

Original Article

Job burnout status and its relationship with resilience level of healthcare workers during Covid-19 pandemic: A case of southern IranAli Reza Yusefi^{1*} Reza Faryabi² Shima Bordbar³ Salman Daneshi⁴ Parnian Nikmanesh⁵

1. Assistant Professor of Health Services Management, Department of Public Health, School of Health, Jiroft University of Medical Science, Jiroft, Iran
2. Assistant Professor of Health Education and Promotion, Department of Public Health, School of Health, Jiroft University of Medical Sciences, Jiroft, Iran
3. PhD candidate, Department of Health Services Management, Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran
4. Instructor of Epidemiology, Department of Public Health, School of Health, Jiroft University of Medical Sciences, Jiroft, Iran
5. PhD candidate, Department of Health Services Management, School of Management and Medical Information, Iran University of Medical Sciences, Tehran, Iran

*Correspondence to: Ali Reza Yusefi
alirezayusefi67@gmail.com

(Received: 24 Apr. 2021; Revised: 12 Jul. 2021; Accepted: 2 Aug. 2021)

Abstract

Background and Purpose: COVID-19 could be a threat to healthcare workers' mental health. This study was conducted to investigate job burnout and its relationship with the resilience level of the personnel in the COVID-19 treatment hospital in southern Iran.

Materials and Methods: This descriptive-analytical cross-sectional study was conducted in 2021 on 496 personnel of Hazrat Ali Asghar (AS) Hospital selected as the center of COVID-19 in southern Iran. The participants of the study were selected using the census. Data collection tools were standard Maslach Burnout Inventory (MBI) and Connor-Davidson Resilience Scale (CD-RISC). Data analysis was performed using t-test, ANOVA, Pearson correlation coefficient, and multiple linear regression in SPSS₂₃ at a significance level of 0.05.

Results: The mean scores of job burnout and resilience were 76.95 ± 14.36 (of 132) and 71.21 ± 8.24 (of 125), respectively which indicated the moderate level of these two variables. There was a significant inverse correlation between job burnout and resilience ($P < 0.001$, $r = -0.514$). Spiritual influences ($P < 0.001$), perception of competence ($P = 0.001$), positive acceptance of change and secure relationships ($P = 0.001$), trust in individual instincts ($P = 0.02$), and control ($P = 0.03$) of resilience aspects were identified as predictors of job burnout. Additionally, there was a statistically significant relationship between job burnout and gender ($P = 0.001$) and occupational group ($P = 0.04$); and between resilience and gender ($P = 0.02$) and with marital status ($P = 0.03$).

Conclusion: Job burnout status and personnel resilience were at a moderate level. It was recommended to train employees with resilience-enhancing skills employees according to each of their dimensions.

Keywords: Job burnout; Resilience; Pandemic; Coronavirus; COVID-19

Citation: Yusefi A*, Faryabi R, Bordbar Sh, Daneshi S, Nikmanesh P. Job burnout status and its relationship with resilience level of healthcare workers during Covid-19 pandemic: A case of southern Iran. Iran J Health Sci. 2021; 9(3): 1-11.

1. Introduction

COVID-19 is an acute respiratory disease more difficult than the previous coronaviruses given its high transmission capacity, control of infection, and treatment (1). According to the World Health Organization (WHO) report, more than 113,653,000 confirmed COVID-19 cases and more than 2,521,000 deaths have been reported until 25 February 2021 (2). COVID-19 pandemic situation continues to be severe and worrying throughout the world, and it poses a serious threat to mental health in addition to physical health (3). The disease not only has led to increased burnout, stress, anxiety, and depression among the individuals in various communities, but also has caused psychological problems in healthcare workers (4). Recent studies have indicated the stress and burnout experienced on frontline healthcare workers during the COVID-19 crisis (5-7).

Frontline healthcare workers are exposed to job burnout given the nature of the job and the increase in workload (8). Job burnout is perceived as a work-related mental-health impairment (9). The disorder could manifest primarily as emotional fatigue, depersonalization, and a poor view of oneself self-competence (10). On one hand, job burnout syndrome affects the mental health and well-being of employees and, on the other hand, it may lead to dangerous complications like harm to self and others (11).

