Resilience, Occupational Burnout, and Parenting Stress in Nurses Caring for COVID-2019 Patients

Saeid Bashirian

Hamadan University of Medical Sciences School of Public Health

Mostafa Bijani

Fasa University of Medical Science

Seyed Reza Borzou

Hamadan University of Medical Sciences School of Nursing and Midwifery

Salman Khazaei

Hamadan University of Medical Sciences Medical School

fateme mohammadi (✉ mohammadifateme47@yahoo.com)

Associate professor, Chronic Diseases(Home Care) Research Center and Autism Spectrum Disorders Research Center, Department of Nursing, Hamadan University of Medical Sciences, Hamadan, Iran.

Research article

Abstract

Background: Caring of COVID-19 patients may have had an impact on the occupational burnout, resilience, and parenting of the nurses.

Purpose: Evaluation occupational burnout, resilience, and parenting stress in nurses caring for COVID-19 patients.

Methods: The present study is a cross-sectional study. 420 nurses cared for COVID-19 patients in 5 hospitals selected via convenience sampling. Each participant completed the scales online. Data were analyzed in SPSS v. 22.

Results: Occupational burnout has a significant negative correlation with resilience and a significant positive correlation with parenting stress and can predict 61.32% of changes in the occupational burnout variance of nurses.

Conclusion: Nurses have reported high levels of occupational burnout low levels resilience and high levels tension in their relations with their children. The nurse managers should use these findings to provide appropriate environments for nurses, that to develop more comprehensive plans for support of nurses for the current and future crises.

Background

The advance of medicine in the treatment of diseases in recent decades created such a false sense of optimism about elimination of most infectious diseases that many developed countries started to give priority to non-infectious diseases in their care and treatment systems [1, 2]. However, the appearance of emerging and remerging diseases in recent years, including Ebola, SARS, H1N1, and, most recently, COVID19, has raised serious doubts about humanity's hopes of being rid of infectious diseases [3, 4]. The term "emerging" is used to describe infectious diseases which occur for the first time in an area, a population, or the whole world, infectious diseases which existed in the past, but have recently become more severe or drug-resistant, and pathogenic infections which have started to affect vaster geographical areas [5, 6]. WHO has declared that, currently, humanity is faced with over 30 emerging diseases of varying types, geographical distributions, and severity [7]. Moreover, lack of a specialized treatment or vaccine for most emerging infectious diseases results in their becoming epidemic across wide geographical areas and increase in the number of the infected, fatalities, and medical costs [8]. One of the most recent emerging diseases is COVID-19 which started in China in 2019, very quickly became a pandemic, and has caused a large number of deaths in many countries so far [7]. The initial symptoms of COVID-19 are similar to those of the influenza, but the infection gradually develops and causes severe cardiopulmonary and renal disorders and can eventually cause death [9]. Because COVID-19 is a little-known disease, the genetic structure of the virus constantly changes, new symptoms are continuously recorded in the infected, and, most importantly, there is not a definite cure or specialized vaccine for it, over 1 million people in the world have contracted the disease in the past three months, over 200,000 of

whom (13,000 in Iran) have lost their lives as a result [10, 11]. The high fatality rate of COVID-19 worldwide has caused many people to experience considerable tension with adverse effects on their social activities and psychological security [12]. Due to the special nature of their occupation, nurses are at higher risk of suffering serious physical and psychological harms, including stress and depression. It is obvious that these psychological crises can influence nurses' personal and family responsibilities as well, subject them to occupational burnout, and adversely affect their performance of their parental duties [13, 14]. In January 2020, WHO declared the COVID-19 pandemic to be a public health emergency of international concern (PHEIC) [15]. According to the same organization, nurses play a significant role in healthcare and treatment systems in caring for and improving the health of patients infected with the coronavirus [7, 13]. However, caring for COVID-19 patients has subjected nurses to great psychological tension and work stress, thus the need for taking measures to protect nurses' psychological and physical well-being [7]. A study conducted by Liu et al. (2020) confirms that, compared to other members of medical staff, nurses experience higher levels of anxiety and depression in caring for COVID-19 patients and face more difficulties in the performance of not only their professional duties, but family responsibilities and daily activities [12]. Similarly, he study of Roy (2020) shows that nurses are experiencing high degrees of stress, anxiety, depression, and post-traumatic stress disorder (PTSD) in the COVID-19 crisis. Thus, it is essential that the executive administrators of healthcare systems and the crisis committees of hospitals consider the status of nurses' psychological well-being, anxiety, depression, and occupational burnout [16]. The present study is an attempt at measuring occupational burnout, resilience, and parenting stress in nurses who care for COVID-19 patients in Iran.

