Depression, anxiety, and stress among Iranian nurses in COVID-19 care wards

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Abstract

Background: Nurses are at the frontline of care provision to patients with coronavirus disease 2019 (COVID-19). The high communicability of COVID-19, high levels of stress associated with the disease, and challenges of care provision to afflicted patients faced nurses in Iran with problems such as depression, anxiety, and stress. The aim of the study was to assess depression, anxiety, and stress among Iranian nurses who provided care to patients with COVID-19.

Methods: This cross-sectional descriptive-analytical study was conducted in 2020–2021. Participants were 468 nurses purposively selected from university hospitals in Iran. They completed two online instruments, namely a demographic questionnaire and the 21-item Depression Anxiety Stress Scale. Data were analyzed using the SPSS software (v. 23.0).

Results: Most participants were female (75.9%) and married (73.4%) and held bachelor’s degree (88%). The means of participants’ age and work experience were 33.59 ± 6.40 years and 10.26 ± 6.61 years, respectively. The mean scores and the prevalence rates of depression, anxiety, and stress were 13.56 ± 5.37 and 74.1%, 13.21 ± 4.90 and 89.7%, and 15.13 ± 4.76 and 54.9%, respectively. The prevalence rates of moderate to severe depression, anxiety, and stress were 43.7%, 73%, and 24%, respectively. The mean scores of participants’ depression, anxiety, and stress had significant relationship with their employment status (p < 0.05). Besides, the mean scores of their anxiety had significant relationship with their educational level, employment status, and work shift (p < 0.05).

Conclusion: Most nurses who provide care to patients with COVID-19 suffer from depression, anxiety, and stress. Psychological support services may be needed for nurses in order to protect and promote their mental health.

Keywords: Coronavirus disease 2019, Stress, Anxiety, Depression, Nurse

Background

Coronavirus disease 2019 (COVID-19) is an emerging infectious disease first isolated and reported in January 7, 2020, in Wuhan, China, and rapidly spread worldwide [1]. By November 3, 2021, the total number of afflicted patients and the total number of deaths due to COVID-19 in the world were 248,385,611 and 5,031,006, respectively [2]. COVID-19 can be transmitted through close contacts and has an average incubation period of five days, which may sometimes reach to fourteen days. Almost all afflicted patients experience one or more symptoms during the first 5–12 days after affliction. The symptoms of COVID-19 widely vary so that some patients may be asymptomatic or experience the mild symptoms of upper respiratory tract infection, while some patients may experience severe respiratory symptoms. Fever is often the most common symptom which may appear alone or in association with dry cough, dyspnea, myalgia, dizziness, headache, sore throat, rhinorrhea, chest pain, nausea, and vomiting. Studies show that acute respiratory distress syndrome happens in almost 15% of afflicted

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patients and 50%-85% of afflicted patients hospitalized in intensive care unit experience hypoxia and respiratory distress [3–5].

Nurses, as the largest group of healthcare providers, have significant role in care provision to healthcare clients [6]. Nursing is a highly stressful job and nurses usually have high levels of physical and mental workload [7]. During epidemics, nurses face serious health threats due to the necessity of using heavy personal protective equipment, risk of affliction by infection, and risk of infection transmission to others [8, 9]. Nurses are at the frontline of care provision to COVID-19-afflicted patients and spend a great deal of time in close contact with them and hence, are greatly at risk for affliction by the disease or transmission of the disease to others [10, 11]. On the other hand, the COVID-19 pandemic has increased nurses' workload due to the high levels of stress associated with the pandemic, frequent changes in the behaviors of the virus, and high communicability of the disease, and led to the shortage of equipment, physical burnout, and ethical distress for nurses [12–15]. Besides, nurses in Iran face problems such as inappropriate work schedule, inadequate organizational support, shortage of experienced staff, and limited specialized education about COVID-19 [16]. The healthcare system of Iran also suffers from serious problems such as lack of medical equipment, lack of COVID-19 diagnostic kits, and lack of COVID-19 vaccines due to international sanctions. On the other hand, factors such as limited public adherence to COVID-19 guidelines, limited public trust in media, large number of individuals who request healthcare services in healthcare settings, and poor healthcare management and planning have significantly increased the prevalence and mortality rates of COVID-19 in Iran [17, 18]. These problems have caused high levels of stress and anxiety for nurses [10, 16].

