©2022 ASP Ins., *Afarand Scholarly Publishing Institute, Iran*
ISSN: 7687-2645. Journal of Clinical Care and Skills. 2022;3(1):41-46.

Burnout in a Sample of Iranian Nurses during COVID-19 Pandemic

Journal of Clinical Care and Skills

ARTICLE INFO

Article Type
Descriptive Study

Authors
Dadkhah-Tehrani M.[1] *MSc,*
Adib-Hajbaghery M.*[2] *PhD*

How to cite this article
Dadkhah-Tehrani M, Adib-Hajbaghery M. Burnout in a Sample of Iranian Nurses during COVID-19 Pandemic. Journal of Clinical Care and Skills. 2022;3(1):41-46.

[1]Medical-Surgical Nursing Department, Faculty of Nursing, Kashan University of Medical Sciences, Kashan, Iran
[2]Trauma Nursing Research Center, Kashan University of Medical Sciences, Kashan, Iran

Correspondence
Address: 5th of Qotb –e Ravandi Blvd. P.O.Box: 8715981151, Kashan, Iran
Phone: +98 (31) 55540021
Fax: +98 (31) 55546633
adib1344@yahoo.com

Article History
Received: February 8, 2022
Accepted: March 12, 2022
ePublished: May 11, 2022

ABSTRACT

Aims Currently, the outbreak of COVID-19 has imposed a wide range of stressors that can negatively affect nurses and other health care workers. This study aimed to investigate the severity of burnout among nurses working in COVID-19 wards.
Instrument & Methods This cross-sectional descriptive study was conducted in 2019 on 372 nurses working in the clinical wards of Shahid Beheshti Hospital of Kashan, Iran. A two-part questionnaire was used for data collection. The first part consisted of demographic questions and the second part was the Maslach burnout inventory. Data analysis was conducted by the SPSS 16 using Mann-Whitney U and independent samples t-test.
Findings Of 372 nurses who participated in this study the mean overall occupational burnout was 45.16±22.84 which shows burnout at a moderate level. The mean occupational burnout was significantly higher in nurses over the age of 30 ($p< 0.01$), in males ($p=0.05$), and nurses working in operating rooms ($p<0.001$).
Conclusion The level of nurses' burnout was moderate.

Keywords COVID-19; Nurses; Occupational Burnout; Pandemic

CITATION LINKS

[1] Job burnout among the emergency department ... [2] Prevalence of and factors associated with ... [3] Nursing perspectives on the impacts ... [4] Prevalence of burnout among nurses ... [5] People with suspected COVID-19 ... [6] Health-related quality of life in common ... [7] Worldometers.info [8] The potential for COVID-19 to contribute ... [9] Nursing and the novel coronavirus ... [10] Covid-19 effects on the workload of Iranian ... [11] A comparison of burnout frequency among ... [12] Anxiety and depression in health workers ... [13] Work stress among Chinese nurses to support ... [14] Occupational burnout assessment among ... [15] The measurement of experienced ... [16] Evaluation of the Persian version of maslach ... [17] Burnout and resilience among frontline ... [18] Frontline nurses' burnout, anxiety, depression, and fear ... [19] Burnout prevalence and its associated ... [20] A study on burnout of nurses in the period of ... [21] Burnout and Its relationship with depressive ... [22] Burnout among Portuguese healthcare workers during ... [23] Shift work and burnout among health care ... [24] Burnout syndrome and shift work among the ... [25] Compassion fatigue, burnout, compassion satisfaction ... [26] Factors associated with burnout among ...

Copyright© 2022, the Authors | Publishing Rights, ASPI. This open-access article is published under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License which permits Share (copy and redistribute the material in any medium or format) and Adapt (remix, transform, and build upon the material) under the Attribution-NonCommercial terms.

Introduction

Occupational burnout is a syndrome resulting from chronic work-related stress and can result in fatigue, insomnia, family problems, absenteeism, and job dissatisfaction [1]. Age, personal and work environment factors, and high workload are among the factors affecting the level of burnout in healthcare providers [2, 3]. The prevalence of burnout is higher in nurses compared to other healthcare workers. A study before the COVID-19 pandemic reported that burnout affects more than one-third of Iranian nurses [4].

