Effects of Job Conditions, Fear of Infecting by Covid-19 and Emotional Intelligence on Occupational Stress Among Nurses During Covid-19 Pandemic Process: a Cross-sectional Study

Semra AKKÖZ ÇEVİK (s_akkoz@hotmail.com)
Gaziantep University of Faculty of Health Sciences
Seda ÖZALP
Gaziantep University
Ayşegül DAŞDEMİR
Gaziantep University

Research Article

Keywords: Covid 19, Fear of Covid-19, Job Stress Questionnaire, Nursing, Occupational stress, Workload

Posted Date: July 25th, 2022

DOI: https://doi.org/10.21203/rs.3.rs-1885107/v1

Abstract

Purpose

This study was conducted to determine the effects of job conditions, fear of infecting by Covid-19 and emotional intelligence on occupational stress among nurses during covid-19 pandemic process.

Methods

This study was conducted as a descriptive cross-sectional study with 193 nurses working in xxx University Research and Practice hospital between October 26 and December 31, 2020. The data of the study were collected using the Survey and Job Stress Questionnaire. In the evaluation of the data, t-test, one-way variance analysis (ANOVA), pearson Correlation were used. $p < 0.05$ value was accepted as statistically significant.

Results

Mean score of the nurses participating in the study was 16.49 ± 2.30 and 0.92 ± 0.19 for workload and job stress subscales of Job Stress Questionnaire, respectively. A significant correlation was found between the department where nurses worked during the pandemic, the fear of infecting their family with Covid-19, status of loving the profession and the status of willingness to come to the hospital on the working day and the Job Stress Questionnaire values ($p < .05$). A positive correlation was found between the working year and workload and work stress ($p < 0.05$).

Conclusion

Our results indicated that healthcare professionals were under a lot of stress during the pandemic, they were too tired and they had very high working hours. High fear of infecting their families with this disease due to their profession and not being willing to come to the hospital on the shift day were factors increasing stress.

Introduction

Stress is a biological term which refers to the consequences of the failure of a human or animal body to respond appropriately to emotional or physical threats to the organism, whether actual or imagined it includes a state of alarm and adrenaline production, short-term resistance as a coping mechanism, and exhaustion. It refers to the inability of a human or animal body to respond. Common stress symptoms include irritability, muscular tension, inability to concentrate and a variety of physical reactions, such as headaches and accelerated heart rate. Stress may define as "a state of affair involving demand on physical or mental energy" [1]. Job stress is an outcome or response to certain stimuli in the environment. Nowadays, job stress has become more apparent and leads to low morale of employees. The causes for job stress can be attributed to technological changes, competitive life styles and various other social factors. Job stress is a double-edged sword, it can be both productive and counter-productive. It can be productive when it helps or motivates people to work more and perform well. It will allow them to explore opportunities and leads to enhanced job productivity. It can be counter-productive when external factors create more pressure to work but doesn't lead to concrete outcome. Job stress is prevailing in every employee's day-to-day life and it impacts their job performance. The job stress can occur due to several factors like overwork, workload, low salaries, lack of incentives, motivation at work, recognition etc. [2].

Workload is one of the major factors which affect the employees' productivity and efficiency. Job stress caused by high workload has become common in today's scenario. Workload can be a result of certain constraints like time pressure, shortage of adequate and timely help, inadequate resources to accomplish a task, inefficient co-workers, role conflicts etc. Dar, Akmal, Naseem, and Din Khan (2011) in their study analysed the effect of stress on job performance [3]. Data was collected from 143 employees belonging to various multinational companies, universities, and banks. The findings showed that job stress brings about subjective effects such as feeling undervalued and workplace victimisation/ bullying, unclear role/ errands, work home interface, fear of joblessness, exposure to traumatic incidents at work, and economic instability among target population, resulting in poor concentration, mental block and poor decision-making skills. The results revealed a negative relationship between job stress and employees' job performance and that job stress significantly reduces the employees' job performance [3].

Nursing is considered to be a complex and highly demanding job. A combination of the high workplace requirements, over-responsibility, and over-authority has been identified as a major source of occupational stress among nursing staff [4].

An increasing level of stress among health care professionals is witnessed currently due to the ongoing pandemic of COVID19 outbreak. Nurses are particularly vulnerable to infection due to frequent patient nurse interactions, direct contact with respiratory fluids of infected patients and inadequate protective gears. Nurses play a pivotal role as direct care givers and are subject to high degree of stress due to lack of resources, physical exhaustion, difficulty in balancing work and responsibility which eventually contribute to health issues in nurses. This increased level of stress decreases their efficiency and reflect to a great extent on patient care [5].

