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| RESEARCH ARTICLE

Factors affecting Nursing Performance during COVID- 19 Period at Taif Government Hospitals

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| ABSTRACT
During epidemics, nurses play a crucial role in reducing direct exposures and offering direct patient care. The main purpose of the present study was to identify the factors affecting nursing performance during the COVID-19 period in Taif Government hospitals, Taif City, Kingdom of Saudi Arabia. A cross-sectional study was conducted on 580 nurses from thirteen government hospitals in Taif, Kingdom of Saudi Arabia. Data were collected using a survey consisting of a 24-item checklist. Descriptive statistics were done, and inferential statistics were done by SPSS. Ethical considerations were strictly followed throughout the study. The findings of this study demonstrated that the constant fear of infection, uncertainty about the future, and nurse burnout were the main factors influencing nursing performance. Additionally**,** the results indicated that more than half of staff nurses in different hospitals in Taif reported experiencing mild to moderate symptoms of mental health problems, anxiety, depression, and burnout. Lastly, nursing shortages, prolonged shifts, limited access to Personal Protective Equipment (PPEs), and increased workloads were the main secondary contributory factors affecting nursing performance. Evidence from the study suggests that nurses across government hospitals in Saudi Arabia require massive support to handle mounting COVID-19 infections. From receiving PPEs to minimizing staffing shortages and emotional support and counselling, nurses must be at the forefront of care. This will aid nurses in carrying out their duties effectively in the fight against COVID-19. Most importantly, hospitals must ensure that all nurses operate in conducive environments with increased attention to their physical and mental wellbeing.

| KEYWORDS

Nursing performance, COVID-19, Taif Government Hospitals

| ARTICLE INFORMATION

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1. Introduction

Since the first case of COVID-19 was confirmed in Saudi Arabia by the World Health Organization (WHO), nurses have played a critical role in addressing patients' psychological and medical needs. They have remained at the frontier of providing critical services to patients. With the rapid growth in Saudi Arabia's population and the increased prevalence of infectious diseases such as COVID-19, the training, retention, and performance of nurses have been recognized as a fundamental issue shaping care delivery. The COVID-19 pandemic is on the verge of destroying the already fragile healthcare system in KSA. Research indicates that there was an overall shortage of nurses in the public sector before the pandemic broke out, which has worsened due to the current situation (Zhan et al., 2020). There is also a significant variation in nurse skills and densities in different parts of the country.

Notably, COVID-19 continues to present many challenges to the wellbeing of healthcare providers, nurses included. This is augmented by the fact that the country has a shortage of resources, including intensive care units (ICUs), healthcare workers, PPEs,

and ventilators, to address the ever-increasing number of COVID-19 cases (Arnetz et al., 2020). COVID-19 has also brought about a significant change in how nurses work and socialize. The whole world has looked upon nurses to set an example of contactless interaction and infection control.

Thus, their duties, responsibilities, and pressures have expanded during the pandemic (Ciotti et al., 2020). Nurses have had to learn how to navigate different stresses caused by social distancing, new regulations on protective equipment, finances, and quarantine. Shreffler, Petrey, and Huecker (2020) further state that as a result of these challenges, nurses have faced dire situations that have threatened their ability to perform their duties effectively, something that has also affected their health and overall wellbeing. As a result, there is a strong need for this piece of research to understand the challenges that nurses face in the wake of the COVID-19 pandemic in order to devise ways to address them and thus improve patient care.

2. Literature Review

The nature through which the infection is spread, i.e., through touching or contact with an infected person, puts nurses at an increased risk of COVID-19 infection. Isolation, wearing face masks, washing hands with soap and water, and sanitizing are considered the best examples of how individuals can prevent the spread of the coronavirus (Markwell et al., 2020). However, the lack of PPE during the initial outbreak of the disease led to increased infections among nurses, leading to increased morbidities and mortalities. Since the outbreak, nurses have had to live with the constant fear of contracting the illness or infecting their loved ones (De Kock et al., 2021). Most of them are breadwinners and cannot afford to see themselves and their families infected. Preventive measures such as isolation and quarantine have also distanced nurses from their most crucial support systems: friends and families (Shaukat, Ali, and Razzak, 2020). Again, due to the increased cases of COVID-19, nurses have had to work extremely long hours, with most of them having no time for breaks or resting (Aslan & Pekince, 2021).