The outbreak of novel coronavirus disease (COVID-19) was first reported in December 2019 in Wuhan, China. The disease then spread around the world and became a global health concern [5]. The clinical presentation of COVID-19 may range from asymptomatic infection to severe disease with a high mortality rate [6]. According to the latest report of the World Health Organization, as of 29 April 2021, there have been 151,324,368 confirmed cases of COVID-19 around the world, including 3,315,925 deaths [7]. The overall mortality rate is about 3.7, with a maximum in countries such as Italy (6.81%) and Iran (4.78%) [8].

Nursing is the largest healthcare profession in the world. There are approximately 3.8 million nurses in the United States and more than 20 million nurses worldwide [9]. Prevention and treatment of COVID-19 have created a wide range of stressors that could negatively affect nurses and other health care providers [8]. It has heavily increased the workload of health care workers which may consequently lead to medical errors and put patients at risk [10]. Despite sporadic reports of burnout in nurses during the COVID-19 pandemic, no study examined the burnout of Iranian nurses during the COVID-19 pandemic and in general, few studies with inconsistent results are available in this area.

A study in China has compared the frequency of burnout between physicians and nurses on the frontline wards and those working in usual wards and reported that the group working on the frontline wards presented a lower frequency of burnout than the usual wards group [11]. However, a study in Iran reported that healthcare workers who care for patients with COVID-19 experienced higher workloads than those who worked in the non-COVID wards. Furthermore, nurses experienced more pressure and frustration than other healthcare workers [10]. Also, two studies from Sari, Iran [12] and Wuhan, China [13] reported that a majority of nurses who worked during the COVID-19 pandemic suffered from moderate to severe anxiety, and depression [12], and work stress [13]. Mo *et al.* in China also reported that nurses who were in Wuhan, China during the COVID-19 epidemic were under stress [13].

Most studies on the COVID-19 focused on epidemiological investigation, prevention, control, diagnosis, and treatment. Fewer studies have investigated the mental health problems of clinical healthcare providers during the pandemic of COVID-19. As no study has been conducted on the prevalence of burnout among Iranian nurses during the COVID-19 pandemic, the present study was conducted to investigate the severity of burnout among nurses working in COVID-19 wards.

Instrument & Methods

This cross-sectional descriptive study was conducted in 2019 on nurses working in the clinical wards of Shahid Beheshti Hospital in Kashan, Iran. stratified random sampling method was used. At first, the list of eligible nurses in each ward of the hospital was prepared and the number of samples needed from each ward was determined. Then the required numbers of nurses from each ward were randomly selected and invited to participate in the study. If each subject did not agree to participate, another eligible one from the same section was randomly replaced. The sample size was calculated using the formula for estimation of the mean of a population:

$$(n = z^2 1 - \frac{\alpha}{2} \delta^2 / d^2)$$

Then, with an α = 0.01, a d= 2 (measurement error), and a δ of 15 [14] the sample size was calculated at 372. All nurses with contractual and permanent employment, at least one year of work experience in the aforementioned hospital, and having a bachelor's or higher degree in nursing, and all last year's nursing students who were passing the second semester of their internship were eligible to participate in the study.

A two-part questionnaire was used for data collection. The first part consisted of demographic questions on the participants' age, gender, marital status, education level, work experience, working shift, number of shifts per month, employment status, working department, and working department before the COVID-19 outbreak.