Methods

Aims

This study was conducted to determine the effects of job conditions, fear of infecting by Covid-19 and emotional intelligence on occupational stress among nurses during covid-19 pandemic process.

Study Design and sampling

This study was conducted as a Cross-sectional design between October 26th and December 31st ,2020 at xxx University Research and Practice hospital. The sample size was calculated by using G power analysis. Given a presumptive prevalence of 50%, with an error rate of 5% and a confidence interval of 95%, the needed sample size was calculated to be 192 participants. The sample group consisted of 193 nurses working in the emergency service, Covid service and Covid Intensive Care Unit. Nurses working in Covid services and emergency services, providing care to covid 19 patients, and performing treatment and necessary procedures were included in the study.

Data collection

The data were collected between October 26, December 31, 2020. The data of the study were collected using a survey and job stress questionnaire (workload, work control, social support questionnaire). The researcher collected the data by using face to face technique.

Survey

This form includes information about socio-demographic characteristics of the nurses, information about their work (tenure in the profession, liking the profession, place of duty during pandemic period, working hours) and information about Covid 19 (fear of being infected with Covid 19, following developments about Covid 19, stress, protection of equipment, risk of getting caught and willingness to come to the hospital).

Job Stress Questionnaire

Its validity and reliability were performed by Demiral et al., (2007). The job stress questionnaire, used in various national and international studies, consists of 17 questions. The scale has three main subsections. It has 5 questions for workload, 6 questions for work control and 6 questions for social support. The Cronbach's alpha coefficients reported for the workload, work control and social support subsections of the scale varied between 0.51 and 0.72. Four of 6 questions used in the measurement of work control is composed of skill use subsection and two of them is composed of decision freedom subsection. The response options for the workload, skill use, and decision freedom subsections are "often, sometimes, rarely and never" responses. For social support, there are "I strongly agree, I partially agree, I partially disagree, and I strongly disagree" options. In the evaluation of the scale, the total score of each subsection is obtained by coding the response options between 1–4 and summing the scores of each subsection. By summing the scores obtained for skill use and decision freedom, work control total score is obtained. High scores indicate high workload, high work control and high social support. Job stress is evaluated as the ratio of workload to work control [6].

Ethical considerations

At every stage of the study, the researcher paid close attention to comply with ethical principles. Before carrying out the study, the approval from the Medical Faculty Ethics Committee of Gaziantep University (approvel number is 2020/239), and then written permission from the hospital where the study was conducted were obtained. The participants were informed about the study's purpose, and their written consents were collected using the "Informed Consent Form."

Statistical Analysis

In the evaluation of the scores obtained from the scales, t-test for the categorical variables containing two groups in the analysis according to the demographic characteristics of the participants and one-way variance analysis for categorical variables containing three and more groups were used. As a result of the variance analysis, LSD test from posthoc tests was used to determine the difference between the groups. In addition, the reliability coefficient for the overall scale and its sub-dimensions was given with Cronbach's alpha values. $p < 0.05$ value was accepted as statistically significant. The mean ± standard deviation for numerical variables and number and percentage (%) for categorical variables were given as descriptive statistics. SPSS Windows V 22.0 packaged software was used for statistical analysis and the value of $p < .05$ was accepted as statistically significant.

Results

Table 1 shows information about demographic characteristics of the nurses participating in the study as well as information about their profession and Covid 19. Accordingly, of the nurses participating in the study, 83% were female, 46% were in the age range of 17–21 years, 62% were married and 54% had no children. 45% of the nurses had a working duration of 1–3 years in the profession, 39% were working in the Covid service and the rate of those working for 8 hours and less in a day was 40%. 55% of the nurses reported that they were afraid of being infected with Covid 19, 67% were afraid of infecting their relatives with Covid 19, 60% stated that they did not believe in the full protection of the equipment and 54% reported that they experienced stress while providing care to Covid 19 patients (Table 1).