According to Algunmeeyn et al. (2020), the pandemic has also been cited as a risk factor for the poor mental wellbeing of nurses involved directly with COVID-19 patients, with many studies showing high levels of burnout, stress, anxiety, and depression. The problem is worsened by the fact that, due to increased workloads, the mental health of nurses has been neglected. Many nurses today now report a lack of support in their workplaces (Al-Dossary et al., 2020).

According to a study conducted by Khanal et al. (2020), nurses directly involved in the diagnosis and treatment of COVID-19 are at a higher risk of developing mental health problems. Poor mental health and overall wellbeing, in turn, lead to poor performance by nurses, which can significantly impact the quality of services they offer (Usher, Durkin, and Bhullar, 2020). It is important to note that poor mental health affects not only the individual but also those around them, such as family.

3. Materials and Methods

3.1 Design

The present study adopted an analytical cross-sectional study design. Data collection tools for nurses' performance were adapted and modified. The assessment tools consisted of questionnaires to assess the performance of nurses as well as the factors influencing this performance. An open-ended questionnaire consisting of a 24-item checklist was used in the study. The questionnaire used the English language. To ensure validity and reliability, the questionnaires were designed based on recognized standards and validated using principal component analysis.

The questions measured work-related factors such as personal protective equipment, emergency preparedness, anxiety, patient contact, and mental wellbeing. Nurses were then asked to rank the situations in order of most to least stressful. Participants used a 5-point Likert scale to rate different conditions ranging from 0-never, 1-almost-never, 2-sometimes, 3-fairly often, and 4–very often. The data was collected by a group of five trained facilitators. The questionnaires were checked for missing values and inconsistencies before data entry. Appropriate editing and coding were conducted. The data were analyzed utilizing STATA Windows software version 11.0 and a cumulative percentage system. Binary and multivariable logistic regression analyses were carried out to determine the factors influencing nurses' performance. Performance satisfaction levels, demographic information, and factors influencing nurse satisfaction levels were analyzed. Results were summarized and presented using figures, tables, and narrative descriptions.

3.2 Participants

The study consisted of 580 nurses randomly sampled from Taif Government Hospitals, i.e. 131 from King Faisal Medical Complex, 129 from King Abdulaziz Specialist Hospital; 32 from - Al Moweh; 27 from Umm AL Dom, 33 from Al Mahani; 26 from Turabah; 34 from Raniah; 23 from Zalm; 36 from Khurma; 25 from Giyah; 32 from Missan; 26 from As Sahn; and 26 from Ghariah General Hospitals. The number of nurses selected per hospital was based on hospital size, with King Faisal Medical Complex, the largest medical setting in Taif, producing the greatest share of the respondents (131). The eligibility criteria included nurses aged 18 years

and above from different backgrounds (i.e. Emergency Department, Medical Ward, Intensive Care Unit (PICU, CCU, NICU); Step Down Care, Nursing Administration (i.e. Nursing Supervisors, Nurse Managers who contact Nurses in the Units), Others (OPD, Infection Control Practitioners, Clinical Instructors, Quality Coordinators). Other eligibility criteria used in the selection process included nurses' education level, years of clinical practice/experience, and gender.

Nearly two-thirds of the selected nurses were female. The study investigated registered nurse practitioners only. Nurses that met these criteria but had less than 6 months of clinical experience were excluded from the study. Data collection commenced upon the receipt of an Ethical Approval from the IRB at the Research Department-Regional Directorate of Health Affairs in Taif (IRB registration number HAP- 02-T-067 with an Approval Number 578 from 27/06/2021). The researchers collected data by arranging for the questionnaires and be distributed by the Training and Academic Affairs Coordinators of each hospital. An explanatory statement was provided for the participants in addition to the survey. Nonetheless, explicit consent was not sought from the participants; their completion and submission of the survey were considered sufficient. It should be stated that this study was conducted in accordance with the Declaration of Helsinki.

3.3 Ethical issues

Study participants were briefed on the study, and oral consent was obtained. Respondents were fully aware that they had a right not to participate in the study but that their contribution was critical. All of the respondents participated in anonymity. Real names were not used. Following the study's conclusion, all study participants were assured of confidentiality.

