


# Work-related Stress Management Behaviors of Nurses During COVID-19 Pandemic in the United Arab Emirates

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## Abstract

**Introduction:** Intense psychological and emotional stress experienced by nurses during the COVID-19 pandemic interferes with their wellbeing and work efficiency. Stress-management behaviors are required to enhance coping and ameliorate stress effects. Therefore, it is necessary to examine the management behavior of nurses during the pandemic to suggest ways to improve their wellbeing.

**Objective:** The study aimed to examine nurses' work-related stress management behaviors during the COVID-19 pandemic in UAE.

**Methods:** This was a cross-sectional survey of 64 nurses working in the Isolation and Intensive care units of two selected hospitals in the United Arab Emirates. A convenience sampling technique was used for sample selection. Each participant completed an online survey via Google forms of two validated instruments: a 10-item scale to measure perceived stress levels and a 15-item Stress management inventory. The completed questionnaires were analyzed on SPSS version 25.

**Results:** Respondents (78.1%) reported a moderate level of stress (Mean = 18.03 and SD = 5.33). Stress management behaviors utilized included four elements (eliminating stressors, developing resilience, using short-term coping, and effective delegating) and the mean and SD were  $17.62 \pm 2.6$ ,  $17.42 \pm 3.3$ ,  $8.88 \pm 1.47$ , and  $23.98 \pm 3.54$  respectively. There was a significant positive correlation between these four elements of stress management inventory ( $p = 0.00$ ). Findings also showed a significant inverse correlation between the scores on perceived stress, short-term coping, and effective delegation. The overall regression of demographic covariates on stress management behaviors was not statistically significant [ $F = (1.015), (0.602), (0.909), (1.286), p > 0.05$ ].

**Conclusions:** Effective delegating and developing resilience were effective stress management behavior among nurses. Regular assessment of the psychological needs of nurses is essential to enhance overall wellbeing during stressful situations.

## Keywords

work-related stress, stress management, coping, resilience, COVID-19, United Arab Emirates

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## Introduction / Background

The scale of the COVID-19 pandemic with regards to the number of cases and countries affected leaves an impression of 'no one is safe' (De Kock et al., 2021), as it affects the lives and health of more than one million people globally. Healthcare workers, including nurses as first responders, face physical and emotional harm from the increased workload and psychological burden (Al Thobaity & Alshammari, 2020; Dzau et al., 2020; Wang et al., 2020). As the COVID-19 crisis continues, the burden of stress will only persist. Literature confirms that the surge of physical and

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emotional harm to healthcare workers is reaching an epidemic scale (Dzau et al., 2020). A study on the impact of COVID-19 on anxiety, stress, and coping styles of nurses in the emergency department (ED) and fever clinics revealed that adequate measures are required to preserve the mental health of nurses (Cui et al., 2021). The authors concluded that interventions that would enhance a sense of protection among nurses, reduce the number of night shifts, and provide adequate time for rest could be effective stress management strategies.

It is apparent from the literature that the pandemic has resulted in significant psychological harm to healthcare workers. According to SEHA, the Abu Dhabi Health Services Company in the United Arab Emirates (UAE) in September 23, 2020, frontline health workers could take years to recover from the mental scars suffered from treating seriously ill patients during the coronavirus pandemic (National news .com, 2020; Ryan, 2021). This report also revealed that young female medics were most affected. Findings from an earlier study, Al Rasasi et al. (2015) reported that younger nurses were 46 times more at risk of experiencing severe stress than older nurses in Dubai, UAE. Authors of another study in the UAE observed that one of the reasons for stress in nurses is fear of infection (Al Thobaity & Alshammari, 2020).

