

Research Article

Feelings, Stress, and Coping of Nurses Amidst COVID-19 Outbreak in Saudi Arabia

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Abstract

Background: A year after the COVID-19 pandemic spread around the world, the pandemic is still affecting healthcare systems with an increasing number of infected healthcare workers. Such a unique situation may often result in emotional turmoil, anxiety, depression, and fear, which could lead to resignation and burnout. The study intended to assess the feelings of nurses toward the COVID-19 outbreak; ascertain the factors that cause stress; and determine their coping strategies and factors contributing to coping.

Methods: A descriptive cross-sectional design was utilized to recruit 313 nurses working in the Ministry of Health (Saudi Arabia) hospitals that accommodate COVID-19 patients. The study instrument was adapted and modified from the "MERS-CoV Staff Questionnaire" and the Brief COPE.

Results: The results showed that female, married, those with a bachelor's degree, and aged 25–34 years had higher significant coping strategies. On the other hand, Filipino nurses assigned in the Outpatient Department and COVID-19 Isolation Ward had more negative feelings and encountered several factors causing stress but were coping in a better way than others.

Conclusion: Nurses' commitment to their profession appears to be an intrinsic motivation to continue caring for COVID-19 patients despite the risk of infection. Comfort with religion, spiritual beliefs, and the presence of a support system were the coping strategies used by nurses to ameliorate the stress and negative feelings during the COVID-19 outbreak.

Keywords: COVID-19, Saudi Arabia, nurses, feelings, factors causing stress, coping strategies

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1. Introduction

The world was alarmed when the WHO declared a Public Health Emergency of International Concern on January 30, 2020, about the outbreak of Novel Coronavirus Disease 2019 (COVID-19) [1]. This virus is identical to the coronavirus family that caused Severe acute respiratory syndrome (SARS-CoV), which was reportedly originated from China in 2003 and the Middle East Respiratory Syndrome (MERS-CoV) in Saudi Arabia in 2012 [2, 3].

A year later, the pandemic spread across the world and had a great impact on the healthcare system. In particular, healthcare providers (HCPs) were under great pressure to deal with the pandemic, including technical procedures to prevent the transmission such as prolonged use of personal protective devices [4, 5]. Moreover, HCPs are the ones who spearheaded the outbreak response in health institutions [6]. Consequently, they struggle with psychological agony and mental distress [7, 8], in addition to the risk of exposure to the virus, long working hours, and fatigue [9, 10].

From a nursing stand, nurses as front liners experienced dilemmas because they thought of safety not only for themselves but also their families [11, 12]. As they are exposed to COVID-19 patients, fear escalates, emotion intensifies, and anxiety increases, thereby coping is more utilized [13].

Previous studies conducted during the MERS-CoV outbreak in Saudi Arabia and South Korea, found that nurses caring for positive clients were worried about transmitting the infection to others, leading them to stress, but they could not refuse to attend their clinical duties due to their professional responsibility during the pandemic [14, 15]. During the height of COVID-19 infection in Wuhan, China, nurses assigned to isolation units did not receive mental health coaching, which increased nurses' susceptibility to suffer from psychological distress [16]. During crises, mental health counseling matters [17], therefore, the hospital designated an area to isolate nurses from others, wherein food and daily living supplies were provided, leisure activities to reduce stress were offered, and psychological counseling was conducted [18].

In Saudi Arabia, expatriate nurses form the majority. Their feelings of being away from family during difficult times may bring mixed feelings and emotions in which they need to utilize coping strategies to reduce stress and remain committed to their oath being in the frontline. Interestingly, the international nursing workforce operates the Saudi healthcare system. Henceforth, there is a need for a study to investigate nurses' feelings, stress, and coping during a year of COVID-19 pandemic. This may contribute

to enhancing the guidelines on staffing, workforce, management of resources, protocol compliance, and debriefing approaches among nurses.

1.1. Objectives of the study

The study intended to assess the feelings of nurses toward the COVID-19 outbreak; ascertain the factors that cause stress; and determine their coping strategies and factors contributing to coping.

