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Research Article

THE EFFECT OF DEPRESSION LEVELS ON THE QUALITY OF LIFE OF INTENSIVE CARE STAFF DURING THE COVID-19 PROCESS

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Abstract: *This study was conducted to examine the effect of depressive symptoms on the quality of life of healthcare staff working in intensive care units during the COVID-19 process. This study was designed as descriptive, cross-sectional, and correlational. It was carried out with the participation of 133 healthcare professionals between November and December 2020. The data were collected through face-to-face interviews with the participants in an average of 10-15 minutes. Personal Information Form, Beck's Depression Inventory (BDI), and Professional Quality of Life Scale (ProQOL R-IV) were used for data collection. Kurtosis, Skewness, and Shapiro-Wilk, Student's t, ANOVA tests were used for data analysis. Pearson correlation and regression analysis were performed. Depressive symptoms and low quality of life were detected in healthcare workers working during the Covid-19 pandemic. It was seen that women's ProQOL R-IV total scores were higher than men's and BDI total score averages of associate degree health workers were significantly higher than those of health workers with undergraduate or graduate degrees. It was determined that 39.1% of the participants were considering resigning during the pandemic process. It has been determined that those who do their job reluctantly have higher BDI total scores than those who do it fondly. In addition, it was determined that those who do their job fondly have higher ProQOL R-IV total scores than those who do it reluctantly. It was observed that the total BDI scores of the participants whose family members were diagnosed with COVID-19 were higher than those who did not and those who thought about resigning during the pandemic process were higher than those who did not. As a result, it is thought that extremely important to identify mental disorders that may occur in healthcare workers due to the difficulties brought on by the pandemic process at an early stage and to stop their progression.*

Keywords: *Covid-19, Intensive care, Healthcare Professional, Depression level, Quality of life.*

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1. Introduction

Coronavirus disease 2019 (COVID-19) is an infection thought to arise as a virus that has been mutated or otherwise adapted to act as a pathogen in humans [1]. It is transmitted from person to person in an incubation period of 2-14 days through close contact with respiratory droplets and causes pneumonia [1,2]. Measures to control infection are the most important practices. Healthcare workers in contact with infected patients are at high risk [2,3]. This situation significantly affects the health and life of healthcare workers [4]. It has been reported that the risk is higher in hospitals than in homes and communal living areas [5]. In a study on COVID-19 in China, it was stated that healthcare professionals have concerns about transmission of the disease from their colleagues, transmitting the disease to family members, and not being able to find protective equipment [6].

Quality of life is an indicator of individuals' physical functions, mental states, familial and social relationships, and the extent to which these interactions affect them [7]. Quality of life, which is also defined as the integrated state of individual satisfaction and social relations, is largely dependent on the quality of work life [8]. Objective indicators of an individual's quality of life are shown as income level, education level, occupation, health, home, etc. Satisfaction with the existing possibilities of the individual is also reported as a subjective indicator of the quality of life [9]. Increasing job satisfaction will make individuals feel like a part of the workplace and bring positive developments in work performance and work efficiency [10].

COVID-19 poses serious psychological stress to people around the world, especially healthcare workers [11]. Both the disease itself and accompanying many social, psychological and economic problems like additional working hours, changes in working conditions, the high number of patients, the high number of patients lost per day due to the lack of a specific treatment in the initial period of the disease, concerns about finding protective equipment, obligation to give medical priority to some patients due to insufficient medical devices, witnessing the death of their own colleagues and/or loved ones, feeling inadequate to provide adequate medical care, fear of not being able to access tests when they have symptoms of the disease, concerns about the transmission of the disease to themselves and their families (in a study conducted in China, 63% of healthcare workers were reported to be infected with COVID-19), uncertainty about meeting and supporting their families' needs if they get sick, access to childcare during increased work hours and school closures, increase in demand for social needs have affected all areas of life and quality of life [12,13,14]. Anxiety and depressive symptoms have been observed especially in clinicians and nurses who are in close contact with infected patients and work in physically and emotionally difficult conditions, and it has been reported that they often experience fatigue, burnout, mental exhaustion, emotional depression, and sleep disorders [15]. An increase in the level of depression and a decrease in the quality of life has been reported due to COVID-19 [16,17]. It has been stated that healthcare workers may experience psychological distress, post-traumatic stress, burnout, and hopelessness, and suicide cases increase among intensive care nurses. It is also stated that these conditions negatively affect the professional performance of health workers and decrease the quality of care [12].