## Review of Literature

Studies conducted during the COVID-19 pandemic have shown that frontline healthcare workers use psychological resilience, coping behaviors, and social support to safeguard their mental health and wellbeing (Blanco-Donoso et al., 2021; Chew et al., 2020). In New York, USA, A study found that physical activity (exercise) was the most common coping behavior. At the same time, access to a therapist with online self-guided counseling was the coping behavior of most interest (Shechter et al., 2020). Also, in Wuhan, China, a report on work stress among Chinese nurses during COVID-19 noted that nurses who fought against COVID-19 were generally put under intense pressure; therefore, nurse leaders need to pay attention to work stress and the factors that influence it (Yuanyuan Mo et al., 2020). In the same vein, Khanal et al. (2020), in a study from Nepal, examined the impact of COVID-19 on the mental health of frontline care providers. Accordingly, the authors found a significant proportion of anxiety, depression, and insomnia symptoms during the early phase of the pandemic. Nurses had higher odds of developing stress than other health workers. The authors suggested that the mental wellbeing of health workers could be improved through stigma reduction, providing protective measures, and personal and family support for those with a history of mental health issues. In Wuhan, China, during the early phase of the pandemic, Zhang et al. (2020) and

Kang et al. (2020) speculated that nurses might experience mental health challenges; therefore, they would require psychological strategies to reduce their stress and burnout. According to the authors, younger nurses working longer shift-time tended to present higher burnout levels (Zhang et al., 2020). Also, in Wuhan, Yuanyuan Mo et al. (2020), regarding work stress among Chinese nurses during COVID-19, reported that nurses were under intense pressure. Thus, nurse leaders must pay attention to work stress and the factors that Watkins et al. (2020) said clinicians were dying by suicide during the pandemic. Specifically, an emergency physician reported in the epicenter of the US COVID-19 outbreak in Manhattan who died by suicide. This incident corroborates that nurses and other healthcare workers are in the extreme emotional turmoil that requires urgent interventions. In a more recent study, Natividad et al. (2021) explored nurses' feelings and factors that cause stress; and coping strategies during COVID-19. The authors opined that one year after the pandemic outbreak, the healthcare systems are still struggling with an increasing number of infected healthcare workers who are also experiencing emotional harm.

Regarding strategies to enhance stress management and coping during the pandemic, Sehularo et al. (2021) noted that protective measures, avoidance strategy, social support, faith-based practices, psychological support could enhance stress management. Similarly, Rose et al. (2021), in a study on perceived stress among healthcare workers, opined that emotional reactions, coping mechanisms, and stressors varied by the roles performed by each healthcare worker. The authors explained that a sense of solidarity and team spirit reduced stress. Furthermore, psychological support can be improved when workers' experiences and needs are investigated and supported.

Studies have shown that frontline healthcare workers use psychological resilience, coping behaviors, and social support to safeguard their mental health and wellbeing (Blanco-Donoso et al., 2021; Chew et al., 2020). For example, a study in New York, USA, found that physical activity (exercise) was the most common coping behavior. At the same time, access to a therapist with online self-guided counseling was the coping behavior of most interest (Shechter et al., 2020). Among Filipino student nurses, Labrague (2021) observed that resilience reduced the adverse effects of pandemic-associated stress on their life satisfaction and psychological wellbeing. Minimal pressure is beneficial because it facilitates higher concentration, decision-making skills, and effective learning (Rudland et al., 2020), but when stress levels exceed, they may negatively affect one's physiological and psychological health (McCarthy et al., 2018).

There appears to be a shortage of UAE-based studies on stress management and coping strategies used by nurses during the COVID-19 crisis. The study aimed to examine nurses' work-related stress management behaviors during the COVID-19 pandemic in the UAE.

## Methods and Materials

The study adopted a cross-sectional descriptive design in two selected hospitals in UAE designated for patients with COVID-19 infection. These hospitals work 12-hrs. shifts daily in intensive care unit (ICU) and isolation wards.

The study participants were professional nurses working directly with patients diagnosed with COVID-19. Respondents were selected using convenience sampling.

In all, 185 nurses are involved in direct Care of patients with COVID-19 in ICU (42 nurses), Isolation wards (143 nurses) of the two selected hospitals. We obtained a proportional sample based on a 50% response rate, 95% confidence interval (CI), and error margin. Sample size calculation showed 143 nurses distributed as follows: ICU 38 nurses, Isolation ward = 105 nurses.