Stress is an actual or interpreted threat to physiological or psychological integrity which leads to physiological or behavioral responses [19]. Occupational stress is an interaction between occupational conditions and workers which is associated with changes in employee’s physiological and psychological status and functioning [20, 21]. Anxiety is also defined as the prediction of a threat in future and is characterized by disturbing feelings such as uncertainty, horror, and fear [22, 23]. Long-term stress and anxiety can lead to depression which is a prevalent and serious medication condition with negative effects on feelings, thinking, and functioning. Depression can in turn lead to sorrow, unhappiness, loss of interest in previously enjoyable activities, different physical and emotional problems, and reduced functional ability [24].

Studies showed that during the Severe Acute Respiratory Syndrome epidemic in 2003 in Taiwan and Singapore, nurses who provided care to afflicted patients suffered from mental health problems such as anxiety, depression, and hostility [25–27]. Similarly, nurses who provided care to patients with Middle East Respiratory Syndrome reported problems such as fear, anger, and mental distress [28]. The results of a study also showed that the prevalence of mental health problems among nurses who provided care to patients with COVID-19 was 32.9% for posttraumatic stress disorder, 75.3% for anxiety, and 28.8% for depression [10]. Another study in China showed that more than 70% of healthcare providers who provided care to patients with COVID-19 suffered from mental health problems such as anxiety, depression, and sleeplessness [29]. The negative effects of infectious disease epidemics on mental health among healthcare providers can last for long times after the end of the epidemics and may lead to problems such as depression, stress, and posttraumatic stress disorder [10, 13, 14].

Previous studies reported the significant effects of mental disorders among nurses on the quality of their care services [15, 30]. Therefore, careful attention to nurses’ mental health is needed. Given the significant effects of the COVID-19 pandemic on nurses’ mental health, context-based studies in different areas are needed to assess nurses’ psychological experiences of care provision to afflicted patients. Similarly, regular screening for their mental health problems, particularly stress, anxiety, and depression, is essential [31, 32]. Nonetheless, there are limited data in this area in Iran and hence, the present study was conducted to reduce this gap and help policy makers develop culturally appropriate managerial and protective plans. The aim of the study was to assess depression, anxiety, and stress among Iranian nurses who provided care to patients with COVID-19. We had the hypothesis that depression, anxiety, and stress were highly prevalent among Iranian nurses who provide care to patients with COVID-19.

**Methods**

**Study design**

This cross-sectional descriptive-analytical study was conducted from May 2020 to March 2021 based on the Strengthening the Reporting of Observational studies in Epidemiology (STROBE) guideline [33].

**Participants and setting**

The statistical population of the study consisted of nurses in the COVID-19 care wards of hospitals affiliated to medical sciences universities in Iran. Using the Cochran formula and with a confidence level of 0.95, a power of 0.90, and an effect size of 0.05, sample size was calculated to be 384 [34]. Sampling was purposively performed
based on the following criteria: care provision to patients with COVID-19 in COVID-19 care wards, work experience of at least one month in COVID-19 care wards, work experience of at least one year in nursing, no significant life events (such as significant losses, divorce, etc.) in the past six months, no self-reported use of antidepressant, anxiolytic, or psychotropic agents, and agreement for participation. Participants who incompletely answered the study instruments were excluded.

