ORIGINAL ARTICLE **DOI: https://doi.org/10.18502/fem.v6i1.7674**

Professional quality of life and emotional well-being among healthcare workers during the COVID-19 pandemic in Iran

Reza Azizkhani[1], Farhad Heydari[1], Ahmad Sadeghi[2], Omid Ahmadi[1], Azita Azimi Meibody[1]*

1. Department of Emergency Medicine, Faculty of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.
2. Department of Counseling, Faculty of Education and Psychology, University of Isfahan, Isfahan, Iran.

***Corresponding author:** Azita Azimi Meibody; **Email:** azimimeibody@resident.mui.ac.ir

Published online: 2021-08-27

Abstract: **Objective:** Healthcare workers (HCWs) are among the highest groups impacted by the COVID-19 pandemic. This study aimed to analyze professional quality of life (ProQOL) and its association with emotional well-being in HCWs during the pandemic.

Methods: This cross-sectional study was conducted on HCWs being in close contact with COVID-19 patients in Iran. The questionnaires assessing ProQOL, emotional well-being, and demographic and occupational characteristics were recruited via email or social media. The ProQOL was used to measure compassion fatigue (CF), burnout (BO) and compassion satisfaction (CS).

Results: Among the respondents, 705 HCWs were enrolled, including a higher proportion of physicians 449 (63.7%), females 452 (64.1%), and married 486 (68.9%). The mean of participants' work experience was 8.41 ± 8.91 years. Almost all of HCWs showed moderate to high levels of CS (98.3%). Also, most of HCWs showed a moderate level of CF (96.3%), and the majority of them (76.6%) had a moderate level of BO. There were significant differences in the duration of contact with COVID-19 patients for all three components of ProQOL and emotional well-being score. Women had a higher level of BO than men (P=0.003). CS was significantly higher in married HCWs than in singles (P=0.007). Pearson correlation coefficient showed that CS had a negative relationship with CF and BO. However, there was a direct correlation between emotional well-being and the CS.

Conclusion: During the COVID-19 pandemic, Iranian HCWs showed to have moderate to high levels of CS, and a moderate level of both CF and BO, and showed that emotional well-being had a direct correlation with CS.

Keywords: Compassion Fatigue; COVID-19; Emotional Stress; Job Satisfaction; Quality of Life; Professional Burnout

Cite this article as: Azizkhani R, Heydari F, Sadeghi A, Ahmadi O, Azimi Meibody A. Professional quality of life and emotional well-being among healthcare workers during the COVID-19 pandemic in Iran. Front Emerg Med. 2022;6(1):e2.

1. Introduction

The first report of coronavirus disease 2019 (COVID-19) reported in February 19, 2020, in Iran. As of March 2021, the Ministry of Health and Medical Education (MOHME) of Iran reported more than 2 million cases of COVID-19 (1,2). The COVID-19 pandemic crisis has transformed the working environment and job demands and affected the healthcare system. Healthcare workers (HCWs) are among the highest groups impacted by the COVID-19 pandemic. Whilst the general population should just stay at home and avoid social contact, HCWs are at the frontline of response to COVID-19 and being at a higher risk of acquiring the disease (3).

As COVID-19 pandemic continues, high-pressure work environment with lack of appropriate guidelines, increasing work demands, and higher efforts of HCWs, especially in hospitals, can lead to increased burnout, psychological symptoms, and secondary traumatic stress (STS) (3). The professional quality of life (ProQOL) can significantly impact patient care. HCWs' poor quality of life can cause negative effects such as separation from patients, poor attitude to work, lack of concern, delay and/or absence (4).

ProQOL incorporates two positive (compassion satisfaction) and negative (compassion fatigue and burnout) aspects that individuals feel in relation to their work as a helper (5,6). The ProQOL has three components, compassion satisfaction (CS), burnout (BO), and compassion fatigue (CF) that can be found among health care professionals at the time of individual, community, national, and even worldwide crises (5). CF also is known as secondary traumatic stress [STS].

Compassion satisfaction has been described as the pleasure or positivity derived from caregiving, that also includes satisfaction from helping co-workers and feeling that their work has social value (5,7). Compassion fatigue or STS has been described as the negative effects that result from stress experienced through a traumatizing event (8). CF has been called the cost of caring for clients or their emotional pain that is caused by stress from helping people and desire to relieve their suffering (9). The balance between CS and CF within the workplace shows the level of ProQOL (9,10).