This study, it is aimed to examine the effect of depressive symptoms on the quality of life in intensive care staff (doctor, nurse, health officer, assistant staff, etc.) who interact with patients one-on-one during the COVID-19 process.

2. Materials and Methods

2.1. 2.1 Design of the Study

A descriptive, cross-sectional and correlational research design was used in this study.

2.2. 2.2 Sample of the Study

The research was carried out with all healthcare professionals working in the Third Stage Internal and Surgical Intensive Care Units of Batman Regional State Hospital in November-December 2020. Sample calculation was not made in the study, the personnel working actively in the intensive care units were included in the study. At the time of the study, the number of active workers in intensive care units was reported as (N=134), and 133 health personnel participated in the study. Only one staff member refused to participate in the study. It is thought that the reason for the high participation in the study is that the data collection was done by the researcher working in the intensive care unit. The data were collected by the researcher through face-to-face interviews with the participants in an average of 10-15 minutes.

2.3. Inclusion Criteria

Individuals who have been working in intensive care units for at least 1 month, who are intensive care staff, and who agreed to participate in the research were included in the study. Non-volunteer healthcare staff was excluded from the study.

2.4. Data Collection Instruments

In data collection, the Personal Information Form including participants' sociodemographic characteristics, Beck's Depression Inventory (BDI), and Professional Quality of Life Scale (ProQOL R-IV) were used.

2.4.1 Personal Information Form

It is a form prepared by researchers in line with the literature [2,4,5,6]. In the form, personal information was asked such as gender, age, education status, occupation, income status, place of residence before and after COVID-19 and people with whom they live, smoking/alcohol use, hobbies, physical-mental diseases, working status with COVID-19, daily-weekly-monthly working hours, working fondly, duration of occupation, marital status, and having child.

2.4.2 Beck's Depression Inventory (BDI)

Beck's Depression Inventory is a 21-item self-assessment scale designed to measure the level of findings observed in depression-related emotion, cognition, and motivation dimensions. Each item is a Likert-type scale that provides a fourfold measure of a depression-related behavioral pattern consisting of phrases rated from least to great. The lowest scale score is 0, the highest scale score is 63. The statements are associated with symptoms of depression. The Turkish validity and reliability study of the scale was carried out by Hisli (1988), and the cut-off point was accepted as 17 [18]. In this study, Cronbach's alpha coefficient of the scale was found to be 0.87.

2.4.3 Professional Quality of Life Scale (ProQOL R-IV)

It is a self-assessment tool consisting of thirty items and three subscales. Occupational satisfaction is the first of the subscales that expresses the feeling of satisfaction and satisfaction that the employee helps someone in need of help in a situation related to his profession or job. Items 3, 6, 12, 16, 18, 20, 22, 24, 27, and 30 in the scale measure occupational satisfaction, the high score obtained from this subscale indicates the level of satisfaction, and the Cronbach's Alpha reliability coefficient of the scale is 0.87. The burnout subscale is the second subscale that measures the feeling of burnout that occurs when there is difficulty in being hopeless and coping with the problems in the profession, and a high score indicates a high level of burnout. Items 1, 4, 8, 10, 15, 17, 19, 21, 26, 29 in the scale measure burnout and the Alpha reliability value of the scale is 0.72. Compassion fatigue is the third sub-scale created to measure the symptoms that occur when faced with stressful situations. Support and help are recommended for those who score high on this subscale. Items 2, 5, 7, 9, 11, 13, 14, 23, 25, and 28 in the scale were developed to measure this situation, and the Alpha reliability value was determined as 0.80. While evaluating the scale scores, items 1, 4, 15, 17, and 29 should be calculated by reversing them. Item evaluations in the scale are made on a six-step chart that ranges from "never" (0) to "very often" (5) [7]. In this study, Cronbach's alpha coefficient of the scale was found to be 0.81.