The second part was the Maslach burnout inventory (MBI). The MBI is a 22-item inventory in three domains of emotional exhaustion (9 items), depersonalization (5 items), and reduced personal accomplishment (8 items). The respondents responded to each item in two forms. Firstly, the respondent rated the frequency of the occurrence of each item from never to every day. Then, the severity of each item is scored on a seven-point continuum from "never=0" to "very high=6". Scores of 22 items are added up to produce a maximum of 132. Scores 0-44, 45-88, and 89and over are considered as low,

moderate, and high occupational burnout, respectively. The internal consistency coefficients of the subscales emotional exhaustion, depersonalization, and personal accomplishment subscales have been reported by Maslach and Jackson as 0.9, 0.79, and 0.71, respectively [15]. This inventory has already been translated into the Persian language and its validity and reliability were confirmed with an overall Cronbach's alpha of 0.75 [16].

The study protocol was approved by the Institutional Review Board and the research ethics committee of Kashan University of Medical Sciences. To collect the data, first, the researcher referred to the hospital wards in the morning, evening, and night shifts, found the subjects, informed them about the study objectives, invited them to the study, and if agreed, passed the study instruments to them and instructed them to complete it in a calm and private setting and give it back to the researcher after the completion. The study objective was explained to all participants and they were assured about the data confidentiality, and their freedom to participate or withdraw from the study. All subjects signed written informed consent before participation. Permissions were also obtained from the authorities at Shahid Beheshti Hospital. All the participants' rights were observed according to the latest version of the Helsinki Declaration.

Data analysis was conducted using the SPSS software v.16 (SPSS Inc., Chicago, IL, USA). Firstly, the Kolmogorov-Smirnov test was conducted to assess the normal distribution of quantitative data. The data were described by mean, standard deviation, and frequency distribution. Mann-Whitney U and Kruskal-Wallis, independent samples t-test, and analysis of variance were used for the comparison of the mean burnout and/or its subscales between the subgroups of the participants. The Spearman correlation coefficient was used to examine the correlation between the burnout scores and variables such as age, number of shifts per month, and working history. The significance level was set at <0.05.

Findings

Of 372 nurses who participated in this study, 66.1% were females, 81.5% were married, 94.6% were working rotating shifts, and 97.3% had a bachelor's degree in nursing. The mean age and work experience of nurses were 34.47±5.89 and 9.04±5.61 years, respectively. On average, participants worked 26.20±2.84 shifts per month. The mean overall occupational burnout was 45.16±22.84 which was a moderate level (Table 1).

Among the three burnout scales, the highest and the lowest mean scores were related to emotional exhaustion and depersonalization, respectively (Table 2).

The mean occupational burnout score was significantly higher in nurses over the age of 30, in males, in those with rotating shifts, nurses with permanent employment, and nurses working in the operating room. Also,

The mean scores of the emotional exhaustion, depersonalization, and personal accomplishment subscales were significantly higher in nurses over the age of 30, permanent employment, and working in the operating room (Table 3).

Table 1) The characteristics of the participants

Variables	Number (%)
Age (years)	
< 30	113 (30.4)
> 30	259 (69.6)
Marital status	
Single	69 (18.5)
Married	303 (81.5)
Education level	
Bachelor	362 (97.3)
Masters	10 (2.7)
Gender	
Male	126 (33.9)
Female	246 (66.1)
Work experience (years)	
1-5	115 (30.9)
5-10	123 (33.1)
10-15	95 (25.5)
15-20	29 (7.8)
> 20	10 (2.7)
Type of shift work	
Fixed	20 (5.4)
Rotating	352 (94.6)
Number of shifts per month	
20-25	178 (47.8)
25-35	192 (51.6)
> 35	2 (0.5)
Employment status	
Permanent	259 (69.6)
Contractual	25 (6.7)
Trainee	88 (23.7)
Working department	
Medical	119 (32.0)
Surgical	64 (17.2)
Intensive care	112 (30.1)
Emergency	48 (12.9)
Operation room	29 (7.8)
Working department before the COVID-19 crisis	
Medical	120 (32.3)
Surgical	64 (17.2)
Intensive care	111(29.8)
Emergency	48 (12.9)
Operation room	29 (7.8)

Table 2) Mean results of job burnout scores in nurses

Job Burnout subscale	Mean±SD
Emotional Exhaustion	20.48±9.67
Depersonalization	9.11±5.71
Reduced personal Accomplishment	15.65±8.99
Total	45.16±13.64

