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Intensive & Critical Care Nursing 67 (2021) 103107

Contents lists available at ScienceDirect

Intensive & Critical Care Nursing

journal homepage: www.elsevier.com/iccn

Research Article

Perceived and sources of occupational stress in intensive care nurses during the COVID-19 pandemic

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ARTICLE INFO

Article history:
Received 26 January 2021
Revised 13 June 2021
Accepted 14 June 2021

Keywords:
COVID-19
Intensive care
Nurses
Occupational stress

ABSTRACT

Objective: To determine the level of occupational stress in intensive care nurses during the COVID-19 pandemic and factors of perceived stress.
Methods: The study had a descriptive design. A total of 262 nurses working in adult intensive care units (ICUs) across Turkey during the COVID-19 pandemic constituted the sample. Data were collected by an online survey and the Perceived Stress Scale-14. Descriptive statistics, independent *t*-test, one- way analysis of variance, regression analysis and Bonferroni test were used for data analysis.
Results: Percentage of nurses with moderate level of occupational stress was 62%. High working hours and nurse:patient ratios, heavy workload and failure in patient treatment were the main factors of occupational stress. Level of occupational stress was affected by gender, number of children, years of experience in intensive care and the type of work shift.
Conclusion: Intensive care nurses in Turkey experienced moderate stress during the COVID-19 pandemic. Interventions to prevent occupational stress among intensive care nurses in the long run might be implemented.

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Implications for clinical practice

- Intensive care nurses experienced moderate stress during the COVID-19 pandemic.
- High working hours and number of patients per nurse, heavy workload and failure in patient treatment were significantly associated with the moderate level of stress among intensive care nurses.
- Level of occupational stress was affected by gender, number of children, years of experience in intensive care and the type of work shift.
- Programmes to reduce occupational stress might target intensive care nurses.

Introduction

Occupational stress refers to a condition in which, factors related with the occupation leads to changes in psychological and physiological conditions of an individual and cause the person to diverge from normal functioning (Faraji et al., 2019). Nursing profession hosts a number of stress factors that result from the unique conditions of this profession and may have negative effects on patients and health institutions (Trifunovic et al., 2017). Especially, intensive care unit (ICU) nurses are under stress due to end-of-life care, complex life-support units, post- mortem care and painful procedures during care delivery. They suffer from various problems, including, stress, anxiety, depression and burnout syndrome due to their working conditions (Mealer et al., 2017).

The World Health Organization (WHO) declared COVID-19 as a global pandemic on 11 March 2020 (WHO, 2020). The pandemic resulted with serious economic losses, breakdowns in global supply chains, political problems, delays in travel plans, temporary closure of the education institutions and uncertainties about the future. These events caused a global atmosphere of psychological

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https://doi.org/10.1016/j.iccn.2021.103107
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stress (Arafa et al., 2021). Additionally, health professionals, who play crucial roles in the struggle against the virus, are more likely to suffer from trauma, burnout syndrome and stress during the COVID-19 pandemic (Lai et al., 2020; Cai et al., 2020; de Pablo et al., 2020).

Recent acceleration in the speed of COVID-19's spread caused heavy workload, physical burnout, insufficient protective equipment, high infection risk and ethical conflicts regarding the decisions on the patients to be prioritized, which, in turn, resulted with serious psychological stress in health professionals. Compared to other health professionals, nurses are disproportionately affected by the pandemic since they spend more time with the COVID-19 patients (Liu et al., 2020; Pappa et al., 2020). Given that the pandemics, such as the COVID-19, may continue for months, it is natural for nurses to suffer from psychological stress (Mokhtari et al., 2020). ICU nurses, who play crucial roles in care of critical patients, experience higher workload, prolonged fatigue, infection threat, frustration with death of the patient that they cared, and anxiety and misunderstanding among patients and their relatives (Shen et al., 2020). Besides, they are at higher risk of infection with COVID-19 since they work with severely ill patients under mechanical ventilation and perform invasive procedures, such as aspiration, which increase the risk of COVID-19 transmission (Mokhtari et al., 2020). Consequently, during the pandemic, ICU nurses are the health professionals that suffer from occupational stress the most. This, in turn, brings the need for evaluating the stress levels of the ICU nurses.