2. Materials and Methods

2.1. Study design

A descriptive cross-sectional design was used to assess the feelings, factors that cause stress, and coping strategies of nurses caring for COVID-19 clients at the Ministry of Health (MOH) hospitals and other health agencies in Madinah, Saudi Arabia. Using Raosoft Sample Calculator with a 5% margin of error at 95% confidence level [19], a total of 275 ($n = 275$) samples were taken as participants from the total population ($N = 964$). The adopted method of determining sample size for descriptive design has been widely used in recent studies [20, 21]. However, 313 nurses participated in the study, which is more than the sample size, thus, ensuring accuracy for missing data and nonresponse from other participants. It applied the following inclusion criteria: male and female nurses assigned in the Emergency & Triage Department (ED), Outpatient Department (OPD), Critical Care Unit (CCU), COVID Isolation Ward, and Medical Surgical Ward. Nurses who did not have direct contact with COVID-19 patients were excluded.

2.2. Instrument

The instruments were adapted and modified from Khalid *et al.*'s (2016) "MERS-CoV Staff Questionnaire" for the feelings and factors that cause stress [14] and "Brief COPE" for coping strategies [22]. The study instrument consisted of 9 question items exploring feelings, 12 items exploring factors causing stress, and 20 items were lifted from the original 28 Brief COPE to assess coping strategies that best fit with the current situation and culture in Saudi Arabia. The instrument underwent face and content validity through the help of research experts, as well as a pilot tested with 30 staff nurses in which Cronbach's alpha showed scores of 0.700 for feelings, 0.850 for factors causing stress,

and 0.831 for coping strategies. These scores supported the instrument's ability to measure the variables being tested. The Likert scale used for feelings and factors causing stress ranged from *most of the time*, *some of the time*, *seldom*, and *never*; while for coping strategies were *always used*, *often used*, *sometimes used*, and *never used*.

2.3. Data collection

The instrument was uploaded to surveymonkey.com and the link was sent to the participants via WhatsApp. However, in other hospitals, questionnaires were distributed with the help of the nursing education and training departments. A period of two months including follow-up were allotted to data collection. Data were collected, summarized, tallied, and reviewed for analysis and interpretation.

2.4. Data analysis

Data were analyzed using SPSS version 23. Descriptive statistics like weighted mean and standard deviation were utilized to determine the variability of responses and identify the highest and the lowest value. Independent sample *t*-test and two-way ANOVA were utilized to measure significant differences within the groups. Furthermore, the significant difference was also tested using the post-hoc test known as Bonferroni.

3. Results

Three hundred thirteen (313) nurses answered the questionnaires. The majority of the nurses caring for COVID-19 patients were female (86.30%), aged 25–34 years (56.20%), married (54.40%), and permanent residents of Saudi Arabia (46.30%). Furthermore, most of them were staff nurses (87.50%), had a bachelor's degree (76%) with 1–5 years' experience in clinical setting (34.20%), and assigned to the COVID Isolation Unit (29.10%) and ED (27.20%). Nurses with undergraduate qualifications accounted for 20.4%, while BSN and postgraduates were 76% and 3.5%, respectively. In terms of professional experience, 20% were recently employed, 34.2% had been practicing for up to five years, 23.3% had an experience of 6–10 years; and 22.4% were expert nurses with 11 or more years of nursing practice.

Table 1 shows that sometimes nurses felt that they had to do their job because of their professional and ethical duties ($M = 3.40$; $SD = 1.024$). Given the chance, they wanted

TABLE 1: Nurses' feelings during COVID-19 pandemic.