Instruments
Instruments for data collection were demographic and occupational characteristics information and the Depression Anxiety Stress Scale (DASS) [35]. The demographic and occupational characteristics information had nine items on age, gender, marital status, educational level, work experience, affiliated COVID-19 ward (emergency ward, intensive care unit, or internal medicine ward), employment status, work shift, and number of overtime work hours per month.

The original Depression Anxiety Stress Scale (DASS) has 42 items in the three subscales of depression, anxiety, and stress. Its short form, used in the present study, has 21 items in three seven-item subscales. This scale is a standard self-report instrument developed by Antony et al. in 1988 for assessing the symptoms of depression, anxiety, and stress among individuals without the diagnosis of depression, anxiety, and stress [35, 36]. Items are scored on a four-point scale from zero (“Does not apply to me at all”) to 3 (“Applies to me very much”). Therefore, the possible total score of each seven-item subscale can be 0–21. As the 21-item scale is the short form of the 42-item scale, its scores should be doubled for interpretation as normal, mild, moderate, severe, and extremely severe as shown in Table 1 [35–38]. The total score is not reported for this scale. Previous studies confirmed the acceptable validity and reliability of this scale [39–42]. A study in Iran assessed the psychometric properties of this scale and reported that its Cronbach's alpha and test–retest correlation coefficients were 0.7 and 0.81 for its depression subscale, 0.67 and 0.73 for its anxiety subscale, and 0.49 and 0.81 for its stress subscale [39].

Data collection
Data collection instruments were distributed among nurses online in the study setting through WhatsApp, Telegram, or Eta applications and they were asked to complete them. Nurses who completed and sent us the instruments were assessed for eligibility and were included in the study if satisfied the eligibility criteria.

Data analysis
Data were analyzed using the SPSS software (v. 23.0). Data normality was tested through the Shapiro–Wilk test which showed the normal distribution of the mean scores of depression \( (p = 0.126) \), anxiety \( (p = 0.175) \), and stress \( (p = 0.252) \). The measures of descriptive statistics (namely frequency distribution, mean, and standard deviation) were used for data summarization and description. The Pearson's correlation analysis was used to assess the correlation of the mean scores of depression, anxiety, and stress with age, work experience, and overtime work per month. Moreover, the differences in the mean scores of depression, anxiety, and stress with categorical variables including gender, marital status, educational level, affiliated ward, and employment status were tested through the independent-sample \( t \) test and the one-way analysis of variance. The multiple linear regression analysis with the Stepwise method was also used to determine the predictors of depression, anxiety, and stress. Independent variables were variables that had significant relationship with depression, anxiety, and stress and were separately entered into the model. The level of significance was set at less than 0.05.

Ethical considerations
The Ethics Committee of the University of Social Welfare and Rehabilitation Sciences, Tehran, Iran, approved this study (code: IR.USWR.REC.1399.105). Participants completed and signed the online informed consent form of the study which included information about the authors, aim of the study, confidentiality of the study data, and voluntariness of participation in and withdrawal from the study. They could access and complete the study instruments only if they signed the informed consent form of the study.

Results
A total of 479 nurses from COVID-19 care wards answered the study instruments. Eleven nurses (2.3%) incompletely answered the instruments and were excluded and final data analysis was performed on the data obtained from 468 nurses. Most participants were female (75.9%) and married (73.4%), held bachelor's degree (88%), worked rotating shifts (72.1%), and

| Subscales | Interpretation |
|-----------|---------------|
| Normal | Mild | Moderate | Severe | Extremely severe |
| Depression | 0–9 | 10–13 | 14–20 | 21–27 | 28+ |
| Anxiety | 0–7 | 8–9 | 10–14 | 15–19 | 20+ |
| Stress | 0–14 | 15–18 | 19–25 | 26–33 | 34+ |
had official employment (51.3%). The means of participants’ age, work experience, and overtime work per month were 33.59 ± 6.40 years, 10.26 ± 6.61 years, and 59.06 ± 36.04 h, respectively (Table 2).