Table 3) Comparing the level of burnout and its subscales in nurses according to their demographic and work characteristics

Variables	Job Burnout mean±SD	p.	Emotional exhaustion mean±SD	p.	Depersonalization mean±SD	p.	Personal accomplishment mean±SD	p.
Age (years)								
< 30	41.69±2.14	0.01	19.27±8.76	0.02	8.41±5.50	0.03	14.19±8.64	0.01
> 30	46.68±2.32		21.00±1.00		9.42±5.78		16.29±9.08	
Marital status								
Single	40.59±2.11	0.06	19.08±9.09	0.1	8.02±5.17	0.08	13.92±8.51	0.06
Married	46.21±2.31		20.79±9.79		9.36±5.80		16.04±9.06	
Education level								
Bachelor	45.50±2.27	0.09	20.59±9.67	0.1	9.19±5.68	0.1	15.77±8.92	0.07
Masters	33.20±2.46		16.50±9.22		6.40±6.29		11.30±1.08	
Gender								
Male	48.34±2.32	0.05	21.74±9.55	0.07	9.73±5.76	0.1	16.86±9.34	0.1
Female	43.54±2.24		19.83±9.69		8.79±5.66		15.03±8.76	
Work experience (years)								
1-5	45.45±2.02	0.1	20.72±7.79	0.2	9.24±5.16	0.08	15.66±8.45	0.3
5-10	46.65±2.21		20.67±9.74		9.73±5.60		16.25±8.44	
10-15	48.09±2.52		21.70±1.09		9.60±6.13		16.89±9.69	
15-20	36.20±2.35		17.41±1.05		6.55±5.76		12.24±9.15	
> 20	21.80±1.73		12.60±9.76		2.90±3.47		6.30±8.05	
Type of shift work								
Fixed	20.60±1.29	0.001	10.70±9.30	0.001	3.15±2.71	0.001	6.75±3.66	0.001
Rotating	46.56±2.25		21.03±9.40		9.45±5.65		16.16±8.94	
Number of shifts per month								
20-25	43.80±2.30	0.4	19.95±1.03	0.1	8.66±5.61	0.7	15.24±8.84	0.9
25-35	46.33±2.26		20.89±8.99		9.50±5.77		16.05±9.10	
> 35	54±2.68		28.00±1.41		12.00±8.48		14.00±1.69	
Employment status								
Permanent	46.94±2.28	0.01	21.06±9.66	0.009	9.48±5.74	0.1	16.44±8.91	0.01
Contractual	34.24±2.55		14.88±1.06		7.68±6.26		11.68±9.47	
Trainee	43.03±2.12		20.36±8.99		8.43±5.38		14.47±8.75	
Present workplace								
Medical	48.99±2.22	0.001	22.29±1.00	0.01	9.89±5.43	0.001	16.98±8.76	0.001
Surgical	35.87±2.26		18.42±9.72		6.50±5.71		10.95±8.91	
Intensive care	45.09±2.31		19.78±9.69		9.25±5.80		16.05±8.83	
Emergency	41.20±2.32		18.47±9.32		8.12±5.70		14.81±9.23	
Operation room	56.82±1.50		23.58±6.13		12.79±3.46		20.44±5.73	
Previous workplace								
Medical	49.39±2.29	0.001	22.43±1.03	0.006	10.10±5.65	0.001	17.03±8.91	0.001
Surgical	35.03±2.06		18.18±9.00		6.01±4.95		10.82±8.47	
Intensive care	45.40±2.33		19.78±9.75		9.41±5.85		16.20±8.90	
Emergency	40.54±2.27		18.39±9.25		7.87±5.52		14.47±9.11	
Operation room	56.82±1.50		23.58±6.13		12.79±3.46		20.44±5.73	