### Inclusion Criteria

The participants included only nurses working in the wards where patients with COVID-19 were admitted, and nurses in the general medical-surgical wards were excluded.

### Tool and Instruments

A structured questionnaire consisting of three parts was utilized as follows:

### Demographic Information

section for respondents' demographic information.

### Perceived Stress Scale (PSS)

A validated 10-item scale adopted with authors' permission to measure perceived stress on a 4-point Likert scale. Participants expressed their feelings and thoughts on each item ranging from 0 to 4, where 0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, and 4 = very often (Cohen et al., 1983). After reversing items 4, 5, 7 & 8, the scores totaled, yielding three levels of stress: Low: 0–13, Moderate: 14–26, and High: 27–40. The Cronbach's alpha on the Perceived Stress Scale (PSS) is 0.754. PSS scores correlated with General Anxiety disorder-7 (GAD-7): ( $r = .27, p < .01$ ). The Pearson correlation between the Professional Care Team Burden Scale (PCTB) 10-item scale and the PSS was 0.46 ( $p < 0.001$ ).

### Stress Management Inventory

It consists of 15 items and examines the methods implemented by nurses to manage their stress. Participants discovered their level of competency in stress management for each item on a 6-point Likert scale ranging from 1 to 6; 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, and 6 = strongly agree (University of Toronto, 2014). The computed reliability was Cronbach alpha = 0.86.

### Validity

The calculated validity by the critical value for Pearson's correlation coefficient indicated the degree of freedom ( $df = 62$ ), and the critical significance value at 0.05 of the two-tailed test was 0.2500. The value for Pearson's correlation coefficient for the 15 items was more significant than the critical value (0.2500), which indicates a valid scale.

After totaling scores of specific items, the inventory yielded four skill areas of stress management: eliminating stressors, developing resiliency, short-term coping, and effective delegating.

### Data Collection

Ethical approval was obtained, and participants received the questionnaire via google forms. Upon providing their consent by clicking on the form, they filled out their demographic information and the two questionnaires.

### Ethical Considerations

The researchers received approval from the Institutional Research Boards (IRBs) of the two hospitals. The evidence of approval was submitted to the unit managers to obtain internal permission. Participation of nurses was voluntary. Furthermore, issues of confidentiality and anonymity were detailed in the form. Data collection was completed within three months (November 17, 2020, to January 31, 2021).

### Data Analysis

The Statistical Package for social sciences (SPSS) version 25.0 was used for data entry and analysis. Data was presented in the form of frequency, percentage, mean and standard deviation. Pearson's ( $r$ ) correlation was used to investigate the correlation between respondents' score of perceived stress and management of stress. Multivariate regression analysis was computed to determine the influence of demographic covariates on the stress management strategies of the participants.

## Results

**Demographic characteristics of the participants:** The mean age of respondents was  $38.81 \pm 7.23$ . More females (95.3%) than males (4.7%) and 92% were married with children, as shown in Table 1.

**Workload characteristics of the participants:** The results, as shown in Table 2, indicate that the majority of the respondents (95.3%) worked 12 h per day in the ICU (64.1%) and isolation wards (35.9%), and 60.9% worked two-night shifts per week. Additionally, 59.4% were off duty for more than two days in a week. Furthermore, 78.1% entertained the fear of infecting their families.

**Perceived Stress score:** In this study, the mean score on the perceived stress scale was  $18.03 \pm 5.33$ , where 78.1% of the respondents experienced moderate stress. Only a few participants experienced high stress (3.1%) and low stress (18.8%), as shown in Table 3.

**Stress Management strategies:** Table 4 presents the scores on the stress management questionnaire. From the table, the minor stress management strategy used by respondents was short-term coping ( $\bar{x} = 8.88 \pm 1.47$ ), and the most frequently used strategy was effective delegation ( $\bar{x} = 23.98 \pm 3.54$ ), as shown in Table 4.