2.5. Analysis of the Data

In the analysis of the study data, SPSS 25.0 software was used. Mean, standard deviation, maximum and minimum number values and percentages were used for the analysis of descriptive data. The total score average of the scales was taken and whether they showed a normal distribution for each group was examined. It was determined that the scale scores showed normal distribution by using

Kurtosis, Skewness, and Shapiro-Wilk tests for normality. Student's t-test and ANOVA test were used to analyze sociodemographic variables. Pearson correlation and regression analysis were performed to examine the relationship between the scales. In the internal consistency analysis of the scales, Cronbach's alpha coefficient was calculated, and $p<0.05$ was found to be significant in all the findings.

2.6. Ethical Considerations

This study was conducted in accordance with the obligations of the Declaration of Helsinki. Written approval was obtained from the Republic of Turkey Ministry of Health General Directorate of Health Services (11.06.2020 /2020-06-05T22_29_23), and from the Non-Interventional Ethics Committee of a University (16.07.2020/255). Verbal and written consent was obtained from the participants who met the criteria for inclusion in the study and agreed to participate in the study.

3. Results

The sociodemographic characteristics of the participants are shown in Table 1. It was determined that the mean age of the health workers participating in this study was 30.38±5.61, 56.4% were male, 75.9% had undergraduate or graduate degrees, and 62.4% were married. When the occupational characteristics of the health workers were examined, it was determined that 69.2% of them were nurses and 38.3% of them worked in the profession between 6-10 years, 66.9% of them worked in the pandemic service and 70.7% of them worked on shift. It was found that 54.1% of the employees did not change the people they lived with during the pandemic period, 50.4% had children and 50.4% had incomes equal to their expenses.

When the sociodemographic characteristics of the participants were compared with the scale total score averages, a significant difference was found in terms of gender compared to the ProQOL R-IV total score average. It was determined that women's ProQOL R-IV total scores were higher than men's. In addition, it was determined that the total scores of ProQOL R-IV varied between the groups according to the working style of the employees. It was determined that the total scores of ProQOL R-IV were found to be significantly higher among those who worked overtime than those who expressed a mixed working style. There was a negative and very weak significant correlation between the age of the participants and the BDI total score (r:-0.17, p:0.04). A significant difference was determined between the groups in terms of BDI total scores according to the education levels of the healthcare professionals. BDI total score averages of health workers who graduated with an associate degree were found to be significantly higher than those of health workers with undergraduate or graduate degrees (Table 1, $p<0.05$).

Table 1. Comparison of Participants' Sociodemographic Characteristics with BDI and ProQOL R-IV Total Scores

Characteristic	**Mean± SD**	**Min-Max**	**BDI**	**ProQOL R-IV**
Age	30,38±5,61	20-46	r: -0,17* p<0,05	r:0,05 p:0,52
	N	**%**	**BDI**	**ProQOL R-IV**
Gender				
Female[1]	58	43,6	t: -0,39	t: 2,11
Male[2]	75	56,4	p: 0,69	p<0,05 1>2
Education Level				
High School[1]	20	15	F: 5,57	F: 0,64
Associate Degree[2]	12	9	p<0,01	p:0,53
Undergraduate or Graduate[3]	101	75,9	2>3	

Table 1. Continued.

Characteristic	N	%	BDI	ProQOL R-IV
Occupation				
Nurse	92	69,2	F: 0,92	F: 2,23
Physician	11	8,3	p:0,43	p:0,87
Other	30	22,5		
Duration of Occupation				
1 month-5 years	49	36,8	F: 2,70	F: 2,61
6-10 years	51	38,3	p:0,07	p:0,07
10 years and longer	33	24,8		
Unit				
Pandemic Service	89	66,9	t: 3,11	t: 0,95
Service	44	33,1	p<0,01	p:0,34
Working Type				
Overtime[1]	26	19,5	F: 0,76	F:3,51
Shift[2]	94	70,7	p:0,46	P<0,05
Mixed[3]	13	9,8		1>3
Marital Status				
Married[1]	83	62,4	t: -0,54	t: -0,33
Single[3]	50	37,6	p:0,58	p:0,73
People who living with				
Did not change	72	54,1	t: -0,51	t: 1,64
Changed	61	45,6	p:0,61	p:0,10
Having Child				
Yes	67	50,4	t: -1,70	t: -0,20
No	66	49,6	p:0,28	p:0,98
Income Level				
Income Less than Expenses	53	39,8	F: 2,55	F: 0,35
Income Equivalent to Expenses	67	50,4	p: 0,08	p: 0,70
Income More than Expenses	13	9,8		

* The correlation is significant at the 0.05 level. 1,2,3: These numbers are used for ranking.