CF has been distinguished from burnout. BO is the physical and emotional exhaustion, depersonalization, and decreased sense of efficacy at work that occurs in individuals from working in stressful workplaces (8,11). Exhaustion, cynicism, and inefficacy are three dimensions of burnout (12).

A study, during severe acute respiratory syndrome (SARS) outbreak on healthcare workers, showed that HCWs, who had been worked in high-risk situations such as SARS wards, had high levels of posttraumatic stress (PTS) symptom, 2 to 3 times more than those without these exposures (13). Another study, during the H1N1 pandemic (2009), demonstrated that high-risk HCWs felt more anxious and more exhausted (14). A recent study during current pandemic from Wuhan, China, reported 50.4% depression, 71.5% distress, and 44.6% anxiety among HCWs (15).

In May 2020, an editorial of The Lancet, concluded that: "After COVID-19 pandemic has finished, we cannot allow a return to the status quo ante. We should ensure that essential HCWs can perform their jobs safely and that they have adequate health care and paid sick leave to safeguard their health beyond extraordinary pandemics" (16). Thus, HCWs are at high risk of affecting mental health and may require providing psychological support or interventions to them for managing their condition (15). The purpose of present study was to analyze professional quality of life and its association with emotional well-being among HCWs during the COVID-19 pandemic in Iran.

2. Methods

2.1. Study design and setting

This cross-sectional study was conducted on HCWs who took care of COVID-19 subjects between March 2020 and September 2020 and voluntarily answered the online questionnaire from August to September 2020. Ethical approval was afforded by the Ethical Committee of Isfahan University of Medical Sciences (IR.MUI.REC.1399.027).

2.2. Participants and data gathering

HCWs who had worked for more than 1 year in hospitals in Iran and had direct contact with COVID-19 patients in the past 6 months were included in the study whereas, HCWs who did not fill in the questionnaire and did not give informed consent were not included in the study. Participants were recruited via email, or social media such as WhatsApp, Telegram, etc. Social networks were used to distribute the questionnaires among HCWs and the questionnaire was sent to universities and healthcare centers through email. Then the HCWs who met the inclusion criteria filled in the questionnaire. Attempts were made to contact to healthcare workers from all over the country to properly represent the sample. Data collection began on August 15, 2020, and lasted until September 30, 2020.

The questionnaire consisted demographic data (age, gender, number of years as an HCW, marital status, level of education), the level of contact with confirmed COVID-19 patients, past medical history (PMH), the ProQOL scale, and emotional well-being.

The study sample size (n=500) was calculated using Cochran's formula at 95% confidence interval, and considering power of 0.5 and error level of 0.04 at the significance level of 0.05.

$$n = \frac{NZ^2P(1-P)}{Nd^2 + Z^2P(1-P)} = 500$$

2.3. Measures

2.3.1. Professional quality of life (ProQOL)

The ProQOL scale developed by Stamm (5) is a self-report questionnaire and consists of 30 items that measure three scales including CF, BO, and CS (each scale consists of 10 items). Each item is rated on a 6-point Likert scale from zero (never) to 5 (always) with potential total scores for each scale ranging from 0 to 50 (17). Scores of 22 or less are considered as low, the range of 23 to 41 is considered as moderate, and scores 42 and higher are considered as high levels of CS, BO, and CF (5). In this study, Persian translations of version 5 of the ProQOL scale have been used, that were used among 464 Iranian healthcare workers resulting in an intraclass reliability value of r = 0.96 and internal reliability (Cronbach's alpha) of r = 0.73 (18). The reliability (Cronbach alpha) of the subscales of CF, BO, and CS was, respectively, 0.85, 0.74, and 0.64 (19). The ProQOL scale has been effectively validated in more than 200 papers (5).

