Perceived stress and burden of caregiving among nurses in the United Arab Emirates during the COVID-19 pandemic

Rose Ekama Ilesanmi¹, Victoria Funmilayo Hanson², Eman Abdelaziz Rashad Dabou³, Carol Avil Mathias⁴

¹RAK College of Nursing, RAK Medical and Health Sciences University, Ras Al-Khaimah, United Arab Emirates; Department of Nursing, University of Ibadan. Ibadan, Nigeria.

²RAK College of Nursing, RAK Medical and Health Sciences University, Ras Al-Khaimah, UAE

³Department of Medical-Surgical Nursing, Faculty of Nursing, Alexandria University, Egypt; RAK College of Nursing, RAK Medical and Health Sciences University, Ras Al-Khaimah, United Arab Emirates.

⁴Department of Psychology, RAK Medical and Health Sciences University, Ras Al-Khaimah, United Arab Emirates.

Citation: Rose Ekama Ilesanmi, Victoria Funmilayo Hanson, Eman Abdelaziz Rashad Dabou, Carol Avil Mathias (2021) Perceived stress and burden of caregiving among nurses in the United Arab Emirates during the COVID-19 pandemic. Medical & Clinical Research 6(6): 615-6123.

Abstract
Objective: To examine the perceived stress and burden of caregiving during the COVID-19 pandemic among nurses in the United Arab Emirates.

Method: A descriptive survey was conducted in two selected hospitals in the UAE. A non-probability voluntary sample (n=64) of nurses working in the Intensive Care Unit (n=41) and isolation wards (n=24) was taken. Each respondent completed an online validated Perceived Stress Scale (PSS) Cronbach’s alpha=0.754; and Professional Care Team Burden Scale (Short version) Cronbach’s alpha =0.785. Range of scores on PSS was 0-40, categorized as, Low: 0-13, Moderate: 14-26 and High: 27-40, while the PCTB score was categorized into Low: 0-13, Moderate: 14-26 and High: 27-40. Pearson (r) correlation was used to determine the relationship between perceived stress and burden of care at 5% level of significance.

Results: Respondents’ mean age was 38.81 ± 7.23. In all, 61 nurses (95.3%) engaged in 12-hours duty, 59.4% were confident of fighting the virus and 57 (89.1%) signed up to work in these units, despite the fear of infecting their families (78.1%). Perceived stress scale showed that 50 (78.1%) experienced moderate level of stress with only 3.1% reporting high level of stress (x̄=18.3.47 ± 5.3), while 40 (62.5%) reported low burden of care (11.98 ± 3.78). There was positive correlation between mean PSS score and the PCTB (r=0.451, p=0.000).

Conclusion: Reported moderate perceived stress may suggest vulnerability to stress-related illness. Routine screening and more support from their employers to mitigate the adverse effects on their health is recommended.

Keywords: Perceived Stress; Care Burden, COVID-19, Psychological Burden, United Arab Emirates

Introduction
The COVID-19 pandemic has greatly impacted the healthcare systems across the world, resulting in significant changes due to large-scale admission of critically ill patients in intensive care units. Expectedly, this resulted in additional care demand on nurses in terms of increased working hours, with sophisticated equipment and resultant stress [1].

Coronavirus disease (Covid-19) was first reported from China in December 2019, and by January 2020, the World Health Organization declared COVID-19 an international public health emergency [2]. Till date, the infection rates continue to swell
Stress among health-care providers during any pandemic is well documented. For example, a report of empirical phenomenological research [11] on experiences of nurses (n=9) and physician (n=4) during the early phase of the pandemic in China, suggested feelings of exhaustion which was linked to heavy workloads and having to wear protective gear, coupled with fear of becoming infected and their family. However, the authors concluded that although the professionals were both physically and emotionally drained, they maintained resilience and a spirit of professionalism. Many nurses signed up to work under conditions that posed substantial risks to their overall health and well-being [12], notwithstanding the inadequate understanding at that time.

