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Evaluation of Burnout and Job Stress in Care Worker and Comparison between Front-Line and Second-Line in Care Worker during Coronavirus Epidemic

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Abstract

Importance: Coronavirus disease (COVID-19) is an infectious disease which caused by a newly discovered coronavirus.

Objective: In this study we aimed to evaluation of burnout and job stress in care worker and comparison between front-line and second-line in care worker during coronavirus epidemic.

Design, Settings, and Participants: This study is a cross-sectional, hospital-based survey conducted via a region-stratified, 2-stage cluster sampling from Sep 15, 2020, to Dec 10, 2020, The purpose of this research is applied research and in terms of survey method. The main tool used to collect information in this study is a questionnaire, which was also used to study the evidence to obtain human resource information Census method was used to determine the number of participants in the study. In this study, the researchers conducted their research on all people. They gave the questionnaire to all front-line care worker (nurse, assistant nurse, secretary) second-line care workers (Services, security, chefs and hostesses, facilities) of Jam Hospital, which was 537 people, and 342 questionnaires were filled in by the staff.

Main Outcomes and Measures: We focused on symptoms of Job burnout and job stress in Jam Hospital staff. In this method, demographic data such as job, place of work, gender, age, level of education and work shifts were asked and two questionnaires were used. 1- COPSOQ Persian Questionnaire2- Stress assesses.

Results: In the study, 537 health care workers were asked to participate, 342 respondents (63.6%) completed the survey (242 [70.7%] (front-line and) 100 [29.3%] (second-line). The occupational data of nonrespondents were similar to those of respondents. Most participants were women (207 [60.2%]), were aged 20 to 40 years (260 [76%]), had an educational level postgraduate (199 [58.1,were work night (193 [56.2%]), Of the 342 responding participants, 242 (70.7%) were front-line health care workers directly engaged in diagnosing, treating, or caring for patients with or suspected to have COVID-19 , and 100(29.3%) were socend-line. A considerable proportion of front-line participants had symptoms of occupational stress (P=0.03) & Job burnout) P=0.08). Job stress and burnout were higher in front-line staff who were in direct contact with patients with COVID 19 than in staff who were not in direct contact with the patient (P=0.02).

There was no significant relationship between gender (P=0.5), education (P=0.3), job shift (P=0.06) and job stress and burnout.

Keywords: Burnout; Job stress; Care worker; Coronavirus epidemic

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Introduction

Coronavirus disease (COVID-19) is an infectious disease which caused by a newly discovered coronavirus [1]. In December 2019 The Chinese city of Wuhan reported a novel virus. This virus spread rapidly throughout the world. On 11 March 2020, WHO announced that the outbreak became a global pandemic [2]. From the beginning of the pandemic outbreak until to date (February 22, 2021), the following data emerge from the COVID-19 online dashboard of WHO about 110 million people

have been infected and about 2,500,000 died from that disease [3]. In this critical situation, health care workers on the front line who are strongly involved in the diagnosis, treatment, and care of patients with COVID-19 are at risk of developing psychological distress and other mental health symptoms [4-8]. Although the disease is a risk for all people but front-line health care workers are exposed more than others. Such situations threaten not only physical status but also the mental health of front-line workers for example, the disease being unknown, lack of medication to treat, lack of adequate free protective equipment, can deeply affect mental well-being of workers [9-11]. Studies conducted during the SARS and H1N1 flu epidemics show that the lack of personal protective equipment is likely to increase the incidence of diseases in health care professionals, who transmit these diseases to their families, which isone of the reasons for the increased stress. Front line care workers experience high levels of anxiety, psychotic, and post-traumatic disorders due to adverse socio-environmental conditions, such as loss of social status and discrimination. In addition to the problems created by the pandemic, public health strategies, such as mandatory isolation, or quarantine in governments' temporary shelters, or the call for people to return to their original places, and social distancing, increase the feeling of loneliness, leading to mental problems that can contribute to suicide [12-14].

In this study we aimed to evaluation of burnout and job stress in care worker and comparison between front-line and second-line in care worker during coronavirus epidemic.

Methods Study and Design

This study followed the Institute for work & health (IWH) reporting guideline. Verbal informed consent was provided by all survey participants prior to their enrollment. Participants were allowed to terminate the survey at any time they desired. The survey was anonymous, and confidentiality of information was assured.

This study is a cross-sectional, hospital-based survey conducted via a region-stratified, 2-stage cluster sampling from Sep 15, 2020, to Dec 10, 2020. During this period, the total confirmed cases of COVID-19 exceeded 29 million in Word. To compare the interregional differences of mental health outcomes among health care workers in Iran, All hospitals in Tehran were involved. We chose Jam Hospital as a sample. Because Tehran was most severely affected. Hospitals equipped with fever clinics or wards for COVID-19 were eligible to participate in this survey.

The purpose of this research is applied research and in terms of survey method. The main tool used to collect information in this study is a questionnaire, which was also used to study the evidence to obtain human resource information.