2.3.2. Emotional well-being

A standard mental well-being questionnaire was developed by Keyes et al. (20). This questionnaire consists of 45 items that measure the three dimensions, 12 items for emotional well-being, 18 items for psychological well-being, and 15 items for social well-being. Each item has a 7-point Likert scale. In this study, only emotional well-being was used. As part of the self-administered questionnaire, respondents expressed how much of the time they had experienced six types of negative and six types of positive symptoms in the past 30 days. The negative impact scale items were coded in reverse so that higher scores indicate less negative impact experience; the positive impact scale items were coded in such a way that higher scores represent the more positive impact experience. Summed scores were calculated for each impact scale. The internal (alpha) reliability of the negative and positive affect scales was 0.87 and 0.91, respectively (20). In Ghalami et al. study, the reliability of emotional well-being was 0.88 (21).

2.4. Data analysis

Finally, the collected data were analyzed by SPSS for Windows, version 25 (IBM Corp.,NY, USA). Data were reported as frequency (%) and mean±SD. To compare personal characteristics variables and work-related characteristics variables the independent sample t-test and analysis of variance (ANOVA) were used.

Table 1 Descriptive characteristics of the studied health care workers (n=705)

Characteristics	n (%)
Gender	
Male	253 (35.9)
Female	452(64.1)
Age, year	37.10 ± 9.49
Work experience, year	8.41 ± 8.91
Marital status	
Single	219(31.1)
Married	486(68.9)
Occupation	
Nurse	256 (36.3)
General physician	238(33.8)
Resident / specialist	211(29.9)
Duration of contact with patients with COVID-19	
In every work shift	377(53.5)
1-2 patients per week	89 (12.6)
3-4 patients per week	68 (9.6)
1-2 patients per month	94(13.3)
3-4 patients per month	77(10.9)
Past medical history	
None	611(86.7)
Diabetes	37(5.2)
Orthopedic-related diseases	27 (3.8)
Hypertension	11(1.6)
Respiratory diseases	19(2.7)

In addition, Pearson correlation coefficient analyses were used to assess the associations of emotional well-being and ProQOL subscales.

To identify the factors that had the strongest controlled correlation with ProQOL scores, multiple linear regression analysis was performed with forward selection of predictors, that is, the outcome variables.

Moreover, stepwise multiple linear regression analysis with forward selection was used to evaluate the factors affecting ProQOL components and emotional well-being. All independent variables such as age, sex, marital status, occupation, working experience, having a past medical history, and level of contact with confirmed COVID-19 patients were enrolled in the analysis. In all analyses, a significance level of less than 0.05 was considered.

3. Results

A total of 970 questionnaires were sent to healthcare workers, of which 72.7% were completed and returned. The study included a total of 705 HCWs, 452 (64.1%) females and 253 (35.9%) males. The mean age was 37.10 ± 9.49 years (range between 20 and 72 years), and most were married (68.9%). Most participants (63.7%, n = 449) were medical doctors. The mean of participants' work experience was 8.41 ± 8.91 years. Descriptive characteristics variables of the HCWs are shown in table 1.

The mean CS score was 39.25 ± 6.89, the mean BO score was 28.23 ± 6.47, and the mean CF score was 32.27 ± 4.27. The mean score of emotional well-being was 34.49 ± 3.47. Regarding ProQOL, almost all of HCWs showed moderate to high levels of CS (98.3%). Also, most of HCWs showed a moderate level of CF (96.3%), and the majority of them (76.6%) had a moderate level of BO (Table 2).

The differences in mean scores for each of the ProQOL subscales and emotional well-being, among HCWs characteristics and occupational variables were reported in table 3. There were significant differences in the duration of contact with COVID-19 patients for all three components of ProQOL and emotional well-being score. Gender differences were observed regarding BO, and women represented higher score (P=0.003). There was a significant difference in CS mean scores according to marital status (P=0.007) and in married was higher than single (39.8 vs. 38.1). Having a past medical history was significantly associated with higher levels of CF (P=0.024) and BO (P=0.004).

There were no significant differences by profession and experience of work for emotional well-being and all three components of ProQOL.

Pearson correlation coefficient showed that CS had a negative relationship with BO and CF (r=–0.378 and r=–0.173, P<0.001). There was a direct correlation between emotional well-being and the CS (r=0.261, P<0.001). However, there was a significant relationship between CF, and BO (r=0.605, P<0.001) (Table 4).

