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ORIGINAL ARTICLE

Quality of Life Among Health Professionals in Intensive Care Units Who Provided or Didn't Provide Care to COVID-19 Patients

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Abstract

Introduction: Coronavirus disease (Covid-19) not only has affected people all over the world as a disease but has also led to overwhelming unfavorable results both socially and psychologically. Since staff working in intensive care units are exposed to high levels of virus and have increased work load, they receive the ultimate share from this condition.

Methods: We aimed to compare whether there was a difference on the life qualities of health-care personnel working in intensive care units in which covid-positive patients (ICU +) and covid-negative patients (ICU-) had been treated. A total of 62 women and 27 men were involved. Of 89 health-care staff included in the study, 49 worked in ICU (+) while 40 worked in ICU (-). Statistical analyses were carried out by IBM SPSS V22 programme.

Results: No significant difference was determined with respect to life qualities of ICU (+) and ICU (-) workers. Burnout was observed higher in personnel in ICU (+) doctor and working for 24 h. Burnout elevated in ICU (-) nurses graduated from university. It was observed that there was a decrease in physical activity of 71,4% of ICU (+) personnel feeling symptoms related to covid in themselves; 42.9% changed their eating habits and 71.4% used drug supplements.

Discussion and Conclusion: There was a high burnout level particularly in doctors and nurses in ICU no matter what kind of patients they had looked after. It is of utmost importance that essential support is to be provided to protect health-care personnel in the so-called pandemic period.

Keywords: Covid-19; intensive care unit; quality of life.

The coronavirus disease (COVID-19) has not only affected the populations as a physical condition, but has also led to negative social and mental consequences. Health professionals have their share of negative outcomes due to the high probability of exposure to the virus, the struggle with the unknown, the increase in workload, the prolongation of working hours, the disruption of sleep patterns, exposure to secondary trauma, and the fear of transmitting the disease to their relatives[1]. It is assumed that the largest share will be received by health professionals who provide care for patients infected with COVID-19. However, some studies indicate that burnout occurs more frequently in health professionales who provide care for non-COVID-19 patients, than in those who provide care for COVID-19 patients[2,3]. In this study, we compared the quality of life of health professionals who provided care for COVID-19 patients in intensive care units and healthcare professionals who provided care for non-COVID-19 patients, by examining the compassion fatigue scale, burnout inventory and job satisfaction scale.

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Materials and Methods

Approval was obtained from the ethics committee of our hospital for the study (Date: 16/11/2020. Decision No: 2020/13-14). Health professionals (doctors, nurses, assistant health personnel) in the intensive care units of our hospital who provided care and treatment for patients infected or not infected with COVID-19, were included in the study. Participants were reached by delivering questionnaires with convenience sampling method after sharing preliminary information and obtaining consent.

Participants were asked to respond to the Turkish version of the Professional Quality of Life (ProQOL) scale[4], prepared by B. Hudnall Stamm[5]. Participants were also asked about their educational status, occupation, working hours, whether they felt symptoms related to COVID-19 disease, change in physical activity and eating and drinking habits and use of additional supplements (vitamins, N-acetyl cysteine, acetyl salicylic acid, etc.

The ProQOL consists of thirty items and three subscales to assess professional satisfaction, burnout, and compassion fatigue. Professional satisfaction is measured with the 3 ,6, 12, 16, 18, 20, 22, 24, 27 and 30th items of the scale, and the alpha reliability value is 0.87. Items 1, 4, 8, 10, 15, 17, 19, 21, 26 and 29 measure the feeling of burnout. The alpha