Indicators	Mean	SD
I feel that I had to do my job as it was my professional and ethical duty	3.40	1.024
If given a chance, I would have chosen to work in a unit where I would not be exposed to COVID-19	3.03	0.978
I feel nervous about contracting the virus	2.97	1.036
I feel scared because I am exposed to COVID-19 patients	2.96	1.025
I am unhappy to do overtime	2.96	1.057
I feel that employees not directly exposed to COVID-19 avoided me	2.80	1.095
I feel angry that my workload increased compared to employees not exposed to COVID-19	2.67	1.113
I think of calling for a leave	2.59	1.120
I will quit my job if the COVID19 outbreak recurred	2.36	1.239
Composite mean	2.86	0.689

Scores for feelings during the COVID-19 pandemic: 1.00–1.49: Never; 1.50–2.49: Seldom; 2.50–3.49: Some of the time; 3.50–4.00: Most of the time.

to work in a unit where they were not exposed to COVID-19 ($M = 3.03$; $SD = 0.978$). They were nervous with the feeling of contracting the disease ($M = 2.97$; $SD = 1.036$), unhappy to do overtime work ($M = 2.96$; $SD = 1.057$) and scared because of exposure to positive patients ($M = 2.96$; $SD = 1.025$), respectively. On the contrary, they seldom felt that they would quit their jobs if the COVID-19 outbreak recurred ($M = 2.36$; $SD = 1.239$).

Table 2 shows factors increasing participants' stress. Starting from the highest impact, the nurses thought that they could transmit COVID-19 to their families and friends, which has the highest score ($M = 3.36$; $SD = 0.0874$), followed by the inadequacy of personal protective equipment ($M = 3.30$; $SD = 0.796$) and that they might be positive to the disease whenever they had respiratory symptoms ($M = 3.22$; $SD = 0.813$). The lowest scored factor that caused stress among them was lack of cure for COVID-19 ($M = 3.02$; $SD = 0.871$).

Participants often found comfort in their religion or spiritual beliefs ($M = 3.20$; $SD = 0.866$); getting advice from friends, family, and coworkers ($M = 3.18$; $SD = 0.852$); and trying to see the situation in a different perspective ($M = 3.13$; $SD = 0.873$) as their coping strategies during the period of COVID-19 pandemic (Table 3). The least used coping strategies were making jokes out of the situation ($M = 2.07$; $SD = 1.007$) and expressing negative feelings through social media ($M = 2.11$; $SD = 1.109$).

Table 4 discloses that there was a significant difference in the coping strategies when grouped according to gender ($p = 0.002$), which shows that females have greater coping

TABLE 2: Factors causing stress.

Indicators	Mean	SD
An increasing number of COVID-19 cases were reported by the media	3.17	0.905
Lack of cure for COVID-19	3.02	0.871
Having close contact with asymptomatic people	3.16	0.908
Seeing my colleagues stressed or afraid of the current situation	3.04	0.931
Prolonging the use of personal protective equipment during my clinical duty	3.35	0.799
Thinking of inadequacy of personal protective equipment	3.30	0.796
Displaying COVID19-like symptoms of my colleagues	3.04	0.876
Thinking that I might have COVID-19 whenever I have respiratory symptoms	3.22	0.813
Considering that I could transmit COVID-19 to my family and friends	3.36	0.874
Conflicting perception between my duty and safety	3.17	0.844
Experiencing physical stress	3.18	0.829
Showing emotional exhaustion	3.16	0.854
Composite mean	3.18	0.523

Scores for factors causing stress: 1.00–1.49: Never; 1.50–2.49: Seldom; 2.50–3.49: Some of the time; 3.50–4.00: Most of the time.

strategies. As for the age, the response differed with feelings ($p = 0.018$) and coping strategies ($p = 0.036$). The differences were observed in 18–24-year-olds for feeling and 25–34-year-olds for coping as revealed by the post-hoc test. Married staff ($p = 0.001$) had greater coping strategies compared to singles, while Filipinos experienced more negative feelings as well as factors causing stress but had greater coping strategies.

Concerning the area of assignment, the responses differed on feelings during COVID-19 in OPD and the factors causing stress in COVID Isolation Ward. A significant difference was also noted in coping strategies when grouped according to nursing qualification ($p = 0.022$) and from the post-hoc test conducted; this was found in those with bachelors' degrees. Lastly, a significant difference was observed in feelings during COVID-19 and coping strategies when grouped according to years of experience as staff.

Table 5 presents the association of staff feelings during COVID-19, factors causing stress, and coping strategies. As seen from the results, r -values indicate a moderate direct correlation and reveal that the computed p -values were <0.01 alpha level.