The health variables of health workers and the comparison of these variables with the scale scores are given in Table 2. It was determined that 62.4% of the participants did not smoke and 87.2% did not use alcohol, 38.3% had a hobby that did not require physical strength, and 54.9% enjoyed their job. When the participants were asked about any mental or physical illness before the pandemic period, it was determined that 94% of them did not have a chronic disease. It was determined that 71.4% of the employees were not diagnosed with COVID-19 during the pandemic period, 57.1% of their family members were not diagnosed with COVID-19 and 62.4% of them did not experience loss during the pandemic period. It was determined that the most frightening situation for the participants during the pandemic process was the transmission of the disease to their family members with 63.2% and 39.1% of them thoughts to resign during the pandemic process.

There was a difference between the groups in terms of scale scores according to the variables of doing their job with pleasure, having a mental or physical illness before the pandemic period, being diagnosed with COVID-19, and thinking about resigning during the pandemic period. It was determined that the BDI total scores of those who do their job unlovely are statistically significantly higher than those who do it fondly and those who do it fondly than those who do it fondly. It was determined that those who do their job fondly have higher ProQOL R-IV total scores than those who do it reluctantly. It was determined that individuals with chronic mental or physical chronic diseases before the pandemic had significantly higher BDI total scores than those without. In addition, it was found that the BDI total scores of the participants whose family members were diagnosed with COVID-19 were higher than those who did not, and those who thought about resigning during the pandemic process were significantly higher than those who did not ($p<0.05$ Table-2).

Table 2. Comparison of Participants' Health Variables and Scale Scores

Characteristics	n	%	BDI	ProQOL R-IV
Smoking				
Non-smoker	83	62,4	F: 0,84	F: 0,49
Quitter	10	7,5	p:0,43	p:0,61
Smoker	40	30,1		
Alcohol Use				
Using	6	4,5	F:3,30	F: 0,55
Not Using	116	87,2	p:0,07	p:0,57
Sometimes Using	11	8,3		
Hobby Types				
Non-physical activities	51	38,3		
Physical activities	19	14,3	F:0,26	F:0,94
Both	22	16,5	p:0,85	p:0,42
Do not have a hobby	41	30,8		
Love of the Job				
Yes[1]	73	54,9	F:16,22	F:3,90
No[2]	28	21,1	p<0,001	P<0,05
Sometimes[3]	32	24,1	2>1	1>2
			3>1	
Presence of Mental or Physical Illness Before the Pandemic				
No[1]	124	94	t:-2,04	t:0,40
Yes[2]	7	6	p<0,05	p:0,68
			2>1	
COVID-19 Diagnosis				
Yes[1]	38	28,6	t:1,58	t:-0,28
No[2]	95	71,4	p:0,11	p:0,77
COVID-19 Diagnosis of Family Members				
Yes	57	42,9	t:2,81	t: 0,75
No	76	57,1	p<0,01	p:0,45
			1>2	
The Most Frightening Situation in the Pandemic Process				
Infecting the family	84	63,2		
Death	12	9	F:1,19	F:1,75
Infecting others	6	4,5	p:0,31	p:0,14
Being infected	10	7,5		
Other	21	15,8		
Losses During Pandemic Process				
None	83	62,4		
Loss of first-degree relatives	13	9,8	F: 2,64	F: 0,83
Loss of distant relatives	25	18,8	p: 0,05	p: 0,47
Loss of acquaintances	12	9		
Thoughts on Resigning During Pandemic Process				
Yes[1]	52	39,1	F: 8,54	F: 1,93
No[2]	48	36,1	p<0,001	p: 0,12
Undecided[3]	33	24,8	1>2	

1,2,3: These numbers are used for ranking.