Determining the level of occupational stress in ICU nurses and the factors of perceived stress is necessary since occupational stress may weaken the immune system of these nurses, which, in turn, may not only increase the risk of COVID-19 infection but also reduce the quality and safety of medical healthcare and result with worsening patient outcomes and higher healthcare costs (Arafa et al., 2021; Shen et al., 2020).

The aim of this study was to determine the level of occupational stress in ICU nurses during the COVID- 19 pandemic and identify factors of perceived stress. The findings of this study can inform the design of new interventions to decrease occupational stress of ICU nurses during epidemics or pandemics.

Materials and methods

Research design and participants

This descriptive study was conducted between 1 November and 31 December 2020. All ICU nurses that worked at the adult ICU units across Turkey during the COVID-19 pandemic constituted the population of the study. Participants were determined by using snowball sampling technique. Snowball sampling technique is used when it is difficult to reach the population with specific characteristics or that information about the universe (size and depth of information, etc.) is missing (Baltacı, 2018). We prepared a google survey, shared the link of the survey with the ICU nurses via WhatsApp and social media and asked them to share the survey with other colleagues. In the snowball sampling method, the data collection phase of the research is completed as soon as the data saturation is reached as a result of the research carried out by the researcher in a chain. The participants who could be reached between the specified dates were included in the study. The study was terminated two weeks after the increase in the number of filled questionnaires ceased.

A total of 301 nurses completed and returned the survey. Data from 42 nurses were excluded. Because the five respondents were not currently working as ICU nurses and 34 working in neonatal and paediatric ICU. The final sample consisted of 262 ICU nurses. As a result of the study, in the power analysis performed in line with the results obtained from 262 nurses, it was calculated that the power of our study was 99% at a 95% confidence level at medium effect size.

The inclusion criteria stipulated that the nurses worked in the adult ICU across Turkey and agreed to participate in the study. The exclusion criteria stipulated that the nurses worked in the neonatal and pediatric ICU; was not work in the ICU and not agreed to participate in the study.

Data collection tools

For data collection, we used an online survey and the Perceived Stress Scale-14 (PSS-14). The online survey was prepared by the researchers by using existing studies (Shen et al., 2020; Bulbuloglu et al., 2020) and consisted of four sections. First section explained the aim, scope and steps of the research and the inclusion criteria. Second section of the survey asked eight questions on descriptive characteristics of the participants, including age, gender, educational status and occupational characteristics. Third section had 14 questions on potential factors of occupational stress, including, satisfaction with the ICU, working hours and the number of patients per nurse. Fourth section was the PSS-14. PSS-14 was developed by Cohen, Kamarck and Mermelstein in order to assess the degree to which the respondent has perceived situations within the past month as stressful (Cohen et al., 1983). Reliability and validity of the Turkish version of PSS-14 was established by Eskin et al. (2013). Cronbach's alpha of the Turkish versions of the PSS-14 was 0.84. PSS-14 consisted of 14 items that were scored on a five-point Likert type scale, ranging from 'Never (0) to 'Very Often' (4). Seven items were reverse- scored. Total PSS-14 scores ranged between 0 and 56 points. Scores between 11 and 26, 27–41 and 42–56 indicated low, moderate and high perceived stress levels, respectively. We obtained permission to use the scale. Cronbach Alpha value in this study was calculated as 0.85.

Ethical approval

We obtained permission from the Research Ethics Board prior to the study (Date/Number: 23.10.2020/17). Research was conducted in line with the Declaration of Helsinki and Good Clinical Practice. Aim and scope of the research and the inclusion criteria were explained at the beginning of the survey. A sentence on voluntary informed consent was added at the beginning of the survey and participants that did not give voluntary informed consent were not allowed to continue the survey.

Data analysis

IBM-SPSS version 25.0 was used for data analysis. Number and percentage were used to analyze descriptive characteristics. Student's *t*-test, one-way analysis of variance and regression analysis were used to analyze the relationship between variables. Bonferroni test was used to analyze the difference between variables. Statistical significance was set at $p < 0.05$. The effect size was calculated by a statistical analysis program (G*power v3.1.9.4).

Results

Table 1 presents the characteristics of the participants. Accordingly, 39% of the participants were between the ages of 25–29 years, 71% were female, 56% were single and 47% did not have any children. 83% of the participants with children did not have any children under three years of age and 85% did not have a per-

Table 1
Descriptive characteristics.