The mean scores of participants’ depression, anxiety, and stress were 13.56 ± 5.37, 13.21 ± 4.90, and 15.13 ± 4.76, respectively. Moreover, the overall prevalence rates of depression, anxiety, and stress were 74.1%, 89.7%, and 54.9% and the prevalence rates of moderate to severe stress, anxiety, and depression were 43.7%, 73%, and 24%, respectively (Table 3).

Relationship analysis revealed that the mean scores of participants’ depression, anxiety, and stress had no significant relationship with their age, gender, affiliated ward, work experience, and overtime work hours per month. However, the mean score of their anxiety had significant

### Table 2  Participants’ demographic characteristics and their relationships with the mean scores of depression, anxiety, and stress

| Characteristics                              | N (%) or Mean ± SD | Stress Mean ± SD | Anxiety Mean ± SD | Depression Mean ± SD |
|----------------------------------------------|--------------------|-----------------|-------------------|---------------------|
| Gender                                       |                    |                 |                   |                     |
| Female                                       | 355 (75.9)         | 15.23 ± 4.73    | 13.16 ± 4.92      | 13.56 ± 5.48        |
| Male                                         | 113 (24.1)         | 14.87 ± 4.89    | 13.34 ± 4.86      | 13.58 ± 5.10        |
| Test resultsa                                |                   |                 |                   |                     |
| r = 0.706                                    | p = 0.553          | t = 0.337       | p = 0.414          |
| Age (Years)                                  | 33.59 ± 6.40       | 15.13 ± 4.76    | 13.21 ± 4.90      | 13.56 ± 5.37        |
| Test resultsb                                | r = 0.02           | r = 0.03        | r = 0.01           |
| p = 0.634                                    | p = 0.423          | p = 0.865       |                   |
| Marital status                               |                    |                 |                   |                     |
| Married                                      | 333 (71.2)         | 15.06 ± 4.70    | 13.26 ± 5.05      | 13.51 ± 5.55        |
| Single                                       | 135 (28.8)         | 15.30 ± 4.90    | 13.09 ± 4.54      | 13.70 ± 4.95        |
| Test resultsa                                |                   |                 |                   |                     |
| r = 0.501                                    | t = 0.359          | t = 0/353       |                   |
| p = 0.355                                    | p = 0.073          | p = 0.503       |                   |
| Educational level                            |                    |                 |                   |                     |
| Bachelor’s                                   | 412 (88.0)         | 15.07 ± 4.70    | 13.25 ± 4.76      | 13.55 ± 5.37        |
| Master’s                                     | 56 (12.0)          | 15.59 ± 5.24    | 12.94 ± 5.85      | 13.67 ± 5.42        |
| Test resultsa                                | r = 0.772          | t = 0.436       | t = −0.153        |
| p = 0.415                                    | p = 0.013          | p = 0.461       |                   |
| Affiliated COVID-19 care ward                |                    |                 |                   |                     |
| Internal medicine                            | 208 (44.4)         | 14.62 ± 4.52    | 13.00 ± 4.56      | 13.43 ± 5.88        |
| Intensive care                               | 158 (33.8)         | 15.81 ± 4.91    | 13.63 ± 5.17      | 13.89 ± 5.19        |
| Emergency                                    | 102 (21.8)         | 15.09 ± 5.00    | 13.30 ± 4.91      | 13.84 ± 5.21        |
| Test resultsa                                | F = 1.884          | F = 0.916       | F = 0.886         |
| p = 0.131                                    | p = 0.433          | p = 0.448       |                   |
| Work experience (Years)                      | 6.61 ± 0.26        | 15.13 ± 4.76    | 13.21 ± 4.90      | 13.56 ± 5.37        |
| Test resultsb                                | r = 0.01           | r = 0.03        | r = 0.01           |
| p = 0.927                                    | p = 0.478          | p = 0.824       |                   |
| Employment status                            |                    |                 |                   |                     |
| Permanent official                           | 240 (51.3)         | 14.90 ± 4.58    | 13.02 ± 5.02      | 13.42 ± 5.48        |
| Conditional official                         | 66 (14.0)          | 14.61 ± 4.67    | 12.18 ± 4.25      | 12.48 ± 4.98        |
| Contractual                                  | 84 (17.9)          | 14.94 ± 4.91    | 13.61 ± 5.09      | 13.45 ± 5.75        |
| Mandatory post-graduation service            | 78 (16.7)          | 16.82 ± 5.55    | 15.05 ± 4.87      | 15.24 ± 5.17        |
| Test resultsa                                | F = 1223           | F = 3.462       | F = 2.996         |
| p = 0.015                                    | p = 0.008          | p = 0.018       |                   |
| Overtime work per month (Hours)              | 59.05 ± 36.04      | 15.13 ± 4.76    | 13.21 ± 4.90      | 13.56 ± 5.37        |
| Test resultsb                                | r = 0.02           | r = 0.04        | r = 0.02           |
| p = 0.586                                    | p = 0.389          | p = 0.549       |                   |
| Work shift                                   |                    |                 |                   |                     |
| Day                                          | 79 (16.9)          | 14.75 ± 4.72    | 12.89 ± 4.90      | 13.29 ± 4.76        |
| Night                                        | 44 (9.4)           | 15.77 ± 5.07    | 15.23 ± 5.07      | 15.02 ± 5.30        |
| Rotating                                     | 345 (73.7)         | 15.14 ± 4.74    | 13.04 ± 4.83      | 13.45 ± 5.50        |
| Test resultsa                                | F = 0.655          | F = 4.009       | F = 1.684         |
| p = 0.520                                    | p = 0.019          | p = 0.187       |                   |