The mean scores of the BDI and ProQOL R-IV total scales used in this study and the relationship between the scales are shown in Table 3. According to the Pearson correlation analysis, no significant correlation was found between BDI and ProQOL R-IV total score averages.

Table 3. The Relationship Between BDI and ProQOL R-IV Total Mean Scores

Scales	Mean±SD	Min-Max	BDI	ProQOL R-IV
BDI	16,35±9,32	0-38	-	r: -0,12 p:0,16
ProQOL R-IV	70,18±17,64	5-116	r: -0,12 p:0,16	-

*The correlation is significant at the 0.05 level.

The model established in the simple linear regression analysis performed to determine the relationship between BDI and ProQOL R-IV was not found to be statistically significant (F:4.72, p:0.16). Accordingly, it was found that the explanatory power of the depressive symptoms experienced was not statistically significant on the quality of life of the employees (R2=0.015; Adjusted R Square=0.007) (Table-4).

Table 4. Effect of BDI on ProQOL R-IV

Dependent Variable	Independent Variable	B	ß	t	p	F	Model (p)	R^2
ProQOL R-IV	**Constant**	66,42		21,465	p<0,01	4,72	0,16	0,015
	BDI	,229	,121	1,395	0,16			

R: The simple linear regression analysis

4. Discussion

This study was conducted to examine the effect of depressive symptoms on the quality of life in intensive care health workers (doctor, nurse, health officer, assistant staff, etc.) who interact with patients one-on-one during the COVID-19 process, and the study findings are discussed here.

It was determined that the mean age of the participants was 30.38±5.61, more than half of them were male and married, and two-thirds of them had undergraduate or graduate degrees. It was determined that health workers often worked as nurses and on duty in the pandemic service. It was found that the people with whom the employees generally lived together during the pandemic period did not change, they had children and their income was equal to their expenses. In addition, it was determined that the majority of them did not use cigarettes or alcohol, and they enjoyed their job. It was determined that the majority of the participants and their family members were not diagnosed with COVID-19 during the pandemic period and did not experience losses during the pandemic process. It was determined that the most frightening situation for the participants during the pandemic process was generally infecting their family members, and therefore they thought of resigning during the pandemic process. These data are compatible with other study results [19,20].

When the sociodemographic characteristics of the participants were compared with the scale total score averages, there was a significant gender difference compared to the ProQOL R-IV total score average. It was determined that women's ProQOL R-IV total scores were higher than men's. It was determined that the total scores of ProQOL R-IV were significantly higher than those who expressed the working style of the overtime employees as mixed. Studies in the literature have reported that psychological symptoms such as depression are higher in female healthcare workers. It is known that high mental symptoms reduce the quality of life in individuals [21-25]. The reason why the result obtained in this study is different from other studies may be due to the different scales used.

There was a negative and very weak significant correlation between the age of the participants and the BDI total score. A significant difference was determined between the groups in terms of BDI total scores according to the education levels of the healthcare professionals. BDI total score averages of associate degree health workers were found to be significantly higher than those of health workers

with undergraduate or graduate degrees. There is no complete consensus in the literature regarding this information. Being at a young age and having insufficient professional experience have also been reported as risk factors for mental symptoms [26,27]. In the study of Liang et al. (2020), a statistically insignificant correlation was found between age and depressive symptoms, and depression scores were found to be higher in employees under the age of 30 [27]. In the study conducted by Zengin and Gümüş (2019) before the pandemic, it was reported that depressive symptoms increase as age increases. In this study, it was reported that depressive symptoms increased in younger patients [28]. It is thought that this difference may have triggered the increase in the number of deaths due to the pandemic and the fear of death in individuals. Again, there is no consensus in the literature regarding this information. Young and inexperienced healthcare professionals may be experiencing more mental distress because they are inexperienced in coping with diseases and need a superior organization to lead. For these reasons, pre-employment training, situations in which the disease can be transmitted and ways to prevent it, and protocols to be created with clear rules may be beneficial for those who are new and have insufficient professional experience in terms of reducing stress and increasing the level of professional confidence, as well as reducing mental problems [26,29].