4. Results

A total of 580 nurses from Taif government hospitals were invited to participate in the study. Out of them, 540 successfully filled out and returned the questionnaire, representing 93%. The average age of the participants was 25 years. Most of the nurses were front-line workers directly involved in the management of COVID-19 patients. The most frequent responses were derived from those aged between 26 and 30 years (41%), followed by those in the age group between 31 and 40 years (39.3%) (Table 1). The respondents were mainly non-Saudi nurses (88.4%), with a majority having experience between 4 and 6 years (25%). The majority of this category of nurses were of Indian origin, with the rest being of Cuban, English, Emirati, and South African descent. Most of them were married (57.41%), with the highest level of education being a bachelor's degree (86.55%) (Table 1).

Additionally, the study participants belonged to two main professional categories: staff nurses and head nurses. The vast majority of the respondents were staff nurses (74.82%), followed by head nurses (8.79%) and registered nurses. All the nurses reported having provided specialized care to COVID-19 patients. The results indicated that nurses with more than 4 years of experience reported having more confidence in fighting COVID-19 infections (ANOVA, $p = 0.05$) than their newly hired peers, who registered the lowest levels of confidence.

4.1 The Fear of Being Infected with COVID-19

Nurses also cited the fear of infection as one of the main factors influencing their nursing performance. The majority of the nurses argued that they feared infection due to being in frequent contact with COVID-19 patients. They admitted that this significantly affected the way they operated in the clinical setting. At the same time, some of them did not worry about getting infected with the disease but mostly feared that it might affect their family members and other members of the community (Table 2). Fear has a significant impact on nurses between the ages of 26 and 50 (Tables 3 and 4).

4.2 Uncertainty about the future

In the wake of the COVID-19 pandemic, the majority of non-Saudi nurses (52%) reported being apprehensive about the future. Many of them did not know when the pandemic would come to an end or when they would be able to visit their families back home in their respective countries of origin. There was fear that most nonresident nurses may not be able to travel back to their home countries because of the pandemic. Similarly, this factor was cited as one of the most influential factors affecting nurses' performance. Non-Saudi nurses appeared to be more affected compared to their Saudi national counterparts with regard to this uncertainty. This could largely be attributed to the lack of immediate support from close family members or relatives. Most of the stressors for nurses identified in the study included the possibility of getting infected and infecting family members or friends. (Table 2).

4.3 Burnout from dealing with too many cases at once

Multivariate logistic regression demonstrated that the majority of respondents (72%) reported experiencing mild to moderate symptoms of distress and burnout as a result of handling too many patients. In the wake of the pandemic, many of these nurses saw an influx of patients unlike they had seen before. Furthermore, many had their working hours extended indefinitely. The average workload per nurse also increased considerably. The resultant feelings of distress and burnout significantly influenced nurses' performance at their workstations.

5. Discussion

Nurses' levels of performance are the cornerstone of advanced patient care and improved patient outcomes. A poor-performing nursing workforce severely impacts public health. The emergence of the COVID-19 pandemic in recent years has had a tremendous impact on the performance and wellbeing of nurses, particularly frontline nurses. This study assessed the factors affecting nursing performance in the wake of the COVID-19 pandemic at various Taif government hospital settings. Data presented in an ANOVA indicated that frontline nurses' apprehension of contracting the virus significantly affected how they conducted their care duties. This can be attributed to the fact that most of them find themselves exposed to risk factors associated with the virus, thus making them feel unsafe when performing their duties. The spread of the COVID-19 virus, which has been observed to be highly transmissible through air droplets, touching of infected areas, and poor hygiene, make nurses more susceptible to infection. Additionally, in their line of work, nurses are forced to live with the constant fear of infection and severe illness for both themselves and their family members. These factors, according to the study, are to blame for the diminishing levels of nursing care quality in many Taif government hospitals. Around 52% of the nurses reported that uncertainty about the future was a major deciding factor for their confidence levels at the workplace. It is, however, important to note that the demoralizing effects of the COVID-19 pandemic on nurses have been observed not just in Saudi Arabia but elsewhere.

For instance, Allen and Cug (2020) reported that COVID-19-related demoralization, burnout, and fear were among the reasons behind the diminishing nursing performance in the United States. Nurses are frontline caregivers in most hospitals, thus taking care of COVID-19 patients while trying to protect themselves and their loved ones. Drawing on the data collected from our study, the fear of infection for both the respondents and their families may have negatively affected their overall performance. Data also demonstrated that many of the respondents (72%) reported suffering from distress and burnout as they rushed to control the mounting cases of COVID-19 infections. Workloads were increased, and working hours were extended. More specifically, nurses' well-being was affected. This made it more difficult for them to perform their duties effectively. Notably, these findings have been observed in previous studies, such as the one demonstrated by Rose et al. (2021).