TABLE 3: Coping strategies of nurses.

Indicators	Mean	SD
I've been... refusing to believe that it is happening	2.39	1.090
expressing my negative feelings through social media	2.11	1.109
making jokes about it	2.07	1.077
focusing on my work to divert my attention from the current situation	2.90	0.973
saying good things to relieve my unpleasant feelings	3.10	0.913
getting help and advice from my family, friends, and coworkers	3.18	0.852
sleeping more than the usual number of hours	2.63	1.069
spending more time on my hobbies	2.46	1.054
playing digital or online games to divert my attention	2.38	1.118
eating more than usual	2.38	1.061
spending my time on social media	2.69	0.973
watching movies and TV series to think about it less	2.47	1.050
engaging more time to do exercises	2.24	1.013
spending time cleaning and rearranging things in my room	2.70	1.018
trying to find comfort in my religion or spiritual beliefs	3.20	0.866
reading and listening to inspirational messages and podcasts	2.81	0.961
using meditation and yoga to relax	2.20	1.070
listening to my favorite music	2.72	1.015
thinking what is to be done, one step at a time	2.97	0.860
trying to see the situation from a different perspective, to make it more positive	3.13	0.873
Composite mean	2.64	0.549

Scores for coping strategies for nurses: 1.00–1.49: Never used; 1.50–2.49: Seldom used; 2.50–3.49: Often used;

4. Discussion

Researchers faced difficulties in the online survey because of the low response rate which could be associated with the stress and exhaustion nurses faced during the period of disease outbreak. Only 51%, which accounts to 139 nurses, participated in the online survey out of the 275 target samples. Limitations of the online surveys could also be linked to respondents' poor engagement in answering time, inclusion of non-nursing staff, computer literacy, and weak or no access to Internet. This means assistance from training and education nursing units through face-to-face surveys was sought to come up with the needed data.

Nurses working in the frontline during disease outbreak had mixed feelings and experienced psychological repercussions because of stress of the COVID-19 outbreak.

TABLE 4: Comparison of staff feeling, factors causing stress, and coping strategies when grouped by demographic profile.

		Nurses' feelings	Factors causing stress	Coping strategies
		Mean ± SD	Mean ± SD	Mean ± SD
Gender	Male	2.77 ± 0.646	3.18 ± 0.423	2.40 ± 0.495
	Female	2.88 ± 0.696	3.18 ± 0.423	2.67 ± 0.548
	P-value	0.338	0.982	*0.002
Age group (yr)	18–24	3.02 ± 0.708	3.16 ± 0.472	2.65 ± 0.649
	25–34	2.87 ± 0.669	3.21 ± 0.535	2.70 ± 0.524
	35–44	2.75 ± 0.582	3.14 ± 0.501	2.45 ± 0.489
	45–54	2.36 ± 1.019	3.04 ± 0.672	2.50 ± 0.467
	55–64	2.78 ± 0.729	3.08 ± 0.821	2.42 ± 0.369
	P-value	*0.018	0.689	*0.036
Marital status	Married	2.83 ± 0.665	3.19 ± 0.491	2.54 ± 0.486
	Single	2.90 ± 0.718	3.17 ± 0.561	2.75 ± 0.598
	P-value	0.377	0.743	*0.001
Nationality	Saudi	2.92 ± 0.640	3.23 ± 0.461	2.56 ± 0.587
	Filipino	2.96 ± 0.722	3.24 ± 0.561	2.81 ± 0.478
	Indian	2.66 ± 0.713	3.01 ± 0.567	2.65 ± 0.522
	Egyptian	2.62 ± 0.676	3.19 ± 0.543	2.20 ± 0.240
	P-value	*0.016	*0.019	*0.000
Area of assignment	Out-patient Department	3.05 ± 0.405	3.14 ± 0.346	2.83 ± 0.432
	Critical Care Unit	2.62 ± 0.775	2.99 ± 0.605	2.59 ± 0.537
	Emergency & Triage Department	2.89 ± 0.582	3.24 ± 0.453	2.71 ± 0.532
	COVID Isolation Ward	3.03 ± 0.685	3.35 ± 0.483	2.55 ± 0.570
	Medical–Surgical Ward	2.82 ± 0.707	3.07 ± 0.512	2.69 ± 0.571
	P-value	*0.003	*0.000	0.167
Job title	Staff nurse	2.90 ± 0.687	3.18 ± 0.520	2.63 ± 0.562
	In-charge	2.65 ± 0.634	3.19 ± 0.520	2.64 ± 0.425
	Head nurse	2.51 ± 0.712	3.21 ± 0.620	2.65 ± 0.510
	P-value	0.067	0.863	0.899
Educational qualification	Diploma/Associate	2.78 ± 0.551	3.16 ± 0.456	2.48 ± 0.505
	Bachelor of Science	2.89 ± 0.720	3.18 ± 0.541	2.68 ± 0.557
	Master/Doctorate degree	2.60 ± 0.703	3.31 ± 0.527	2.53 ± 0.476
	P-value	0.219	0.695	*0.022
Years of experience	<1	3.02 ± 0.708	3.18 ± 0.491	2.68 ± 0.661
	1–5	2.84 ± 0.739	3.12 ± 0.581	2.77 ± 0.564
	6–10	2.94 ± 0.641	3.29 ± 0.446	2.59 ± 0.465
	≥11	2.67 ± 0.603	3.15 ± 0.526	2.45 ± 0.437
	P-value	*0.019	0.198	*0.002