Several studies have been conducted in the wake of the current pandemic across different countries on the psychological impact of COVID-19 on healthcare workers. Findings from these studies confirm different levels of physical and psychological instability, and stress experienced by nurses as frontline care providers. In China, Lai et al. [13] reported a significantly high level of depression, anxiety, insomnia, and distress in 41.5% of nurses and physicians (n=1257) caring for patients with COVID-19. Furthermore, Peter et al. [14] also reported substantial levels of anxiety and stress in health-care professionals.

Within the Gulf region, some authors [15] examined the mental health status of healthcare providers during COVID-19 in Oman. Authors reported a high prevalence of stress, anxiety, and poor psychological well-being, especially among females, young health care workers and those who interacted with known or suspected COVID-19 patients. In another study, in the Kingdom of Saudi Arabia among 502 healthcare providers, ALateeq et al. [16] reported that more than half of respondents had depressive disorder (55.2%), which ranged from mild (24.9%), moderate (14.5%), and moderately severe (10%) to severe. In the UAE, a study among health service employees in Abu Dhabi indicated that 77.4% (n=2184) obtained normal to mild scores on the Depression Anxiety Stress Scale-21 (DASS-21) [17].

Stress is integral to human existence, but when it becomes prolonged, individuals’ coping strategies may become overwhelmed, resulting in reduced work output, increased absenteeism and poor coping abilities [18]. For nurses, such outcomes of stress may hinder job performance and create uncharacteristic errors at work [19]. This study aimed at examining the levels of stress and burden of care experienced by nurses who provide direct care to patients with COVID-19 in selected hospitals in the UAE.

**Materials and Methods**

**Research Design:** A cross-sectional descriptive design was adopted.

**Setting:** The study was conducted in two major hospitals in the UAE. Both hospitals are funded by the state government. In Hospital A, the intensive care unit (ICU) comprises a 13-bed capacity with 42 nurses running 12 hours shift duty. On the other hand, Hospital B was converted into an isolation hospital during the pandemic, and 143 nurses are working in the isolation unit and running 12 hours shift duty.

**Study Participants:** Professional nurses who provided direct care for COVID-19 patients in intensive care units (ICU) and isolation units in the selected hospitals.

**Sample Size:** A total sample size of 185 nurses working in the ICU and Isolation wards of each hospital: A=42 nurses, B=143 nurses. This sample size was calculated with the assumption of a 50% response rate and 95% confidence interval (CI) and error margin. Therefore, the proportion sample based on the population in each hospital was: - Hospital A: 38 nurses & Hospital B: 105 nurses.

**Selection Method:** A non-probability voluntary response sampling technique was applied. Only nurses who provided consent took part in the study. In the phase of the pandemic, which made direct selection difficult, an online survey powered by Google forms was used and respondents who volunteered to participate completed the online survey.

**Inclusion Criteria:** Only nurses in the direct care of patients with COVID-19 in ICU and isolation wards in the two selected hospitals were recruited.

**Exclusion Criteria:** Nurses who do not engage in direct care to patients on the selected wards, including the supervisors and clinical resource nurses (CRNs).

**Tool and Instruments:** A structured questionnaire consisting of three sections was utilized and described below:

**Section I:** Socio-demographic data: It included participants’ data such as age, sex, and experience in a nursing specialty.

**Section II:** Perceived Stress Scale (PSS): This validated instrument was used with the author’s permission. It is a 10-item scale, which is used to measure perceived stress levels. Participants were required to express their feelings and thoughts for 10 statements on a 5-point Likert scale ranging from 0 to 4, where 0=never, 1=almost never, 2=sometimes, 3=fairly often, and 4=very often [20]. After reversing items 4, 5, 7 & 8, the scores were totaled yielding 3 levels of stress, namely, Low: 0-13, Moderate: 14-26 and High: 27-40.

The Cronbach’s alpha on the PSS was found to be 0.754. PSS scores
were correlated with General Anxiety disorder-7 (GAD-7): (r = .27, p < .01). The Pearson correlation between the PSS and PCTB 10-item scale is 0.46 (p<0.001).