Table 1
Demographic Characteristics of The Nurses Participating in The Study As Well As Information About Their Profession and Covid 19 **(N = 193)**

Features	n	%
Gender	160	83
Female	33	17
Male		
Age Group	90	46
17–21	49	26
22–26	54	28
27 and over		
Education	88	46
Highschool	45	24
Associate Degree	52	26
Undergraduate	8	4
Graduate		
Marital status	74	38
Single	119	62
Married		
Working Duration	86	45
1–3	42	21
3–5	28	15
5–8	37	19
8 years and over		
Status of loving the profession	114	59
Yes	79	41
No		
Department	36	19
Emergency Department	75	39
Covid-service	43	22
Covid- Intensive Care Unit	39	20,0
More Than One Service		
Working Hours A Day	78	40
≤ 8 saat	66	34
8–12 saat	49	26
< 12 saat		
Weekly Working Hours	56	29
< 40 saat	76	39
40 saat	61	32
> 40 saat		
Status of satisfaction as a healthcare professional	75	39
Yes	118	61
No		
Status of physically and mentally felt more tired than the past	175	91
Yes	18	9
No		

Features	n	%
Concern of Being Infected With Covid 19	106	55
Yes	87	45
No		
The Fear Of Infecting Their Children/Family With Covid 19	130	67
Yes	63	33
No		
Do you believe in the full protection of the equipment?	77	40
Yes	116	60
No		
Do you have experienced stress while providing care to Covid 19 patients?	105	54
Yes	88	46
No		

Table 2 shows mean, standard deviation, median, and Cronbach's alpha values of the job stress questionnaire with its subscales. Workload and work control mean scores of the subscales of the job stress questionnaire were 16.49 ± 2.30 and 18.35 ± 2.99, respectively, and the mean scores of skill use and decision freedom sub-sections of the work control were 12.97 ± 1.97 and 5.37 ± 1.66. The mean score of social support subscale of job stress questionnaire was 17.50 ± 3.69. Job stress score was calculated as the ratio of workload to work control and the job stress mean score was found as 0.92 ± 0.19. In order to determine the reliability of the questionnaire, Cronbach's alpha value and item analysis were examined. The Cronbach's alpha value in the overall scale was found as 0.750 (Table 2).

Table 2
Mean, Standard Deviation, Median, and Cronbach's Alpha Values Of The Job Stress Questionnaire With Its Subscales.

Subscales	Mean ± SD	Median	Cranbach alfa
Workload	16,49 ± 2,30	17,00	0,518
Work Control	18,35 ± 2,99	18,00	0,623
Skill use	12,97 ± 1,97	13,00	0,441
Decision Freedom	5,37 ± 1,66	6,00	0,757
Social Support	17,50 ± 3,69	18,00	0,789
Job stress	0,92 ± 0,19	0,88	
in the overall scale			0,750

Table 3 shows the comparison of the job stress questionnaire scores of the nurses according to the units they were working during pandemic period. Accordingly, the workload mean score of the nurses working in the emergency department was 16.00 ± 2.57, workload mean score of the nurses working in Covid service was 16.32 ± 2.39, workload mean score of the nurses working in Covid intensive care unit was 16.81 ± 1.97 and the workload mean score of the nurses working in more than one service was 17.10 ± 1.87 and no statistically significant difference was found between the units worked during pandemic period and workload mean score ($p < 0.05$, Table 3). Workload of the nurses working in more than one service was found to be higher than those working in other units. No significant difference was found between the units worked in terms of the work control and social support mean scores ($p > 0.05$, Table 3). On the other hand, the work control levels, skill uses, decision freedom levels and work stresses of those working in more than one service were found to be higher than the nurses working in other services but this difference was not statistically significant ($p > 0.05$). Similarly, skill uses of nurses working in the emergency service and one than one service (13.22 ± 1.97, 13.33 ± 2.19) were higher than the others but this difference was not statistically significant ($p > 0.05$, Table 3).

Table 3
The Comparison Of The Job Stress Questionnaire Scores Of The Nurses According To The Units They Were Working During Pandemic Period