In a linear regression model, the BO, emotional well-being scores, and marital status presented a significant association with the CS score. Age, gender, BO, and work experience had significant association with the CF score, with BO (B=0.4 (SE=0.02), P<0.001) standing out. Also, CS, CF, age, and gender presented a significant association with the BO score, with CF (B=0.9 (SE=0.05), P<0.007) standing out. In a similar linear regression model for emotional well-being, CS (B=0.1 (SE=0.02), P<0.001), and BO (B=0.05 (SE=0.02), P=0.037) showed significant association (Table 5).

4. Discussion

This study aimed to evaluate ProQOL and emotional well-being in Iranian HCWs during the COVID-19 pandemic. At present, no study with similar variables has been published to compare the results obtained from Iranian HCWs. The results of this study support and quantify relationships between the three elements of ProQOL; CS has a negative relationship with BO and CF, and there is a positive relationship between BO and CF.

The results of current study showed that HCWs had moderate to high levels of CS, and have suffered a moderate level of CF, and BO during the COVID-19 pandemic in Iran. CS subscale mean values of the current study was lower than in studies of Ruiz-Fernández et al. (9), Cuartero-Castañer et al. (22), and Tomar et al. (23), but very close to Buselli et al. (10) results, and higher than Verheyden et al. (7) results. BO subscale mean of the current study was higher than

Table 2 Results of ProQOL scoring of the studied healthcare workers

Variables	Mean (SD)	Category, n(%)			Minimum	Maximum
		Low	Moderate	High		
Compassion satisfaction	39.25(6.89)	12(1.7)	400(56.7)	293(41.6)	12	50
Burnout	28.23(6.47)	140(19.9)	540(76.6)	25(3.5)	14	49
Compassion fatigue	32.27(4.27)	2(0.3)	679(96.3)	24(3.4)	21	47

ProQOL: Professional quality of life scale; SD: Standard deviation

Table 3 Mean differences in ProQoL subscales scores and emotional well-being score by characteristics and occupational variables in the studied healthcare workers

Variables	N	Compassion satisfaction		Compassion fatigue		Burnout		Emotional well-being	
		Mean (SD)	t/f P	Mean (SD)	t/f P	Mean (SD)	t/f P	Mean (SD)	t/f P
Gender									
Male	253	39.54±7.07	0.844	32.23±4.22	0.276	27.26±6.41	2.991	34.67±3.55	1.037
Female	452	39.06±6.78	0.399	32.33±4.30	0.782	28.86±6.44	0.003	34.37±3.42	0.300
Age, year									
<29	194	39.00±6.86		32.52±4.65		27.66±7.19		34.64±3.80	
30-39	211	38.61±7.73	1.282	32.23±4.08	0.464	28.95±6.64	1.306	34.39±3.44	0.200
40-49	225	39.80±5.95	0.280	32.27±4.36	0.707	28.22±6.06	0.271	34.33±3.14	0.896
>50	75	40.05±7.10		31.78±3.42		27.70±5.04		34.49±3.47	
Marital status									
Single	219	38.09±7.20	2.709	32.40±4.36	0.375	28.21±6.03	0.101	34.24±3.75	1.140
Married	486	39.77±6.74	0.007	32.26±4.24	0.708	28.27±6.68	0.919	34.60±3.36	0.255
Work experience, year									
1-5	342	38.99±7.34		32.11±4.43		28.00±6.92		34.24±3.49	
6-10	95	38.59±6.63	1.580	32.58±3.75	1.144	27.75±6.04	0.617	34.97±3.53	1.845
11-15	91	39.06±6.95	0.178	32.19±3.89	0.335	28.65±6.41	0.650	34.15±3.49	0.119
16-20	88	41.09±5.60		33.29±4.90		29.18±6.72		35.27±3.33	
>21	89	39.96±6.41		32.14±4.43		28.21±6.55		34.70±3.15	
Occupation									
Nurse	256	39.14±6.96	0.879	32.37±4.59	0.161	28.58±6.55	2.957	34.75±3.85	1.011
General physician	238	39.82±6.91	0.416	32.12±4.22	0.851	27.22±6.12	0.053	34.40±3.56	0.364
Resident / specialist	211	39.90±6.82		32.30±3.96		28.68±6.61		34.29±2.94	
Duration of contact									
In every work shift	377	38.69±7.27		32.69±4.23		28.80±6.79		34.40±3.41	
1-2 patients per week	89	40.86±5.38	5.598	32.50±4.95	3.915	28.67±6.92	3.809	34.21±4.25	2.406
3-4 patients per week	68	38.48±7.06	0.007	32.08±3.55	0.004	28.36±5.83	0.005	34.10±3.20	0.049
1-2 patients per month	94	41.35±5.96		31.28±4.43		25.89±5.34		35.61±2.72	
3-4 patients per month	77	38.63±6.42		30.58±3.23		26.88±4.57		34.19±3.72	
Past medical history									
Yes	94	39.49±6.41	0.521	33.17±4.46	0.024	29.81±6.25	0.004	34.89±3.60	0.949
No	611	39.01±6.70		32.07±4.37		27.73±6.50		34.92±3.68	