One of the major determinants in maintaining the mental and physical health of front-line healthcare workers is their resilience and flexibility under these critical and stressful conditions (12). Resilience is defined as the process of coping appropriately in the face of stressful situations, trauma, threats, and adversity

(13). Resilience is a key factor because under critical and stressful situations (like the COVID-19 pandemic), people with higher resilience have more mental and physical health compared to others. This issue can contribute to occupational success (14). Some studies show that resilience is inversely associated with mental disorders like anxiety and depression and is directly related to mental health indices, such as job satisfaction, subjective well-being, and flourishing (15,16). Hao et al. indicated that resilience could reduce job burnout by negatively affecting the level of stress (17). Hazrat Ali Asghar Hospital in Shiraz with a capacity of 200 beds was assigned as the reference hospital for the reception and hospitalization of COVID-19 patients in southern Iran after identifying the first positive case of COVID-19 in mid-February 2020 in Iran. Given its high incidence and mortality rates, COVID-19 can result in several psychological problems, such as stress, anxiety, depression, fear, reduced resilience (18), and possibly burnout (19). Hence, understanding the status quo of job burnout and the resilience of COVID-19 frontline healthcare workers for possible remedial action is a critical requirement. The present study was conducted to investigate job burnout and its relationship with the resilience level of Hazrat Ali Asghar (AS) hospital personnel selected as the center of COVID-19 in southern Iran.

2. Material and Methods

This study was descriptive-analytical with a cross-sectional design. The study population included the personnel working in Hazrat Ali Asghar hospital in Shiraz as the reference hospital for treatment of COVID-19 in southern Iran. The

participants of the study were selected using the census (496 people). The data collection tool was a three-part questionnaire. The first part was the demographic characteristics of personnel (age, gender, marital status, level of education, type of employment, and occupational group) and the second part was the standard Maslach Burnout Inventory (MBI). The questionnaire had 22 questions and 4 components of emotional

fatigue (9 questions), a poor view of oneself self-competence (8 questions), and depersonalization (5 questions). In the MBI questionnaire, a 6-point grading scale was used to answer the questions. The items of the questionnaire are scored as never (0), very low (1), low (2), moderate (3), moderate to high (4), high (5), and very high (6). Grading for burnout dimensions (20) is presented in Table 1.

Table 1. Grading of job burnout score and its dimensions

Variable	Aspects	Lack of burnout	Mild burnout	Moderate burnout	Severe Burnout
Job burnout	Emotional fatigue	≤ 13	14-27	28-41	≥ 42
	A poor view of oneself Self-competence	≤ 12	13-25	26-38	≥ 39
	Depersonalization	≤ 7	8-16	17-25	≥ 26
	Total	≤ 33	34-66	67-99	≥ 100

The validity and reliability of the MBI burnout questionnaire have been confirmed by Jeffcott et al. (20). The third part of the tool was the Connor-Davidson Resilience Scale (CD-RISC) to measure personnel resilience, the validity and reliability of which have been confirmed in Connor and Davidson (2003) (21). The scale has 25 questions and 5 components (perception of

competence (8 questions), trust in individual instincts (7 questions), positive acceptance of change and secure relationships (5 questions), control (3 questions), and spiritual influences (2 questions)) scored on a scale between 1 (always incorrect) and 5 (always correct). Grading of the resilience dimensions (21) is presented in Table 2.

Table 2. Grading of resilience score and its dimensions

Variable	Aspects	Desirable	Moderate	Undesirable
Resilience	Perception of competence	30-40	19-29	8-18
	Trust in individual instincts	27-35	17-26	7-16
	Positive acceptance of change and secure relationships	18-25	12-17	5-11
	Control	11-15	7-10	3-6
	Spiritual influences	8-10	5-7	2-4
	Total	93-125	58-92	25-57

The questionnaires were completed electronically by the personnel to maintain hygienic principles and prevent the spread of COVID-19. The data were analyzed in SPSS₂₃ using descriptive and inferential

statistical methods, Pearson correlation coefficient (to investigate the relationship between job burnout and its dimensions with resilience and its dimensions, as well as the relationship between the main

components of research with age), T-test (in order to investigate the relationship between the main components of the research with gender and marital status variables), ANOVA (to investigate the relationship between the main components of research and employment type, education, and occupational group variables), and multivariate linear regression (to determine the simultaneous effect of different aspects of resilience and demographic variables on job burnout) at the significance level of 0.05.