1. Methods

1.1. Participants and sampling

The present study is a cross-sectional work which lasted from February to June 2020. Selected via convenience sampling, the subjects were 630 nurses who provided care to COVID-19 patients in 5 hospitals affiliated with Hamadan University of Medical Sciences in the west of Iran. The inclusion criteria were: being willing to participate, being in practice in one of the hospitals assigned for Covid-19 patients, and having cared for at least 1 Covid-19 patient. The subjects who failed to answer more than half of the items on their questionnaires or did not turn in their questionnaires were excluded. The subjects were asked to complete and submit the questionnaires—a personal (demographic) characteristics questionnaire, an occupational burnout scale, a resilience scale, and, if they were parents, the parenting stress scale—online. 420 of the subjects completed and returned the questionnaires via e-mail or a social network. Thus, the response rate was 66.67%.

1.2. Measurements

1.2.1. The occupational burnout scale

Developed by Maslach in 1996, the Maslach Burnout Inventory is the most commonly used scale for measuring occupational burnout [17]. The scale consists of 22 items which address three dimensions of occupational burnout: 9 items for emotional exhaustion, 5 items for depersonalization, and 8 items for personal accomplishment. The items measure the frequency and degree of burnout on an 8-point Likert scale: from 0 (very little) to 7 (very high). In the domain of emotional exhaustion, scores of 27 and above indicate severe emotional exhaustion, scores of 16 and below indicate slight emotional exhaustion, and scores of between 17 and 26 indicate average emotional exhaustion. In the domain of depersonalization, scores of above 13 indicate severe depersonalization and in the domain of personal accomplishment, scores of below 31 indicate low levels of personal accomplishment. The internal reliability of this scale to equal a Cronbach's alpha of 0.80 [17]. In their study, Baher et al. (2014) find the Cronbach's alpha of the scale to be 0.79 [18].

1.2.2. The self-report Caregiver Burden Inventory

The Caregiver Burden Inventory was developed by Novak and Guest in Canada in 1988 to measure caregivers' burden. The scale consists of 24 items which assess caregivers' burden in five domains: time-dependence burden (5 items (1, 2, 3, 4, 5), developmental burden (5 items 6, 7, 8, 9, 10), physical burden (4 items 11, 12, 13, 14), social burden (5 items 15, 16, 17, 18, 19), and emotional burden (5 items (20, 21, 22, 23, 24). Completion of the scale requires approximately 15 minutes. The items are scored on a 5-point Likert scale ranging from 0 (Not at all) to 4 (Absolutely). The score range is between 0 and 96: 0 to 32 indicate low burden, 33 to 64 indicate moderate burden, and 65 to 96 indicate great burden [19]. In their study conducted in Iran, Hormozi et al. report the reliability of the inventory to be 0.82, which is a satisfactory value [20].

1.2.3. The Parenting Stress Index-Short Form (PSI-SF)

Created by Abidin in 1995, the Parenting Stress Index comprises 3 subscales: parental distress (items 1 through 12), parent-child dysfunctional interactions (items 13 through 24), and child characteristics (items 25 through 36). The scale measures parental stress on a 5-point Likert scale ranging from 1 (= completely disagree) to 5 (= completely agree). [21]. In their studies, Yeh (2001) and Reitman (2002) report the reliability of the scale to be 0.89 and 0.90 respectively [22, 23]. Assessing the reliability and validity of the scale in Iran, Shirzadi finds the reliability of the various dimensions of the index to be between 0.59 and 0.86, which are acceptable values [24].

them that their lack of participation or withdrawal would not have any consequence for them.

