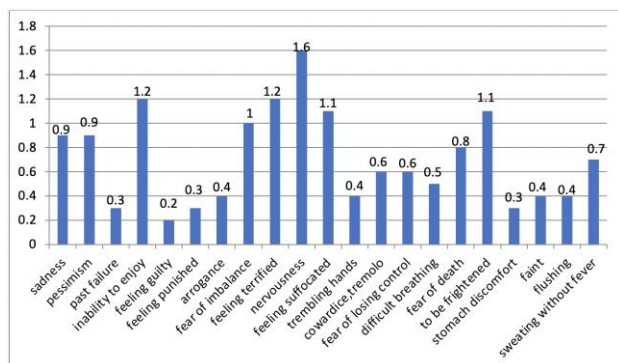
Fig. 1. Beck Depression Items Mean

specific treatment for patients infected with COVID-19.

The study held in Southern Ethiopia also aimed to determine the knowledge, attitude, and practice towards COVID-19 among 379 healthcare workers. The rates of adequate knowledge, positive attitude and good practice were 74.9%, 84.2%, and 68.9%, respectively. This study demonstrated that majority of healthcare workers had good level of knowledge and positive attitude toward COVID-19, but lower proportion of healthcare workers practices sufficiently (18).

Another Turkish study toward determination of deficiencies in knowledge, attitude, practice and perceived barriers in infection control among healthcare professionals Seval Çalışkan Pala showed that healthcare workers had better knowledge and practice than average however deficiencies were found in all sub-dimensions (19).

It seems that the risk of a pandemic has increased during the present century due to increased population and global travel. All countries should prepare a psychological support program suitable for the dynamics of their own countries and their healthcare workers. If the psychological states of the health workers are better, and the healthcare workers' knowledge of the disease is more during a possible pandemic, the population will be affected less by the pandemic.

There are some limitations of this study. First, some healthcare workers may have missed it or may have not been interested in the survey, because, an online survey was used to determine the knowledge, attitude, and depression assessment among healthcare workers during the COVID-19 pandemic. Second, the small sample size can be stated as a limitation of the study.

In this study, we demonstrated lower perception, lower positive attitude, and higher depression rates toward COVID-19. The survey results about COVID -19 highlighted that psychological support should be ensured, adequate education/training should be provided. Additionally, psychosocial needs and problems should be determined, and healthcare workers should be supported as psychosocial.

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