Participation in the study and completing the questionnaire forms were completely voluntary. After obtaining the necessary permits from the Shiraz University of Medical Sciences (SUMS) and justifying the participants about the objectives of the

project, the participants were ensured about the confidentiality of their answers, and their informed consent was obtained. This study was approved by the ethics committee of SUMS (Ethics Code: IR.SUMS.REC.1399.677).

3. Results

The mean age of the employees participating in the study was 33.46 ± 5.21 years and most of them (48.79%) were in the age group of 30-40 years. Also, 62.10% were females and the rest were males. Most of the respondents were married (82.26%), with bachelor's degree (81.05%), formal staff (32.86%), and nursing group (62.90%). Table 3 presents the frequency distribution of personnel participating in the study.

Table 3. The frequency distribution of personnel participating in the study

Variable	Class	Frequency	Percentage
Age (year)	<30	198	39.92
	30-40	242	48.79
	>40	56	11.29
Gender	Male	188	37.90
	Female	308	62.10
Marital status	Single	88	17.74
	Married	408	82.26
Employment type	Official	163	32.86
	Contractual	7	1.42
	Conventional	154	31.05
	Project-based	153	30.84
	Corporate	19	3.83
Education	High school diploma and lower	43	8.67
	Bachelor's	402	81.05
	Master's	29	5.85
	PhD	22	4.43
Occupational group	Medical	21	4.23
	Nursing	312	62.90
	Office and support	134	27.02
	Imaging and laboratory	29	5.85

According to the results, 71.98% and 86.89% of the personnel had moderate

levels of job burnout and resilience, respectively (Table 4).

Table 4. Frequency distribution of job burnout and resilience of personnel participating in the study

Variable	Area	Rank	Percentage	Frequency
Job burnout	Emotional fatigue	Non-burnout	7	1.41
		Mild burnout	106	21.37
		Moderate burnout	381	76.82
		Severe burnout	2	0.40
	Depersonalization	Non-burnout	27	5.44
		Mild burnout	111	22.38
		Moderate burnout	358	72.18
		Severe burnout	0	0
	A poor view of oneself self-competence	Non-burnout	38	7.66
		Mild burnout	124	25
		Moderate burnout	334	67.34
		Severe burnout	0	0
	Total Job burnout	Non-burnout	24	4.84
		Mild burnout	113	22.78
		Moderate burnout	357	71.98
		Severe burnout	2	0.40
	Perception of competence	Favorable	29	5.85
		Moderate	423	85.28
		Unfavorable	44	8.87
Resilience	Spiritual influences	Favorable	63	12.70
		Moderate	412	83.07
		Unfavorable	21	4.23
	Positive acceptance of change and secure relationships	Favorable	34	6.86
		Moderate	443	89.31
		Unfavorable	19	3.83
	Trust in instincts	Favorable	32	6.45
		Moderate	446	89.92
		Unfavorable	18	3.63
	Control	Favorable	24	4.84
		Moderate	426	85.89
		Unfavorable	46	9.27
	Total resilience	Favorable	36	7.26
		Moderate	431	86.89
		Unfavorable	29	5.85

The results showed that the mean job burnout scores and resilience were 76.95 ± 14.36 (of 132) and 71.21 ± 8.24 (of 125),

respectively, showing the moderate (upward) level of job burnout and resilience among the personnel studied (Table 5).

Table 5. Mean and standard deviation of job burnout and resilience of the personnel studied

Variable	Area	Mean $\pm$ Std
Job burnout	Emotional fatigue	31.23 $\pm$ 5.07
	A poor view of oneself self-competence	26.39 $\pm$ 4.62
	Depersonalization	19.33 $\pm$ 4.12
	Total job burnout	76.95 $\pm$ 14.36 (of 132)
	Perception of competence	22.12 $\pm$ 3.36
	Spiritual influences	6.59 $\pm$ 1.66
	Positive acceptance of change and secure relationships	14.48 $\pm$ 1.84
Resilience	Trust in instincts	18.29 $\pm$ 3.12
	Control	9.73 $\pm$ 1.43
	Total resilience	71.21 $\pm$ 8.24 (of 125)

There was a statistically significant relationship between job burnout and

resilience of the personnel participating in the study ($P < 0.001$, $r = -0.514$) (Table 6).