1.3. Statistical methods

After data were collected, they were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) in SPSS v. 22. To investigate the relationship between occupational burnout on the one hand and resilience and parenting stress on the other, the researchers applied the chi-square test, independent t-test, and ANOVA. Significance level was set at 0.05. Subsequently, the variables of demographics, resilience, and parenting stress which were found to correlate with occupational burnout

(p < 0.25) were entered into multiple linear regression with the backward technique. Before executing the analysis of multiple linear regressions, the researchers examined the assumptions of normality of data, homogeneity of variance, and independence of residuals.

2. Results

2.1. Demographic Information

Of the 420 nurses who participated in the study, 310 (73.80%) were female and 110 (26.20%) were male. The range of the participants' ages was between 23 and 55 years with the mean of 35.24 ± 3.56 years. The majority of the participants (310 (73.80%)) were married, 170 (54.83%) of whom had two children. Also, most of the participants had a bachelor of science in nursing (265 (63.10%)), were contractual employees (212 (50.47%)), had 11 years of work experience, and worked 32 rotating shifts per month. The findings of the study showed that there was a statistically significant relationship between occupational burnout on the one hand and marital status, number of children, employment status, and gender on the other.

2.2. Resilience, occupational burnout and parenting stress in the participants

The resilience means score of the nurses who participated in the present study was 32.33 ± 2.57, the occupational burnout means score was 32.33 ± 2.57. Also, the parenting stress mean score of the 310 nurses who were married and had children was found to be 17.53 ± 1.58 during the COVID-19 crisis (Table 2).

Table 1
The participants' demographic characteristics and occupational burnout scores

Demographic variables		Number (%)	Occupational burnout Means ± SD	p-value
Age (years)	23−33	197 (46.90)	38 ± 1.21	0.324
	34−44	154 (36.67)	37 ± 1.96	
	45−55	69 (16.43)	37 ± 1.43	
Gender	Female	300 (71.43)	41 ± 2.12	0.042
	Male	120 (28.57)	38 ± 1.87	
Marital status	Single	110 (26.20)	32 ± 2.76	0.033
	Married	310 (73.80)	38 ± 1.54	
Number of children	None	12 (3.87)	35 ± 2.32	0.031
	1	80 (25.81)	38 ± 1.61	
	2	170 (54.83)	39 ± 2.14	
	More than 2	48 (15.49)	42 ± 1.87	
Education	Associate	73 (17.38)	31 ± 1.32	0.451
	Bachelor	265 (63.10)	32 ± 1.05	
	Master	82 (19.52)	32 ± 1.08	
Employment status	Permanent	208 (49.53)	33 ± 2.69	0.039
	Contractual	212 (50.47)	38 ± 1.57	
Work experience	Less than 10 years	150 (35.72)	36 ± 2.96	0.310
	10−20 years	197 (46.90)	37 ± 1.52	
	20−30 years	73 (17.38)	37 ± 2.24	

Table 2

The means and standard deviations of the participants' resilience, occupational burnout and parenting stress scores

Variable	Dimension	Means ± SD per dimension	Total Means ± SD
Resilience	Time-dependence burden	14.32 ± 1.42	32.33 ± 2.57
	Developmental burden	15.76 ± 2.18	
	Physical burden	10.42 ± 1.53	
	Social burden	16.78 ± 1.34	
	Emotional burden	10.11 ± 1.28	
Occupational burnout	Emotional exhaustion	48 ± 3.22	32.33 ± 2.57
	Depersonalization	23 ± 2.13	
	Personal accomplishment	39 ± 2.38	
Parenting stress	Parental stress	18 ± 1.09	17.53 ± 1.58
	dysfunctional interactions	17 ± 2.53	
	Child characteristics	15 ± 1.12	