**Section III Professional Care Team Burden Scale (Short version):** This is a 10-item validated scale [21] to measure nurses’ burden of caregiving with COVID-19 patients. Permissiom for adaptation of the tool was received from the author via email. It is a 5-point Likert scale ranging from 0 to 4 where 0= strongly agree, 1=agree, 2=neutral, 3=disagree, and 4=strongly disagree. After reversing items 5 & 7, the scores were totaled. The scale yielded 3 levels of burden of care, namely, Low: 0-13, Moderate: 14-26 and High: 27-40.

The Cronbach’s alpha on the PCTB is 0.785. The Pearson correlation between the PCTB 10-item scale (Mean score 10.2, SD=5.0) and the PSS (Mean score 13.0, SD=5.9) was 0.46 (p<0.001). The internal consistency coefficient is 0.785.

**Data collection procedure:** After the ethical approval for the study was secured, the emails of all nurses working in the selected units was obtained from the ward manager with their consent, and the survey instrument was sent via Google forms to the respondents; those who accepted to participate signed a consent form prior to gaining access to the questionnaire.

**Ethical Considerations**
Approval was obtained from the Institutional Research Boards (IRBs) of two participating institutions with the following approval numbers: RAKMHSU-REC-102-2019-UG-N and MOHAP/REC2020/51-2020 F-N. The evidence of approval was submitted to the two hospitals’ research committees for internal permission to gain access to the participants. In addition, the unit managers with the consent of the nurses, provided the email IDs of the prospective nurses from the selected units.

An email was sent to each prospective respondent with the details of the study provided. Each nurse was required to read and sign an online consent before starting the formal survey. Their voluntary participation, declaration of confidentiality, and anonymity were also explained in the consent form. A click on the ‘acceptance’ button indicated consent, which then opened the link to the questionnaire via a Google form.

Data collection started when the survey was sent to the participants’ email on 17 November 2020 until the acceptance of responses was closed on 31 January 2021. In all, only 64 nurses completed the online survey questionnaire after 3months of data collection. This is possibly due to the COVID situation.

Data analysis: Statistical package for social science (SPSS) version 25 was used for data entry and analysis. Data was presented in the form of frequency, percentages, mean and standard deviation. Person (r) correlation was used to investigate the correlation between Mean perceived stress score and burden of care.

**Results**
In all, only 64 nurses completed the online survey, representing a 35% response rate. The low response could be due to the work pressure during the current pandemic, which also made it difficult to conduct a pen and paper survey.

**Table 1: Demographic Characteristic.**

| Demographics data   | Frequency (N=64) | Percent (%) |
|---------------------|------------------|-------------|
| Age                 |                  |             |
| 20-30               | 7                | 10.9        |
| 31-40               | 32               | 50          |
| 41-50               | 22               | 34.4        |
| 51- ≥ 60            | 3                | 4.7         |
| Mean ± SD           | 38.81 ± 7.2      |             |
| Gender              |                  |             |
| Male                | 3                | 4.7         |
| Female              | 61               | 95.3        |
| Nationality         |                  |             |
| Emirates            | 2                | 3.1         |
| Asian               | 45               | 70.3        |
| African             | 3                | 4.7         |
| Others              | 14               | 21.9        |
| Educational Level   |                  |             |
| Diploma             | 15               | 23.4        |
| Bachelor degree     | 42               | 65.6        |
| Master              | 7                | 10.9        |
| Marital Status      |                  |             |
| Married             | 59               | 92.2        |
| Separated           | 2                | 3.1         |
| Single              | 3                | 4.7         |
| having children     |                  |             |
| Yes                 | 59               | 92.2        |
| No                  | 5                | 7.8         |

Table 1 showed the demographic characteristics of the participants. The total participants were 64 nurses, of which 50.0% were between the ages 31-40 years. The majority were female, married, and had children. Furthermore, 70.3% were Asian, and 65.6% had a bachelor degree in nursing.
Table 2: Workload Characteristics of Respondents.