Subscales	The Units Nurses Were Working During Pandemic Period								P Value
	Emergency Department		Covid Service		Covid Intensive Care Unit		More Than One Service		
	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	
Workload	36	16,00 ± 2,57	75	16,32 ± 2,39	43	16,81 ± 1,97	39	17,10 ± 1,87	**0,008***
Work Control	36	18,53 ± 3,09	75	18,04 ± 2,98	43	18,24 ± 2,31	39	18,97 ± 3,53	0,418
Skill use	36	13,22 ± 1,97	75	12,72 ± 2,00	43	12,93 ± 1,66	39	13,33 ± 2,19	0,390
Decision Freedom	36	5,31 ± 1,80	75	5,32 ± 1,60	43	5,31 ± 1,42	39	5,64 ± 1,91	0,758
Social Support	36	16,58 ± 3,46	75	17,55 ± 3,47	43	17,60 ± 4,38	39	18,15 ± 3,51	0,480
Job stress	36	0,88 ± 0.19		0,92 ± 0.18		0.93 ± 0.15		0,94 ± 0.24	P = 0.582
*p < .05. One way ANOVA test									

Table 4 shows the comparison of gender, age, concern of being infected with Covid 19, and the fear of infecting their children/family with Covid 19 with the values of job stress questionnaire. Accordingly, while no significant correlation was found between workload, work control, social support mean scores and job stress and gender (p > 0.05), a significant correlation was found with age, concern of being infected with Covid 19, and the fear of infecting their children/family with Covid 19 (p < 0.05, Table 4). Social support mean score in nurses aged between 22–26 years was higher than the other age groups (p < 0.05) and it was found that nurses in this age group were more compatible with their colleagues and managers and adapted more easily to their work environment. Job stress mean score of the nurses having concerns about infected with Covid 19 was lower compared to the nurses who had no concerns (p < 0.05, Table 4). While the skill use of the nurses who were afraid of infecting their children/family with Covid 19 was lower than those who had no such fear, their social support mean scores were higher (p < 0.05, Table 4).

Table 4
The Comparison Of Gender, Age, Concern Of Being Infected With Covid 19, and The Fear Of Infecting Their Children/Family With Covid 19 With The Values Of Job Stress Questionnaire.

Subscales	Gender				Age						Concern Of Being Infected With Covid 19				The Fear Of Infecting Their Children/Family With Covid 19			
	FEMALE		MALE		17–21		22–26		27 and over		Yes		No		Yes		No	
	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD	n	Mean ± SD
Workload	160	16,5 ± 2,2	33	16,0 ± 2,3	90	16,6 ± 2,1	49	15,8 ± 2,9	54	16,8 ± 1,8	161	16,52 ± 2,36	32	16,37 ± 2,01	130	16,2 ± 2,2	63	16,9 ± 2,3
	P = 0,178				P = 0,072						P = 0,753				P = 0,053			
Work Control	160	18,4 ± 2,9	33	18,0 ± 3,3	90	18,0 ± 2,6	49	18,4 ± 3,2	54	18,7 ± 3,2	161	18,45 ± 2,92	32	17,81 ± 3,35	130	18,2 ± 3,0	63	18,5 ± 2,7
	P = 0,466				P = 0,393						P = 0,270				P = 0,502			
Skill use	160	12,9 ± 1,9	33	12,9 ± 1,9	90	12,8 ± 2,0	49	12,9 ± 1,9	54	13,2 ± 1,9	161	13,07 ± 1,93	32	12,47 ± 2,14	130	12,7 ± 2,0	63	13,3 ± 1,7
	P = 0,836				P = 0,450						P = 0,112				**P = 0,045***			
Decision Freedom	160	5,4 ± 1,6	33	5,0 ± 1,8	90	5,2 ± 1,4	49	5,5 ± 1,9	54	5,4 ± 1,7	161	5,38 ± 1,58	32	5,34 ± 2,04	130	5,4 ± 1,6	63	5,1 ± 1,7
	P = 0,285				P = 0,551						P = 0,913				P = 0,249			
Social Support	160	17,5 ± 3,6	33	17,3 ± 3,8	90	16,4 ± 3,9	49	18,5 ± 3,7	54	18,2 ± 2,7	161	17,55 ± 3,61	32	17,25 ± 4,13	130	18,2 ± 3,1	63	16,0 ± 4,2
	P = 0,740				**P = 0,001****						P = 0,679				**P = 0,001***			
Job stress	160	0,92 ± 0.18	33	0,92 ± 0.23	90	0,94 ± 0.17	49	0,87 ± 0.19	54	0,93 ± 0.21	161	0,91 ± 0.17	32	0,95 ± 0.25	130	0,91 ± 0.19	63	0,93 ± 0.18
	P = 0.978				P = 0.128						**P = 0.004***				P = 0.563			
**p < .05.One way ANOVA test,* p < .05 independent t test																		