Discussion

Nurses who participated in the present study suffered from a moderate level of occupational burnout. This finding is consistent with the results of Jose *et al.* who examined burnout in Indian emergency department nurses [17] and also with the results of Hu *et al.* in Wuhan, China [18], which investigated the burnout, anxiety, depression, and fear in nurses and their associated factors during the COVID-19 outbreak. A study of the prevalence of burnout and its associated factors also reported that Malaysian healthcare workers such as nurses, physicians, social workers, laboratory technicians, and pharmacists experienced high burnout during the COVID-19 Pandemic [19]. Our findings along with these studies show that nurses and other healthcare workers experienced moderate to high levels of burnout during the COVID-19 pandemic. Nonetheless, Guixia & Hui have reported that Chinese nurses showed low burnout during the COVID-19 epidemic [20]. The inconsistent results of the latter study might be attributable to its small sample size and the fact that the study included nursing students and used an online method for data gathering. The differences in the severity of burnout in different studies and different healthcare settings might also be attributable to the differences in access to personal protective equipment, policies in each hospital, cultural factors, the prevalence of the disease in each country or city, the number of COVID-19 patients under the care and the workload of nurses in different clinical settings, and the fear of nurses of transmitting the virus to their family members.

The present study showed that occupational burnout scores had significant relationships with age, gender, type of work shift, employment status, present workplace, and workplace before the COVID-19 outbreak. The relationship between burnout and age can be attributed to the fact that nurses of higher age are more concerned about getting the COVID-19. Nonetheless, a study in China reported an inverse correlation between the age of medical staff and burnout during the COVID-19 epidemic [21]. The present study showed that male nurses experienced higher burnout than females. This finding is

consistent with the results of the studies in China [21] and Portugal [22]. The greater occupational burnout scores of nurses in the present study might be linked to the fact that most Iranian male nurses have a second job due to their financial needs. Then they experience more work pressure and job burnout.

The current study showed that the mean occupational burnout score was higher among nurses with rotating shifts than those who were in fixed shifts. Inconsistent results were reported about the relationship between shift work and burnout. A study in Thailand has reported that burnout was more prevalent among shift workers than those who did not work shifts [23]. Another study reported that levels of burnout syndrome were significantly higher among nurses with fixed day shifts [24]. However, a study in Spain did not find a significant difference between the burnout scores of nurses with rotating and fixed shifts, although those with fixed night shifts had greater burnout scores [25]. Rotational shifts, especially when including night shifts, appear to put more pressure on the nurse and accelerate or exacerbate burnout.

In the present study, nurses with formal permanent employment status had higher job burnout than contract nurses. This finding contradicts the results of a study in Spain [25]. Higher burnout in nurses with formal permanent employment can be attributed to the fact that these people usually have more work experience and have endured more cumulative pressures.

In this study, operating room nurses and nurses of medical wards and intensive care units obtained the highest mean of burnout. The higher mean burnout among operating room nurses might be attributed to the fact that they are possibly concerned that patients in need of emergency surgery may have COVID-19, which may put nurses at risk for the disease. Furthermore, at the time of the study, most medical wards and all intensive care units were allocated to patients with COVID-19, and this has increased the stress and job burnout in nurses in these wards. The results of a study in Spain showed that there is a significant difference relationship between burnout and the workplace so that healthcare workers working in specific COVID-19 units and emergency departments had higher burnout scores [25].

In the present study, no significant relationship was observed between burnout and education level, work experience, marital status, and the number of shifts per month. Consistent with our results, a study in Spain [25] found no significant association between nurses' burnout and their marital and employment status [25]. Huo *et al.* in China also reported that there was no significant relationship between nurses' burnout and their marital status and education level [21]. However, our findings are different from the results of a study in Portugal, which studied burnout among Portuguese healthcare workers during the COVID-19 pandemic and reported significant relationships between burnout and marital status, work experience, and education level [22].