2.3. The relationship between the participants' resilience, occupational burnout, and parenting stress

The findings of the study show that there is a significant inverse relationship between occupational burnout and resilience in nurses who care for COVID-19 patients ($p < 0.001$, $r = -0.70$). Also, a more significant inverse relationship was found to exist between occupational burnout and resilience in married nurses than single nurses. The results showed a significant positive relationship between the occupational burnout and parenting stress scores of the nurses with children ($p < 0.001$, $r = 0.74$) (Table 3).

Table 3

The relationship between resilience, occupational burnout, and parenting stress in married and single nurses and the entire participants

Occupational burnout	Resilience (married nurses)	$r = -0.71$ $p < 0.001$
	Parenting stress (married nurses)	$r = 0.74$ $p < 0.001$
Occupational burnout	Resilience (single nurses)	$r = -0.69$ $p < 0.001$
Occupational burnout	Resilience (total)	$r = -0.70$ $p < 0.001$

2.4. The predictor variables of occupational burnout in nurses who care for COVID-19 patients

The variable of resilience, parenting stress, number of children, marital status, employment status, and gender which had a p-value of smaller than 0.25 were entered into multiple linear regressions with the backward technique. These variables remained in the model and accounted for about 61.32% of the occupational burnout variance in the nurses who provided care to COVID-19 patients (Table 4).

Table 4
The predictor variables of occupational burnout in nurses who care for COVID-19 patients

Variable	Unstandardized coefficients		standardized coefficients	T	P-value
	B	Standard deviation	β		
Resilience	-0.634	2.53	-0.643	-3.32	0.001
Parenting stress	0.568	2.49	0.572	2.78	0.001
Number of children	0.113	2.28	0.441	2.54	0.012
Marital status	0.298	2.54	0.301	3.87	0.024
Employment status	0.382	2.34	0.214	1.98	0.022
Gender	0.331	1.89	0.186	1.64	0.039
Adjusted R2: 61.32%					

3. Discussion

A life-threatening disease, COVID-19 has spread across the globe and caused grave concern in people [25]. The members of treatment teams, especially nurses, who are in direct contact with patients infected with the corona virus [26], are subject to considerable tension and stress [27]. The psychological tension which nurses have been subject to in the past few months has influenced their resilience, occupational burnout, and even family responsibilities, including parenting. In Iran, one of the 10 countries most affected by COVID-19, treatment teams and nurses have been working long shifts in very stressful conditions away from their families for long periods. It is obvious that sustained stress at work will adversely affect their patience and resilience and can result in fatigue and depression, which will, in turn, prevent them from effectively performing their other duties, especially their role as parents [27, 28]. Though a few studies have addressed the work stress, knowledge, and awareness of nurses who care for COVID-19 patients, there are not any studies of resilience, occupational burnout, or parenting stress in this group of caregivers. Due to lack of research in this area, the researchers had to use articles which measure resilience, occupational burnout, or parenting stress in nurses who care for patients with other specific diseases. In the present study, the occupational burnout means score of the nurses was found to be 32.33 ± 2.57, which indicates high burnout. Occupational burnout in nurses is a hot topic in nursing

