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Research

Relationships Between Job Satisfaction of Operating Room Nurses and Hospital's Compliance With Protective Guidelines During the Covid-19 Pandemic: A Cross-Sectional Study, Iran

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A B S T R A C T

Keywords:

job satisfaction
 operating room nursing
 Covid-19 pandemic
 protective guidelines
 hospital's compliance

Purpose: The Covid-19 pandemic is considered the biggest threat to human health in the recent century. During emergency surgeries, the possibility of infection of members of the surgical team with Covid-19 increases due to the direct contact with patients. The present study has been conducted aimed to investigate the relationships between job satisfaction of operating room nurses and the hospital's compliance with protective guidelines (guidance) during Covid-19 pandemic from the perspective of operating room nurses.

Design: This was a descriptive and cross-sectional study conducted from September 22, 2020 to April 21, 2021.

Methods: This study was conducted on 926 nurses working in operating rooms in 15 metropolises of Iran. The sampling method in this study was multistage clustering. The questionnaire was sent to the target group through social apps (WhatsApp and Telegram). The collected data were analyzed by SPSS software version 26 using descriptive and analytical statistics.

Findings: The mean age and job satisfaction of the participants were 28.81 ± 5.64 years and 51.15 ± 11.45 , respectively. Participants ($n = 259$; 27.97%) reported very good job satisfaction. Also, the mean hospital's compliance with protective guidelines during Covid-19 pandemic from the perspective of operating room nurses was 42.29 ± 7.11 . The results of the present study showed a significant relationship between job satisfaction and hospital's compliance with protective guidelines during Covid-19 pandemic (P -value $\leq .001$).

Conclusions: Optimization of infrastructure, improvement of management decisions and increasing human resources in a crisis can affect the quality of performance and job satisfaction of operating room nurses. The researchers suggest that health system managers can contribute to the safety and efficiency of the existing human resources by taking measures to increase job satisfaction.

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The Covid-19 pandemic is the biggest threat to human health in the recent century.¹ At the frontline of this global crisis, health care professionals are responsible for diagnosing, treating, and implementing patient care decisions.² The possibility of infection of health care professionals with Covid-19 due to direct contact with patients is higher than others.³ According to the Secretary-General of the World Health Organization, 10% of patients with Covid-19 around the world are health care professionals.⁴

Given that surgical care is a key component of any health system,⁵ the task of operating room nurses as a member of the surgical team is to provide timely and quality care to patients.⁶ Nurses are an important part of human resources in the health system and job satisfaction of nurses during recent pandemic has been much considered.⁷ This job satisfaction is affected by factors such as physical and mental stress, well-being, workplace conditions and workload. Studies have shown that job satisfaction is very important among health staff.^{8,9} Increasing job satisfaction leads to reducing complaints by staff, reducing absenteeism, increasing morale of staff, and improving the quality of patient care and as a result, patients' satisfaction with the services delivered.^{8,9} In this regard, the job satisfaction of frontline medical staff is directly associated with the implementation and effectiveness of strategies for the prevention and control of major crises.¹⁰

About 234 million surgeries are performed annually in the world. Therefore, one out of every 25 people undergoes surgery¹¹ and annually, 791,000 patients in the United States need emergency surgery.^{12,13} During surgery and anesthesia stages, the production of aerosols and surgical smoke increases the possibility of infection of members of the surgical team with Covid-19.¹⁴ Studies have reported more than 80 types of toxins in surgical smoke.^{15–18} In addition, a direct relationship is found between the complications of this smoke and the transmission of bacterial and viral infections and possibly the transmission of Covid-19.^{19–21} Therefore, it is essential for surgical team members and medical centers to comply with protective guidelines to prevent Covid-19 infection in the operating room.^{22,23} In summary, these guidelines include restricting surgery to emergency and necessary surgeries, using personal protection equipment for the surgical team, observing safety standards, and operating room equipment such as operating room ventilation, filtration, and separation for definitive patients with Covid-19.^{13,24–28}