Table 1. Professional Quality of Life

Professional Quality of Life	**0**	**1**	**2**	**3**	**4**	**5**
	Never	**Rarely**	**Sometimes**	**Frequently**	**Often**	**Very Often**
1. I feel happy.						
2. The people I help keep my mind busy.						
3. I get satisfaction from being able to help people.						
4. I feel connected to others.						
5. I jump or am startled by unexpected sounds.						
6. I feel invigorated after working with those I help.						
7. I find it difficult to separate my personal life from my life as a helper.						
8. I am losing sleep over traumatic experiences of a person I help.						
9. I think that I might have been affected by the traumatic stress of those I help.						
10. I feel trapped by my job as a helper.						
11. Because of my helping, I have felt "on edge" about various things.						
12. I like my work.						
13. I feel depressed because of the traumatic experiences of the people I help.						
14. I feel as though I am experiencing the trauma of someone I have helped.						
15. I have beliefs that sustain me.						
16. I am pleased with how I am able to keep up with helping techniques and protocols.						
17. I am the person I always wanted to be.						
18. My work makes me feel satisfied.						
19. I feel burned out.						
20. I have happy thoughts and feelings about those I help and how I could help them.						
21. I feel exhausted due to the intensity of the work I do or the number of people I help.						
22. I believe I can make a difference through my work.						
23. I avoid certain activities or situations because they remind me of frightening experiences of the people I help.						
24. I am proud of what I can do to help.						
25. As a result of my helping, I have intrusive, frightening thoughts.						
26. I feel "bogged down" by the working system.						
27. I feel "successful" as a helper.						
28. I can't recall important parts of my work with trauma victims.						
29. I am a very sensitive person.						
30. I am happy that I chose to do this work.						

reliability value of the scale is 0.72. Items 2, 5, 7, 9, 11, 13, 14, 23, 25 and 28 of the scale measure compassion fatigue and its alpha reliability value is 0.80. Items 1, 4, 15, 17 and 29 in the scale were calculated by reverse scoring. Evaluation of the items in the scale was made on a six-step chart ranging from 'never (0)' to 'very often (5)' (Table 1). In the study, the median (minimum-maximum) was used for numerical variables as descriptive statistics, while categorical variables were used as frequency (n) and percentage (%).

Since the parametric test assumptions of the variables examined in terms of ProQOL subscale scores were not met, whether there was a difference between the two-group categories was examined with the Mann-Whitney U test and with the Kruskal-Wallis test in more than two groups. Dunn-Bonferroni test, which is one of the multiple group comparison tests that were found to be significant, was used to determine from which groups the significance originated in the analysis.

In the evaluation of categorical data, Pearson's Chi-square test, Fisher-Freeman-Halton exact test or Fisher's exact test were used depending on the assumptions. The analyses of the study were made using the IBM SPSS V22 program.

Table 2. Employees' educational status, duties and working hours

	ICU (+)	ICU (-)
Educational Status		
High School and Below	12	7
University	37	33
Duty		
Doctor	10	-
Nurse	21	31
Personnel	18	9
Working Hours		
8 Hours	13	14
12 Hours	12	5
24 Hours	24	11

Results

62 female (69.7%) and 27 male (30.3%) professionals participated in the study. The median age of the participants is 28 (min=21; max=53). Forty-nine (55.1%) of the 89 participants who answered the questionnaire work in the COVID-19 intensive care unit, and 40 (44.9%) in other intensive care units. Educational status, duty, working hours of the participants in the study are given in Table 2, and their findings related to whether they feel symptoms, changes in physical activity and eating and drinking habits and use of additional supplements are given in Table 3.

Compared to the other professionals, the subscales of the ProQOL, compassion fatigue and burnout have increased, and their professional satisfaction has decreased; their quality of life has decreased. However, this situation was not statistically significant (p=0.801; p=0.088; p=0.199, respectively) (Table 4). There was no significant difference in terms of professional satisfaction scores between the categories of education status (p=0.231), duty status (doctor-nurse-personnel) (p=0.756) and working hours (p=0.140) in COVID-19 intensive care unit workers. However, a significant relationship was found between the work areas and working hours of the professionals and burnout (p=0.001; p=0.012, respectively). While the burnout status of doctors was found to be higher than other personnel, it was observed that burnout was higher in professionals working 24 hours a day. In terms of compassion, there was no difference between the categories of the specified variables (Table 5).

