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ANXIETY, QUALITY OF WORK LIFE AND FATIGUE OF IRAN HEALTH CARE PROVIDERS IN HEALTH CARE CENTERS IN COVID-19 PANDEMIC

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ABSTRACT

BACKGROUND AND AIM. The aim of this study was to investigate the status of anxiety, quality of work life, and fatigue of healthe care providers in six educational and medical centers of Shahrekord University of Medical Sciences in the southwest of Iran in the Covid-19 pandemic.
MATERIALS AND METHODS. The present study was a cross-sectional study and included the statistical population of healthcare providers in six educational and medical centers of Shahrekord University of Medical Sciences in the southwest of Iran. Using random sampling method, 181 people who had direct involvement with patients with Covid-19 were selected and compared with 261 staff in other wards who had no direct contact with patients with Covid-19. For data collection, demographic information (demographic characteristics questionnaire), Covid-19 Anxiety Questionnaire, quality of work life and Rhoten fatigue questionnaires were used by self-administered online questionnaires.
RESULTS. The results showed that the quality of life in both groups decreased and fatigue and anxiety caused by Covid-19 increased, but there was no statistically significant difference between anxiety derived fatigues of personnel involved with Covid-19 with personnel of other wards which were no directly faced Covid-19 patients. Regarding the quality of work life, no significant difference was observed in other components except in the component of human resource development. The results also showed that there was a statistically significant relationship between the level of anxiety caused by Covid-19 with quality of work life and fatigue.
CONCLUSION. According to the results of the present study, Covid-19 had a negative effect on physical, mental and various aspects of quality of life of health care staff and led to increased fatigue.

Keywords: *Covid-19, Quality of Work Life, Anxiety, Fatigue, Health Care Providers*

INTRODUCTION

Covid-19 has posed major health threats to global public health and has attracted international attention as a public health emergency of international concern (1). Most countries faced this epidemic and its economic, social, health and medical consequences. Due to the increasing prevalence of this disease and with the prolongation of the disease process in the world, especially in Iran, it has caused an excessive workload on medical staff so that many medical centers faced sometimes with over-admission of patients and a lack of medical staff. With the onset of Covid-19, public health care providers were exposed to extreme stress, anxiety, depression, and insomnia due to the risk of infection with Covid-19 (2).

The health care system in Iran also experienced a significant impact of this epidemic on employees. In the face of this unknown disease and the unpredictable dangers, health care providers feared infection and its spread to their families, but in response to this challenge, they took responsibility, focused on their duties, and showed a spirit of unity and professionalism. The dedication of health care providers has played a key role in treating patients with Covid-19, and they have tried to provide the best care to patients in difficult situations. Like many new infectious diseases, such as Ebola, there is still no definitive effective cure for the disease, and patient care is primarily nursing care (2). In addition to caring for patients, wearing protective clothing for long hours can also cause

physical distress and fatigue. Limited resources, and prolonged epidemic have disrupted sleep and balance of life. Exposure of Covid-19 has led to physical and mental fatigue, stress and anxiety, and burnout in public health care providers (3). Due to the increased pressure to choose between family responsibilities and their inner feelings towards patients, Covid-19 frontline caregivers suffer from emotional problems and burnout. These special conditions cause excessive stress and fatigue in medical staff and make them incapacitated and exhausted (4).

The results of a study showed that the prevalence of depression, anxiety, insomnia and nonspecific anxiety symptoms in frontline clinics especially in nurses were 50.4%, 44.6%, 34.0% and 71.5%, respectively (5). Other studies have shown an immediate effect of Covid-19 on health care providers, with 29.8%, 13.5%, and 24.1% reporting symptoms of stress, depression, and anxiety, respectively (6).

Given the current situation, it seems that health care providers have to work continuously and under severe daily stress, which will lead not only to physical suffering and damage, but also to certain psychological damages, including reduced quality of life. Due to the effect of depression and anxiety on the quality of work life of health care providers (5), it is necessary to focus on the mental health of HCWs during the outbreak of Covid-19 (7).

