Original Article

COVID-19-Related Anxiety in Nurses Working on Front Lines in Turkey

Murat Saricam

Department of Thoracic Surgery, Namik Kemal Faculty of Medicine, Tekirdag, Turkey

ORCID:
Murat Saricam: 0000-0003-3469-5798

Abstract

Background: The novel coronavirus (COVID-19) pandemic constituted serious impacts globally. **Objectives:** The aim of this study was to investigate the pandemic related anxiety in nurses working in a university hospital in Turkey. **Methods:** A questionnaire-based study was conducted to include 123 nurses working in the wards and intensive care units (ICUs). Data concerning age, gender, marital status, having a child, duration of employment, workplace, and state anxiety score were collected for every participant. Turkish version of Spielberg's State-Trait Anxiety Inventory (Form TX-1) was applied to calculate the anxiety scores. Independent samples *t*-test and Chi-squared test were used for the statistical analysis. **Results:** Fifty-seven (46.3%) nurses demonstrated an elevated level of anxiety. COVID-19-related anxiety was closely associated with advancing age and years of experience, having a child and working in the wards rather than ICUs ($P < 0.05$). However, gender and marital status did not affect significantly on the development of higher anxiety ($P > 0.05$). **Conclusions:** Alleviation of worries of health-care providers is crucial in addition to the prevention of self-contamination to provide the continuation of medical services.

Keywords: *Anxiety, COVID-19, Health care, Nurse*

Introduction

Novel coronavirus (COVID-19) instantly appeared in Wuhan, China, in December 2019 and caused desperation and panic while spreading swiftly around the globe. The disease is frequently transmitted through fluid droplets expelled by the host. Clinical manifestations involve nasal discharge, sore throat, cough, fever, and dyspnea which may advance to death resulting from pneumonia and respiratory insufficiency.[1] Although there have been untiring efforts to identify the infected individuals and to constitute influential treatment protocols, mortality rates progress up to 10% in some countries.[1,2] Unfortunately, about 20% of the infected population include health workers.[3]

Anxiety is described as a natural response to stress characterized by feelings of worry and tension about an uncertain outcome which may interfere with daily and occupational activities.[4] Conserving both mental status and medical conditions of health-care providers who assume serious assignments to treat people with the coronavirus infection is crucial to provide continuance of efficient medical services.

During the COVID-19 pandemic, the contents of the published studies concerning health-care providers were frequently limited to the mortality rates in hospital staff, risks of self-contamination, and prevention from the disease. Along with the valuable efforts to keep nurses and doctors disease-free, recognizing their worries contributes to the provision of personal support and helps them survive and care for affected individuals.

Objectives

The aim of this study was to determine the factors affecting anxiety associated with COVID-19 in nurses who provided frontline health care at a pandemic hospital.

Address for correspondence: Dr. Murat Saricam, Department of Thoracic Surgery, Faculty of Medicine, Namik Kemal, Tekirdag, Turkey.
E-mail: msaricam@nku.edu.tr

How to cite this article: Saricam M. COVID-19-related anxiety in nurses working on front lines in Turkey. Nurs Midwifery Stud 2020;9:178-81.

Access this article online

Quick Response Code:

Website:
www.nmsjournal.com

DOI:
10.4103/nms.nms_40_20

METHODS

Study design and participants

A cross-sectional study was conducted between April 10 and April 20, 2020, on nurses who were working at the Namik Kemal University Hospital in Tekirdag, Turkey. We recruited all 123 nurses who were eligible and working full time in the study setting.

All nurses who consented to reply to the questionnaire were enrolled in the study. The exclusion criteria were having a psychiatric disorder or ongoing use of anxiolytic medications. The surveys including three or more unanswered statements were also regarded as invalid and not graded. The questionnaires were applied personally without the names of the participants and the results were evaluated by the same researcher.