Participants

Census method was used to determine the number of participants in the study. In this study, the researchers conducted their research on all people. They gave the questionnaire to all front-line care worker (nurse, assistant nurse, secretary) second-line care workers (Services, security, chefs and hostesses, facilities) of Jam Hospital, which was 537 people, and 342 questionnaires were filled in by the staff.

Outcomes and covariates

We focused on symptoms of Job burnout and job stress in Jam Hospital staff.

In this method, demographic data such as job, place of work, gender, age, level of education and work shifts were asked and two questionnaires were used.

COPSOQ persian questionnaire: Kopstuk Questionnaire by Christensen et al. The work environment is in three versions: long, medium and short, and has been translated into different languages, including French, German, Spanish, Swedish, Chinese, etc., and has been used in many authoritative studies. The middle version in 2011 It has been translated into Persian by Asalani et al, its validity and reliability have been evaluated and reported. Of the 10 subscales of the Persian version of the Kopstuk questionnaire which include job insecurity (3 items), quantitative work requirements (3 items), requirements (3 items) Cognitive demands of work (4 items), impact on work (3 items), meaning and value of work (3 items), transparency of job responsibilities (4 items), managerial quality (4 items), sense of sociability (3 items) and Job satisfaction (4 items) which was 34 items in total was used to calculate the score. The computational formula of the user guide of this scale was used. Each item has five answer options and scores 0, 25, 50, 75 and 100. The score of each subscale will be independent of the others and will be obtained from the mean of the items of the same subscale. Thus, the range of scores in each subscale varies from 0 to 100. The validity and reliability of the average Persian version of the Kopstuk questionnaire has been confirmed in terms of content, face and structure validity. The results of reliability evaluation were also obtained using Cronbach's alpha and internal correlation of 0.7-0.87 and 0.61-0.84, respectively [15].

Stress assess: This questionnaire consists of 20 questions. The participant selects one of thefollowing options. Points are added together.

What score may indicate:

0 to 35- low stress:

Stress is fairly well managed in your life. It is important to support your body in order tocontinue its healthy response.

35 to 70 –moderate stress:

Your body's response to stress may be getting in the way of normal activities, leaving you feeling depleted. A personalized program may help counteract the effect of stress on your body.

Above 70- high stress:

You may be experiencing prolonged stress, and your body's ability to adapt and cope has been compromised. Your body systems need support and strategies targeted specifically for you [16].

The different technical titles of respondents refer to the professional titles certificated by the hospital. Participants were asked whether they were directly engaged in clinical activities of diagnosing, treating, or providing nursing care to patients with elevated temperature or patients with confirmed COVID-19.

Those who responded yes were defined as frontline workers, and those who answered no were defined as second line workers.

Statistical analysis

Data analysis was performed using SPSS statistical software version 26.0 (IBM Corp). The significance level was set at α = .05, and all tests were 2-tailed. The original scores of the 4 measurement tools were not normally distributed and so are presented as medians with interquartile ranges (IQRs). The ranked data, which were derived from the counts of each level for symptoms of Job security Quantitative work demands, Emotional work demands, Cognitive work demands, Impact on work, Meaning and value of work, Transparency of job responsibilities, Managerial quality, Sense of socialization, Job satisfaction and job stress, are presented as numbers and percentages.

The nonparametric Mann-Whitney U test and Kruskal-Wallis test were applied to compare the severity of each symptom between 2 or more groups. To determine potential risk factors for symptoms of Job security Quantitative work demands, Emotional work demands, Cognitive work demands, Impact on work, Meaning and value of work, Transparency of job responsibilities, Managerial quality, Sense of socialization, Job satisfaction and job stress and the associations between risk factors and outcomes are presented as odds ratios(ORs) and 95%CIs, after adjustment for confounders, including sex, age, marital status, educational level, technical title, place of residence, working position (first-line or second-line), and type of section.

Results

Demographic characteristics

In the study, 537 health care workers were asked to participate, 342 respondents (63.6%) completed the survey (242[70.7%] (front-line) and 100 [29.3%] (second-line).

The occupational data of nonrespondents were similar to those of respondents (Table 1 in the Supplement).

Most participants were women (207 [60.2%]), were aged 20 to 40 years (260 [76%]), had an educational level postgraduate (199 [58.1,were work night (193 [56.2%]), Of the 342 responding participants, 242 (70.7%) were front-line health care workers directly engaged in diagnosing, treating, or caring for patients with or suspected to have COVID-19, and 100(29.3%) were socend-line **(Table 1).**

Severity of measurements and associated factors

A considerable proportion of front-line participants had symptoms of occupational stress (P=0.03) & Job burnout) P=0.08). Job stress and burnout were higher in front-line staff who were in direct contact with patients with COVID 19 than in staff who were not in direct contact with the patient (P=0.02).

There was no significant relationship between gender (P=0.5), education (P=0.3), job shift (P=0.06) and job stress and burnout.