ProQOL: Professional quality of life scale; SD: Standard deviation; t: Independent sample t-test; f: One-way analysis of variance; P: Significance level

mentioned previous studies except for the study by Tomar et al., but the CF subscale mean was higher than in all five mentioned previous studies. This could be related to a different HCWs role and workload in different countries across the world throughout the COVID-19 pandemic, of which Iran is one of the most affected countries in Asia (2). The current study showed the similar result with previous studies that analyzed interregional differences (11,24). Lai et al. reported that medical staff had higher levels of distress in the most affected Chinese region (Hubei), specifically, in Wuhan (11). Also, this study collected its data during the peak of the pandemic in Iran. However, CF and BO mean values may demonstrate that this population is at risk, therefore these results must be considered to provide intervention measures to reduce them. Recently, BO has been considered a serious challenge affecting negatively between 40%–75% of HCWs, and its association with CF has been identified (9,10).

Our result showed that HCWs working with COVID-19 patients in every work shift showed higher levels of BO and CF, and this result is similar to the findings of the previous study (20,24,25). Some Chinese studies reported conflicting findings (10,26). They showed how the incidence of BO was lower among HCWs working in the COVID-19 frontline than among those working in their usual wards (26).

Similar to other studies (9,23), in this study females demonstrated higher levels of BO. This could be due to a high level of emotional exhaustion, depersonalization, less tolerance for negative emotions, and lack of personal accomplishment that led to secondary to maladaptive detachment (23). Similar to a study by Tomar et al. (23), in the current study mar-

Table 4 Pearson's correlational scores for burnout, compassion fatigue, compassion satisfaction, and emotional well-being in the studied healthcare workers

Test	Emotional well-being	Compassion satisfaction	Burnout	Compassion fatigue
Emotional well-being	1	0.261**	0.013	0.014
Compassion satisfaction	0.261**	1	-0.378**	-0.173**
Burnout	0.013	-0.378**	1	0.605**
Compassion fatigue	0.014	-0.173**	0.605**	1

** Correlation is significant at the 0.01 level (2-tailed).

Table 5 Linear regression models for ProQOL subscales scores, and emotional well-being scores in the studied healthcare workers

Variable	Unstandardized coefficient		Standardized coefficient	t	P
	B	Std. Error	Beta		
Compassion satisfaction					
(Constant)	30.816	2.952	-	10.440	0.000
Burnout	-0.403	0.039	-0.379	-10.257	0.000
Emotional well-being	0.500	.075	0.248	6.691	0.000
Marital status (married)	1.546	0.570	0.101	2.714	.007
Compassion fatigue					
(Constant)	24.033	1.001	-	24.016	0.000
Burnout	0.402	0.021	0.619	18.730	0.000
Gender (female)	-0.685	0.288	-0.079	-2.381	0.018
Age	-0.063	0.020	-0.134	-3.186	0.002
Work experience	0.052	0.021	0.105	2.492	0.013
Burnout					
(Constant)	5.994	2.380	-	2.518	0.012
Compassion fatigue	0.870	0.048	0.565	18.143	0.000
Compassion satisfaction	-0.264	0.029	-0.281	-9.007	0.000
Gender (female)	1.625	0.411	0.121	3.956	0.000
Age	0.051	0.022	0.071	2.302	0.022
Emotional well-being					
(Constant)	27.306	1.263	-	21.622	0.000
Compassion satisfaction	0.148	0.022	0.298	6.831	0.000
Burnout	0.048	0.023	0.091	2.087	0.037