*Depression Anxiety Stress Scale (DASS-21)[33]

a The results of the independent-sample t test

b The results of the Pearson’s correlation analysis

c The results of the one-way analysis of variance
differences with their educational level, employment status, and work shift and the mean scores of their depression and stress had significant differences with their employment status ($p < 0.05$). The results of the Tukey’s post hoc analysis showed that the mean scores of depression, anxiety, and stress among nurses who were doing their mandatory post-graduation services were significantly greater than all other nurses ($p < 0.05$). Moreover, nurses with master’s degree obtained significantly lower anxiety scores than nurses with bachelor’s degree and nurses with night work shift obtained significantly higher anxiety scores than nurses with day or rotating shift ($p < 0.05$) (Table 2).

Multiple regression analysis with the Stepwise method showed that employment status significantly predicted 6% of the variance of stress mean score and 11% of the variance of depression mean score ($p < 0.05$). Moreover, educational level and work shift significantly predicted 13% of the variance of anxiety mean score ($p < 0.05$) (Table 4).

**Discussion**

This study assessed depression, anxiety, and stress among Iranian nurses who provided care to patients with COVID-19. The mean score and the prevalence rate of stress were $15.13 \pm 4.76$ and $54.9\%$, respectively. This is in line with the findings of several previous studies which reported that the prevalence of stress was $48\%$ among nurses in Iran during the COVID-19 pandemic [43], $56\%$ among nurses in Singapore during the Severe Acute Respiratory Syndrome epidemic [25], and $55.9\%$ among healthcare providers in Egypt and Saudi Arabia during the COVID-19 pandemic [44]. These findings imply that more than half of the nurses who provide care to patients with COVID-19 suffer from stress. Stress can negatively affect their health and care quality [15, 30]. Therefore, strategies such as education about stress management strategies and psychological counseling and support are needed to reduce nurses’ stress.