Compared to other healthcare workers, nurses often deal with the daily uncertainties associated with the pandemic. Lastly, many of the respondents reported that the fear of not being able to travel back to their home countries as a result of the pandemic was a determining factor in their performance. Previous research indicates that nurses have higher stress and anxiety levels than other workers because of the potential for exposure to and proximity to patients with infectious diseases like COVID-19 (Rose et al., 2021). Most of this study's respondents also reported working for extended periods of time as a limiting factor. They did not have enough time to relax or engage in other activities. Notably, the study indicated that most nurses got support from family and friends, which helped them deal positively with different stressors.

6. Conclusion

The COVID-19 pandemic has had a tremendous effect on frontline nurses and other healthcare workers. Healthcare facilities have been pushed to the edge, and nurses are demoralized. Since the emergence of the pandemic, staff nurses have had to risk infection to provide critical care services to patients. Not to mention, many of these nurses have suffered from emotional stress as they try to juggle their personal and professional lives. In Taif, Kingdom of Saudi Arabia, this burden is mainly because of the acute shortage of staff nurses witnessed before and after the pandemic broke out. Since many of the frontline health workers in the kingdom come from foreign countries, the healthcare system has witnessed massive strains in recent times. As hospitals struggle with fragile health care systems and have insufficient medical resources amidst the pandemic, the mental well-being of nurses in such settings becomes a particularly important aspect that must be appropriately measured, articulated, and addressed.

From this study, we can report several COVID-19-related factors that make it difficult for nurses to perform their duties effectively, especially in the fight against COVID-19. We can, therefore, conclude that the mental stress associated with COVID-19 has made it difficult for nurses to carry out their mandates effectively. So much needs to be done at the organizational level to ensure that all nurses enjoy a conducive environment that promotes their wellbeing and fosters an atmosphere for improved patient care. It is, however, important to note that further research is needed to help understand the long-term effects of COVID-19 on nurses' wellbeing in different parts of the country. The findings of this study resonate the most with the roles of staff nurse, nursing supervisor, and nurse manager.

7. **Recommendations**

Hospitals should introduce incident command centers where healthcare workers can be monitored for stress to help them address the complex relationship between COVID-19 and different variables such as training and support. For instance, the hospital can introduce counseling programs to help nurses deal with these stressors. Additionally, they should offer psychiatric preparedness programs to nurses most susceptible to mental wellness; they address the complex relationship between COVID-19 and different variables such as training and support. For instance, the hospital can introduce counseling programs to help nurses deal with these

stressors. Additionally, they should offer psychiatric preparedness programs to nurses most susceptible to mental wellness. Moreover, hospitals should focus on interventions to minimize the length of individual shifts as well as promote self-care among nurses. To reduce long working hours, hospitals should assign additional nursing staff to consolidate existing ones.

Hospitals can also request volunteers from the local Medical Reserve Corps (MRC) and/or the Volunteering Group as per approval. This is because volunteers can effectively aid nurses as they struggle with staffing shortages. In addition, they can consider the benefit of hiring cross-trained nurses across multiple departments' intrahospital or interhospital needs to match the nursing workforce demand (Paul, Jomon, et al. 2014). Hospitals should offer continuous training to nurses to equip them for the coming waves of COVID-19. Nurses should be constantly reminded of how to take care of themselves when dealing with patients with COVID-19. They should also be well prepared for the symptoms to expect from patients with COVID-19 and how to deal with them. All healthcare providers should be trained in recognizing early signs, transmissions, measures for protection, and associated procedures.

Resilience training and psychological and moral support for nurses should be provided at the hospital level, especially to those in direct contact with COVID-19 patients. Every organization should have individuals or teams responsible for communicating any information regarding COVID-19. Realistic scenarios about the pandemic should be shared with healthcare teams providing direct care to COVID-19 patients. Frontline nurses should have an environment where they can report emergencies or ethical issues, challenge incidences, or offer management advice. There should be a platform where healthcare providers can share good practices, experiences, and information among collaborating parties and peers. This type of environment should be blame-free. Communication lines between professionals and management should be shorter to ensure that information is received on time.

8. Limitations

The limitations of this study include the data collection tools used. The self-reporting style characterized by questionnaires is not the best method for gathering accurate information. In other words, respondents may not always provide accurate information, thereby affecting the overall findings of the study.

9. Suggestions for Future Research

Future research studies should be conducted with regard to other factors that might affect nurses' performance during the pandemics. Future research studies also should be done to reveal other factors that should be considered when providing nursing care to the public and patients.