**Correlation between Perceived stress and management strategies:** In this study, there was a significant positive correlation between the four elements of stress management inventory: eliminating stressors, developing resiliency, short-

term coping, and effective delegating ( $p = 0.00$ ); however, there was no correlation between the total score of Perceived Stress Scale, eliminating stressors and developing resiliency scores. Findings also showed a significant inverse correlation between the total score of perceived stress and the score of short-term coping and effective delegating ( $r = -0.324$   $p = 0.009$ , and  $r = -0.247$   $p = 0.049$ ) respectively (Table 5).

**Regression of demographic covariates on stress management behaviors:** From the regression table (Table 6) below, 0.02%, 0.53%, 0.12%, and 0.35% of the variability in eliminating stressors, developing resiliency, short term coping, and effective delegating strategies, respectively, are explained by gender, educational level, marital status, having children, ward of practice, confidence in fighting transmission, and fear of infecting family members.

**Table 1.** Demographics Data.

	Frequency (n = 64)	Percent (%)
Age		
20–30	7	10.9
31–40	32	50.0
41–50	22	34.4
51–≥60	3	4.7
Mean ± SD	$38.81 \pm 7.23$	
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
University degree	49	76.6
Marital Status		
Married	59	92.2
Single	5	7.8
Having children		
Yes	59	92.2
No	5	7.8

SD: standard deviation

**Table 2.** Workload Characteristics.

	Frequency (n = 64)	Percent (%)
Ward of Practice		
ICU	41	64.1
Isolation	23	35.9
Working hours per day		
8 h	3	4.7
12 h	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
I signed up to be frontline		
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 COVID-19 test		
Never	7	10.9
Once in 2 Wks	10	15.6
Every month.	47	73.4

In addition, the table shows that the overall regression model was not significant  $F=(1.015), (0.602), (0.909), (1.286)$ , and  $p > 0.05$ . Eliminating stressors, developing resiliency, short term coping, and effective delegating strategies, respectively were not statistically associated with gender, educational level, marital status, having children, ward of practice, confidence in fighting transmission, and fear of infecting family members.

In summary, there is no significant relationship between all stress management strategies and selected demographic and workload characteristics. Thus we fail to reject the null hypothesis that there is no relationship between stress management strategies and selected demographic variables and workload characteristics of nurses.

## Discussion

Work-related stress among nurses during the COVID-19 pandemic has been clearly elucidated in literature (Cai et al., 2020; Shen et al., 2020.). Also, Mottaghi et al. (2020) opined that it is associated with nurses' work that involves long hours of standing and meeting the self-care needs of patients, resulting in burnout and stress. However, a supportive work environment could improve clinicians' wellbeing and enhance nurses' mental health (Melnyk et al., 2022; Sinsky et al., 2020).

The current study involved 64 nurses working in intensive care units and isolation wards in two selected hospitals in the UAE. Findings showed that 78.1% reported a moderate level of stress, which may not be consistent with popular expectations of high levels of stress during the current pandemic. Yet, it could potentiate emotional instability and health complications in individuals if not well managed. Studies explain that minimal stress could be beneficial as it facilitates higher concentration, decision-making skills, and effective learning (Rudland et al., 2020). However, higher stress levels may

negatively affect one's physiological and psychological health (McCarthy et al., 2018).

The most frequently used management strategy by the study cohort was effective delegation ( $\bar{x} = 23.98$ ,  $SD = 3.54$ ), followed by developing resilience ( $\bar{x} = 17.42$ ,  $SD = 3.31$ ), removing the stressors ( $\bar{x} = 17.52$ ,  $SD = 2, 60$ ) and short-term coping ( $\bar{x} = 8.88$ ,  $SD = 1.47$ ), respectively.