*Significant at $p < 0.05$.

TABLE 5: Correlation between staff feelings during COVID 19, factors causing stress, and coping strategies

		Feeling	Factors	Coping strategies
Feelings	<i>R</i> -value	1	0.553**	0.368**
	<i>P</i> -value		0.000	0.000
Factors	<i>R</i> -value	0.553**	1	0.224**
	<i>P</i> -value	0.000		0.000
Coping	<i>R</i> -value	0.368**	0.224**	1
	<i>P</i> -value	0.000	0.000	

**Correlation is significant at the 0.01 level (two-tailed).

This cross-sectional survey divulged that nurses aged 18–24 years vary in feelings when caring for COVID-19 patients compared to other age groups which are influenced by the emotional maturity that develops during the transition from late adolescents to young adults as the latter have better control over things [23–25]. At the same time, it is significant to note that Filipino nurses experience more negative feelings and stress but cope better among others as they are well-known for their resilience. Nurses working in a foreign land with different cultures may experience stigma when being isolated due to exposure to infectious diseases [26], that is why they need to effectively use coping strategies to enhance their mental health considering they are away from their support system. Perhaps, nursing administration and management should consider extending more support among expatriate nurses.

Looking into the area of assignment, nurses in OPD and COVID-19 Isolation Wards had different feelings and stress toward their exposure to positive patients. The nurses working in the direct treatment of COVID-19 had more uncertainty against those nurses who had a short period of interaction with positive patients [27–29]. Hence, a more planned and rational allocation of workforce by pairing expert nurses and beginners should be considered to ensure effective delivery of nursing care.

Moreover, this study discloses that female, married staff nurses aged 25–34 years coped better during COVID-19 outbreak compared to males. The study finding could be associated with the reality that female nurses have a better understanding of the prevention of COVID-19 [30]. Correspondingly, married and young adults have better ways of controlling their emotions, thus they cope effectively unlike singles who are more likely to develop depression [31]. However, finding differs from the findings of the study conducted in Italy and Pakistan which revealed that males have better mental health and coping strategies during the disease outbreak compared to females [32, 33]. Likewise, Chinese female nurses exhibited more severe anxiety than males [17]. Establishing

guidelines per nurses' demographics must be a requisite among healthcare institutions to strengthen their mental health.

Current findings are congruent with the report during the MERS-CoV epidemic in South Korea, wherein nurses went through "inevitable fear, being alone, exhausted strength, extreme stress, and stigma from society [15; likewise, nurses working in Saudi Arabia felt nervous and scared during the outbreak [14]. However, such fears did not prevent nurses from attending to their professional and ethical responsibilities, which is evident in the current study. International studies also support these findings. A study during the Ebola outbreak reported that nurses and midwives faced the risk in caring for patients as they believed that they have the responsibility to their profession, community, and religion [34]. Similarly, a report in Hubei, China stated that front liners endured longer working hours despite fatigue due to their social and professional obligations [11, 12]. Nevertheless, maintaining a "positive attitude" helps nurses to deal effectively during stressful situations [35, 37].