Quality of work life (QWL) is often considered as a real working condition including employee rights, facilities, health and safety issues, participation in decision-making, managerial approach and job diversity and flexibility (8). QWL includes various aspects such as fair payment and benefits, health and safety of working conditions and social integration that enable people to use and develop their abilities and capacities (9). QWL is the result of evaluating individuals by comparing their expectations, hopes, and demands of an organization to the actual performance of the organization (10). High QWL is recognized as a basic condition and background for the empowerment of human resources required by the health care system (11). Improving the QWL of nurses and physicians is one of the important factors to ensure the stability of the health system (12). High QWL leads to employee competence, innovation and creativity. Among the health care team, nurses play a major role among other health care providers. Therefore, they should experience better QWL to provide complete high quality care to those in need (13). Improving QWL reduces depression, anxiety and stress in health care providers (14).

During Covid-19 epidemic, front-line physicians and nurses were under a great deal of physical and psychological stress (15, 16). Such conditions cause Covid-19 front-line medical personnel to become psychologically and mentally exhausted (2). Fatigue is a psychological condition that is associated with lack of energy, general weakness, irritability, decreased motivation and activity (17). Long working hours and changing the tasks, along with stressful work, can lead to extreme weakness and fatigue (18, 19). Nurses working in such a physical and psychological challenge often experience fatigue, burnout, mental fatigue, and emotional separation (20).

With the continuation and increasing prevalence of coronavirus in Iran and the increasing pressures caused by long working hours, stresses related to health of themselves and family members, uncertain future and status of Covid-19 disease and also unpredictability of new variants of this disease, it seems that the Iranian health care community is enduring too much pressure and too much threshold. As a result, it is necessary to conduct studies to determine and evaluate the psychological status and work performance of these people and, consequently, to create intervention programs to maintain and improve the psychological health status of these people. Also, the lack of similar studies in this field caused the present study to investigate the effects of Covid-19 disease on anxiety, quality of work and the severity of fatigue in health care providers.

MATERIALS AND METHODS

The present study was a cross-sectional study and included the statistical population of healthcare providers of six health centers of Shahrekord University of Medical Sciences in southwestern Iran.

In this study, sampling was done by census in six educational and medical centers of Shahrekord University of Medical Sciences in the southwest of Iran in 2019. The centers employed 1,200 staff, all of whom were asked to participate in the study, of which only 442 volunteered – 181 of these subjects who had direct involvement with patients with Covid-19 were selected as the case group and compared with the control group (261) who did not have direct involvement with patients with Covid-19.

Inclusion Criteria. Age range between 25 to 60 years, at least two years of working history, working in health centers of Shahrekord University of Medical Sciences.

Exclusion criteria. Lack of cooperation during the study.

Study tools. For data collection, demographic information (demographic questionnaire), QWL questionnaire, fatigue severity questionnaire and Covid-19 anxiety questionnaire were used by self-administered online questionnaires. The personal

information questionnaire included age, gender, marital status and care of specific patients with Covid-19. The questionnaires took 20 to 25 minutes to complete.

*QWL questionnaire***:** The Walton QWL questionnaire was used to assess the QWL of nurses. The questionnaire assesses the QWL of nurses in eight dimensions, which consists of 24 questions based on a five-point Likert scale (very low, low, medium, high, and very high). In each sub-scale, scores 2-4, 5-7, 8-10 and were considered as low, medium, and high, respectively. The eight components of QWL that were measured in this questionnaire include fair and adequate pay (questions 1-2), safe and healthy work environment (questions 3-4), providing opportunities for growth and continuous security (questions 5-8), rule of law in the organization (questions 9-12), social dependence of work life (questions 13-14), general living space (questions 15-18), social integration and cohesion (questions 19-21) and development of human capabilities (questions 22-24). To determine the QWL, the score of eight dimensions of QWL, which was 24 to 120, was divided into three parts, each part having a distance of 32 units. Thus, the QWL was determined at three levels: low (score 24-55), medium (score 56-87) and high (score 120-88). The QWL questionnaire is a standard questionnaire designed by the International Organization for Quality of Life and its validity and reliability have been examined in different groups. The reliability coefficient of the questionnaire was reported to be 0.78 (21).

*Fatigue severity questionnaire***:** This questionnaire is one of the most reliable tools in the field of fatigue assessment, which was designed by Krop et al. in 1989. This scale includes nine seven-point questions (a score of one means completely disagree and a score of seven means completely agree), five of which measure the quality of fatigue and three questions measure physical, mental fatigue and the effects of fatigue on a person's social status. One question compares the severity of fatigue with other symptoms in the patient. The total score was minimum nine and maximum 63, with a score of 9 indicating no fatigue and a score of 63 indicating the highest rate of fatigue (22).