associations: studies show that the physical and psychological pressures of caring for patients lead to occupational burnout in the long run and, thus, nurses' length of service, work shifts, and salary must be redefined according to the type of patients they care for and the units where they work [29]. However, most of these studies report the occupational burnout of nurses with 5 years' or more work experience to be average, which is not consistent with the findings if the present study [29–31]. This discrepancy can be attributed to the sudden emergence of COVID-19 which is highly infectious and has significantly increased nurses' workload and caused them to have to work longer shifts and stay away from their families in the past few months. The results of the present study show a statistically significant difference between the married and single participants in terms of their occupational burnout scores ($p < 0.033$). This difference may be due to the fact that, in addition to stress in the workplace, married nurses, especially those with children, are subject to greater psychological tension ($p < 0.031$) as a result of disruption in their performance of their duties as spouses and parents [29, 32–34]. The results of the study also show that contractual nurses ($p < 0.039$) and female nurses ($p < 0.041$) suffer from greater occupational burnout. Job insecurity, lower salaries, and the lower physical-psychological resilience of female nurses can account for the statistically significant difference between the occupational burnout scores of contractual and permanent nurses and male and female nurses [29, 34]. Similarly, the study of Salahian et al shows that nurses' employment status and gender have an impact on their occupational burnout [29]. In the present study, the resilience means score of the nurses was found to be 32.33 ± 2.57, which is considered low [35, 36]. In contrast, other studies report average to high levels of resilience for nurses, even for those who provide care to critically or terminally ill patients. The discrepancy can be attributed to lack of a definite treatment for COVID-19 and the high speed and rate of the infection which have subjected nurses to severe physical and psychological tension with extremely adverse effects on their resilience [35–37]. The results of the present study show a significant inverse relationship between the participants' occupational burnout and resilience, which finding is consistent with the results of other studies. The parenting stress means score of 298 of the participants was found to be 17.53 ± 1.58. There are studies on parenting stress in working mothers or parents with a chronically ill child [38, 39]; however, there has not been much research into parenting stress in nurses. This lack of research may be due to the fact that nurses who work in rotating shifts can spend at least a few hours a day with their children and attend to their upbringing. But in the COVID-19 crisis, many nurses have to work longer hours caring for the infected and, due to the high infectiousness of the disease, would rather reside in hospitals temporarily or have their relatives take away their children to their own homes for the safety of their children. Stress in the workplace, fear of transmitting the infection to their children, having to stay away from their children, and inability to monitor their children's upbringing have subjected nurses with children to extra psychological tension and, consequently, increased occupational burnout in them. In conclusion, the results of the study show that nurses who provide care to COVID-19 patients and have had to work more shifts in recent months are affected by higher levels of occupational burnout, have less resilience, and are experiencing more tension in their relationship with their children than before the emergence of the pandemic. In view of the persistence of the COVID-19 crisis in Iran and the world in coming months, it is mandatory that health administrators take effective measures to reduce nurses' occupational burnout and enhance their physical and psychological well-being.

One of the major limitations of the present study was the relatively low return rate of the questionnaires via e-mail which could have been due to the hectic work schedules of nurses in the crisis. Moreover, the variables addressed in the present study were measured over a 6-month period—it is suggested that future studies assess occupational burnout, resilience, and parenting stress in nurses who care for COVID-19 patients in coming months and years in other societies and larger samples in order to acquire a more accurate understanding of nurses' occupational burnout in in this crisis. Health administrators and policy-makers can use these findings to develop more comprehensive plans for the current and future crises.

4. Conclusion

In the present study, the nurses who care for COVID-19 patients were found to be suffering from high levels of occupational burnout. Also, the results showed that nurses' occupational burnout correlates with their resilience, parenting stress, marital status, number of children, employment status, and gender: these variables predicated 61.32% of the subjects' occupational burnout variance. The nurse managers and policy makers of health organizations should examine and use the findings of this study in order to provide appropriate environments for nurses, also to develop more comprehensive plans for support of nurses for the current and future crises.

Declarations

Ethics approval and consent to participate

The institutional review board of the medical universities located in the west of Iran provided ethics approval (approval number: 9904242498). Also at the beginning of each interview, the researcher introduced herself and explained the goals of the study and assured that all information would remain confidential and that they could withdraw from the study at any time. The researchers provided the opportunity for participants to inform the researcher about their withdrawal from the study at any stage of the research and assured. Finally, the written consent was obtained from study participants.

Consent for Publication

 Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request

Competing interests

The authors declare that they have no competing interests.

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