| Workload characteristics                                      | Frequency (N=64) | Percent (%) |
|---------------------------------------------------------------|------------------|-------------|
| Name of the hospital                                          |                  |             |
| Hospital A                                                    | 28               | 43.8        |
| Hospital B                                                    | 36               | 56.3        |
| Ward of Practice                                              |                  |             |
| ICU                                                           | 41               | 64.1        |
| Isolation                                                     | 23               | 35.9        |
| Hospital admits patients with COVID-19                       |                  |             |
| Yes                                                           | 46               | 71.9        |
| No                                                            | 18               | 28.1        |
| Working hours per day                                         |                  |             |
| 8 hrs.                                                        | 3                | 4.7         |
| 12 hrs.                                                       | 61               | 95.3        |
| Working days/week                                             |                  |             |
| 3 days                                                        | 15               | 23.4        |
| 5 days                                                        | 49               | 76.6        |
| Day off duty each week in the past month                      |                  |             |
| One day/wk.                                                   | 2                | 3.1         |
| Two days/wk.                                                  | 22               | 34.4        |
| More than 2 days/wk.                                         | 38               | 59.4        |
| Others                                                        | 2                | 3.1         |
| Number of night shifts in a week                              |                  |             |
| Zero                                                          | 4                | 6.3         |
| 1 night shift a week                                          | 4                | 6.3         |
| 2 shift a week                                                | 39               | 60.9        |
| 3 or more                                                     | 17               | 26.6        |
| Confidence in fighting transmission                           |                  |             |
| Generally confident                                           | 38               | 59.4        |
| Quite confident                                               | 26               | 40.6        |
| Signed up to be frontline staff                               |                  |             |
| Yes                                                           | 57               | 89.1        |
| No                                                            | 7                | 10.9        |
| Attend infection prevention control training                  |                  |             |
| Yes                                                           | 59               | 92.2        |
| No                                                            | 5                | 7.8         |
| Fear of infecting family members                              |                  |             |
| Yes                                                           | 50               | 78.1        |
| No                                                            | 14               | 21.9        |
| Frequency of test for COVID-19                                |                  |             |
| Never                                                         | 7                | 10.9        |
| Every month                                                   | 47               | 73.4        |
| Once in 2 Wks.                                                | 10               | 15.6        |
Table 2 shows the workload characteristics of the participants, indicating that 64% of the participants worked in the ICU while the remaining worked in the isolation ward. Of this, 95.3% of the participants worked for 12-hour shifts, 76.6% worked for five days a week, and 60.9% worked for two-night shifts out of 5 days a week. In all, 89.1% signed up to be frontline staff, 92.2% had attended infection prevention training, and 40.6% were quite confident in fighting the transmission. In addition, roughly 78.1% of them had fear of infecting family members, and 73.4% had routine monthly tests for COVID-19.

Table 3: Frequency of Perceived Stress among participants in the last one month (N=64)

| Question                                                                 | Never (0) N (%) | Almost never (1) N (%) | Sometimes (2) N (%) | Fairly often (3) N (%) | Very often (4) N (%) |
|--------------------------------------------------------------------------|----------------|------------------------|--------------------|------------------------|---------------------|
| Q1 In the last month, how often have you been upset because of something that happened unexpectedly? | 13 (20.3)      | 4 (6.3)                | 33 (51.6)          | 10 (15.6)              | 4 (6.3)             |
| Q2 In the last month, how often have you felt that you were unable to control the important things in your life? | 13 (20.3)      | 9 (14.1)               | 31 (48.4)          | 9 (14.1)               | 2 (3.1)             |
| Q3 In the last month, how often have you felt nervous and “stressed”?    | 7 (10.9)       | 4 (6.3)                | 33 (51.6)          | 15 (23.4)              | 5 (7.8)             |
| Q4 In the last month, how often have you felt confident about your ability to handle your personal problems?  | 13 (20.3)      | 24 (37.5)              | 22 (34.4)          | 3 (4.7)                | 2 (3.1)             |
| Q5 In the last month, how often have you felt that things were going your way?  | 4 (6.3)        | 12 (18.8)              | 33 (51.6)          | 11 (17.2)              | 4 (6.3)             |
| Q6 In the last month, how often have you found that you could not cope with all the things that you had to do? | 6 (9.4)        | 13 (20.3)              | 32 (50.0)          | 9 (14.1)               | 4 (6.3)             |
| Q7 In the last month, how often have you been able to control irritations in your life? | 5 (7.8)        | 17 (26.6)              | 33 (51.6)          | 4 (6.3)                | 5 (7.8)             |
| Q8 In the last month, how often have you felt that you were on top of things?  | 1 (1.6)        | 11 (17.2)              | 34 (53.1)          | 12 (18.8)              | 6 (9.4)             |
| Q9 In the last month, how often have you been angered because of things that were outside of your control? | 11 (17.2)      | 10 (15.6)              | 33 (51.6)          | 7 (10.9)               | 3 (4.7)             |
| Q10 In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? | 11 (17.2)      | 11 (17.2)              | 36 (56.3)          | 5 (7.8)                | 1 (1.6)             |