Table 5 shows the comparison of job stress questionnaire values and the participants' thoughts about their profession. A significant correlation was found between the nurses' status of liking their profession, satisfaction as a healthcare professional and willingness to come to work and the workload, work

control, social support and job stress mean scores ($p < 0.05$). Work control and decision freedom levels of nurses who love their profession were found to be higher ($p < 0.05$). Similarly, work control, decision freedom and skill use levels of nurses who were satisfied with being a healthcare professional were higher than those who were not satisfied ($p < 0.05$, Table 5). In addition, job stress levels of the nurses who were satisfied with being a healthcare professional were lower than those who were not ($p < 0.05$). On the other hand, it was found that workload mean scores and job stress levels of the nurses who were not willingly come to work were higher and their social support mean scores were lower ($p < 0.05$, Table 5).

Table 5
The Comparison Of Job Stress Questionnaire Values and The Participants' Thoughts About Their Profession

Subscales	Status of liking their profession				Status of satisfaction as a healthcare professional				Status of willingness to come to work			
	Yes		**No**		**Yes**		**No**		**Yes**		**No**	
	n	Mean ± **SD**	n	Mean ± **SD**	n	Mean ± **SD**	n	Mean ± **SD**	n	Mean ± **SD**	n	Mean ± **SD**
Workload	115	16,6 ± 2,2	78	16,3± 2,4	75	16,4 ± 2,7	118	16,5 ± 2,0	48	15,6 ± 2,8	145	16,7 ± 2,0
	P = 0,361				P = 0,802				**P = 0,004***			
Work Control	115	18,7 ± 2,9	78	17,7± 2,9	75	19,0 ± 3,2	118	17,8 ± 2,7	48	18,6 ± 3,4	145	18,2 ± 2,8
	P = 0,016*				**P = 0,007***				P = 0,460			
Skill use	115	13,1 ± 1,9	78	12,6± 1,9	75	13,3 ± 1,9	118	12,7 ± 1,9	48	13,0 ± 1,9	145	12,9 ± 1,9
	P = 0,063				**P = 0,036***				P = 0,850			
Decision Freedom	115	5,5 ± 1,7	78	5,0 ± 1,5	75	5,7 ± 1,7	118	5,1 ± 1,5	48	5,6 ± 1,8	145	5,3 ± 1,5
	P = 0,033*				**P = 0,020***				P = 0,267			
Social Support	115	17,5 ± 3,4	78	17,4± 4,0	75	17,5 ± 3,8	118	17,4 ± 3,6	48	18,8 ± 3,8	145	17,0 ± 3,5
	P = 0,849				P = 0,820				**P = 0,003***			
Job stress	115	0,91 ± 0.19	78	0,94 ± 0.19	75	0,88 ± 0.18	118	0,94 ± 0.19	48	0,86 ± 0.18	145	0.94 ± 0.19
	P = 0.236				**P = 0.018***				**P = 0.009***			
*p < .05., independent t test												

Table 6 shows the correlation between the participants' age, working duration, working hours a day and weekly working hours and the workload, work control, and job stress. A positive correlation was determined between the workload and working duration ($p < 0.05$). A positive relationship was found between social support and age and working duration ($p < 0.05$). There was a positive correlation between job stress and working duration ($p < 0.05$).

Table 6
The Correlation Between The Participants' Age, Working Duration, Working Hours A Day and Weekly Working Hours and The Workload, Work Control, and Job Stress.

		Age	Working Duration	Working Hours A Day	Weekly Working Hours
Workload	**Pearson Correlation**	,015	,148*	,029	,062
	Sig. (2-tailed)	,833	**,040**	,688	,388
	N	193	193	193	193
Work Control	**Pearson Correlation**	,098	-,041	-,054	-,071
	Sig. (2-tailed)	,176	,570	,454	,328
	N	193	193	193	193
Social Support	**Pearson Correlation**	,227**	,159*	,040	,075
	Sig. (2-tailed)	**,002**	**,027**	,584	,299
	N	193	193	193	193
Job stress	**Pearson Correlation**	-,039	,189**	,048	,098
	Sig. (2-tailed)	,586	**,009**	,504	,173
	N	193	193	193	193
**. Correlation is significant at the 0.01 level					
*. Correlation is significant at the 0.05 level					