Data concerning age, gender, marital status, having a child, duration of employment, workplace, and state anxiety score were collected for every participant. The total duration of employment as a nurse was recorded as years. The current workplace was considered as pandemic ward (if patients with COVID-19 infection were known), regular ward (if routine cases were accepted), or the intensive care unit (ICU). Turkish version of Spielberg's State-Trait Anxiety Inventory (STAI Form TX-1) was applied to participants.[5] The internal consistency for the state anxiety tool of the STAI is between 0.94 and 0.96.[6] Calculation of scores was performed via computer-aided software where higher points expressed elevated levels of anxiety. Score 57 which was the mean value of state anxiety scores in this series was considered as the cutoff point for the high and low anxiety levels.

Ethical considerations

This research was approved by the Tekirdag Namik Kemal Medical Faculty's Ethics Committee (reference number: GOEK/45-721). All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000. The participants gave written informed consent following personal briefings and enrolled in the study voluntarily. All the data and answers were kept confidential.

Data analysis

IBM SPSS Statistics for Windows, version 24 (IBM Corp., Armonk, N.Y., USA) was used for the data analysis. Descriptive statistics for continuous variables were expressed as mean, standard deviation, minimum, and maximum; categorical variables were expressed as frequency and percentage. The normality of the data set was confirmed by Shapiro–Wilk and skewness-kurtosis tests. Independent samples t-test and Chi-squared test were used for the statistical analysis. The statistical significance level (α) was taken as 5%.

RESULTS

The mean age was 30.6 ± 7.2 years for the whole group of nurses consisting of 91 (74%) females and 32 (26%) males. Seventy-six (61.8%) nurses were currently married and 48 (39%) had a child. The majority of nurses were working in pandemic wards ($n = 63$, 51.2%), whereas 27 (22%) were working in regular wards and 33 (26.8%) in ICUs. The mean duration of employment was 8.11 ± 5.98 years, while the mean state anxiety score was 570.0 ± 5.64 for the whole cohort [Table 1].

Low and high anxiety levels were identified in 66 (53.7) and 57 (46.3%) nurses, respectively. Forty female and 17 male participants developed higher level of anxiety. The mean age was 29.2 ± 6.86 years for low anxiety and 32.2 ± 6.94 years for high anxiety groups. The group who had developed low anxiety included 37 nurses who were married and 18 nurses who owned a child. The majority of the participants with high anxiety were working in pandemic ($n = 25$) and regular ($n = 24$) wards. The mean years of employment as a nurse was 6.80 ± 5.74 years for low and 9.63 ± 5.95 years for high anxiety groups, respectively.

Statistical analysis revealed that elevated levels of COVID-19-related anxiety were closely correlated

Table 1: Data concerning the general group of participants

Variables	n (%)
Gender	
Female	91 (74)
Male	32 (26)
Marital status	
Married	76 (61.8)
Single	47 (38.2)
Having a child	
Yes	48 (39)
No	75 (61)
Place of work	
Pandemic ward	63 (51.2)
Regular ward	27 (22)
ICU	33 (26.8)
Anxiety level	
Low	66 (53.7)
High	57 (46.3)
Total	123 (100)

	Mean ± SD	Minimum-maximum
Age (years)	30.6 ± 7.2	22-48
Duration of employment (years)	8.11 ± 5.98	1-21
Score of state anxiety	57.0 ± 5.64	45-68

ICU: Intensive care unit, SD: Standard deviation

with increasing age and years of employment, having a child and working in the wards rather than ICUs. However, gender and marital status did not demonstrate a statistically significant difference in the development of escalated anxiety. The comparison of groups is summarized in Table 2.

DISCUSSION

The findings of this study clearly indicated precipitating factors for COVID-19-related anxiety in nurses as advanced age and job experience, having a child and working outside ICU independently of gender or marital status.