Among non-COVID-19 intensive care workers, the feeling of burnout was found to be significantly higher in nurses and those with higher education levels (p=0.002; p=0.005, respectively). In non-COVID-19 intensive care workers who are university graduates, the compassion score was also significantly higher (p=0.003). In both intensive care workers, there was no statistically significant difference in terms of professional satisfaction, burnout, and compas-

Table 3. Whether professionals feel symptoms related to Covid-19 disease, change in physical activity and eating and drinking habits, use of additional supplements

	ICU (+)		ICU (-)	
	Present	Absent	Present	Absent
The state of feeling symptoms	14	35	12	18
Change in daily physical activity	20	29	11	29
Change in eating and drinking habits	12	37	12	18
Use of additional supplements	28	21	17	23

Table 4. Comparison of subscales of quality of life scale among ICU (+) and ICU (-) professionals

	YBÜ (+)	YBÜ (-)	p
Professional Satisfaction	32 (8–50)	34 (14–49)	0.199[a]
Burnout	18 (8–39)	16 (7–36)	0.088[a]
Compassion	14 (0–41)	12 (0–32)	0.801[a]

[a]: Mann-Whitney U Test.

sion in those who felt and did not feel symptoms related to COVID-19 (p=0.550, p=0.088, p=0.082; respectively for COVID-19 intensive care unit; p=0.422, p=0.673, p=0.590; respectively for other intensive care units) (Table 6).

In this study, it was determined that working in the COVID-19 intensive care unit caused a decrease in physical activity (p=0.017). This situation was recorded in 80% of doctors and 33.3% of nurses. It was determined that the increase in working hours and the decrease in physical activity in COVID-19 intensive care workers were significantly related (p=0.017). Physical activity decreased in 54.2% of the employees who worked for 24 hours.

A decrease in physical activity was also found in those working in the COVID-19 intensive care unit and feeling symptoms related to the COVID-19 disease (p=0.006). The decrease in physical activity was seen in 71.4% of the professionals who felt symptoms. It was noted that 71.4% of the workers who felt symptoms took supplements, 42.9% had a change in eating and drinking habits; and these data were not found to be statistically significant (p=0.201, p=0.076; respectively).

Table 5. The effect of educational status, duty and working hours of ICU (+) professionals on the subscales of the quality of life scale

ICU (+)	Professional Satisfaction QoL	p	Burnout QoL	p	Compassion QoL	p
Education		0.231[a]		0.121[a]		0.789[a]
High School and Below	35.5 (14–50)		16.5 (9–26)		14.5 (3–18)	
University	32 (8–50)		21 (8–39)		13 (0–41)	
Duty		0.756[b]		0.001[b]		0.104[b]
Nurse	32 (8–50)		21 (8–38)		14 (0–38)	
Doctor	32 (19–46)		22 (11–39)		16.5 (4–41)	
Personnel	32 (14–50)		14 (9–24)		9 (1–19)	
Working hour		0.140[b]		0.012[b]		0.291[b]
8 Hours	30 (14–50)		17 (11–27)		9 (5–21)	
12 Hours	38.5 (19–50)		13.5 (8–39)		13.5 (0–41)	
24 Hours	32 (8–46)		21 (11–38)		15.5 (1–38)	

[a]: Mann-Whitney U Test; [b]: Kruskal-Wallis Test.

Table 6. The effect of educational status, duty and working hours of the employees in ICU (-) on the subscales of the quality of life scale

ICU (-)	Professional Satisfaction QoL	p	Burnout QoL	p	Compassion QoL	p
Educational Status		0.277[a]		0.002[a]		0.003[a]
High School and Below	40 (29–45)		9 (7–15)		7 (0–11)	
University	34 (14–49)		17 (7–36)		13 (3–32)	
Duty		0.291[a]		0.005[a]		0.086[a]
Nurse	34 (14–49)		17 (8–36)		13 (3–32)	
Personnel	41 (20–45)		9 (7–19)		10 (0–20)	
Working hour		0.979[b]		0.091[b]		0.196[b]
8 Hours	34 (22–45)		14 (7–26)		9.5 (0–27)	
12 Hours	41 (14–47)		17 (9–28)		13 (11–20)	
24 Hours	34 (14–49)		17 (8–36)		15 (3–32)	

[a]: Mann-Whitney U Test; [b]: Kruskal-Wallis Test.