Descriptive Characteristics	Number (N = 262)	Percentage (%)
Age		
20–24 years	66	25.2
25–29 years	103	39.3
30–34 years	41	15.6
35 years and above	52	19.8
Sex		
Female	187	71.4
Male	75	28.6
Marital status		
Single	149	56.9
Married	113	43.1
Number of children		
0	78	47.3
1	45	27.3
2	33	20.0
3	9	5.5
Has child under three years of age (n = 202)		
Yes	34	16.8
No	168	83.2
Has permanent babysitter (n = 202)		
Yes	30	14.9
No	172	85.1
Has a family member in high-risk groups for COVID-19		
Yes	95	36.3
No	167	63.7
Educational status		
High school	23	8.8
Vocational school	42	16.0
Undergraduate	179	68.3
Graduate	18	6.9
Works at		
Medical ICU	42	16.0
General surgery ICU	22	8.4
Coronary ICU	15	5.7
COVID-19 ICU	64	24.4
Reanimation ICU	57	21.8
General ICU	29	11.1
Cardiovascular surgery ICU	10	3.8
Neurology ICU	11	4.2
Brain surgery ICU	12	4.6
Nursing experience		
0–5 years	124	47.3
6–10 years	80	30.5
11–15 years	27	10.3
16 years and above	31	11.8
ICU experience		
1–3 years	176	67.2
4–6 years	33	12.6
7–9 years	29	11.1
10–12 years	16	6.1
13 years and above	8	3.1
Type of work shift		
Fixed day shift	27	10.3
Rotating shift	227	86.8
Fixed night shift	8	3.1
PSS-14		
Low	44	16.8
Moderate	165	63.0
High	53	20.2

manent babysitter. 63% of the participants did not have family members in high-risk groups from COVID-19 and 68% had undergraduate degree. 24% of the participants worked at the COVID-19 ICU, 47% had been working as nurses for 0–5 years, 67% had been working in the ICU for 1–3 years, 86% had rotating work shift and 63% had moderate perceived stress level (Table 1). Mean PSS-14 score was 34.16 ± 8.40.

Table 2 presents the factors of stress for the nurses. Participants' 84% believed that salaries were inadequate, 78% complained about heavy workload and prolonged fatigue and 68% were worried about passing the virus on to family members (Table 2).

Table 3 presents the relationship between descriptive characteristics of the participants and level of occupation stress. Accordingly, occupational stress level of female participants (35.02 ± 8.65) was statistically significantly higher than male participants (32.0 4 ± 7.37) ($p = 0.009$). Additionally, occupational stress level of participants that had been working in the ICU for 4–6 years (37.66 ± 6. 93) was statistically significantly higher than the participants that worked for at least 13 years ($p = 0.033$). Furthermore, participants that worked at night shift (42.25 ± 9.54) had significantly higher occupational stress than participants with fixed day shift and rotating shift work ($p = 0.021$). We did not find any statistically significant relationship between age, marital status, number of children, having children under the age of three years, having permanent babysitter, having family members in high-risk groups for COVID-19, educational status, type of ICU that the participant worked in, years of nursing experience and mean PSS-14 scores ($p > 0.05$) (Table 3).

Multiple regression analysis presented that all the 14 explanatory (independent) variables were statistically significant ($F = 4.543$. $p < 0.001$) and explained 16% of the perceived occupational stress ($R^2 = 0.206$; adjusted $R^2 = 0.161$) (Table 4). Table 4 presents that every unit increases in working more than 40 h a week, nurse:patient ratios, heavy workload and failure in patient treatment were predictors of 4.25 ($p = 0.000$), 1.86 ($p = 0.022$), 3.11 ($p = 0.015$) and 2.86 ($p = 0.022$) times increase in PSS scores, respectively. Other stress factors had positive effects on PSS scores but the effects were not statistically significant ($p > 0.05$) (Table 4).

Discussion

This study, which aimed to determine the level and factors of occupational stress in ICU nurses during the COVID-19 pandemic, was conducted on 262 ICU nurses working in Turkey. Most of the participants were female, had undergraduate degree rotating shift and an ICU experience of 1–3 years, worked in the COVID-19 ICU and did not have children under three years of age or family members in high-risk groups from COVID-19.

In our study, 63% of the participants had moderate and 20% had high perceived stress. Mean PSS-14 score of the Spanish healthcare professionals during the COVID-19 pandemic in the study of Ruiz-Fernández et al. was 29.3. Hammond et al. found that 28% of the

Table 2
Distribution of sources of stress during the COVID-19 pandemic.