Although vaccine production today has reduced mortality and morbidity due to Covid-19, the development of new variants of SARS-Cov-2019 virus due to successive mutations has jeopardized the efficacy of vaccination in the future.²⁹ A study by Ikegame shows that Sputnik v vaccine is not sufficiently effective against the African mutation B1.351.³⁰ A review of a prospective model also shows that many scientists expect the virus that causes Covid-19 to become endemic and persistent, which increases the importance of compliance with protective guidelines.³¹ In addition, the American College of Surgeons considers that the most effective way to prevent the transmission of the disease is to reduce the time spent in contact with the carriers and to comply with protective guidelines.³²

Increasing job satisfaction improves the quality of patients' medical care.³³ As a result, in addition to maintaining an adequate human resource against Covid-19, maintaining the health and well-being of health care professionals is essential for planning against the underlying pandemics ahead.³⁴ Therefore, the present study was conducted for the first time in Iran aimed to investigate the relationships between job satisfaction of operating room nurses and hospital's compliance with protective guidelines (guidance) during Covid-19 pandemic from the perspective of operating room nurses.

Methods

Study Design and Participants

This cross-sectional study was conducted with 926 operating room nurses from September 22, 2020 to June 5, 2021 in 15 metropolises in Iran. The sample size based on the study results of Timothy et al³⁰ ($P = .48$) was obtained $n = 369$ using the following formula $n = Z^2 P (1-P)/d^2$ with confidence level = 95% and d (margin of error) = 0.05 and considering the design effect = 2.5 the sample size was calculated $n = 922$.

The sampling method in this study was multistage clustering. At the first stage, 15 metropolises (clusters) were selected by simple random sampling in Iran. At the second stage, the 3 main hospitals admitting patients with Covid-19 in each metropolis were selected by simple random sampling (using a lottery). At the next stage, with the permission of the Research Department of the University of Medical Sciences of each city, a list of operating room nurses from hospital centers was prepared. Finally, according to the list, they were randomly selected (random number table), and then the link to the online questionnaire was sent to the target group via social apps (WhatsApp, Telegram) using the university's virtual messaging system. If they did not want to cooperate, they were tracked up to three times; otherwise, the next random number was selected.

The study inclusion criteria included at least an operating room associate's degree and more than 3 months of work experience as a scrub or circulating nurse in the operating room. The study exclusion criteria were incomplete questionnaires and moving to other wards or hospitals. Internet protocol filtering was used for the design of the online questionnaire to prevent repeated responses, and participants could refuse to complete the questionnaire at any time. Before completing the questionnaire, the participants were informed of the objectives of the study by sending a short message service. Informed written consent was obtained from each participant electronically before logging into the link of the questionnaire.

Data collection Tools

In the present study, three questionnaires including demographic information questionnaire (age, gender, marital status, education level, employment status, type of hospital, and work experience), Minnesota Job Satisfaction Questionnaire (MSQ)³⁵ and the researcher-made questionnaire of protective guidelines during Covid-19 pandemic in the operating room were used. All three questionnaires were designed as a comprehensive questionnaire in a link. In order to better understand the questions and identify possible problems of conducting the study, a pilot study was conducted with 150 operating room nurses. Finally, the link to the final version of the questionnaire was sent to the target group via WhatsApp or Telegram.

The Minnesota Job Satisfaction Questionnaire (MSQ) includes 19 items and six subscales of payment system (three questions), type of job (four questions), opportunities for improvement (three questions), organizational climate (two questions), leadership style (four questions) and physical conditions (three questions). The MSQ is scored on a Likert scale, with scores 2, 3, 4, and 5 for "totally disagree," "disagree," "no opinion," "agree," and "totally agree," respectively. The scores 19 to 38 show poor job satisfaction, the scores 39 to 57 show moderate job satisfaction, and the scores above 57 show very good job satisfaction. The validity and reliability of the questionnaire had been confirmed using face and content validity, by Joodaki et al in a study on nurses with Cronbach's alpha of 0.75.³⁵ The construct validity of the questionnaire was confirmed by experts as well as exploratory factor analysis using the principal component analysis method with varimax rotation. Adequacy of sampling was measured by Kaiser-Meyer-Kaiser test (KMO, Olkin-Mayer-Kaiser) (Approx. $\chi^2 = 2906.520$, (P -Value < .001, Kaiser-Meyer-Olkin Measure (KMO) = 0.876).