DISCUSSION

The rapid spread of COVID-19 has put huge burden on health systems around the world. The effects on frontline medical practitioners have also been severe. Nurses are one of the groups at greater risk of infection. However, the negative psychological effects of working on the frontline of the pandemic have also been significant [7]. In this study conducted to determine the effects of job conditions, fear of infecting by Covid-19 and emotional intelligence on occupational stress among nurses during Covid 19 pandemic, it was found that workload mean score of the participants was 16.49 ± 2.30 and their job stress mean score was 0.92 ± 0.19. Also Job stress mean score of the nurses having concerns about infected with Covid 19 was lower compared to the nurses who had no concerns. In the literature, similar results have been reported in the studies conducted with workload and job stress. In their study, Mo et al., (2020) reported that stress levels of nurses were 39.91 ± 12.92 (Mo et al., 2020). In their study, Said Hendy et al., (2021) stated that stress levels of nurses were 99.47 ± 10.671 [8]. In their study, Jayadev et al., (2020) reported that most of nurses experienced moderate levels of stress [5]. In the study conducted by Hardiyono et al., (2020) to determine the effect of Covid 19 pandemic on the burnout experienced by nurses, they stated that nurses experienced stress as a result of increasing workload [9].

In this study, 54% of the nurses stated that they experienced stress while caring for Covid 19 patients, 55% stated that they were afraid of being infected with Covid 19. In addition, 91% of the nurses expressed that they were physically and mentally more tired compared to the past. This showed that the stress and fear were felt by more than half of the nurses during Covid 19 pandemic. In the study conducted by Mo et al., (2020) to investigate the workload of 180 clinical nurses, they reported that stress level of the participants was high. The most common emotion accompanying stress was fear [7]. The fear of being infected is higher among healthcare professionals than the general population. On the other hand, this fear is experienced as a fear that the professional will infect his/her family and people in the close relationship network rather than the fear of being exposed to the virus. It was determined in various studies that healthcare professionals from China and Canada who are struggling with SARS had high fear and concern of transmitting viruses to their family members [10, 11].

A statistically significant difference was determined between the units worked during pandemic period in terms of workload mean score. Workload of nurses working in more than one service was higher than those working in other units. On the other hand, work control levels, skill use, decision freedom levels and job stress of those working in more than one service were higher than the nurses working in other services but this difference was not statistically significant ($p > 0.05$). The interaction between psycho-social workload and work control in the job stress questionnaire used in this study determines the stress level caused by work [6]. In the model, workload defines the power requirement and the intensity of the work that also include the working speed. Work control, on the other hand, shows the knowledge, skills and abilities that the employee has about his/her job and the possibilities to use them in the work environment as well as the level of authority he/she has about the job. The findings of the present study support this information. Nurses working in more than one service should work more intensely, faster and be more skilled and be quick and autonomous about decision making compared to the nurses, thus, all this workload increases the stress levels of nurses working in more than one service. In the study of D. Otgonbaatar et al., (2020) who aimed to investigate the workplace stress of nurses working in Mongolian tertiary referral hospitals during Covid 19 pandemic, they found that the stress levels among the units worked were different and the unit where the stress was most intense was the infectious disease department [4]. Similarly, Said Hendy et al., (2021) reported in their study that there was a significant correlation between the unit worked and the job stress and the stress levels of nurses working in intensive care unit were higher than the nurses working in other units [8].

In the alarming context of this health emergency, healthcare providers during the pandemic, specifically frontline workers are put through different circumstances and afflictions, which include fear of being infected and infecting others, higher workload, significant pressure, pain of losing patients and colleagues, the yet unpredictability nature of the virus, inadequate testing, limited treatment options and disruption of regular routine, along with insufficient personal protective equipment and other medical supplies, especially in developing countries [12].

In this study, while no significant correlation was found between the job stress and gender, age and the fear of infecting their children/family with Covid 19 ($p > 0.05$), a significant correlation was found between the job stress and the concern of the risk of being infected with Covid 19 ($p < 0.05$). The job stress mean score of nurses who were concerned about the risk of being infected with Covid 19 was lower compared to the nurses who were not concerned. In the study conducted by Labrague and Santos, (2020) to investigate the correlation between the fear of Covid 19 and psychological stress and work satisfaction, they reported that job stresses of nurses who were afraid of being infected with Covid 19 were higher, while their job satisfaction levels were lower [13]. In their study, Xiao et al., (2020) reported that stress and anxiety levels in nurses and women were higher than men and doctors [14]. Similarly, in the study conducted Huang et al., (2020) to investigate the mental health problems of healthcare professionals working in a tertiary infectious disease hospital where Covid 19 patients were treated in China, they reported that 23.04% of healthcare professionals had anxiety, 27.39% had post-traumatic stress and stress and anxiety levels in nurses and female professionals were higher than men and doctors [15]. In their study, Otgonbaatar et al., (2020) reported that there was a significant correlation between age and stress, stress levels of nurses in the age group of 18–24 years were lower than the other age groups and the stress levels of nurses in the age group of 31–40 years were higher [4]. These findings differ from results of the present study.