The mean score and the prevalence rate of anxiety in the present study were respectively $13.21 \pm 4.90$ and $89.7\%$, while $73\%$ of participants reported moderate to severe anxiety. This is in agreement with the findings of a study in Ethiopia which reported high levels of anxiety among nurses in COVID-19 care wards mostly due to unavailability of a guideline, fear of infecting family, and having chronic diseases. The prevalence of anxiety in that study was as high as $69.6\%$ [31]. Several other studies also reported high levels of stress and anxiety among nurses in COVID-19 care wards mostly due to the necessity of long-term quarantine, fear over affliction by the disease, financial strains, despair, limited perceived support, and shortage of medications, equipment, and resources [16, 32, 45, 46]. However, anxiety prevalence in the present study was much higher than the anxiety prevalence rates in previous studies. For example, a study on 1257 healthcare providers in 34 hospitals in China reported an anxiety prevalence of $44.6\%$ [29]. Moreover, a study during the COVID-19 pandemic found that the prevalence of anxiety among nurses in Iran was $38.8\%$ [47]. A systematic review and meta-analysis on 93 studies also showed that the overall prevalence of anxiety among the 93,112 studied nurses was $37\%$ [48]. Although the prevalence of anxiety among healthcare providers generally increases during infectious disease epidemics, the much higher

### Table 3: The severity of participants’ depression, anxiety, and stress*

| Severity      | Depression | Anxiety | Stress |
|---------------|------------|---------|--------|
|               | N (%)      | N (%)   | N (%)  |
| Normal        | 121 (25.9) | 48 (10.3)| 211 (45.1)|
| Mild          | 142 (30.4) | 78 (16.7)| 146 (31.2)|
| Moderate      | 156 (33.3) | 182 (38.9)| 99 (21.1)|
| Severe        | 39 (8.3)   | 105 (22.4)| 12 (2.6)|
| Extremely Severe| 10 (2.1)  | 55 (11.7)| 0 (0)   |
| Mean ± SD     | 13.56 ± 5.37| 13.21 ± 4.90| 15.13 ± 4.76|

*Depression Anxiety Stress Scale (DASS-21) [35]
anxiety prevalence in the present study compared with previous studies may be due to the differences among studies regarding contextual factors such as financial and sociocultural challenges.

Study findings also showed that the mean score and the prevalence rate of depression were respectively 13.56±5.37 and 74.1%, and 43.7% of participants suffered from moderate to severe depression. The prevalence of depression among healthcare providers in studies conducted during the COVID-19 pandemic was 37.4%–64.7% [29, 43, 47, 49]. Depression can disturb thinking and functioning [43, 49]. The high prevalence of depression among healthcare providers highlights the necessity of healthcare authorities’ urgent attention and serious interventions to reduce mental health problems.

We also found that the mean scores of depression, anxiety, and stress had no significant relationship with age, gender, affiliated ward, work experience, and overtime work hours per month. In line with this finding, a study reported the insignificant relationship of age with depression, anxiety, and stress [50]. A study also found that the relationship of the mean scores of depression and stress with age, marital status, educational level, and work experience was not significant, while the mean scores of depression and anxiety among female nurses were more than male nurses [47]. Another study also reported higher anxiety and stress mean scores among female nurses [51]. Moreover, a study during the COVID-19 pandemic found higher depression among female physicians, higher stress among younger physicians, and higher anxiety among physicians with more weekly work hours [49]. The insignificant relationship of age and gender with the mean scores of depression, anxiety, and stress in the present study highlights the importance of careful attention to nurses of both genders and different age groups.

Our findings also showed that the mean scores of depression, anxiety, and stress had significant differences with employment status and were significantly higher among nurses who were doing their mandatory post-graduation services. This finding may be due to lower work experience, greater job insecurity, and higher workload of these nurses. Studies show that in the COVID-19 pandemic, nurses with lower work experience suffer from high levels of psychological strain due to their heavy workload and care provision to critically-ill patients [9, 51, 52]. Meanwhile, most nurses have limited access to mental healthcare services due to their heavy workload. Unstable employment status and limited job security also increase their stress and anxiety [9, 53].