The present study also showed that the scores of the three subscales of burnout were not significantly associated with nurses' marital status, education level, gender, number of shifts per month, and work experience. These findings are consistent with the study findings of Dinibutun who examined burnout among Turkish physicians during the COVID-19 pandemic and reported that the three subscales of emotional exhaustion, depersonalization, and personal accomplishment were not significantly different among physicians with different gender and marital status [26]. However, Hu *et al.* examined the frontline nurses' burnout, during the COVID-19 outbreak in Wuhan, China, and reported that the mean emotional exhaustion subscale had a significant relationship with gender and education level; the mean depersonalization subscale was associated with age, gender, and marital status; and the mean of personal accomplishment was linked with age and marital status [18].

Reducing the number of shifts per month, employing more nurses, and increasing the number of nurses in each working shift can decrease the pressure on nurses and alleviate their perceived burnout. Holding group meetings between nurses and nursing managers, listening to their problems, and providing a platform for nurses to express their problems and opinions can reduce the psychological pressure on them and reduce or prevent their burnout. The study was conducted during the COVID-19 outbreak when the nurses' workload might affect their time for responding to the questionnaire. This study was performed only on nurses in a hospital and this limits the generalizability of the results. Repetition of multi-center studies with larger sample sizes can show a better picture of burnout in nurses and related factors. This study was performed only on clinical nurses who were directly involved in patient care. It is suggested that similar studies be performed on other groups of nurses such as supervisors and nursing managers.

Conclusion

The level of nurses' burnout was moderate. Burnout can negatively affect the quality of care nurses provided. Since the duration of the epidemic is unpredictable, is essential to provide welfare and support measures to relieve burnout in healthcare providers and especially in nurses.

Acknowledgments: The authors would like to thank all the nurses participating in this study and Kashan University of Medical Sciences for their financial support.

Ethical Permissions: The study protocol was approved by the Institutional Review Board and the research ethics committee of Kashan University of Medical Sciences (Ethics approval code: IR.KAUMS.REC 1399.040).

Conflicts of Interests: The authors declare no conflict of interests.

Authors' Contributions: Dadkhah-Tehrani M (First author), Introduction writer/Discussion writer/Statistical Analyst (50%); Adib-Hajbaghery M (Second author), Statistical Analyst/Discussion writer/Methodologist (50%)

Funding/Support: This study was funded by the Kashan University of Medical Science.

References

1- Hosseininejad SM, Aminiahidashti H, Montazer SH, Elyasi F, Moosazadeh M, Ahmadi N. Job burnout among the emergency department nurses of medical training centers affiliated to Mazandaran University of medical sciences. Iranian J Emerg Med. 2016;3(4):125-31. [Persian]

2- Elbarazi I, Loney T, Yousef S, Elias A. Prevalence of and factors associated with burnout among health care professionals in Arab countries: a systematic review. BMC Health Serv Res. 2017;17(1):491.

3- Chen SC, Lai YH, Tsay SL. Nursing perspectives on the impacts of COVID-19. J Nurs Res. 2020;28(3):e85.

4- Rezaei S, Karami Matin B, Hajizadeh M, Soroush A, Nouri B. Prevalence of burnout among nurses in Iran: A systematic review and meta-analysis. Int Nurs Rev. 2018;65(3):361-9.

5- Nguyen HC, Nguyen MH, Do BN, Tran CQ, Nguyen TT, Pham KM, et al. People with suspected COVID-19 symptoms were more likely depressed and had lower health-related quality of life: the potential benefit of health literacy. J Clin Med. 2020;9(4):965-83.

6- Pulvirenti F, Cinetto F, Milito C, Bonanni L, Pesce AM, Leodori G, et al. Health-related quality of life in common variable immunodeficiency Italian patients switched to remote assistance during the COVID-19 pandemic. J Allergy Clin Immunol Pract. 2020;8(6):1894-99.

7- Worldometers.info [Internet]. Unknown city: Worldometers; 2021 [cited 2021 Mar. 10]. Available from: https://www.worldometers.info/coronavirus/.

8- Alharbi J, Jackson D, Usher K. The potential for COVID-19 to contribute to compassion fatigue in critical care nurses. J Clin Nurs. 2020 May.

9- Choi KR, Skrine Jeffers K, Logsdon MC. Nursing and the novel coronavirus: risks and responsibilities in a global outbreak. J Adv Nurs. 2020;76(7):1486-7.