Job satisfaction is the affective orientation that a worker has towards his/her work which consists of two facets: positive affectivity and negative affectivity. Positive affectivity is represented by high energy, enthusiasm, and enjoyable involvement while negative affectivity is indicated by distress, un-enjoyable involvement, and edginess. Occupational stress plays a vital role in job satisfaction; if it acts as a motivator, it will contribute to creativity and satisfaction and further will remove boredom, and if it acts as a negative factor, it will lead to aggression and low job satisfaction. On the other hand, job satisfaction may protect workers from stressors and act as a regulating factor for stress [16]. In this study, the nurses' status of liking the profession, being satisfied with working as a healthcare professional and willingness to come to work had a significant correlation with workload, work control, social support and job stress mean scores ($p < 0.05$). Work control and decision freedom levels of nurses who like their profession were found to be higher. Likewise, nurses who were satisfied with being a healthcare professional had higher work control, decision freedom and skill use levels than those who were not satisfied. In addition, job stress levels of the nurses who were satisfied with being a healthcare professional were lower than those who were not satisfied. On the other hand, it was found that workload mean scores and job stress levels of nurses who were not willing to come to work were higher while their social support mean scores were lower. Similarly, in their study, Labrague and Santos (2020) reported that there was a negative correlation between fear of Covid 19 and job satisfaction while there was a positive correlation between the job stress and fear of Covid 19 [13].

In this study, a positive correlation was determined between working duration and workload and job stress ($p < 0.05$). As the working duration increased, the workloads and job stress of nurses also increased. In the study of Said and El-Shafei (2020) who aimed to determine the job stress, job satisfaction and status of leaving the job of nurses providing care for suspected Covid 19 patients, a significant correlation was found between job stress and age, weekly working hours, weekly night shift and workload. Accordingly, stress levels of the nurses who were in the age group of 20–39 years, working more than 40 hours a week and keeping night shifts for more than three nights a week were reported to be higher [17]. Similarly, in their study, Huang et al., (2019) expressed that long weekly working hours increased the stress levels of nurses [18]. Jayadev et al., (2020) reported that there was a significant correlation between working year and stress and stress levels of nurses working under five years were higher [5].

Conclusion

In conclusion, the nurses stated that they were afraid of being infected with Covid 19, infecting others/family with Covid 19, they experienced stress while providing care for Covid 19 patients and they physically and mentally felt more tired than the past. These results indicated that healthcare professionals were under a lot of stress during the pandemic, they were too tired and they had very high working hours. High fear of infecting their families with this disease due to their profession and not being willing to come to the hospital on the shift day were factors increasing stress. During pandemic, regulating the work environment and relieving the healthcare professionals physically and psychologically in terms of factors like regulating working hours, providing protective equipment, and protecting the people at home in the interaction between the home and the hospital will increase job satisfaction and work efficiency of healthcare professionals.

Declarations

Authorship statement

all listed authors meet the authorship criteria and that all authors are in agreement with the content of the manuscript.

Conflict of interest statement

The authors declare no conflict of interest.

Funding

The authors have no relevant financial or non-financial interests to disclose.

Declaration of conflicting interests

The Author(s) declare that there is no conflict of interest.