Moreover, we found that the mean score of anxiety among nurses with master’s degree was significantly lower than nurses with bachelor’s degree. However, a former study did not find any significant relationship between educational level and mental health problems among nurses [47]. This inconsistency highlights the importance of further studies in this area. Another finding of the present study was the higher mean score of anxiety among nurses who did night shifts compared with nurses who did day or rotating shifts. In agreement with this finding, a previous study reported that the mean scores of depression, anxiety, and stress among physicians who did night or rotating shifts were significantly higher [49]. This may be due to the negative effects of fatigue, poor rest and sleep, and staff shortage on mental health among healthcare providers who do night shift. Long work hours, inappropriate work schedule, and separation from family contribute to mental health problems among nurses [52–54]. Therefore, strategies such as improvement of nurses’ work schedule and reduction of their work hours are needed to improve their mental health.

Strengths
This study was conducted at national level and while nurses in Iran experienced high levels of psychological strain due to the shortage of medications, personal protective equipment, and vaccines approved by the World Health Organization resulting from extensive international sanctions against Iran.

Limitations
One of the limitations of the present study was its cross-sectional uncontrolled design which provided no reliable data about causal relationships among the study variables. Moreover, we had no data about the mean scores of participants’ depression, anxiety, and scale before the COVID-19 pandemic. Data collection was performed online due to COVID-19-related restrictions. Moreover, data were collected through a single self-report instrument and hence, participants’ mental status might have affected their responses to the instruments. The instrument used in this study for mental health assessment is a valid instrument for the assessment of depression, anxiety, and stress but its data cannot be used for the diagnosis of mental health problems.

Conclusion
This study suggests that most nurses who provide care to patients with COVID-19 suffer from depression, anxiety, and stress. Comprehensive interventions for the early diagnosis and management of the symptoms of depression, anxiety, and stress among nurses can prevent serious consequences, improve nursing care quality, and enhance patient satisfaction. Healthcare authorities and policy makers are recommended
to employ serious interventions to identify nurses at risk for mental health problems and provide them with psychiatric counseling services as well as education about stress management in order to improve their mental health. The findings of this study can be used to develop plans for improving nurses’ employment status and reducing their work hours.

Abbreviations
COVID-19: Coronavirus disease 2019; DASS: Depression anxiety stress scales; STROBE: Strengthening the reporting of observational studies in epidemiology; SPSS: Statistical product and service solutions.

Acknowledgements
We would like to thank the Research and Technology Administration of the University of Social Welfare and Rehabilitation Sciences, Tehran, Iran, for providing the necessary permissions for the study as well as the nurses who participated in the study.

Author contributions
All authors had significant roles in designing, conceiving, and conducting the study and drafting the manuscript. AS, MFK, SM, ZJ, MAA, NM, NFK and PR contributed to designing the study. AS, MZ, ZJ, MAA, NM, NFK and PR collected the data, and analyzed by AZ. MFK and SM were supervisors of the whole research and checked the data. The final report and article were written by AS, MFK, and SM. All authors read and approved the final manuscript.

Funding
This study was approved and financially supported by the University of Social Welfare and Rehabilitation Sciences, Tehran, Iran (grant number: 2463). The funding body had no role in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

Availability of data and materials
Study data are accessible at formal request and with the permission of the authorities of the University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

Declarations
Ethics approval and consent to participate
The Ethics Committee of the University of Social Welfare and Rehabilitation Sciences, Tehran, Iran, approved this study (code: IR.USWR.REC.1399.105). Participants completed and signed the online informed consent form of the study which included information about the authors, aim of the study, confidentiality of the study data, and voluntariness of participation in and withdrawal from the study. They could access and complete the study instruments only if they signed the informed consent form of the study.

Consent for publication
Not applicable.

Competing interests
The authors declared that they have no competing interests.

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Received: 14 March 2022 Accepted: 16 August 2022
Published online: 20 August 2022

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