Situations causing stress*	n = 262	Percentage (%)
Not satisfied with the unit	94	35.9
More than 40 hours of work a week	127	48.5
More than three patients per nurse	94	35.9
Heavy workload and prolonged fatigue	206	78.6
Lack of protective equipment	145	55.3
Worsening clinical condition of the patient	142	54.2
Inadequate salary	220	84.0
Lack of team harmony	85	32.4
Exposure to negative environmental conditions at work	106	40.5
Cannot go home due to pandemic	27	10.3
Did not have critical care experience	47	17.9
Fear of infection	167	63.7
Failure in patient treatment	60	22.9
Worried about passing the virus on to family members	183	69.8f-

*More than one response was provided (n = 262).

Table 3
Association between perceived stress and demographic characteristics.

Variable	n (%)	Mean ± SD	Test value
Age			
20–24 years	66 (25.2)	34.83 ± 7.37	
25–29 years	103 (39.3)	34.09 ± 8.48	F = 0.627
30–34 years	41 (15.6)	34.87 ± 7.68	p = 0.598
35 years and above	52 (19.8)	32.90 ± 9.96	
Sex			
Female	187 (71.4)	35.02 ± 8.65	t = 2.624
Male	75 (28.6)	32.04 ± 7.37	**p = 0.009***
Marital status			
Single	149 (56.9)	34.79 ± 8.43	t = 1.397
Married	113 (43.1)	33.33 ± 8.32	p = 0.164
Number of Children			
0	78 (47.3)	34.48 ± 8.28	
1	45 (27.3)	33.88 ± 8.87	F = 1.103
2	33 (20.0)	32.21 ± 9.11	p = 0.350
3	9 (5.5)	30.11 ± 4.70	
Has child under three years of age (n = 202)			
Yes	34 (16.8)	33.88 ± 9.08	t = −0.377
No	168 (83.2)	34.50 ± 8.73	p = 0.707
Has permanent babysitter (n = 202)			
Yes	30 (14.9)	32.26 ± 7.99	t = −1.379
No	172 (85.1)	34.69 ± 9.00	p = 0.169
Has a family member in high-risk groups for COVID-19			
Yes	95 (36.3)	34.73 ± 8.31	t = 0.826
No	167 (63.7)	33.84 ± 8.46	p = 0.410
Educational status			
High school	23 (8.8)	35.08 ± 9.31	
Vocational school	42 (16.0)	32.33 ± 7.85	F = 0.843
Undergraduate	179 (68.3)	34.48 ± 8.40	p = 0.472
Graduate	18 (6.9)	34.11 ± 8.56	
Works at			
Medical ICU	42 (16.0)	31.52 ± 7.79	
General surgery ICU	22 (8.4)	33.09 ± 7.81	
Coronary ICU	15 (5.7)	30.66 ± 8.31	
COVID-19 ICU	64 (24.4)	36.75 ± 8.33	
Reanimation ICU	57 (21.8)	35.15 ± 7.86	F = 1.786
General ICU	29 (11.1)	32.89 ± 10.80	p = 0.080
Cardiovascular surgery ICU	10 (3.8)	34.70 ± 9.39	
Neurology ICU	11 (4.2)	33.63 ± 8.36	
Brain surgery ICU	12 (4.6)	36.31 ± 7.68	
Nursing experience			
0–5 years	124 (47.3)	35.05 ± 7.69	
6–10 years	80 (30.5)	33.35 ± 8.78	F = 0.878
11–15 years	27 (10.3)	33.48 ± 8.32	p = 0.453
16 years and above	31 (11.8)	33.32 ± 10.14	
ICU experience			
1–3 years	176 (67.2)	33.93 ± 8.52	
4–6 years	33 (12.6)	37.66 ± 6.93	F = 2.666
7–9 years	29 (11.1)	33.37 ± 8.41	**p = 0.033***
10–12 years	16 (6.1)	34.75 ± 7.75	
13 years and above	8 (3.1)	28.00 ± 10.12	
Type of work shift			
Fixed day shift	27 (10.3)	33.70 ± 9.86	F = 3.909
Rotating shift	227 (86.8)	33.93 ± 8.07	**p = 0.021***
Fixed night shift	8 (3.1)	42.25 ± 9.54	

*Statistically significant values.