During the pandemic, nurses experienced human suffering and deaths in resource-challenged situations. Consequently, nurse managers had additional responsibilities for managing human resources and equipment (White, 2021). Our study cohort employed effective delegation as a critical strategy to manage work-related stress. Studies confirmed that lack of delegation of responsibilities increases stress among nurses (Ofei et al., 2018). Closely related to delegation is the task-sharing policy of the World Health Organization (WHO, 2012) that facilitates more efficient use of available human resources in overburdened health systems, such as experienced during the COVID-19 pandemic (CDC, 2020). In a phenomenological study of experiences of nurse managers and assistants during COVID-19 in the USA, authors reported that nurse managers were concerned about their nurses and therefore provided emotional support through shared responsibilities (White, 2021). This strategy helped to assuage the emotional consequences of work-related stress.

Another helpful strategy in this study was developing resilience. This finding is consistent with Odom-Forren (2020), who suggested that during distressing situations, resilience and strength enhance an individual's ability to resist disruption of normal functioning through anticipation and adequate preparation for the event. Similarly, Heath and colleagues suggested that strategies which focus on self-care and organizational justice are necessary to build resilience among healthcare workers during COVID-19 (Heath et al., 2020). In another perspective, Sinsky et al. (2020) examined resilience from the organization's standpoint. Accordingly, a resilient organization has matched job demands with resources for its workers, thereby creating a culture of connection, transparency, and improvement. These efforts better position the organization to achieve its objectives during ordinary times and weather challenges during times of crisis. Other authors explained that social support bolsters coping abilities and can thus positively influence healthcare workers' resilience during the pandemic (Collantoni et al., 2021).

**Table 3.** Cumulative Score on Perceived Stress Level Scale among the Participants ( $n = 64$ ).

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
Mean $\pm$ SD	18.03 $\pm$ 5.33	

**Table 4.** Stress Management Strategies of the Participants.

Stress Management Scale	Minimum–Maximum	Mean $\pm$ SD
Eliminating stressors (q1, 5, 8 & 9)	10–22	17.52 $\pm$ 2.60
Developing resiliency (q2, 3, 6 & 7)	9–22	17.42 $\pm$ 3.31
Short-term coping (4 & 10)	5–12	8.88 $\pm$ 1.47
Effective delegation (11, 12, 13, 14 & 15)	12–30	23.98 $\pm$ 3.54

**Table 5.** Correlation Between Perceived Stress and Strategies of Stress Management among the Participants.

Items	Mean $\pm$ SD	r	P
Perceived stress level score	18.03 $\pm$ 5.33	- 0.018	0.886
The score of eliminating stressors	17.52 $\pm$ 2.60		
Perceived stress level score	18.03 $\pm$ 5.33	- 0.244	0.052
The score of developing resiliency	17.42 $\pm$ 3.31		
Perceived stress level score	18.03 $\pm$ 5.33	- 0.324	0.009 **
The score of short term coping	8.88 $\pm$ 1.47		
Perceived stress level score	18.03 $\pm$ 5.33	- 0.247	0.049 *
The score of effective delegation	23.98 $\pm$ 3.54		
The score of eliminating stressors	17.52 $\pm$ 2.60	0.448	0.00 **
Score of developing resiliency	17.42 $\pm$ 3.31		
The score of eliminating stressors	17.52 $\pm$ 2.60	0.496	0.00 **
The score of short term coping	8.88 $\pm$ 1.47		
The score of eliminating stressors	17.52 $\pm$ 2.60	0.632	0.00 **
The score of effective delegation	23.98 $\pm$ 3.54		
The score of developing resiliency	17.42 $\pm$ 3.31	0.695	0.00 **
The score of short term coping	8.88 $\pm$ 1.47		
The score of developing resiliency	17.42 $\pm$ 3.31	0.427	0.00 **
The score of effective delegation	23.98 $\pm$ 3.54		
The score of short term coping	8.88 $\pm$ 1.47	0.595	0.00 **
The score of effective delegation	23.98 $\pm$ 3.54		

r = Pearson Correlation. \*p =  $\leq$  0.05.

**Table 6.** Multivariate Linear Regression Analysis of Stress Management Strategies and Selected Demographic and Workload Characteristics.