References

1. Bhowmik, D., Vel, D. S., Rajalakshmi, A.N,&. Kumar, S. K.P. Stress -Sign, Symptoms, Pathology and its Managements, Elixir Pharmacy, 2014; 70: 24036–24042.
2. Vijayan, M. Impact of Job Stress on Employees' Job Performance in Aavin. Coimbatore Journal of Organisation & Human Behaviour, 2017; 6 (3): 23–29.
3. Dar, L., Akmal, A., Naseem, M. A., & din Khan, K. U. Impact of stress on employee's job performance in business sector of Pakistan. *Global Journal of Management and Business Research*, 2011; 11(6). Print ISSN: 0975–5853.
4. Otgonbaatar, D.,Ts., L., Ariunaa, D., Tundevrentsen, A.,Naranbaatar, N., & Munkhkhand, J. Occupational Stress in Nurse sAA. Psychology, 2020;11: 704–712.https://doi.org/10.4236/psych.2020.115048
5. Jayadev, P.S., Ramawat, V. K., Sreedevi, K., Soumya, A.,& Ramawat,Y. Perceived Stress Among Nurses During Covid-19 Outbreak. GFNPSS-International Journal of Multidisciplinary Research, 2020;1(3): 103–107.
6. Demiral, Y., Ünal, B., Kılıç, B., Soysal, A., Bilgin, A. C., Uçku, R.,& Theorell, T. İş Stresi Ölçeğinin İzmir Konak Belediyesi'nde Çalışan Erkek İşçilerde Geçerlik ve Güvenilirliğinin İncelenmesi. Toplum Hekimliği Bülteni, 2007; 26 (1):11–17.
7. Mo Y, Deng L, Zhang L, et al. Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. J Nurs Manag, 2020; 28:1002–1009. https://doi.org/10.1111/jonm.13014
8. Said Hendy A, Mohamed Abozeid A, Karawan Sallam G, Abboud AbdelFattah H, Ahmed Abdelkader Reshia F. Predictive factors affecting stress among nurses providing care at COVID-19 isolation hospitals at Egypt. Nursing Open, 2021; 8: 498–505. https://doi.org/10.1002/nop2.652
9. Hardiyono, H., Aiyul, I., Ifah, F., Wahdaniah, W.,& Reni, F. Effect Covid-19: Burnout on nurse. Efecto Covid-19: Agotamiento en enfermeros, *RevistaEspacios*, 2020. 41 (42) Art. 2 • Especial. DOI: 10.48082/espaciosa20v41n42p02CO
10. Bai, Y., Lin, C.C, Lin, C.Y, Chen, J.Y, Chue, C.M, Chou, P. Survey of stress reactions among health care workers involved with the SARS outbreak. Psychiatric Services, 2004; 55(9):1055–7.
11. Robertson E, Hershenfield K, Grace SL, Stewart DE. The psychosocial effects of being quarantined following exposure to SARS: a qualitative study of Toronto health care workers. The Canadian Journal of Psychiatry, 2004; 49(6): 403–7.
12. Pedrosa AL, Bitencourt L, Fróes ACF, Cazumbá MLB, Campos RGB, de Brito SBCS and Simões e Silva AC. Emotional, Behavioral, and Psychological Impact of the COVID-19 Pandemic. Front. Psychol, 2020;11: 566212. doi: 10.3389/fpsyg.2020.566212
13. Labrague, L.J., Santos, J. D. Fear of COVID-19, psychological distress, work satisfaction and turnover intention among front line nurses. Journal of Nursing management, 2020;1–18. DOI: https://doi.org/10.21203/rs.3.rs-35366/v1
14. Xiao H, Zhang Y, Kong D, Li S, Yang N. The effects of social support on sleep quality of medical staff treating patients with Coronavirus disease 2019 (COVID-19) in January and February 2020 in China. Med Sci Monit, 2020; 26: e923549.
15. Huang JZ, Han MF, Luo TD, Ren AK and Zhou XP. Mental health survey of 230 medical staff in a tertiary infectious disease hospital for COVID-19. Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi, 2020; 38(3):192–195. doi: 10.3760/cma.j.cn121094-20200219-00063.
16. Hoboubi N, Choobineh A, Ghanavati FK, Keshavarzi S, Hosseini AA. The impact of job stress and job satisfaction on workforce productivity in an Iranian petrochemical industry. Saf Health Work, 2017; 8(1):67–71. https://doi.org/10.1016/j.shaw.2016.07.002
17. Said, R.M., El-Shafei, D.A. Occupational stress, job satisfaction, and intent to leave: nurses working on front lines during COVID-19 pandemic in Zagazig City, Egypt. Environ Sci Pollut Res, 2021; 28: 8791–8801. https://doi.org/10.1007/s11356-020-11235-8
18. Huang, H., Liu, L., Yang, S., Cui, X., Zhang, J., & Wu, H. Effects of job conditions, occupational stress and emotional intelligence on chronic fatigue among Chinese nurses: A cross-sectional study. Psychology Research and Behavior Management, 2019; 12: 351.