Australian and New Zealand critical care workers had moderate to extremely severe stress (Ruiz-Fernández et al., 2020; Hammond et al., 2021). The study of Arafa et al. on Saudi and Egyptian healthcare professionals reported that 19% of the participants had extremely severe stress (Arafa et al., 2021). Occupational stress level of the participants in our study was relatively higher than other studies conducted during the COVID-19 pandemic. This difference may stem from cultural differences or the use of different data collection tools on perceived stress. But more importantly, our study was conducted on ICU nurses whereas other studies included health professionals working at different departments. Working in the ICU during the pandemic is a serious factor of stress (Ma et al., 2020). Our findings support this claim.

ICU nurses experience difficult working conditions and heavy responsibilities, such as long and continuous care of critical and end-of-life patients (Mokhtari et al., 2020). They are expected to be flexible and have skills in order to rapidly respond to critical situations of the patients. These difficulties and expectations increase the burden on ICU nurses and result with higher occupational stress (Faraji et al., 2019). Primary reasons of occupational stress in our study were inadequate salary, heavy workload and prolonged fatigue, lack of protective equipment, worsening clinical conditions of the patients, more than 40 hours of work a week, negative environmental conditions at work and more than three patients per nurse. Similar to our findings, Hammond et al. reported inadequate workforce, lack of beds and equipment and being responsible for other staff as the factors of stress (Hammond et al., 2021). Arnetz et al. found that problems in workplace, lack of personal protective equipment and failure in treatment were the primary factors of stress (Arnetz et al., 2020).

During the pandemic, most of the hospitals were declared pandemic hospital and provided care mostly to the COVID-19 patients. Expect the emergency cases, planned surgeries were postponed and clinics were closed. Due to this reason, especially all of the emergency nurses provided care to COVID-19 patients. There were cases where the occupancy rate of emergency departments reached to 90% and even to 100% in some provinces. Besides, social rights of nurses, including retirement and annual leave, were postponed and they were forced to work for long hours without a break. Given that the prevalence of COVID reached to its peak in different cities at different times, not only those caring for covid-positive patients, but all ICU nurses were included in this study. As a result, it was determined that the occupational stress levels of covid, brain surgery and reanimation ICU nurses were higher than those working in other ICU, but this high was not statistically significant. This result is thought to be due to the nurses' fear of being infected at any time due to the asymptomatic feature of COVID-19 disease. Because of the nature of the ICU, nurses are in close contact with patients.

Unique structure of ICU, characteristics of patients, workload, physical environment and uncertainty about tasks are the factors that increase occupational stress levels of nurses (Alharbi and Alshehry, 2019; Faraji et al., 2019; Bulbuloglu et al., 2020). Regression analysis in our study showed that high working hours, nurse:-patient ratios, heavy workload and failure in patient treatment were the factors that increased PSS-14 scores of the participants. Factors related with the COVID-19 pandemic constituted additional factors of stress. Worrying about getting infected and passing the virus on to family members, lack of critical care experience and being unable to go home were the other stressors in our study. The study of Zhang et al. on frontline nurses in China found that homesickness (96%), uncertainty about the duration of the current working status, concerns about getting infected and skin damage caused by prolonged wearing of protective equipment were the main stressors (Zhang et al., 2020). Hammond et al. found that inexperience with critical patients, risk of infection, worrying about passing the virus on to family members and being responsible for other staff were factors of stress (Hammond et al., 2021). Qualitative study of Arnetz et al on nurses from the United States reported that getting infected, passing the virus on to other people and death of patients or family members were the main themes indicating factors of stress in the early stages of the pandemic (Arnetz et al., 2020). In this sense, most of the studies conducted during the COVID-19 pandemic reported issues related with families and working conditions in the ICU, such as, homesickness, and worrying about getting infected or passing the virus on to family

Table 4
Association between perceived stress and demographic characteristics.