ProQOL: Professional quality of life scale; t: Independent sample t-test
All independent variables (age, gender, marital status, occupation, working experience, PMH, and level of contact with confirmed COVID-19 patients) were entered in multiple linear regression model. The "stepwise" method was used for the analyses and only remaining predictors in final model are shown.

ital status had a significant relationship with CS. This result conflicts with the findings of studies by Ruiz-Fernández et al. and Cuartero-Castañer et al. (9,22). However, similar to the previous study marital status had no significant relationship with the BO and CF (9,22,23). It may be due to the fear of transmitting the disease to family members in both married and single individuals. In HCWs with higher experience we expected less CF due to more adaptation of the experienced workers with the ward rules, as well as more support that they receive from other colleagues with time. But contrary to previous studies we found that CF had a significant direct relationship with work experience. This inconsistency could be explained by their more tasks and responsibilities, differences in lifestyle, work structure, and some rules.

Another interesting finding in our study was the higher incidence of BO in middle-aged HCWs (30-49 years). This result can be due to more job responsibilities, workload and working hours of this group. It can also be due to the greater likelihood of having children and the stress of transmitting the disease to them.

In contrast to previous studies, this study demonstrated that the occupation did not affect all three components of ProQOL and emotional well-being scores. More work experience could have given them resources to better cope with complex situations such as the current pandemic. Ruiz-Fernández et al. reported that physicians presented higher CF and BO levels than nurses, while nurses showed higher levels of CS (10). They explained that the physician responsible for the patient would make the final decision about the treatment of patients, which may lead to moral injury or mental health problems in some physicians. On the contrary, Buselli et al. demonstrated that physicians had higher CS levels than nurses (9). They explained that physicians may have felt more satisfaction and feel more successful by understanding the direct impacts of their treatments on patients with COVID-19.

Differences in study results can be related to when the research was conducted, a different HCWs role, and workload in different countries across the world during the COVID-19 pandemic. Differences in study results may be due to individual, organizational, or cultural differences between countries or work units. Further studies are required to determine this issue.

5. Limitations

The first important limitation of the study was using the self-report instrument and convenience sampling with self-selection which has lesser disparity than face-to-face interviews. Second, no initial measurement is available. Therefore, only the ProQOL of HCWs can be concluded during the pandemic. Third, the study design was cross-sectional and made it difficult to determine causal inference about the relationship between the independent variables and outcome measures.

6. Conclusion

During the COVID-19 lockdown, Iranian HCWs reported to have moderate or high levels of CS and a moderate level of both CF and BO. HCWs working with COVID-19 patients in every work shift showed higher levels of BO and CF. Pearson correlation coefficient showed that emotional well-being had a direct correlation with the CS and CF. The COVID-19 pandemic represents a new working challenge for HCWs; therefore, interventions are needed to improve CS and reduce BO and CF among professionals in the long term.

7. Declarations

7.1. Acknowledgment

The authors would like to respected the staff of Al-Zahra hospital and Kashani hospital for their kind contributions.

7.2. Authors' contribution

The conception and design of the work and also data acquisition by RA, FH, and AAM; Analysis and interpretation of data by AS and OA; Drafting the work by AS, OA, and AAM; Revising it critically for important intellectual content by RA and FH. All authors performed editing and approving the final version of this paper for submission, and also approved the final draft and agreed to respond to all aspects of the work.

7.3. Conflict of interest

None declared.

7.4. Funding

None declared.