From table 3, most of the participants reported stress ‘Sometimes’ in 9 out of 10 questions, except for Q4, which inquired about confidence in their ability to handle personal problems. This item yielded a higher percentage (37.5%) of ‘Almost Never’ than ‘Sometimes’ responses. The higher the score, the greater the perceived stress.

Table 4: Cumulative score on Perceived Stress level Scale (N=64).

| Level of Perceived stress | Frequency (N=64) | Percent (%) |
|---------------------------|------------------|-------------|
| Low stress (0-13)         | 12               | 18.8        |
| Moderate stress (14-26)   | 50               | 78.1        |
| High stress (27-40)       | 2                | 3.1         |
| \( \bar{x} \pm SD \)      | 18.03±5.33       |             |
Table 4 revealed that the Mean score on perceived stress scale ($M=18.03$, $SD=5.33$), where 78.1% of the respondents experienced moderate stress. Only a few participants experienced high stress (3.1%) and low stress (18.8%) (Figure 1).

![Figure 1: Cumulative score on Perceived Stress level Scale (N=64).](image)

Table 5: Burden of caregiving among the participants.

| Question                                                                 | Strongly agree (0) | Agree (1) | Neutral (2) | Disagree (3) | Strongly disagree (4) |
|--------------------------------------------------------------------------|--------------------|-----------|-------------|--------------|-----------------------|
| Q1 My work performance is respected by my colleagues.                    | 21 (32.8)          | 38 (59.4) | 4 (6.3)     | 0 (0.00)     | 1 (1.6)               |
| Q2 I can discuss work related issues with my colleagues.                 | 13 (20.3)          | 45 (70.3) | 6 (9.4)     | 0 (0.00)     | 0 (0.00)              |
| Q3 I feel that the contact with my superiors is good.                     | 17 (26.6)          | 33 (51.6) | 12 (18.8)   | 2 (3.1)      | 0 (0.00)              |
| Q4 I can participate in organizing the daily routine in my organization. | 9 (14.1)           | 44 (68.8) | 8 (12.5)    | 2 (3.1)      | 1 (1.6)               |
| Q5 The loss of ability to communicate in persons with COVID-19 bothers me.| 6 (9.4)            | 11 (17.2) | 22 (34.4)   | 23 (35.9)    | 2 (3.1)               |
| Q6 I can manage behaviors resulting from disorientation in persons with COVID-19. | 12 (18.8)          | 39 (60.9) | 12 (18.8)   | 1 (1.6)      | 0 (0.00)              |
| Q7 Difficult behaviors of persons with COVID-19 are difficult to bear.    | 3 (4.7)            | 15 (23.4) | 27 (42.2)   | 15 (23.4)    | 4 (6.3)               |
| Q8 I can handle constructive critique.                                   | 9 (14.1)           | 39 (60.9) | 16 (25.0)   | 0 (0.00)     | 0 (0.00)              |
| Q9 I can keep personal problems out of my daily work routine.            | 15 (23.4)          | 37 (57.8) | 10 (15.6)   | 2 (3.1)      | 0 (0.00)              |
| Q10 My personal life/family environment is supportive and is able to unburden me. | 16 (25.0)          | 34 (53.1) | 12 (18.8)   | 1 (1.6)      | 1 (1.6)               |

From Table 5, the Professional Care Team's Burden Scales, most of the participants responded that they ‘Agreed’ in 9 out of 10 questions, except for Q7 about the difficulty in bearing the behaviors of persons with COVID-19, which yielded a higher percentage (42.2%) of ‘Neutral’ responses and strikingly also yielded an equal percentage (23.4%) of ‘Agree’ and ‘Disagree’ responses.
Figure 2: Level of Professional care teams’ burden scale (N=64).