Employees' job satisfaction dropped sharply during the COVID 19 epidemic (P=0.04), Employees were severely confused in recognizing job responsibilities (P=0.01), They felt insecure at work (P=0.04), Feelings of worthlessness at work (P=0.02) and lack of positive effect of work(P=0.08) were significant in them.

During this period, job stress increased in employees (P=0.03).

Risk factors of mental health outcomes

Risk Factors of Mental Health Outcomes analysis showed that Employees who were at the front line of the hospital in direct exposure to patients with covid19 had higher job stress symptoms (p=0.03), Lower job satisfaction (p=0.04), Feeling of lower value

Table 1 Demographic and occupational characteristics of responders.

		Occupation							Section				
Characteristic	Total	nurse	Nurse assistant	secretory	Chef - hostess	security	servant	Administrative-facilities	Special sections	General sections	emergency	OR	Frontline
Overall	342	122	22	12	27	2	29	35	82	43	22	114	100
Sex													
Men	135	28	1	1	12	8	29	35	28	0	21	105	84
Women	208	164	28	20	15	0	0	1	49	28	7	9	16
Education level													
≤ Under graduate	143	0	29	21	28	8	29	34	28	0	14	2	98
≥ Post graduate	122	192	0	0	0	0	0	2	49	43	14	112	2
Shift													
Day	142	93	7	21	18	0	8	28	42	36	21	85	27
Night	123	99	22	0	10	8	21	8	36	7	7	29	73
Age													
25-35	137	92	7	11	20	0	7	0	14	7	14	71	27
36-45	123	57	15	10	7	8	8	18	50	29	7	21	19
> 46	82	43	7	0	0	0	14	17	49	7	7	22	54

(p=0.02) Feeling of job security (p=0.04) Lack of transparency Job descriptions and responsibilities (p=0.01).

Discussion

This cross-sectional survey enrolled 324 respondents and revealed a high prevalence of mental health symptoms among health care workers treating patients with COVID-19 in Iran. Overall, 57%, 53%, 50%, 50%, 48.8%, 50.4%, 45.3%, 46.4%, 43% and 49.3% of all participants reported symptoms of, Feelings of lack of job, quantitative demands of work, emotional demands of work, cognitive demands of work, recognition of job responsibilities, value of work, effectiveness of work, managerial quality, sense of socialization, job satisfaction and job. Participants were divided in 9groups (front-line and second- line). Most participants were female, were nurses, were night workers, were educated, were aged 20-40 years, and more worked in front- line. Secretaries, those are working in frontline and Facility workers who are working in second-line reported more severe symptoms in all measurements. Our study further indicated that there is no significant relationship between education, gender, and work shift. Working in the front line was an independent risk factor for worse mental health outcomes in all dimensions. Together, our findings present concerns about in front line employees, 49.5% suffered from burnout and 35% from job stress, among which the highest burnout and stress belonged to secretaries, and in second line employees, 44.8% suffered from burnout and 13.3% suffered from job stress. The highest burnout belonged to the facilities.

In this study, a significant proportion of participants experienced Burnout and stress symptoms, and more than 49.5% reported Burnout and stress.

The psychological response of health care workers to an epidemic of infectious diseases is complicated. Lack of support in the workplace, lack of transparency in job responsibilities have been reported as the most important causes of stress and burnout [1]. In addition, other factors such as the increase in suspected patients, lack of adequate personal protective equipment, and the possibility of transmitting the disease to the family have aggravated the psychological problems of employees [17,18].

Of note, 60.2% of all participants were women, and 56.1% were nurses. Our findings further indicate that there was no significant relationship between gender and the rate of burnout and stress. Frontline nurses treating patients with COVID-19 are likely exposed to the highest risk of infection because of their close, frequent contact with patients and working longer hours than usual [19,20]. Moreover, 67.7% of secretaries suffer from burnout and stress despite not being indirect contact with the patient. Also, 44.8% of second line care workers have suffered from burnout.

It is true that nurses are in direct contact with the patient and the symptoms of burnout and stress are high in them, but the present study shows that secretaries and staff of the second line are at high risk of burnout and stress which is usually ignored.

Limitations

This study has several limitations. First, it was limited in scope. All participants were from Jam hospital in Tehran. Second, not all employees were interested in completing the questionnaire and 60% completed the questionnaire. Third, due to the large number of questionnaire questions, participants may not have completed a number of questions accurately. Fourth, due to the prolongation of the epidemic period, the psychological symptoms of the employees may have worsened and it is not possible to follow up. Fifth according to our country's situation we have a lot of deficiency in PPE.

Conclusions

In this study, front line and second line care worker in Jam Hospital in Tehran, where patients with covid19 were on the move, it was found that Front-line care workers have a high rate of burnout and job stress. In addition, second-line staff who were not in direct contact with a patientwith covid19 but traveled to those wards to do services to the patient, had symptoms of burnout and job stress.

Support for front-line and second-line staff seems necessary.

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