In the present study, the researcher-made questionnaire was used to measure hospital's compliance with protective guidelines during the Covid-19 pandemic from the perspective of operating room nurses. In order to design the questionnaire, a literature review^{13,26,27} and guidelines of the World Health Organization,²³ Center for Disease Control and Prevention (CDC) and the American College of Surgeons³⁶ in relation to protective guidelines for health care professionals were used. In order to confirm the validity of the questionnaire,

three methods of face validity, content validity and construct validity were used. In order to confirm the face validity qualitatively, eight operating room nurses and two nursing faculty members were interviewed face to face and the appropriateness of the items with the subject and ambiguity in the meaning of the words or phrases of the items were investigated. In order to confirm the face validity quantitatively, the item impact quantitative method was used with the help of 10 instrument specialists and nursing professors. Impact score for all items was more than 1.5. In order to confirm the content validity qualitatively, 10 experts (medicine, nursing, epidemiology) were interviewed and asked to review the questionnaire in terms of the correct writing method and the importance of each item. In order to confirm the content validity quantitatively, content validity ratio and content validity index (CVI) were used. In order to confirm CVI, four criteria of simplicity, clarity, specificity, and relevance were considered based on four-option Likert scale based on content validity index of Waltz and Bausell.³⁷ According to the results obtained from the quantitative content validity, content validity ratio was reported to be higher than 0.62 for every 20 items. According to Lawshe Table and the evaluation of 10 experts, items with a score of 0.62 and above were retained.³⁸ CVI of the questionnaire was 0.94 and at an appropriate level. The construct validity of the questionnaire was confirmed by experts as well as exploratory factor analysis using the principal component analysis method with varimax rotation. Adequacy of sampling was measured by Kaiser-Meyer-Kaiser test (KMO, Olkin-Mayer-Kaiser) (Approx. $\chi^2 = 2906.520$, (P -Value = .001, Kaiser-Meyer-Olkin Measure (KMO) = 0.873).

In present study, only factor loads greater than 0.3 were considered as significant factor loads. In this analysis, based on the eigenvalue greater than 1, five factors were extracted, which explained 51.17% of the total variance of the model. These five factors were identified as the strongest factor loads for each factor. Accordingly, the first factor is “protective guidelines before surgery,” the second factor is “surgical type guidelines,” the third factor is “personal protection equipment guidelines,” the fourth factor is “environmental ventilation and air filtration guidelines,” and the fifth factor is “temperature and humidity environmental guidelines.”

The reliability of the questionnaire was determined 0.84 by Cronbach's alpha coefficient and in a pilot study with a sample size of $n = 150$. Therefore, this questionnaire can be used as a valid and reliable questionnaire for other studies. This questionnaire had 20 questions on three-option Likert scale (1 = full compliance with, 2 = partial compliance with, 3 = noncompliance). The minimum and maximum scores of the questionnaire were 20 and 60, respectively.

The scores 20 to 30 show low compliance, the scores 31 to 45 show moderate compliance and the scores 46 to 60 show high compliance with health guidelines. The cutoff-point for this classification based on the variable interquartile was compliance with protective guidelines.

Ethical Approval and Considerations

This study has been approved by the Ethics Committee of Shiraz University of Medical Sciences with the code of ethics IR.SUMS.REC.1399.856. All information obtained from the participants in the study was kept confidential and the names of the participants were replaced with codes.

Data Analysis

For data analysis, we used descriptive analysis including frequency, percentage, mean, and standard deviation, and analytical statistics for qualitative and quantitative data with normal distribution. The differences between subgroups were compared using χ^2 test. The normality of all quantitative variables was investigated using Kolmogorov-Smirnov test and statistical graphs (histogram and box-plot). The collected data were analyzed by SPSS software version 26. P -value less than .05 was considered statistically significant.