10- Shoja E, Aghamohammadi V, Bazyar H, Moghaddam HR, Nasiri K, Dashti M, et al. Covid-19 effects on the workload of Iranian healthcare workers. BMC Public Health. 2020;20:1636.

11- Wu Y, Wang J, Luo C, Hu S, Lin X, Anderson AE, et al. A comparison of burnout frequency among oncology physicians and nurses working on the frontline and usual wards during the COVID-19 epidemic in Wuhan, China. J Pain Symptom Manage. 2020;60(1):e60-5.

12- Hassannia L, Taghizadeh F, Moosazadeh M, Zarghami M, Taghizadeh H, Fathi Dooki A, et al. Anxiety and depression in health workers and general population during COVID-19 in Iran: a cross-sectional study. Neuropsychopharmacol Rep. 2021;41(1):40-9.

13- Mo Y, Deng L, Zhang L, Lang Q, Liao C, Wang N, et al. Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. J Nurs Manag. 2020;28(5):1002-9.

14- Ravari A, Sayadi A, Khodadadi H, Jafarinaveh H. Occupational burnout assessment among nurses working in Iranian hospital of Ali-ebn Abitaleb, Rafsanjan-Iran. J Occup Health Epidemiol. 2012;1(2):103-10.

15- Maslach C, Jackson SE. The measurement of experienced burnout. J Organ Behav. 1981;2(2):99–113.

16- Moalemi S, Kavosi Z, Beygi N, Deghan A, Karimi A, Parvizi MM. Evaluation of the Persian version of maslach burnout inventory-human services survey among Iranian nurses: validity and reliability. Galen Med J. 2018; 20(7):e995.

17- Jose S, Dhandapani M, Cyriac MC. Burnout and resilience among frontline nurses during COVID-19 pandemic: a cross-sectional study in the Emergency Department of a Tertiary Care Center, North India. Indian J Crit Care Med. 2020;24(11):1081-8.

18- Hu D, Kong Y, Li W, Han Q, Zhang X, Zhu LX, et al. Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A large-scale cross-sectional study. EClinicalMedicine. 2020;24:100424.

19- Roslan NS, Yusoff MSB, Razak AA, Morgan K. Burnout prevalence and its associated factors among Malaysian Healthcare workers during COVID-19 pandemic: an embedded mixed-method study. Healthcare. 2021;9(1):90.

20- Guixia L, Hui Z. A study on burnout of nurses in the period of COVID-19. Psychol Behav Sci. 2020;9(3):31-6.

21- Huo L, Zhou Y, Li S, Ning Y, Zeng L, Liu Z, et al. Burnout and Its relationship with depressive symptoms in medical staff during the COVID-19 epidemic in China. Front Psychol. 2021;12:544-53.

22- Duarte I, Teixeira A, Castro L, Marina S, Ribeiro C, Jácome C, et al. Burnout among Portuguese healthcare workers during the COVID-19 pandemic. BMC Public Health. 2020;20:1885.

23- Wisetborisut A, Angkurawaranon C, Jirapornchaoren W, Uaphanthasath R, Wiwatanadate P. Shift work and burnout among health care workers. Occup Med. 2014;64(4):279-86.

24- Vidotti V, Ribeiro RP, Galdino MJQ, Martins JT. Burnout syndrome and shift work among the nursing staff. Rev Lat Am Enfermagem. 2018;26:e3022.

25- Ruiz-Fernández MD, Ramos-Pichardo JD, Ibáñez-Masero O, Cabrera-Troya J, Carmona-Rega MI, Ortega-Galán ÁM. Compassion fatigue, burnout, compassion satisfaction and perceived stress in healthcare professionals during the COVID-19 health crisis in Spain. J Clin Nurs. 2020;29(21-22):4321-30.

26- Dinibutun SR. Factors associated with burnout among physicians: an evaluation during a period of COVID-19 pandemic. J Healthc leadersh. 2020;12:85-94.