Stress management strategies	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig
Eliminating stressors	.359 <sup>a</sup>	.129	.002	2.604	1.015	.436 <sup>b</sup>
developing resiliency strategies	.284 <sup>a</sup>	.080	-.053	3.405	.602	.772 <sup>b</sup>
short term coping strategies	.342 <sup>a</sup>	.117	-.012	1.483	.909	.516 <sup>b</sup>
Effective delegating strategies	.397 <sup>a</sup>	.158	.035	3.481	1.286	.270 <sup>b</sup>

<sup>a</sup>Dependent Variable: Elements of stress management strategies.

<sup>b</sup>Predictors: (Constant), Fear of infecting family members, having children, gender, ward of practice, confidence in fighting transmission, working days/week, educational level, marital status.

F=analysis of variance (ANOVA) test.

Short-term coping, which is brief self-help, was the least used strategy in this study. It may involve relaxation techniques and redefining problems as opportunities for improvement. Literature is consistent on the effectiveness of relaxation techniques to reduce stress, anxiety, and depression and improve the quality of life of patients and healthcare workers (Callus et al., 2020; Carver & O'Malley, 2015). According to Ferendiuk et al. (2019), progressive relaxation produced a positive effect with reduced anxiety and improved quality of sleep in COVID-19 patients. However, in a study on the mental health of medical staff during the COVID-19 pandemic in China, Chen and colleagues reported that some medical and nursing staff were either unable or are reluctant to participate in psychological initiatives at the time of crisis (Chen et al., 2020). This may explain the findings

in our study, as short-term coping was the least used stress management strategy among our study cohort, suggesting that nurses should be encouraged to engage in a short-term coping strategy. In the same vein, Callus et al. (2020) indicated that it is necessary to consider the preferences of healthcare workers concerning their psychological needs during crises so that organizations can plan effective and acceptable interventions.

Literature suggests that one of the significant sources of stress among nurses is fear of contagion (Al Thobaity & Alshammari, 2020). In our study, the regression of fear of infecting family members and other demographic covariates on stress management behavior was not statistically significant. According to Sehularo et al. (2021), strengthening protective measures and social and psychological support are helpful strategies to reduce stress during the pandemic.

This implies that healthcare organizations should be committed to building structures and creating a supportive work environment to reduce burnout and enhance staff wellbeing.

### Strengths and Limitations

This is the first study in the UAE that examined stress management behaviors among nurses to the researchers' best knowledge. Findings add to the available evidence from other countries regarding the stress experienced by nurses during the current COVID-19 pandemic. In addition, the critical stress management behavior used by nurses in this study was effective delegation. It suggests that organizations need to ensure adequate staffing and nurse-to-patient ratio to facilitate the delegation of roles.

The study is not without limitations. The sample size was small, which limits the generalizability of the findings. Furthermore, this was a cross-sectional study design, which does not establish a cause and effect relationship; therefore, we could not draw inferences.

### Implications for Practice

Work-related stress may affect the wellbeing of the healthcare workers, resulting in reduced productivity, efficiency and, loss of working hours that could compromise patient safety. The wellbeing of healthcare workers is a high priority during and after the pandemic; therefore, there is a need to integrate programs that would enhance the psychological safety of the healthcare workers. Furthermore, organizational commitment to building capacity and infrastructure that promotes the overall wellbeing of the clinicians is required.

### Conclusion

The study's findings accentuate work-related stress caused by the current pandemic. Nurses in this study indicated that delegation of responsibilities and developing resilience were helpful interventions to manage work-related stress. Therefore, organizations should increase their commitment to build systemic and individual resilience to enhance the wellbeing of their staff. An adequate staff-patient ratio could also facilitate delegation and reduce workload and stress for nurses.

Furthermore, any existing wellness programs should be strengthened and maintained. We also suggest that regular assessment of the psychological needs of nurses is essential, and organizations could allocate funds to support those who experience physical and mental health effects of COVID-19 services. Furthermore, healthcare organizations can establish mechanisms that allow healthcare workers to advocate for themselves and their patients without fear of reprisal

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