Findings

The mean age of 926 nurses participating in the study was 28.81 ± 5.64 years. The majority of samples were female ($n = 790$; 82.1%) and single ($n = 495$; 51.5%). A statistically significant relationship was found between age ($P \leq .001$), marital status ($P = .010$), work experience ($P \leq .001$), employment status ($P \leq .001$), Covid-19 infection ($P \leq .001$) and job satisfaction. The highest job satisfaction was related to young people, single in the age group of 20 to 30 years, with 1 to 5 years of work experience and contractual employment status. Chi-square test showed that people with higher job satisfaction were less likely to develop Covid-19 ($P \leq .001$). In this study, no significant relationship was found between gender, education, type of hospital, and job satisfaction. Table 1 shows the distribution of demographic information and its relationship with operating room nurses' job satisfaction.

The mean job satisfaction of nurses was 51.15 ± 11.45 . A total of 533 participants (57.65%) showed moderate job satisfaction, 134 participants (14.38%) showed poor job satisfaction and 259 participants

Table 1
Distribution of Participants' Demographic Information and Its Relationship With Job Satisfaction

Variables		Frequency (%) N = 926	Job Satisfaction Mean \pm SD N = 926	P-Value (χ^2)
Age (y)	20-30	694 (72.1)	52.02 \pm 11.73	$\leq .001$
	31-40	227 (23.6)	49.07 \pm 10.32	
	40<	41 (4.3)	46.50 \pm 9.66	
Gender	Female	790 (82.1)	51.11 \pm 11.31	.736
	Male	172 (17.9)	51.30 \pm 12.11	
Marital status	Single	495 (51.5)	52.07 \pm 11.85	.010
	Married	467 (48.5)	50.12 \pm 10.92	
Educational degree	Master's	65 (6.8)	48.55 \pm 12.38	.550
	Bachelor's	860 (89.4)	51.42 \pm 11.37	
	associate degree	37 (3.8)	48.74 \pm 11.39	
Type of hospital	Educational	814 (84.6)	2.15 \pm 0.63	.131
	Private	148 (15.4)	2.04 \pm 0.64	
Work history (y)	1-5	607 (63.1)	52.43 \pm 11.80	$\leq .001$
	6-10	178 (18.5)	47.76 \pm 9.68	
	>11	177 (18.4)	49.74 \pm 10.97	
Employment status	Permanent	303 (31.5)	49.32 \pm 11.31	$\leq .001$
	Contractual	659 (68.5)	51.92 \pm 11.43	
Getting Covid-19	Yes	322 (33.5)	2 \pm 0.63	$\leq .001$
	No	640 (66.5)	2.18 \pm 0.63	

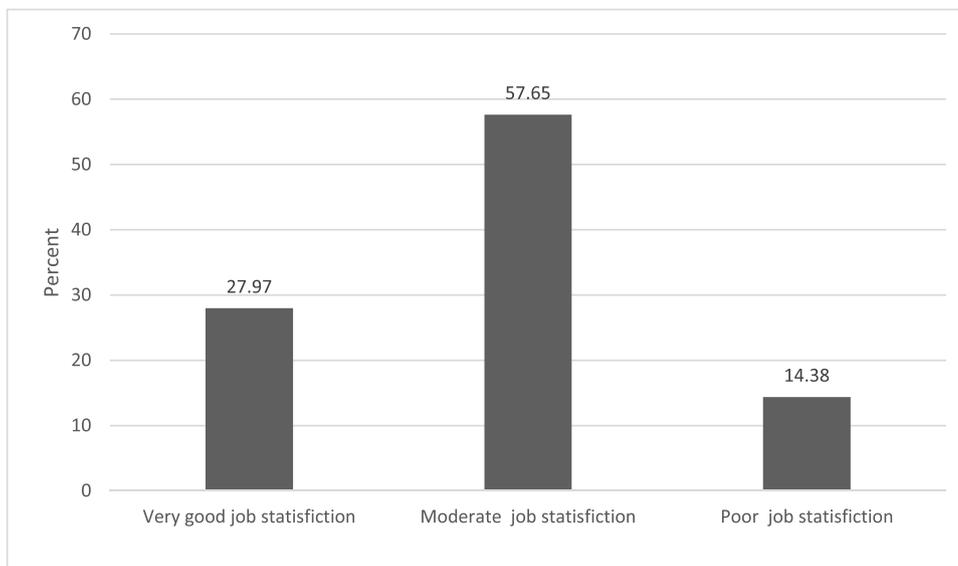


Figure 1. Job satisfaction of operating room nurses (N = 926). This figure is available in color online at www.jopan.org.