Among the factors that cause most of the stress is the anxiety that they could transmit the disease to their family and friends ($M = 3.36$), which is different from the stressors of nurses during MERS-CoV in which safety is their primary concern [14]. The long period of pandemic scares nurses concerned about their family health. Correspondingly, the prolonged use of PPE also added to their stress ($M = 3.35$), which is also congruent to the study in Hangzhou, China, as their personal needs like eating and toileting were limited [38]. The disease being a public emergency creates a negative impact on performing daily activities by the affected population as well as nurses as they are the ones primarily exposed to positive patients [39], which causes shame that in turn affects their mental health and further intensifies their stress [7, 40]. Therefore, identifying stressors could counteract their negative effects through effective coping, and thus, fostering optimism among nurses.

To help ease negative feelings and stress, nurses secure comfort through their religion and spiritual beliefs ($M = 3.20$). Working in Saudi Arabia, the center of Islamic religion, inspired nurses to be more optimistic despite global health crises. The help and advice from their family, friends, and coworkers were also a significant finding as commensurate with the previous report whereby nurses got "high support from family and colleagues but unfortunately low from their community" [41]. Support systems during a pandemic reduce stress and enhance self-worth. In addition, the positive attitude of nurses toward the working condition significantly contribute to their coping [14].

Overall, the study implies that the more negative the feelings are, the more intensified the effects of the factors causing stress and vis-a-vis; and therefore, the more coping

strategies are utilized. Henceforth, the nursing administration should re-evaluate their guidelines in staffing, workforce, management of resources, protocol compliance, and debriefing approaches to uplift the physical, psychological, emotional, and social well-being of nurses.

4.1. The implication to nursing practice

The result of the study will be an inspiration for nurses that despite the health crises they are facing, the pledge to the profession matters the most. Strong spirituality, despite cultural differences, helps them to fulfill their duties and obligations to their patients. Nursing administration may consider reviewing their guidelines in human resource management and taking into consideration enhancing the psychological wellness of nurses by creating a mental health program. The study could influence novice and future nurses to be more engaged in rendering quality care despite the imposed risks. Correspondingly, the modified instrument can be used to investigate feelings, factors causing stress, and coping strategies concerning the quality of care rendered by nurses.

4.2. Limitations and considerations for future studies

The present study has a few limitations in which not all healthcare workers were considered as a sample that could have resulted in selection bias. The study was conducted only in one city of Saudi Arabia. Future studies using all HCPs as samples and follow-up surveys that link to the effectiveness of nursing care are recommended to be conducted after the COVID-19 ends. Considering other cities in the country will further augment the reliability of results.

5. Conclusion

Staff nurses aged 18–24 years had different feelings when caring for COVID-19 patients. Nurses who were female, married, had a bachelor's degree, and were aged 25–34 years had more significant coping strategies. Separately, Filipino nurses assigned in OPD and COVID-19 Isolation Ward had more negative feelings and encountered several factors causing stress but coped better compared to others.

Notably, nurses' commitment to their profession is an intrinsic motivation to continue caring for COVID-19 patients despite the risk of transmitting the disease to their families, friends, and colleagues. Comfort with religion, spiritual beliefs, and the presence of a

support system were the best coping strategies for them to lessen the stress and negative feelings during the COVID-19 outbreak.

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Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of the General Directorate of Health Affairs in Madinah (H-03-M-084). Informed consent was drafted with all information about the study and attached to the questionnaire for participants to be reminded of the conditions agreed upon. Participants were assured of their anonymity and confidentiality of the data provided by them. Thus, their participation was voluntary, and no coercion was involved. The data collected were stored in one file and can be accessed only by the researchers.

Availability of Data and Materials

Data used in the study are available from the corresponding author upon reasonable request.

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