*Covid-19 Anxiety Questionnaire (CAS)***:** To measure Covid-19 anxiety in health care providers, the researcher-made Covid-19 Anxiety Questionnaire was used which included 7 questions related to the concern of Covid-19 infection, concern of Covid-19 infection of family through health care providers, concerns about violence and aggression at work, concern about Covid-19 infection of friends and colleagues, concern about lack of personal protective equipment, and concern about the progress of Covid-19 infection prevention programs. Questions were scored on a 5-point Likert scale from zero (0) to very high. Cronbach's alpha = 0.854, and McDonald's omega = 0.870. The CVC (Content Validity Coefficient) value for the scale (CVCt) was 0.97. The results show that CAS is a reliable and sufficient tool to assess COVID-19-induced anxiety (23).

Statistical methods of data analysis. To analyze the data, descriptive statistics parameters and independent t-test, one-way ANOVA and Pearson correlation tests were used. Data analysis was performed with SPSS22 statistical software. Independent t-test and one-way ANOVA were used to compare the research groups in the research variables. Pearson correlation test was also used to investigate the relationship between research variables.

RESULTS

In this study, the mean age in direct exposure to Covid-19 patients group was 35.6 and the mean age of the control group was 34.2. Also, in both groups, the number of women was more than men, in direct exposure to Covid-19 patients group women was 41.7% and in the control group was 58.3%. Table 1 shows the demographic distribution of the research subjects.

The results showed that in both groups the quality of life decreased sharply and stress, anxiety and fatigue increased. Based on the results, except for the component of human resource development, no significant difference was observed (Table 1) between the other components of quality of work life in two groups. In the human resource development component, the control group scored higher than the caregivers group in direct exposure to Covid-19 (Table 2).

According to the results, there was a significant difference between the employees of different wards in the quality of work life scores. The highest scores of quality of working life was related to the cardiovascular ward and the lowest scores of quality of work life was related to the caregivers of Covid-19 laboratory (Table 3).

Based on the independent t-test, the results showed that there was no statistically significant difference between the two groups in terms of Covid-19 anxiety and fatigue (Table 4).

The results obtained using Pearson correlation coefficient showed that there was a significant negative relationship between the level of anxiety caused by Covid-19 and the quality of work life and positive relation between the anxiety of Covid-19 and the severity of fatigue of the subjects ($p < 0.05$).

Table 1. Comparison of demographic variables in medical staff who exposure to Covid-19 patient and control group

Variable	Group			P-value
	Exposure to Covid-19 patient (n=181)	Control (n=261)	Total (n=442)	
Age (years)				
Mean ± SD	33.59±8.9	34.17±7.8	33.94± 8.71	0.679
Gender f (%)				
Male	42 (38.2%)	68 (61.8%)	110 (100.0)	0.514
Female	136 (41.7%)	190 (58.3%)	326 (100.0)	
Marital status				
Single	58 (43.3%)	76 (56.7%	134 (100.0)	0.688
Married	120 (40.4%)	177 (59.6%)	297 (100.0)	
Divorced	2 (28.6%)	5 (71.4%)	7 (100.0)	
Widow	0 (0.0%)	1 (100.0%)	1 (100.0)	
SES f (%)				
Good	28 (47.5%)	31 (52.5%)	59 (100.0)	0.084
Average	145 (41.2%)	207 (58.8%)	352 (100.0)	
Poor	6 (22.2%)	21 (77.8%)	27 (100.0)	
Job f (%)				
General practitioner	4 (26.7%)	11 (73.3%)	15 (100.0)	0.405
Specialist	2 (33.3%)	4 (66.7%)	6 (100.0)	
Nursing staff	144 (45.1%)	175 (54.9%)	319 (100.0)	
Midwifery	6 (40.0%)	9 (60.0%)	15 (100.0)	
Health staff	9 (27.3%)	24 (72.7%)	33 (100.0)	
Pharmacist	0 (0.0%)	1 (100.0%)	1 (100.0)	
Dentist	2 (40.0%)	3 (60.0%)	5 (100.0)	
Radiologist	5 (25.0%)	15 (75.0%)	20 (100.0)	
Office staff	3 (37.5%)	5 (62.5%)	8 (100.0)	
Laboratorist	2 (25.0%)	6 (75.0%)	8 (100.0)	
Other	2 (28.6%)	5 (71.4%)	7 (100.0)	
Ward f (%)				
ICU	88 (100.0%)	0 (0.0%)	88 (100.0)	0.001
CCU	23 (100.0%)	0 (0.0%)	23 (100.0)	
Heart	0 (0.0%)	13 (100.0%)	13 (100.0)	
Internal	0 (0.0%)	45 (100.0%)	45 (100.0)	
Surgery	0 (0.0%)	81 (100.0%)	81 (100.0)	
Emergency	37 (100.0%)	0 (0.0%)	37 (100.0)	
Laboratory	0 (0.0%)	13 (0.0%)	13 (100.0)	
Children	0 (0.0%)	16 (100.0%)	13 (100.0)	
Infants	0 (0.0%)	14 (100.0%)	16 (100.0)	
Infectious	33 (100.0%)	0 (0.0%)	14 (100.0)	
Other	0 (0.0%)	46 (100.0%)	46 (100.0)	
General	0 (0.0%)	33 (100.0%)	33 (100.0)	