(27.97%) showed very good job satisfaction. Figure 1 shows job satisfaction of operating room nurses separately.

The mean hospital's compliance with protective guidelines during Covid-19 pandemic from the perspective of operating room nurses was 42.29 ± 7.11 . In the present study, 60 participants (6.5%) reported a low level of hospital's compliance, 550 participants (59.4%) reported a moderate level of hospital's compliance and 316 participants (34.1%) reported a high level of hospital's compliance with the guidelines. Table 2 shows the percentage and frequency of hospital's compliance with

protective guidelines during Covid-19 pandemic from the perspective of operating room nurses.

Chi-square test showed a significant relationship between job satisfaction and hospital's compliance with protective guidelines during Covid-19 pandemic from the perspective of operating room nurses (P -value $\leq .001$). Table 3 shows the relationship between job satisfaction and hospital's compliance with protective guidelines during Covid-19 pandemic from the perspective of operating room nurses.

The most common reasons for noncompliance with some of protective guidelines during Covid-19 pandemic reported by operating

Table 2
Hospital's Compliance With Protective Guidelines (Guidance) During Covid-19 Pandemic From the Perspective of Operating Room Nurses (N = 926)

Items	Frequency (%)			
	Full compliance	To some extent complied	Noncompliance	
During Covid-19 pandemic at the medical center where I work:				
<i>Protective guidelines before surgery</i>				
1	An algorithm of protective guidelines during Covid-19 pandemic is installed in the operating room.	212 (22.9)	549 (59.2)	165 (17.8)
2	Between two surgeries, all surfaces of the operating room and equipment are disinfected with a high-level disinfectant solution.	156 (16.8)	428 (46.2)	342 (37)
3	The operating room is cleaned at the end of the day, weekly and monthly according to the special guidelines during Covid-19 pandemic, such as the use of ultraviolet (UV) rays.	345 (37.3)	442 (47.7)	139 (15)
4	Alcohol-based high-level disinfectant solutions are available in scrub rooms.	566 (61.1)	294 (31.8)	66 (7.1)
5	All patients undergo diagnostic screening for Covid-19 before entering the operating room.	132 (14.3)	379 (40.9)	415 (44.9)
6	In the operating room, there is a room with a separate ventilation system and a warning sign about entry and exit restrictions for patients with a positive Covid-19 test.	107 (11.6)	233 (25.1)	586 (63.2)
<i>Surgical type guidelines</i>				
7	Only patients who are candidates for emergency surgery will undergo surgery.	122 (13.2)	366 (39.5)	438 (47.3)
<i>Personal protective equipment (PPE) guidelines</i>				
8	PPE is readily available to surgical team members.	306(33)	476 (51.4)	144 (15.6)
9	All personnel have been trained in the proper way to wear and remove PPE.	421 (45.5)	400 (43.2)	105 (11.3)
10	In all surgeries, members of the surgical team wear face shields or goggles.	165 (17.8)	518 (55.9)	243 (26.3)
11	In all surgeries, surgical team members use high-filtration masks such as N95.	83 (9)	343 (37)	500 (54)
12	In all surgeries, members of the surgical team use waterproof gowns.	148 (16)	303 (32.8)	475 (51.3)
13	In all surgeries, members of the surgical team use two pairs of latex gloves.	190 (20.5)	449 (48.5)	287 (30.9)
14	In all surgeries, the surgical team members use the shoe cover.	60 (6.5)	249 (26.9)	617 (66.6)
15	A patient who is a candidate for surgery not undergoing intubation is wearing a medical mask.	412 (44.5)	422 (45.5)	92 (9.9)
<i>Environmental guidelines for air conditioning and filtration</i>				
16	Smoke suction devices are used in surgical smoke generating surgeries.	80 (8.6)	210 (22.6)	636 (68.6)
17	The operating room air pressure is negative for patients with Covid-19.	119 (12.9)	359 (38.8)	448 (48.3)
18	The operating room environment has standard conditions in terms of ventilation system (15-18 times air change per h).	107 (11.6)	400 (43.2)	419 (45.2)
<i>Environmental standards of temperature and humidity</i>				
19	The operating room has standard conditions in terms of temperature (18-22)	563 (60.8)	113 (12.2)	250 (26.9)
20	The operating room has standard conditions in terms of humidity (50%-60%).	174 (18.8)	528 (57)	224 (24.2)