When the BDI and ProQOL R-IV total scale score averages used in this study were examined, it was reported that the BDI scores were below the scale cut-off score, that is, depressive symptoms were reported in the employees. In addition, there was a difference between the groups in terms of scale scores according to the variables of doing their job with pleasure, having a mental or physical illness before the pandemic period, being diagnosed with COVID-19, and thinking about resigning during the pandemic process. It was determined that the BDI total scores of those who do their job reluctantly are statistically significantly higher than those who do fondly, and those who sometimes do fondly compared to those who do fondly. It was determined that those who do their job fondly have higher ProQOL R-IV total scores than those who do their job reluctantly. Studies have shown the presence of depressive symptoms in healthcare workers during the pandemic period. In the study conducted by Ekinci and Ekinci (2021), depression was found to be 20.9% (3.5% severe depression) in the participants [20]. According to a study conducted in China, the depression level was determined as 12% in the doctor and nurse group, and it was stated that having a chronic disease and working actively in Covid-19 clinics are independent risk factors for the emergence of depression [30]. In another study in which doctors and nurses participated, depression was found at a rate of 50.4% [31]. In the study conducted by Cai et al. (2020), depression rates of 14.3% were reported in healthcare workers active in Covid-19 clinics [32]. In the study by Zhu et al. (2020), depression was found to be 13.5% of healthcare workers, and chronic disease was accepted as a risk factor in employees [33]. In a study in Poland, depression was found at a rate of 70.7% among healthcare workers [34]. In another study involving Spanish healthcare professionals, the depression level of healthcare professionals was found to be 46% [35]. In a multicenter study, the depression level of healthcare workers was reported as 50.7% [36]. Frontline healthcare professionals working with COVID-19 patients have been reported to have more depressive symptoms and a lower quality of life. In addition, more depressive symptoms and lower quality of life were reported in this personnel compared to personnel working in other clinics [37,38]. In a study conducted with 200 healthcare workers, mostly nurses, during the Covid-19 pandemic in Iran, depression levels were reported to be normal [39]. In another study, depressive symptoms and low quality of life were reported in healthcare workers [40]. In a study conducted with nurses during the Covid-19 process, it was reported that nurses had depressive symptoms and decreased quality of life [15]. In another study conducted during the Covid 19 pandemic, it was reported that the quality of life of healthcare workers decreased [41]. In a study conducted with 618 healthcare professionals, in which depression was examined due to the coronavirus epidemic among healthcare professionals in our country throughout Turkey, it was found that 54.4% of healthcare professionals were at risk of depression [21]. When a similar study

conducted in our country before the Covid-19 pandemic was examined, 68.4% of nurses reported moderate depression [28]. It was determined that 50.3% of the nurses had depression symptoms before the pandemic [42]. In a study examining the variables of quality of life, it was reported that professional quality of life was affected by choosing the profession voluntarily and choosing to work in the unit [43]. In another study, it was reported that those who voluntarily chose the profession had higher quality of life scores [19]. In another study, it was observed that mental symptoms were observed much more frequently in healthcare workers with a chronic disease or those over 65 years of age, or those who shared the same house with family members with chronic diseases. This result suggests that these people may be more susceptible to psychological influences due to underlying psychopathology and related factors [21].

5. Conclusion

In summary, in this study, depressive symptoms and low quality of life were found in healthcare workers working in the Covid-19 pandemic. It is thought that the effective and high quality of health services is directly related to the physical and mental well-being of health workers during the pandemic process. It is thought that it is extremely important to determine the mental disorders that are likely to occur due to the difficulties brought by the process in the health workers who work with great devotion and at high risk during the pandemic process and to stop their progression at an early stage.

Acknowledgment

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Ethical statement

The current study was carried out in accordance with research and publication ethics rules. Approval of this study was obtained from the Dicle University Faculty of Medicine Nonınterventional Ethics Committee with the number 347 on 22.10.2020.

Conflict of interest:

All three authors declared that they had no conflict of interest in this study.

Authors' Contributions

The authors declare that their contribution to the work is equal.

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