Table 6: Level of burden scale among the participants.

| Levels of burden          | Frequency (N=64) | Percent (%) |
|---------------------------|------------------|-------------|
| Low burden of care (0-13) | 40               | 62.5        |
| Moderate burden of care (14-26) | 18              | 37.5        |
| High burden of care (27-40) | 0               | 0.0         |
| x̄ ± SD                   | 11.98 ± 3.79     |             |

Table 6: showed that the burden of providing care to patients during COVID-19 (x̄=11.98, SD=3.79), where 62.5% of the respondents experienced low burden of care. None of the participants experienced a high burden of care (Figure 2).

Table 7: Correlation between Perceived Stress and Burden of Caregiving

| Items                  | Mean ± SD   | r   | P    |
|------------------------|-------------|-----|------|
| Perceived stress level score | 18.03 ± 5.33 | 0.451 | 0.000 |
| Burden of care score   | 11.98 ± 3.79 |     |      |

Table 7 showed a positive correlation between the Mean of the total score of the Perceived Stress Scale and Professional Care Team Burden Scale (r=0.451; p=0.000).

Discussion

The coronavirus pandemic has caused substantial global health burden with increasing unpredictability in pattern of spread and virulence. This has taken a mental toll on healthcare professionals with significant stress, anxiety, depression and insomnia [23]. Nurses with other health-care professionals are fighting on the frontline to contain the infection, and to ensure quick recovery of the infected people; however, with fear of contagion for themselves and their families [12,23]. This study examined perceived stress and burden of care experienced by nurses working in isolation wards and intensive care units.

Findings indicated that 95% were engaged in 12 long working hours of duty, and 89% signed up to work on the frontline. On the Perceived Stress Scale (PSS), we found that 78.1% reported moderate levels (14-26), with only 3.1% reporting high perceived stress (27-40). Studies from different regions of the world document diverse levels of mental health burden among frontline care providers. For example, research studies and editorial highlights during the early months of the pandemic suggested that nurses were under tremendous work-related stress and burden of caregiving associated with long working hours and fear of infection [24,25]. Of particular reference is a report of nurses’ perceptions of work during the early stages of the pandemic in the United States of America [26,27]. Authors found that over 50% of respondents experienced symptoms of depression, anxiety and post-traumatic stress disorder, which were reported by more than a third of the respondents. This spoke to the impact of COVID-19 in the early stage of the pandemic, at which time reasonable understanding was limited, along with the scarce supply of personal protective equipment (PPE). In the current scenario, there is significant improvement in knowledge of the coronavirus, infection control strategies, and availability of vaccines. These factors may contribute to low stress level reported by nurses in the present
The reported low level of stress is not unique to our study. For example, an Indonesian study on the burden of mental distress among nurses using the DASS-21 reported only 6.3% stress among nurses, suggesting a low stress level. In addition, in the UAE, a study conducted among health service employees in Abu Dhabi indicated that 77.4% (n=2184) obtained normal to mild scores on DASS-21 [17]. Authors explained that the low level of psychological impact experienced by healthcare employees was a reflection of the level of preparedness of the UAE government and the support provided to frontline workers and their families. This suggests that adequate from employers of healthcare workers across countries can significantly mitigate psychological impacts of the pandemic on their employees.

Caring for patients in ICUs is associated with huge workload, long-term fatigue, infection threat, and frustration from consistent death of patients [1], which naturally results in an increased burden of care and stress for nurses. Authors opined those nurses were more likely to experience stress related to COVID-19, compared to other health care professionals. This finding is consistent with a study conducted in China on perceived stress of COVID-19 among healthcare workers [29]. Findings from our study did not suggest similar conclusions as 62.5% reported low burden of caregiving on the PCTB scale. Our results appear to align with Ahmed et al. [17] study in Abu Dhabi, UAE. From their reports, 77.4% healthcare workers were within the normal to mild range on DASS-21,9% at a moderate level, and 13.5% were within the severe to extremely severe range levels of depression, anxiety, and stress. They argued that the findings were a reflection of the UAE’s preparedness and effective implementation of pandemic plans, as well as a manageable volume of patients with adequate staffing levels at the frontline facilities. Our findings also showed that 92.2% of nurses attended infection control educational training, which also likely strengthened their knowledge of infection control measures, including use of PPE, hand hygiene, ward disinfection, and occupational exposure management. Such programs could contribute to less burden of care and stress perception.