Table 3

Relationship Between Job Satisfaction and Hospital's Compliance With Protective Guidelines (Guidance) During Covid-19 Pandemic From the Perspective of Operating Room Nurses (N = 926)

Subscale MSQ	NO. of item	Mean \pm SD	P-Value (Hospital's Compliance)
Payment system	3	5.71 \pm 2.38	
Type of job	4	13.15 \pm 3.21	
Opportunities of improvement	3	6.68 \pm 3.03	
Organizational climate	2	5.96 \pm 2.06	
Leadership style	4	11.01 \pm 2.94	
Physical conditions	3	8.61 \pm 3.03	
Total	19	51.15 \pm 11.45	$\leq .001$

room nurses included reduced access to personal protective equipment (44.49%), difficulty in complying with protocols in the operating room (32.23%) and mismanagement in the operating room (23.28%).

The odds of developing Covid-19 were 59% lower in those with moderate job satisfaction than in those with poor job satisfaction ($P > .001$, OR = 0.41, 95% CI = 0.25–0.66). Also, those who had very good job satisfaction had 38% less odds to develop Covid-19 than those with poor job satisfaction ($P = .014$, OR = 0.62, 95% CI = 0.43–0.91).

Discussion

This study has been conducted to investigate the relationships between job satisfaction of operating room nurses and hospital's compliance with protective guidelines (guidance) during the Covid-19 pandemic from the perspective of operating room nurses. The results show a significant relationship between job satisfaction and the hospital's compliance with protective guidelines, and increased hospital's compliance with protective guidelines during Covid-19 pandemic led to increased job satisfaction of operating room nurses. Consistent with the study results, Yu et al believed that the job satisfaction of medical staff is directly associated with the implementation and effectiveness of strategies for the prevention and control of major crises.¹⁰ Improving the health of operating room nurses and patients, which is affected by the hospital's compliance with protective guidelines, can be achieved by increasing the job satisfaction of nurses, especially in the current situation that Covid-19 pandemic has added to the importance of compliance with protective guidelines.

In this study, job satisfaction was investigated as an independent variable. The results of the present study showed that more than half of the participants in the study had moderate job satisfaction. In one study, Gimenez-Espert et al reported high job satisfaction of nurses during Covid-19 pandemic. In this study, consistent with the present study, job satisfaction was significantly related to measures, information and resources of Covid-19 prevention, and it is interesting that according to this study, the more resources available to meet job challenges, the higher job satisfaction.³⁹ In a study that investigated satisfaction of nurses working in public hospitals, nursing unit managers reported that lack of support nurses and staff leads to a reduction in nurses' job satisfaction. Lack of staff caused nurses to take on many responsibilities and therefore naturally leading to physical and mental fatigue and burnout of nurses. In addition, according to reports of nursing managers, the lack of resources and poor infrastructure of hospitals had a negative impact on workload and caused more time constraints for nurses.⁴⁰ In addition, in a study in South Africa, nurses were significantly dissatisfied with the resources available to provide nursing care.⁴¹