References

1. Azadnajafabad S, Saeedi Moghaddam S, Rezaei N, Ghasemi E, Naderimagham S, Azmin M, et al. A report on statistics of an online self-screening platform for COVID-19 and its effectiveness in Iran. Int J Health Policy Manag. 2021; Online ahead of print.
2. Coronavirus pandemic data portal. Accessed April1, 2020. [available via: https://www.worldometers.info/coronavirus/].
3. Pothiawala S. Psychological impact of the COVID-19 on health care workers in the emergency department. Adv J Emerg Med. 2020;4(2s):e58.
4. Smart D, English A, James J, Wilson M, Daratha KB, Childers B, et al. Compassion fatigue and satisfaction: a cross-sectional survey among US healthcare workers. Nurs Health Sci. 2014;16(1):3-10.
5. Stamm B. The concise ProQOL manual. Pocatello, ID. Retrieved from ProQOL org. 2010
6. Kim K, Han Y, Kwak Y, Kim JS. Professional quality of life and clinical competencies among Korean nurses. Asian Nurs Res. 2015;9(3):200-6.
7. Verheyden C, Van Holen F, West D, Vanderfaeillie J. Secondary traumatic stress, burnout and compassion satisfaction among Flemish foster care workers during the COVID-19 lockdown. Dev Child Welfare. 2020;2(4):227-43.
8. Beaumont E, Durkin M, Martin CJ, Carson J. Compassion for others, self-compassion, quality of life and mental well-being measures and their association with compassion fatigue and burnout in student midwives: a quantitative survey. Midwifery. 2016;34:239-44.
9. Ruiz-Fernández MD, Pérez-García E, Ortega-Galán ÁM. Quality of life in nursing professionals: burnout, fatigue, and compassion satisfaction. Int J Environ Res Public Health. 2020;17(4):1253.
10. Buselli R, Corsi M, Baldanzi S, Chiumiento M, Del Lupo E, Dell'Oste V, et al. Professional quality of life and mental health outcomes among health care workers exposed to Sars-Cov-2 (Covid-19). Int J Environ Res Public Health. 2020;17(17):6180.
11. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3(3):e203976.
12. Maslach C, Leiter MP. Early predictors of job burnout and engagement. J Appl Psychol. 2008;93(3):498-512.
13. Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. Can J Psychiatry. 2009;54(5):302-11.
14. Matsuishi K, Kawazoe A, Imai H, Ito A, Mouri K, Kitamura N, et al. Psychological impact of the pandemic (H1N1) 2009 on general hospital workers in Kobe. Psychiatry Clin Neurosci. 2012;66(4):353-60.

15. Aghili SM, Arbabi M. The COVID-19 pandemic and the health care providers; what does it mean psychologically? Adv J Emerg Med. 2020;4(2s):e63.
16. Franza F, Basta R, Pellegrino F, Solomita B, Fasano V. The role of fatigue of compassion, burnout and hopelessness in healthcare: experience in the time of COVID-19 outbreak. Psychiatr Danub. 2020;32(Suppl 1):10-14.
17. Adams RE, Boscarino JA, Figley CR. Compassion fatigue and psychological distress among social workers: a validation study. Am J orthopsychiatry. 2006;76(1):103-8.
18. Ghorji M, Keshavarz Z, Ebadi A, Nasiri M. Persian translation and psychometric properties of professional quality of life scale (ProQOL) for health care providers. J Maz Uni Med Sci. 2018;28(163):93-106.
19. Mokhtari S, Ahi G, Sharifzadeh G. Investigating the role of self-compassion and clinical competencies in the prediction of nurses' professional quality of life. Iran J Nurs Res. 2018;12(6):1-9.
20. Keyes CL, Shmotkin D, Ryff CD. Optimizing well-being: the empirical encounter of two traditions. J Pers Soc Psychol. 2002;82(6):1007-22.
21. Ghalami Z, sohrabi Z. The study of relationship between perceived parenting styles with emotional well-being and social well-being of students. Rooyesh-e-Ravanshenasi Journal. 2019;8(7):107-12.[Persian].
22. Cuartero-Castañer ME, Hidalgo-Andrade P, Cañas-Lerma AJ. Professional quality of life, engagement, and self-care in healthcare professionals in Ecuador during the COVID-19 pandemic. Healthcare (Basel). 2021;9(5):515.
23. Tomar BS, Suman S, Singh P, Raj P, Nathiya D. Mental health outcome and professional quality of life among healthcare workers during COVID-19 pandemic: a frontline-COVID survey. Hamdan Med J. 2020;13(4):196-202.
24. Trumello C, Bramanti SM, Ballarotto G, Candelori C, Cerniglia L, Cimino S, et al. Psychological adjustment of healthcare workers in Italy during the COVID-19 pandemic: differences in stress, anxiety, depression, burnout, secondary trauma, and compassion satisfaction between frontline and non-frontline professionals. Int J Environ Res Public Health. 2020;17(22):8358.
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. 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.