Table 6. Correlation between job burnout and resilience of the personnel participating in the study

Job burnout	Resilience					
	Positive acceptance of change and secure relationships r (P)	Spiritual influences r (P)	Perception of competence r (P)	Trust in instincts r (P)	Control r (P)	Total resilience r (P)
Emotional fatigue r (P) ^a	- 0.684 (<0.001)	- 0.651 (<0.001)	- 0.663 (0.001)	- 0.487 (0.002)	- 0.302 (0.02)	- 0.557 (<0.001)
Depersonalization r (P)	- 0.552 (0.001)	- 0.598 (<0.001)	- 0.573 (<0.001)	- 0.414 (0.04)	- 0.274 (0.04)	- 0.482 (0.001)
A poor view of oneself self-competence r (P)	- 0.452 (0.001)	- 0.721 (<0.001)	- 0.703 (<0.001)	- 0.443 (0.04)	- 0.196 (0.06)	- 0.503 (0.002)
Total job burnout r (P)	- 0.563 (0.001)	- 0.657 (<0.001)	- 0.646 (<0.001)	- 0.448 (0.03)	- 0.257 (0.04)	- 0.514 (<0.001)

^a r : Pearson Correlation Coefficient and P: P-Value (correlation is significant at 0.05)

The results of multiple linear regression analysis were used to determine the simultaneous effect of different aspects of resilience and demographic variables on

job burnout. The significant variables in the model which determined using the Enter method were “spiritual influences, perception of competence, positive

acceptance of change and secure relationships, trust in individual instincts, and control. The values of β related to the variables affecting each of the dimensions of resilience that indicate the priority of affecting job burnout are given in Table 7. The test indicated that the coefficient of determination of the processed model (R^2

Adjusted) is 0.48. This means that 48% of the changes in job burnout score can be explained by the model variables.

$$Y = 2.53 - 0.34x_1 - 0.27x_2 - 0.23x_3 - 0.18x_4 - 0.16x_5$$

(Y: Job burnout and $x_1, 2, 3, 4, 5$: variables affecting Job burnout in personnel studied)(Table 7).

Table 7. Factors affecting job burnout using multiple linear regression model

Variable definition	Variable	Unstandardized coefficients		Standardized coefficient β	P-value ^a
		B	Std. Error		
-	(Constant)	2.536	0.068	---	<0.001
x_1	Spiritual influences	- 0.341	0.072	- 0.352	<0.001
x_2	Perception of competence	- 0.271	0.049	- 0.289	0.001
x_3	Positive acceptance of change and secure relationships	- 0.235	0.057	- 0.241	0.001
x_4		- 0.186	0.039	- 0.198	0.02
x_5	Trust in instincts	- 0.164	0.049	- 0.173	0.03
	Control				

^a Correlation is significant at the 0.05 level

According to the study, mental job burnout was significantly higher in females ($P=0.001$) and the nursing occupational group ($P=0.04$). Additionally, resilience in males

($P=0.02$) and married personnel ($P=0.03$) was significantly higher (more favorable) than others (Table 8).

Table 8. The relationship between job burnout and resilience with demographic variables of personnel^a

Demographic variables						
Main variables	Age	Gender	Marital status	Employment type	Education	Occupational group
Job burnout	$r = 0.18$ $P = 0.11$	$t = 3.84$ $P = 0.001$	$t = 0.88$ $P = 0.09$	$F = 1.61$ $P = 0.28$	$F = 2.23$ $P = 0.11$	$F = 2.81$ $P = 0.04$
Resilience	$r = -0.24$ $P = 0.09$	$t = 2.16$ $P = 0.02$	$t = 1.76$ $P = 0.03$	$F = 0.82$ $P = 0.41$	$F = 1.43$ $P = 0.24$	$F = 1.88$ $P = 0.19$

*r, Pearson Correlation Coefficient, P, P-Value, t, T-Test, F, Test ANOVA, (Correlation is significant at the 0.05 level)

4. Discussion

The results of the current research revealed that burnout and resilience of the personnel studied were at a moderate level. Based on the findings of this study, over 70% of the personnel had a moderate level of burnout. The results of Tan et al. (22), Yang and Kim (23), and Ebrahimpour et al. (24) showed a

moderate level of job burnout in healthcare workers. In other similar studies, the job burnout rate of health workers varied from 40% to 60% (27-25). According to our study, resilience was moderate in more than 80% of the personnel. Consistent with this finding, the results of the study by Jose et al. (28), Guo et al. (29), and Hegney et al.

indicated the moderate level of resilience among health workers (30).