The results of the present study show that from the perspective more than half of the participants reported a low level of hospital's compliance with protective guidelines during Covid-19 pandemic. Powell-Jackson et al⁴² in their study aimed to evaluate compliance of health care providers with protective guidelines during Covid-19 pandemic showed similar results. Of course, the difference between that study and the present study is the site of the study, which in the

present study is the operating room and in the Powell-Jackson et al⁴² study is the outpatient ward of the hospital. Since in the present study, reduced access to personal protective equipment (PPE), difficulty in complying with protocols in the workplace and mismanagement in the operating room were among the most common reasons for hospital's non-compliance with protective guidelines during Covid-19 pandemic from the perspective operating room nurses, the researchers recommend that, given the current epidemic, it is essential to improve infrastructure and management decisions and increasing human resources in a crisis can affect the quality of performance and job satisfaction of operating room nurses.⁴²

In the present study, younger people had more job satisfaction. Asghari et al in their study, which investigated the factors affecting nurses' job satisfaction, reported that job satisfaction increased with age.⁴³ Lu et al did not find this relationship significant.⁴⁴ However, contrary to both Ashgari et al⁴³ and Lu et al⁴⁴, in our study, the relationship between job satisfaction and age was found to be inverse. It can be explained that during Covid-19 pandemic, young people probably had more work potential, greater adaptability skills, less burnout and more youthful spirit than older people. On the one hand, to prove their abilities to their superiors and achieve a more secure job position, young people maybe have a greater desire to work.

The results showed a significant relationship between job satisfaction and employment status. A study by Sadeghi Kortovigi, contrary to the results of our study, showed that employment status had no significant relationship with nurses' job satisfaction⁴⁵. In addition, work experience, job category and education were among the items investigated in this study and their relationship with job satisfaction was not significant. In a study by Sadeghi Kortovigi, the cases were investigated in more details than in our study, and the factors were measured separately in relation to job satisfaction. Of course, one of the limitations of this study is that it is limited to two military hospitals, which cannot be generalized to other hospitals and the conditions of other nurses.⁴⁵

A study by Kitajima et al contrary to the present study showed that those with higher work experience had higher job satisfaction.⁴⁶ The reason for this difference can be explained by the fact that by increasing work experience, the probability of burnout is higher; as a result, job satisfaction is higher in those with less work experience.

In the present study, nurses working in the operating room without a history of Covid-19 infection had higher job satisfaction. The results of our study consistent with a study by Labrague et al⁴⁷ showed that fear of Covid-19 in nurses leads to reduced job satisfaction and increased financial burden of the organization. In addition, fear of Covid-19 can interfere with nurses' performance and, as a result, can reduce compliance with health protocols.^{47,48} The effect that Covid-19 has had on all global levels is very great.⁴⁹ This has caused individual and social challenges in terms of health, economics, politics and society.⁵⁰ Because nurses are in close contact with a variety of illnesses and Covid-19 disease, their efforts are significant.^{51,52} Therefore, any information that we can provide that

would reduce nurses' physical and mental burden would be an investable effort.⁵³

Study Limitations and Ethical Issues

This study had some limitations, including the fact that no similar study was found regarding job satisfaction of operating room nurses and hospital's compliance with protective guidelines (guidance) during the Covid-19 pandemic from the perspective of operating room nurses in Iran. Therefore, we attempted to use the closest studies to the subject. Another limitation of the study is investigation of only three of the most common reasons for non-compliance, while non-compliance with health guidelines can be due to several factors that are not addressed in this study. Further study is suggested in this regard. Another limitation of the study is the use of a self-report questionnaire, especially for hospital's compliance with protective guidelines during Covid-19 pandemic, which leads to the possibility of participants answering incorrectly.

Conclusion

This study emphasizes the importance of job satisfaction of operating room nurses, especially during Covid-19 pandemic, and shows that job satisfaction of operating room nurses is affected by the hospital's compliance with protective guidelines during Covid-19 pandemic.

In addition, optimization of infrastructure, improvement of management decisions and increasing human resources in a crisis can affect the quality of performance and job satisfaction of operating room nurses. The results of the present study can be considered for other pandemics that may occur in the future.

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