Predictor variables	B	SE	Beta	p	95% CI	
					Lower	Upper
Constant	22.064	2.514		0.000	17.112	27.016
Not satisfied with the unit	1.831	1.114	0.104	0.102*	−0.363	4.024
More than 40 hours of work a week	4.252	1.056	0.252	**0.000****	2.173	6.331
More than three patients per nurse	1.863	1.062	0.106	**0.022****	0.229	3.956
Heavy workload and prolonged fatigue	3.119	1.271	0.150	**0.015****	0.616	5.622
Lack of protective equipment	0.207	1.073	0.012	0.847*	−1.905	2.320
Worsening clinical condition of the patient	0.295	1.095	0.017	0.788*	−2.451	1.862
Inadequate salary	1.470	1.356	0.064	0.279*	−1.201	4.142
Lack of team harmony	0.322	1.177	0.018	0.785*	−1.996	2.641
Exposure to negative environmental conditions at work	1.242	1.132	0.072	0.274*	−0.987	3.471
Cannot go home due to pandemic	2.716	1.709	0.098	0.113*	−0.649	6.082
Did not have critical care experience	1.471	1.410	0.066	0.298*	−1.307	4.249
Fear of infection	0.523	1.144	0.030	0.648*	−1.730	2.777
Failure in patient treatment	2.866	1.247	0.143	**0.022****	0.409	5.322
Worried about passing the virus on to family members	0.456	1.128	0.025	0.687*	−1.766	2.677

Perceived stress was the dependent variable in the multiple linear regression. β was the unstandardized coefficients; SE was the Standard error. R^2 = 0.206; Adjusted R^2 = 0.161.
*These were none significant factors on PSS scores.
**Statistically significant values.

members, as the factors of occupational stress. Consequently, healthcare institutions might provide support to family members of frontline nurses, supply sufficient protective equipment, employ adequate workforce and make improvements in their salaries in order to reduce occupational stress of frontline nurses.

Occupational stress levels of the participants in our study were significantly higher for the female ICU nurses without children, who had been working in the ICU for 4–6 years and worked at night shift. Similarly, Arafa et al. (2021) found that female sex, attending emergency and night shifts, watching or reading COVID-19 news for more than two hours a day and not getting emotional support were associated with high likelihood of stress. Higher occupational stress of female nurses that work at night shifts may result from the failure of these nurses to fulfil their responsibilities at home and to take part in social life. We also found that participants with higher professional experience had lower occupational stress. This situation may be explained with reference to acquiring professional skills and clinical competence over time, which, in turn, may reduce occupational stress of ICU nurses.

Participants, who had family members in high-risk groups for COVID-19 and who did not have any children under three years of age or permanent babysitter, had higher level of occupational stress but the difference was not statistically significant. Similarly, Arafa et al. reported that nurses that lived with children and older adults had higher level of stress (Arafa et al., 2021). These findings may imply that worrying about passing the virus on to family members may result with higher perceived stress. Besides, absence of permanent babysitter implies the lack of support for nurses, which, in turn, may increase occupational stress.

Findings of this study might be used to design and implement programs to reduce occupational stress in healthcare professionals and help healthcare managers to develop rational strategies. Occupational stress in our study was higher for female participants without children, who had been working in COVID-19 or brain surgery ICU, and had lower professional experience, an ICU experience of 4–6 years and fixed night shift. Consequently, programmess to reduce occupational stress might target the ICU nurses with these characteristics. First step of the programmess might include the issues of communication skills, stress and time management and experienced-inexperienced support groups. In the second stage, mental health experts might provide counseling service in the form of individual group counseling, conferences, online or multimedia platforms and mental health phone lines. Additionally, long-term studies on level and factors of stress in ICU nurses, which include actions and strategies to reduce occupational stress, might be conducted.

Limitations

This study is a potential source of information to determine level and factors of occupational stress in ICU nurses during the COVID-19 pandemic. The findings of this study might be used to identify the needs of nurses and develop support systems for stress management. In the research, data such as the total number of hospitals, intensive care size, bed capacity could not be reached; the collection of data via social media and whatsapp are the limitations of the research. In addition cross- sectional design of our study constitutes another limitation.

Findings of this study may be generalizable to all Turkish ICU nurses since the study was conducted with the participation of ICU nurses that worked in various ICU units in different regions of Turkey. Besides, it dealt with personal and occupational factors that may influence occupation stress, including, number of children, having child under three years of age, permanent babysitter and family members in high-risk groups for COVID-19.

Conclusions

This study found that ICU nurses in Turkey had moderate levels of occupational stress. Inadequate salary, heavy workload, risk of infection, lack of protective equipment, worrying about passing the virus on to family members, worsening clinical conditions of patients and high working hours were the factors of occupational stress. Besides, gender, number of children, years of experience in ICU and type of work shift influenced the level of occupational stress.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgment

I would like to acknowledge all the intensive care nurses who took part in this stuidy.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. (Date/Number: 23.10.2020/17)

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.iccn.2021.103107.

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