Discussion

With the COVID-19 disease, hospitals have created a new work plan and started to treat patients with COVID-19 and non-COVID-19 in different services. It is assumed that the increase in the risk of exposure to the virus, the fear of transmitting the disease to their relatives, the struggle with the unknown caused by the lack of up-to-date information will trigger stress and increase the burnout in the professionals who care for COVID-19 patients. However, some studies among healthcare professionals who care for patients with COVID-19 and non-COVID-19 report that burnout is more common in healthcare professionals who care for patients without COVID-19[2,3]. They concluded that this situation is due to the lack of organization, which occurs as a result of not reaching the correct information on time to the non-COVID-19 patient care services, and the lack of new and clear procedures, increasing the fear of disease transmission in the professionals and losing their sense of control[2,3].

Intensive care workers continue their daily work with stress factors such as providing individual care that directly affects the lives of patients, witnessing the traumas that the patients have experienced and are experiencing, establishing emotional communication with the patients and their relatives and making ethical decisions about the end of life of the patients[6-8]. COVID-19 disease increased the workload and the sense of being useless of intensive care workers day by day, caused them to be exposed to secondary trauma and had an overwhelming negative impact, especially by making ethical decision-making difficult[9-12]. Healthcare workers are exposed to secondary trauma – indirect trauma – because they approach the traumatizing events of patients and their relatives with their feelings and thoughts. Secondary trauma causes compassion fatigue in the professionals[13-15]. COVID-19 intensive care workers witnessed the suffering and death of many patients in a short time and engaged in emotional communication with them. Emotional communication increases compassion fatigue by causing secondary trauma. Increased compassion fatigue reduces the individual's empathy and compassion for the suffering of the person they help[16,17].

Burnout is the inability to cope with gradually accumulating work stress[18]. It is the emotional fatigue, depersonalization and lack of personal achievement caused by long-term exposure to physical and mental situations arising from the work environment. Chuang C et al.,[19] in their meta-analysis on the burnout of the personnel working in the intensive care unit, stated that 6-46% of the intensive care workers showed signs of burnout, and that experience, workload, work shifts and educational status were risk factors for burnout. While there are studies[3] that state that they don't agree that healthcare professionals feel more burnout, compared to before the COVID-19 pandemic, many studies state that burnout in healthcare professionals increased during the pandemic, compared to the non-pandemic period[2]. The increase in the number of patients in the COVID-19 pandemic prompted hospital managements to open new intensive care units. Young professionals with little or no intensive care experience were assigned to work in these units. Follow-up and treatment of patients cause psychological burden in these professionals who have little experience in intensive care. Difficulty in making ethical decisions and not including the relatives of the patients in this process increases the psychological burden even more. It is thought that this situation also leads to burnout[10,20,21]. On the other hand, it is known that burnout causes exhaustion, neglecting one's own needs, not being able to spare time for oneself, denying problems, withdrawing oneself, giving up on work, depersonalization and physical exhaustion that may threaten life.

Professional satisfaction is the state of positive attitude that the employee can easily use their professional knowledge and skills at the workplace, realize their professional ideals, and develops towards themselves, their colleagues and their profession. With the increase in the number of patients in the COVID-19 intensive care unit, disproportionate care and medical uselessness have increased. Disproportionate care and medical uselessness cause professionals to lose control in patient follow-up and treatment and the care methods they know ato be insufficient. This, in turn, will create a deep sense of personal failure and lead to a decrease in the professional satisfaction of the employee. Decreased job satisfaction will also reduce employee well-being[22,23].

All these reasons may have led to an increase in compassion fatigue and burnout, a decrease in professional satisfaction, and consequently a decrease in the quality of life of intensive care workers who provide care and treatment for COVID-19 patients. The fact that accurate information about the infection does not reach the intensive care units providing care and treatment of non-COVID-19 patients in a timely manner prevents the emergence of new and clear procedures. Inadequate procedures cause a lack of organization. Inadequate organization and difficulty in accessing protective equipment cause fear of contagion to themselves or their patients at any time in professionals, and increase compassion fatigue and burnout[2,3]. Increased compassion fatigue and burnout lead to a decrease in

the quality of life of intensive care workers caring for non-COVID-19 patients. This situation may have prevented the statistical significance of the low quality of life among both intensive care workers.