After the first COVID-19 infected case was reported on March 11, 2020, in Turkey, the Ministry of Health provided a guideline which plotted a route to identify and treat the infected individuals, also informing about the procedures and usage of personal protective equipment to prevent the spread of the disease among health-care providers. Since then, updates were announced via regularly scheduled meetings and trainings by our own hospital administration. The routine screening was conducted in all hospital workers. Furthermore, maintaining continuity of health care, working timetables were designated to avoid the spread of the infection among staff by appointing members to well-organized shifts and essential daily routines and keeping the rest of staff members away from the risk of contamination.

In our country, nurses were appointed to regular wards of noninfected routine patients, pandemic wards of cases with a confirmed diagnosis of COVID-19, and ICUs where the infected and noninfected patients were isolated separately. Regardless of the workplace, the same safety measures were applied for all nurses including episodic medical checkups, full-fledged protective equipment, sufficient resting time, and isolation from family members. Following the end of shifts, nurses were enabled to stay in hotels that had been reserved for health-care providers by the government while strict quarantine procedures were administered for the slightest suspicion of contamination.

Unexpectedly, progressing pandemic resulted in catastrophic consequences that impacted social orders, economical activities, and health systems globally. However, health-care providers sustain their occupational responsibilities while exerting effort to prevent self-contamination. Mental status has precedence over the performance of workers as much as their physical conditions since the deterioration of mental health may be evident concomitant to continuing stress, worry, and fatigue caused by unexpected events.

Nurses in comparison with people in other jobs are more exposed to fatigue, depression, and anxiety due to occupational stress. The prevalence of depressive symptoms among nurses was announced to be ranging widely between 10% and 80%, whereas the incidence of anxiety in nursing professionals was reported as high as 66%.[7-10] Previous studies indicated predictive factors for these mental disorders as hard work conditions, working on shifts, insufficient rest, dissatisfaction with the job, marital status, and financial difficulties.[9-11]

Unfortunately, the current literature frequently includes data examining the mental status of infected individuals but only providing precautions and recommendations for the self-protection of health-care providers.[12-14] Chen *et al*. published an article concerning mental health care for medical staff in China also including some important hints. This study reported that most of the nurses with signs of irritability and distress due to working in a pandemic hospital stated their fears of spreading the virus to their families and the shortage of protective equipment. Moreover, feelings of incapability when faced with critically ill patients and the inability to deal with the patients who were unwilling to be quarantined at the hospital were evident among the nurses.[15]

In the present study, an elevated level of COVID-19-related anxiety was significantly related to advancing age and years of experience, working in wards rather than ICU, and having a child. Age, experience, and having a child may be accepted as correlated factors. Older and naturally more experienced

Table 2: Comparison of nurses in deference to anxiety levels

Variables	Level of anxiety		P
	Low, *n* (%)	High, *n* (%)	
Gender			
Female	51 (78.5)	40 (70.2)	0.371
Male	15 (21.5)	17 (29.8)	
Marital status			
Married	37 (56.1)	39 (68.4)	0.159
Single	29 (43.9)	18 (31.6)	
Having a child			
Yes	18 (37.5)	30 (52.6)	0.004
No	48 (62.5)	27 (47.4)	
Place of work			
Pandemic ward	38 (57.6)	25 (43.8)	<0.001
Regular ward	3 (4.6)	24 (41.2)	
ICU	25 (37.8)	8 (14)	
Age (mean ± SD) (years)	29.2 ± 6.86	32.2 ± 6.94	0.019
Duration of employment (mean ± SD) (years)	6.80 ± 5.74	9.63 ± 5.95	0.008

ICU: Intensive care unit, SD: Standard deviation

nurses developed higher anxiety since they found the opportunity to make a comparison between common diseases and the pandemic.

Nurses who had children developed higher anxiety due to possible fears of getting infected and leaving the children alone or taking the virus home. However, marriage alone was not a risk for anxiety.

Although the higher prevalence of anxiety in females shows that women are more sensitive to stressful events and approximately one-fourth of the nurses were males, a statistically significant difference in anxiety was not present in terms of gender. This finding demonstrated that pandemic related distress and worry is much more when compared to routine concerns affecting all individuals uniformly.