The mental health of COVID-19 frontline healthcare workers was found to be under serious due to existing stressful conditions, work shifts, work pressure, facing unexpected situations (deaths of patients and colleagues because of COVID-19), and the fear of contracting the disease and transmitting it to other family members (31). This could be one of the reasons for the moderate level of job burnout and resilience among the majority of personnel studied, which is far from the favorable situation.

The results showed a significant inverse correlation between job burnout and resilience such that, personnel with higher resilience levels were less likely to suffer from job burnout. This result was in line with that of Meynaar et al. (32), Luceno-Moreno et al. (33), Jose et al. (28), Di Monte et al. (34), and Miguel- Puga et al. (35) in the COVID-19 pandemic and previous other studies (21, 36-41).

The negative correlation between job burnout and resilience revealed that resilience can increase a person's ability to adapt to the stressors of COVID-19. As a result, it may reduce psychological, motivational, and emotional symptoms at work. Thus, the increase in resilience can be related to the reduced level of job burnout. Moreover, reduced resilience may lead to the formation and spread of a negative attitude and the occurrence of negative emotional responses in relation to personnel and the work environment, poor communication, and negative evaluation of the job, leading to burnout. Additionally, under the difficult conditions of COVID-19, resilience enables personnel to use their existing capacities. Moreover, it allows them to maintain their mental health at an acceptable level and reduce burnout by

modifying the challenges posed by the existing pandemic. Hence, resilience can be considered among the protective factors against employee burnout in the current COVID-19 pandemic.

The results of regression analysis revealed that resilience was a predictor of prevention and reduction of job burnout. In this respect, resilient personnel can neutralize the unpleasant effects of physical and emotional fatigue caused by the COVID-19 pandemic, and maintain their mental health. On the contrary, personnel with low resilience may have lower self-esteem and encounter many challenges in employing the strategies needed to control and change critical conditions.

5. Conclusion

The job burnout and resilience of the personnel studied were estimated as moderate. There was a significant and negative correlation between job burnout and resilience (as a predictor of burnout). COVID-19 pandemic is now creating a condition that can aggravate job burnout with irreparable consequences for personnel, patients, and the health system. Thus, policymakers must provide favorable working conditions by regular planning and using preventive methods like distance learning courses, skills training, and providing support and motivating services. As resilience is one of the effective factors in preventing job burnout, human resource managers and planners in this area were suggested to put on agenda the strategies to strengthen the resilience of personnel to enhance their resilience against work pressures due to COVID-19, and maintain and promote the mental health of the personnel. Additionally, in the COVID-19 pandemic, it appears essential to provide mechanisms for screening and continuous monitoring of job burnout status of

employees to prevent the development of this syndrome with proper measures in case of its signs and symptoms.

Limitations of the study

The use of a cross-sectional design to collect the study data limit a definite conclusion about the causal relationship between the study variables. Future studies should collect data across different time periods to minimize this limitation.

Acknowledgments

The paper was the result of a part of the study approved by SUMS No. 20967 (Ethics Code: IR.SUMS.REC.1399.677). Hereby, the researchers appreciate the participants for their sincere collaboration with the researchers in filling out the questionnaires.

Conflicts of Interest

The authors report no real or perceived vested interests related to this article that could be construed as a conflict of interest.