Limitations
This study has some limitations. First, the method of sampling was a voluntary response which was a weak technique, relying on the voluntary online self-report responses. This may contribute to reduced objectivity of the results. Secondly the small sample size reduces the generalizability of the results.

Conclusion
The findings suggest a low burden of caregiving and moderate level of stress among nurses. A moderate level of stress may result in significant complications in some persons, depending on their coping abilities. Therefore, we suggest routine psychological screening for early identification of nurses who may be experiencing stress and could be at risk of stress-related problems. The targeted screening will facilitate early intervention.

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

Conflict of Interest
The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in the manuscript.

None of the authors of this paper has a financial or personal relationship with other people or organizations that could inappropriately influence or bias the content of the paper.

There are no competing interests at stake and there is ‘No Conflict of Interest’ with other people or organizations that could inappropriately influence or bias the content of the paper.

Ethical Approval
Approval date: 3/11/2020. Reference No: MOHAP/REC/2020/51-2020-F-N

Authors’ Contributions
All persons listed and designated as authors qualify for authorship. Each person has checked the article for plagiarism. If plagiarism is detected, all authors will be equally held responsible and will bear the resulting sanctions imposed by the journal thereafter.

REI conceptualized and designed the study, involved in data collection, data interpretation, and provided initial draft of the manuscript. VFH evaluated the questionnaire, and also contributed to the manuscript. EAD was involved in data collection, data entry and analysis, and revising the manuscript. CAM evaluated the questionnaires, and also revised the manuscript.

All authors have critically reviewed the manuscript for important intellectual content, approved the final draft and are responsible for the content and similarity index of the manuscript.