Place of work was significantly related to anxiety considering that nurses developed higher anxiety levels when they were on duty in the wards. Despite similar precautions provided in the wards, the sense of confidence and safety in well-organized ICUs with adequate self- protection procedures lowered the nurses' anxiety in these units.

During the pandemic, concerning the health conditions of nurses is essential, but their mental status also demands particular attention. Regular and individual appointments with psychiatrists may be scheduled to lend assistance to decrease anxiety and also recognize potential mental disorders in the early period.

The limitations mainly depended on the compelling conditions of the pandemic. All eligible nurses were enrolled in the study without a sample size calculation and power analysis. Moreover, the working design as a single-center workup and lack of data comparison due to the absence of similar studies in the literature were other limitations. A more detailed nationwide practice has been planned to include larger cohorts.

Conclusions

The escalated death toll due to swiftly spreading COVID-19 pandemic necessitated urgent measures and prohibitions which impacted the individuals globally. The mental status of health-care professionals was affected seriously inclusive of the effort to identify and treat infected people and also to protect themselves from contamination. to maintain the continuation of medical services, it is mandatory to assess the mental health of health workers as much as preventing the spread of the infection among them.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Cortegiani A, Ingoglia G, Ippolito M, Giarratona A. A systematic review on the efficacy and safety of chloroquine for the treatment of COVID-19. J Crit Care 2020;57:279-83.
2. Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, *et al*. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: A retrospective cohort study. Lancet 2020;395:1054-62.
3. Rothe C, Schunk M, Sothmann P, Bretzel G, Froeschl G, Wallrauch C, *et al*. Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. N Engl J Med 2020;382:970-1.
4. Maharaj S, Lees T, Lal S. Prevalence and risk factors of depression, anxiety and stress in a cohort of Australian nurses. Int J Environ Res Public Health 2019;16:108-18.
5. Oner N, State-Trait Anxiety Inventory In: Oner N, LeCompte A (editor) Anxiety Disorders Bogazici University publication 1985. p. 52-6.
6. Franck LS, Cox S, Allen A, Winter I. Measuring neonatal intensive care unit-related parental stress. J Adv Nurs 2005;49:608-15.
7. Ardekani ZZ, Kakooei H, Ayattollahi SM, Choobineh A, Seraji GN. Prevalence of mental disorders among shift work hospital nurses in Shiraz, Iran. Pak J Biol Sci 2008;11:1605-9.
8. Mulugeta H, Ayana M, Sintayehu M, Dessie G, Zewdu T. Preoperative anxiety and associated factors among adult surgical patients in Debre Markos and Felege Hiwot referral hospitals, Northwest Ethiopia. BMC Anesthesiol 2018;18:155.
9. Cheung T, Yip PS. Depression, anxiety and symptoms of stress among Hong Kong nurses: A cross-sectional study. Int J Environ Res Public Health 2015;12:11072-100.
10. Ohler MC, Kerr MS, Forbes DA. Depression in nurses. Can J Nurs Res 2010;42:66-82.
11. Veloso LU, Laurindo LM. Prevalence of anxiety in nursing professionals of urgency medicine. J Nurs UFPE 2016;8:3969-76.
12. Kibria MG. Prevalence of stress and coping mechanism among staff nurses of intensive care unit in a selected hospital. Int J Neurosurg 2018;2:8-12.
13. Johnson J, Hall LH, Berzins K, Baker J, Melling K, Thompson C. Mental healthcare staff well-being and burnout: A narrative review of trends, causes, implications, and recommendations for future interventions. Int J Ment Health Nurs 2018;27:20-32.
14. Gheshlagh RG, Parizad N, Dalvand S, Zarei M, Farajzadeh M, Karami M, *et al*. The prevalence of job stress among nurses in Iran: A meta-analysis study. Nurs Midwifery Stud 2017;6:143-8.
15. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, *et al*. Mental health care for medical staff in China during the COVID-19 outbreak. Lancet Psychiatry 2020;7:e15-6.