References

1. Rezabeigi-Davarani E, Bokaie S, Mashayekhi V, Sharifi L, Faryabi R, AlianSamakkhah S, et al. Epidemiological and Clinical Characteristics of COVID-19 Patients Studied by Jiroft University of Medical Sciences: Southeast of Iran. *Journal of Advances in Medical and Biomedical Research*. 2021; 29(136): 302-8.
2. World Health Organization. Coronavirus disease (COVID-19) weekly epidemiological update and weekly operational update; 2020. <https://www.who.int/publications/m/item/covid-19-weekly-epidemiological-update>
3. Farnoosh G, Alishiri G, Hosseini Zijoud SR, Dorostkar R, Jalali Farahani A: Understanding the 2019-novel Coronavirus (2019-nCoV) and Coronavirus Disease (COVID-19) Based on Available Evidence - A Narrative Review. *Journal of Military Medicine* 2020; 22(1): 1-11.
4. Joshi G, Sharma G. Burnout: A risk factor amongst mental health professionals during COVID-19. *Asian journal of psychiatry*. 2020; 54:102300.
5. Matsuo T, Kobayashi D, Taki F, Sakamoto F, Uehara Y, Mori N, Fukui T. Prevalence of health care worker burnout during the coronavirus disease 2019 (COVID-19) pandemic in Japan. *JAMA network open*. 2020; 3(8):e2017271-
6. Morgantini LA, Naha U, Wang H, Francavilla S, Acar Ö, Flores JM, Crivellaro S, Moreira D, Abern M, Eklund M, Vigneswaran HT. Factors contributing to healthcare professional burnout during the COVID-19 pandemic: A rapid turnaround global survey. *PloS one*. 2020; 15(9):e0238217.
7. Sung CW, Chen CH, Fan CY, Su FY, Chang JH, Hung CC, et al. Burnout in medical staffs during a coronavirus disease (COVID-19) pandemic; 2020. Available at SSRN: <https://ssrn.com/abstract=3594567>
8. Tandon R. The COVID-19 pandemic, personal reflections on editorial responsibility. *Asian journal of psychiatry*. 2020; 50:102100.
9. Awa W.L., Plaumann M., Walter U. Burnout prevention: a review of intervention programs. *Patient education and counseling*. 2010; 78(2):184–190.
10. Rupert PA, Morgan DJ. Work setting and burnout among professional psychologists. *Professional Psychology: Research and Practice*. 2005; 36:544-50.
11. Klein J, Grosse Frie K, Blum K, von dem Kneesebeck O. Burnout and perceived quality of care among German clinicians in surgery. *International Journal for Quality in Health Care*. 2010; 22(6):525-30
12. Waller MA. Resilience in ecosystemic context: evolution of the concept. *American Journal of orthopsychiatry*. 2001; 71(3): 290-7.
13. American Psychological Association. The road to resilience: American Psychological Association. DC: Washington; 2014. <http://www.apa.org/helpcenter/road-resilience.aspx>
14. Almodarresi MA, Firouzkouhi Berenjabadi M. Analysis of Relationship Between resilience with Dimensions of Work Engagement. *Journal of Management Studies (Improvement and Transformation)*. 2017; 25(83): 1-24.