References
1. Shen, X., Zou, X., Zhong, X. (2020) Psychological stress of ICU nurses in the time of COVID-19. Crit Care 24:200.
2. World Health Organization Coronavirus Dashboard 2021.
3. Kluge HNP (2020) Statement-physical and mental health key to resilience during COVID-19 pandemic. http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/statements/statement-physical-and-mental-health-key-to-resilience-during-covid-19-pandemic accessed on 30 March, 2020
4. Anoop M (2020) Doctors and health-care workers at frontline of COVID 19 epidemic: Admiration, a pat on the back, and need for extreme caution; Diabetes Metab Syndr 14(3): 255-256.
5. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, et al. (2020) The experiences of health-care providers during the COVID-19 crisis in china: A qualitative study. The Lancet Global Health, 2020.
6. O’Boyle C, Robertson C, Secor-Turner M (2006) Nurses’...
beliefs about public health emergencies: fear of abandonment.
Am J Infect Control 34:3510357
7. Missel M, Bernild C, Dagtarian I. (2020) A stoic and altruistic orientation towards their work: a qualitative study of healthcare professionals’ experiences of awaiting a COVID-19 test result. BMC Health Serv Res 20: 1031.
8. Ali H, Cole A, Ahmed A, Hamasha S, Panos G (2020) Major Stressors and Coping Strategies of Frontline Nursing Staff During the Outbreak of Coronavirus Disease 2020 (COVID-19) in Alabama. J Multidiscip Healthc 13:2057-2068.
9. Nantsupawat A, Nantsupawat R, Kunaviktikul W, Turale S, Poghosyan L. (2016). Nurse-burnout, nurse-reported quality of care and patients outcomes in Thai Hospitals. J.Nurs. Scholarship. 48 (1):83-90.doi 10.1111/jnu.12187
10. Nantsupawat A, Nantsupawat R, Kunaviktikul W, Turale S, Poghosyan L (2016) Nurse burnout, nurse-reported quality of care, and patient outcomes in Thai Hospitals. J Nurs Scholarsh 48(1):83-90.
11. Thomas CM, Bantz DL, McIntosh CE (2019) Nurse faculty burnout and strategies to avoid it. Teach Learn Nurs 14:111-116.
12. Qian Liu, Dan Luo, Joan E Haase, Qiaohong Guo, Xiao Qin Wang, et al. (2020) The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. Lancet Glob. Health 8:e790-798
13. Morley G, Grady C, McCarthy J, Ulrich CM (2020) Covid-19: Ethical Challenges for Nurses. Hastings Cent Rep 50(3):35-39.
14. Lai J, Ma S, Wang Y (2019) Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open 3:e203976
15. Peter E. Wu, Rima Styra, Wanye L Gold (2020) Mitigating the psychological effects of COVID-19 on health-care workers. CMAJ 192: E459-E460.
16. Abdallah B, Faryal K, Nawal AI M, Marwa AI B, Hashil AI H, et al. (2021) The mental health of health care workers in Oman during the COVID-19 pandemic. International Journal of Social Psychiatry 67: 90-95.
17. AlAteeq DA, Aljhani S, Althiyabi I, Majzoub S (2020) Mental health among healthcare providers during coronavirus disease (COVID-19) outbreak in Saudi Arabia. J Infect Public Health 13:1432-1437.
18. Ahmed NN, Al-Jasmi SA, AlKaabi RA, Al-Marzoqui SH, Abuhlaiqa H, et al. (2020) Psychological Impact of the COVID19 Pandemic on Healthcare Employees in Abu Dhabi Health Services Company (SEHA). Epidemiol Int J 4(6).
19. Donovan RO, Doody O, Lyons R (2013) The effect of stress on health and its implications for nursing. Br J Nurs 22(16):969-970.
20. Jun J, Tucker S, Melnyk BM (2020) Clinician mental health and well-being during global healthcare crises: evidence learned from prior epidemics for COVID-19 pandemic. Worldviews Evid-Based Nurs 17(3):182-184.
21. Cohen S, Kamarck T, Mermelstein R (1983) Perceived Stress Scale [Database record]. APA PsycTests.
22. Auer S, Graessel E, Vierieck C (2015) Professional Care Team Burden (PCTB) scale- reliability, validity and factor analysis. Health Qual Life Outcomes 13,17.
23. Marthoenis M, Fathiariani L (2021) Investigating the burden of mental distress among nurses at a provincial COVID-19 referral hospital in Indonesia: a cross-sectional study. BMC Nurs 20:76.
24. Missel M, Bernild C, Dagtarian I. (2020) A stoic and altruistic orientation towards their work: a qualitative study of healthcare professionals’ experiences of awaiting a COVID-19 test result. BMC Health Serv Res 20:1031.
25. Jackson D, Bradbury-Jones C, Baptiste D, Gelling L, Morin K, et al. (2020) Life in the pandemic: Some reflections on nursing in the context of COVID-19. J Clin Nurs 29(13-14):2041-2043.
26. Maben J, Bridges J (2020) Covid-19: Supporting nurses’ psychological and mental health. J Clin Nurs 29(15-16):2742-2750.
27. Arnetz JE, Goetz CM, Sudan S, Arble E, Janisse J, et al. (2020) Personal Protective Equipment and Mental Health Symptoms among Nurses during the COVID-19 Pandemic. J Occup Environ Med 62(11):892-897.
28. Arnetz JE, Goetz CM, Arnetz BB, Arble E (2020) Nurse Reports of Stressful Situations during the COVID-19 Pandemic: Qualitative Analysis of Survey Responses. Int J Environmental Res Public Health 17(21):8126.
29. Talevi D, Soeci V, Carai M, Carnaghi G, Faleri S, et al. (2020) Mental health outcomes of the CoVID-19 pandemic. Riv Psichiatr 55(3):137-144.
30. Dai Y, Hu G, Xiong H, Qiu H, Yuan X (2020) Psychological Impact of the Coronavirus Disease 2019 (COVID-19) Outbreak on Healthcare Workers in China. MedRxiv, 2020.

Copyright: ©2021: Rose Ekama Ilesanmi, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.