Data were presented as Mean ± SD, frequency (%)

* Based on Chi-square or t-test

Table 2. Distribution of quality of life scale in medical staff who exposure to Covid-19 patient and control group

QWL Component	Group		
	Exposure to Covid-19 patients (n=181)	Control (n=261)	P-value*
Adequate pay	8.03±1.83	8.06±1.86	0.872
Safe and healthy enviroment	7.94±1.47	7.78±1.80	0.352
Providing opportunities for growth	8.55±2.48	8.80±2.95	0.341
Rule of law in the organization	8.24±2.84	8.36±3.17	0.640
Social dependence of work life	4.86±1.42	5.02±1.60	0.282
General living space	8.71±2.48	9.19±2.77	0.057
Social integration and cohesion	7.31±2.27	7.62±2.29	0.156
Development of human capabilities	8.27±1.93	8.74±2.13	0.017
Quality of life	53.50±11.95	55.68±13.46	0.08

Data were presented as Mean ± SD,
* Based on t-test

Table 3. Parameter estimates One Way ANOVA on factors associated with the quality of life

Dependent variable quality of life					
Ward	Mean ± SD	95% CI		F	P-value*
		Lower	Upper		
ICU	52.44 ±11.15	50.08	54.81	1.915	0.036
CCU	56.58 ±12.27	51.27	61.89		
Heart	58.01±8.78	52.69	63.31		
Internal	52.45±13.14	48.50	56.39		
Surgery	54.84±12.28	52.13	57.56		
Emergency	52.72±13.06	48.37	57.08		
Laboratory	50.23±12.18	42.86	57.59		
Children	56.20±11.85	49.89	62.52		
Infants	54.95±11.68	48.20	61.69		
Infectious	55.01±12.54	50.56	59.45		
Other	61.40±16.98	56.35	66.44		
General	55.48±12.95	50.89	60.07		

Data were presented as Mean ± SD,
* Based on One Way ANOVA
ICU – intensive care unit, CCU – critical care unit

Table 4. Distribution of Covid-19 anxiety scale and fatigue severity scale

Variable	Group			
	Exposure to Covid-19 patients (n=181)	Control (n=261)	Total (n=442)	P-value*
Covid-19 anxiety scale	24.71±3.74	24.45±4.36	24.56± 4.11	0.527
			25.0 [6,30]	
Fatigue severity scale	13.99±1.04	14.82±0.917	37.88±14.51	0.108
			38.0 [9,63]	

Data were presented as Mean ± SD, median [min, max]
* Based on t-test

DISCUSSION

The results showed that in both groups, the scores of quality of work life and its dimensions were low according to the cut-off score of the Quality of Work Life Scale, i.e. the quality of work life due to the prevalence of Covid-19 disease in all members of medical staff decreased. Anxiety and fatigue in both groups were also high according to the results. These findings confirmed the results of previous studies on the negative effects of Covid-19 disease on increasing stress and anxiety in health care providers (3, 6, 24). The results also showed that there was no significant difference between the level of Covid-19 anxiety and the fatigue of the personnel involved with Covid-19 and the personnel of other wards who did not have direct contact with Covid-19 patients. Regarding the quality of work life, except for the component of human resource development, no significant difference was observed between the two groups. The results also showed that there was a significant negative and positive relationship between the level of Covid-19 anxiety with quality of work life and fatigue, respectively.