15. 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. *E-Clinical Medicine*. 2020; 24:100424.
16. Yildirim M. Mediating role of resilience in the relationships between fear of happiness and affect balance, satisfaction with life, and flourishing. *Europe's Journal of Psychology*. 2019; 15(2):183-98.
17. Hao S, Hong W, Xu H, Zhou L, Xie Z. Relationship between resilience, stress and burnout among civil servants in Beijing, China: Mediating and moderating effect analysis. *Personality and Individual Differences*. 2015; 83:65-71.
18. Yildirim M, Arslan G, Wong PT. Meaningful living, resilience, affective balance, and psychological health problems among Turkish young adults during coronavirus pandemic. *Current Psychology*. 2021; 1-2.
19. Yildirim M, Solmaz F. COVID-19 burnout, COVID-19 stress and resilience: Initial psychometric properties of COVID-19 Burnout Scale. *Death Studies*. 2020: 1-9.
20. Jeffcott SA, Ibrahim JE, Cameron PA. Resilience in healthcare and clinical handover. *BMJ Quality & Safety*. 2009; 18(4):256-60.
21. Connor KM, Davidson JR. Development of a new resilience scale: The Connor-Davidson resilience scale (CD- RISC). *Depression and anxiety*. 2003; 18(2): 76-82.
22. Tan BY, Kanneganti A, Lim LJ, Tan M, Chua YX, Tan L, et al. Burnout and Associated Factors Among Health Care Workers in Singapore During the COVID-19 Pandemic. *Journal of the American Medical Directors Association*. 2020; 21(12): 1751-8.
23. Yang Y-H, Kim J-K. A literature review of compassion fatigue in nursing. *Korean Journal of Adult Nursing*. 2012; 24(1): 38-51.
24. Ebrahimpour M, Azzizadeh Forouzi M, Targari B. The relationship between post-traumatic stress symptoms and professional quality of life in psychiatric nurses. *Journal of Hayat*. 2017; 22(4):312-24.
25. Lim WY, Ong J, Ong S. The Abbreviated Maslach Burnout Inventory can overestimate burnout: A study of anesthesiology residents. *Journal of clinical medicine*. 2019; 9(1): 61.
26. Ang S.Y., Dhaliwal S.S., Ayre T.C. Demographics and personality factors associated with burnout among nurses in a Singapore tertiary hospital. *BioMed Res Int*. 2016; 2016: 6960184.
27. See K.C., Zhao M.Y., Nakataki E. Professional burnout among physicians and nurses in Asian intensive care units: A multinational survey. *Intensive care medicine*. 2018; 44: 2079–2090.
28. 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 journal of critical care medicine*. 2020; 24(11): 1081.
29. Guo YF, Cross W, Plummer V, Lam L, Luo YH, Zhang JP. Exploring resilience in Chinese nurses: A cross- sectional study. *Journal of Nursing Management*. 2017; 25(3): 223-30.
30. Hegney DG, Rees CS, Eley R, Osseiran-Moisson R, Francis K. The contribution of individual psychological resilience in determining the professional quality of life of Australian nurses. *Frontiers in psychology*. 2015; 6: 1613.
31. Greenberg N, Docherty M, Gnanapragasam S, Wessely S. Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *BMJ*. 2020; 368: m1211.
32. Meynaar IA, Ottens T, Zegers M, van Mol MM, Van Der Horst IC. Burnout, resilience and work engagement among Dutch intensivists in the aftermath of the COVID-19 crisis: A nationwide survey. *Journal of critical care*. 2021; 62: 1-5.
33. Luceno-Moreno L, Talavera-Velasco B, García-Albuérne Y, Martín-García J. Symptoms of posttraumatic stress, anxiety, depression, levels of resilience and burnout in Spanish health personnel during the COVID-19 pandemic. *International journal of environmental research and public health*. 2020; 17(15): 5514.
34. Di Monte C, Monaco S, Mariani R, Di Trani M. From Resilience to Burnout: psychological features of Italian General Practitioners during COVID-19 emergency. *Frontiers in Psychology*. 2020; 11: 2476.

35. Miguel- Puga JA, Cooper- Bribiesca D, Avelar- Garnica FJ, Sanchez- Hurtado LA, Colin- Martínez T, Espinosa- Poblano E, et al. Burnout, depersonalization, and anxiety contribute to post- traumatic stress in frontline health workers at COVID- 19 patient care, a follow- up study. *Brain and behavior*. 2020 Dec 15:e02007.
36. Menezes L, Fernandez C, Hernandez RC, Contador C. Resilience and the burnout-engagement model in formal caregiver of the elderly. *Psicothema* 2006; 18(4): 791-6.
37. Edward KL, Hercelinsky JG, burnout in the caring nurse: learning resilient behaviors. *British Journal of nursing*. 2007; (16): 2240-2.
38. Jakson D, Firko A, Edenborough M. Personal resilience as a strategy for surviving and thriving in the face of workplace adversity: a literature review. *Journal of Advanced Nursing*. 2007; 60(1): 1-9.
39. Rushton CH, Batcheller J, Schroeder K, Donohue P. Burnout and resilience among nurses practicing in high-intensity settings. *American Journal of Critical Care*. 2015; 24(5): 412-20.
40. Shakerinia I, Mohammadpour M. Relationship between job stress and resiliency with occupational burnout among nurses. *Journal of Kermanshah University of Medical Sciences*. *Journal of Kermanshah University of Medical Sciences*. 2010; 14(2):161–9.
41. Warelow P, Edward Kl. Caring as a resilient practice in mental health nursing. *International journal of mental health nursing*. 2007; 16(2):132-5.