Burnout is seen among medical professionals as a serious problem where control of life can be lost[24-26]. Shanafelt T. D et al.[24] reported in their study among doctors in the USA that 45.8% of doctors had at least one burnout symptom and it was more common than other employees in USA. 42% of intensive care doctors are at risk of professional burnout[27]. It has been observed that with the COVID-19 disease, about half of the doctors working in the intensive care unit had symptoms of severe burnout and anxiety, which is said to constitute a mental health emergency[12]. This situation is correlated with the burnout status of the doctors in our study. Despite the increase in the number of patients in COVID-19 intensive care clinics, the scarcity of doctors specialized in intensive care, the fact that doctors from different branches worked in these clinics to eliminate these deficiencies, prolonged working hours, inadequacy in the follow-up and treatment of the disease, difficulty in making ethical decisions, the inability of the hospital management to provide necessary support[10], and additional responsibilities in newly opened intensive care clinics may have increased the burnout in doctors.

Prolonged working hours lead to decreased work performance, distraction, increased probability of making mistakes, reluctance to work, lack of physical activity, lack of social life and neglect of private life. Increased working hours is a risk factor known to be directly proportional to burnout[19,24,28,29]. It has been shown that the prolonged working hours with the COVID-19 disease increases the burnout in the employees[10,11], and this was shown in our study as well.

In intensive care units other than COVID-19, burnout in nurses is shown to be increased due to the improved educational status. It is known in the literature that there is a correlation between education level and burnout[5]. There are also studies stating that burnout is high in intensive care nurses[5,29]. The lack of burnout in nurses working in the COVID-19 intensive care unit may be due to the fact that many new nurses were appointed to our hospital at the beginning of the pandemic period and most of them were assigned to these intensive care units. On the other hand, the high level of burnout in nurses working in other intensive care units may be due to the fact that less protective equipment is given to these units, incomplete and incorrect information about protection from infections and the fear of contagion. It can be thought that the information about infected patients is mostly obtained through media or friend conversations, increasing fear and leading to burnout.

Burnout affects the physical and mental health of the individual. It can cause symptoms such as fatigue, insomnia, forgetfulness, distraction, somatic complaints (palpitations, chest tightness, muscle pain, gastrointestinal disorders, etc.), frequent illness and mental reactions (easily irritable, depressed mood, lack of pleasure)[9]. Sedentariness brings burnout and poor quality of life[30,31]. Similarly, poor quality of life and burnout can bring inactivity. The relationship between physical activity and burnout seems to be an inverse correlation[9,32-35]. Physical activity is decreased significantly in COVID-19 intensive care unit workers, especially in those with long working hours. This decrease is 80% for doctors and 33.3% for nurses. The decrease in physical activity is directly proportional to the burnout in doctors. The long duration of putting on and taking off protective equipment in COVID-19 intensive care workers and the prolongation of working hours may contribute to the decrease in physical activity.

Occupational stress can lead to physical and mental disorders. It can change eating habits[28,36]. Undereating, such as overeating also reduce the quality of life[37]. In our study, 42.9% of the COVID-19 intensive care workers who felt symptoms related to COVID-19 had a change in their eating and drinking habits.

Although there is no drug (N-acetyl cysteine, acetyl salicylic acid) or vitamin supplements (Vitamin C, Vitamin D) that have been proven to be effective and safe in the treatment of COVID-19, with the emergence of some clinical studies with a low level of evidence, those who feel symptoms similar to COVID-19 symptoms have started to use supplements for prevention and treatment[38-42]. In our study, 71.4% of those who felt symptoms had decreased physical activity and increased use of supplements. Feeling symptoms of COVID-19 led intensive care workers to have decreased physical activity, change in their eating and drinking habbits, and taking additional supplements for disease prevention.

The limitation of this study is that it was rolled out in a single institution with a small group at a time when the COVID-19 disease created the highest workload for intensive care units. Another factor is that respondents may have given low scores because of identification concerns, thus affecting the outcome of the survey.

Conclusion

One of the most important ways of providing effective health care is to increase the quality of life of health care personnel and to solve their psychological, social and economic problems. The decrease in the quality of life of intensive care workers will directly or indirectly affect patient safety and health outcomes. For a strong fight against the pandemic, it is necessary to consider intensive care workers as a whole whether they care for patients infected with COVID-19 or not, and to develop individual and institutional strategies that will reduce compassion fatigue and burnout risks and increase their quality of life. Developed strategies should be implemented as soon as possible and new strategies should be put forward by evaluating the quality of life of employees at regular intervals.

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