The mental health of health care providers is of particular importance for ensuring proper care and treatment (25). Although the results of the present study did not show a significant difference in the components of the study between the two groups, but it showed that Covid-19 has reduced the quality of work life and increased fatigue and anxiety of all health care personnel. Working in the forefront clinical ward in the face of epidemics and dangerous diseases such as Covid-19 is always an independent risk factor for mental health (17). According to previous findings (6), front-line nurses engaged in clinical care of patients with Covid-19 were at higher risk for psychological damage, including depression, which can reduce QWL and increase fatigue.

Due to the large number of patients during the outbreak of Covid-19, the treatment team had to work more shifts and at full capacity. In addition, staff experienced the fear of being infected and spreading the virus to family and friends. All of these factors can significantly increase the conflict between role-playing and personal concerns. The outbreak of Covid-19 disease also increased the pressure on all health care providers. This pressure reduced quality of work life and increased anxiety and fatigue in the medical staff who are directly involved with Covid-19 patients and in the medical staff who indirectly experience increased care services for non-Covid-19 patients through.

Therefore, empathy and unity of people in the community and appreciation of the medical staff by different methods by members of the community, leads to the fact that the current difficult and exhausting conditions for the medical staff have been somewhat modified to care for patients and do their responsibilities with more motivation and energy. Also, services such as music therapy, counseling services, timely payment of salaries, increasing job motivation and morale by the people and officials can improve working conditions and increase employee morale. Other organizational measures, including the allocation of more resources (e.g., floating nurses, physicians, patient care assistants, and new equipment), somewhat reduce the burden of care.

Healthcare providers should use self-management and confidence reinforcement to deal with the Covid-19 crisis. Due to the cultural context of Iran and the special emphasis of this culture on altruism, self-sacrifice, etc., health care providers also use this unique experience as a way to sublimate. The results of studies have also shown that in other cultures, health care providers have shown resilience and a spirit of professional sacrifice to overcome problems (2). Facing various challenges, health care providers were highly resilient. They used multiple support systems and adjustment skills to relieve stress because they knew they had to be strong and focused on their duty to save lives. Also, the actions of the Ministry of Health and the support of this ministry to health care providers by providing the necessary protection and support facilities can to some extent strengthen the morale and ability of the staff. To protect the well-being of health care providers, they must be fully supported. Regular and intensive training is essential for all health care providers to improve preparedness and effectiveness in crisis management. Many health care providers from other wards have little clinical experience in infectious disease intensive care. When health care systems are not prepared to deal with the spread of an infectious disease, training and communication improvements are needed. Promoting inter-professional and inter-organizational cooperation should be one of the necessary priorities to ensure efficient and quality care. Mutual trust and respect for staff should be developed, effective communication should be maintained, the role of individuals and teams and standards should be defined and a sense of belonging should be created. To help health care providers in reducing uncertainty and fear, in addition to improving infection prevention and control knowledge and personal protection skills, hospitals must provide a safe working environment and adequate protective equipment and have continuous training, control and monitoring. Separating the living space, changing clothes, and taking a shower immediately after work may help reduce anxiety. Their mental health should be constantly monitored, support systems should be strengthened, and professional

psychological counseling and critical interventions should be provided. Improving the quality of work life can also strengthen the psychological strength of staff and protect them from damages caused by Covid-19 (26).

The present study also had some limitations. One of them is that the sample was selected only from Chaharmahal and Bakhtiari province and the conditions and status of the disease outbreak in this province could affect the response rate of caregivers and the quality of work life and the severity of their fatigue. Therefore, it is suggested that in future research, a comparison of these components in terms of the extent and severity of the disease in different provinces is done to a more accurate and comprehensive study of the mental and physical status of health care providers in the country be achieved. Due to the fact that the statistical sample of the present study was the staff of a health center, so the generalization of findings to larger samples and the entire health system of the country is limited and caution should be exercised in generalizing the findings.

CONCLUSION

According to the results of the present study, Covid-19 had a negative effect on physical, mental and various aspects of quality of life of health care staff and led to increased fatigue.

Ethical considerations

Ethical issues (including plagiarism, data fabrication,double publication) have been completely observed by the authors. The study was approved with the code of ethics IR-SKUMS.REC.1399.018 and project number 5359.

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Conflicts of interest

There are no conflicts of interest

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