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Table 1: Demographic Data

VARIABLE		Frequency	Percent
Age	18-25 years old	34	5.9
	26-30 years old	238	41.1
	31-40 years old	227	39.2
	41-50 years old	61	10.5
	51-60 years old	19	3.3
	Total	579	100.0
Nationality	Saudi	67	11.6
	Non-Saudi	512	88.4
	Total	579	100.0
Experiences	Newly hired	12	2.1
	More than 6 months to 1 year	42	7.3
	1 year to 3 years	128	22.1
	4 years to 6 years	145	25.0
	more than 6 years to 10 years	113	19.5
	10 years and above	139	24.0
	Total	579	100.0
Position	Staff Nurse	434	75.0
	Quality Coordinators	14	2.4
	Nursing Supervisor	21	3.6
	Nurse Manager	17	2.9
	Head Nurse	51	8.8
	Clinical Instructor/Nurse Preceptor	10	1.7
	Charge Nurse	32	5.5
	Total	579	100.0
Do you have children?	Yes	249	43.0
	No	330	57.0
	Total	579	100.0

Table 2: Differences between groups (Nurses per age groups)

Variables		Df	Mean Square	F	Sig.
Have you attended any form of Infection Control Training and Awareness Program?	**Between Groups**	**4**	**.055**	**.403**	**.806**
	Within Groups	**574**	**.136**		
	Total	**578**			
Are you being afraid of getting infected with COVID-19?	**Between Groups**	**4**	**1.553**	**6.434**	**.001**
	Within Groups	**574**	**.241**		
	Total	**578**			
Are you in constant contact with COVID-19 patients?	**Between Groups**	**4**	**.188**	**1.318**	**.262**
	Within Groups	**574**	**.143**		
	Total	**578**			
Confidence in fighting the pandemic	**Between Groups**	**4**	**.283**	**.883**	**.474**
	Within Groups	**574**	**.320**		
	Total	**578**			
Do you have access to Personal Protective Equipment (PPE)?	**Between Groups**	**4**	**.230**	**1.299**	**.269**
	Within Groups	**574**	**.177**		
	Total	**578**			

Notes:*The mean difference is significant at the level 0.05 level.

Table 3: significant of variations between the groups (nurse's age range groups)

ANOVA					
Variables		df	Mean Square	F	Sig.
Are you having fear of getting infected?	Between Groups	12	1.076	4.619	<.001
	Within Groups	566	.233		
	Total	578			
Are you having contacts with COVID-19 patients?	Between Groups	12	.335	2.409	.005
	Within Groups	566	.139		
	Total	578			
Confidence in fighting the pandemic	Between Groups	12	.776	2.499	.003
	Within Groups	566	.310		
	Total	578			
Do you have an access to Personal Protective	Between groups	12	.576	3.410	<.001

Equipment (PPE)?	Within Groups	566	.169		
	Total	**578**			

Table 4: Post hoc

Multiple Comparisons							
Dependent Variable	**(I) Age**	**(J) Age**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
						Lower Bound	**Upper Bound**
16. Are you having fear of getting infected?	18-25 years old	26-30 years old	-.059	.090	.966	-.31	.19
		31-40 years old	.071	.090	.934	-.18	.32
		41-50 years old	.284	.105	.056	.00	.57
		51-60 years old	.056	.141	.995	-.33	.44
	26-30 years old	18-25 years old	.059	.090	.966	-.19	.31
		31-40 years old	.130*	.046	.036	.01	.25
		41-50 years old	.342*	.070	<.001	.15	.54
		51-60 years old	.115	.117	.865	-.21	.44
	31-40 years old	18-25 years old	-.071	.090	.934	-.32	.18
		26-30 years old	-.130*	.046	.036	-.25	-.01
		41-50 years old	.212*	.071	.024	.02	.41
		51-60 years old	-.016	.117	1.000	-.34	.31
	41-50 years old	18-25 years old	-.284	.105	.056	-.57	.00
		26-30 years old	-.342*	.070	<.001	-.54	-.15
		31-40 years old	-.212*	.071	.024	-.41	-.02
		51-60 years old	-.228	.129	.395	-.58	.13
	51-60 years old	18-25 years old	-.056	.141	.995	-.44	.33
		26-30 years old	-.115	.117	.865	-.44	.21
		31-40 years old	.016	.117	1.000	-.31	.34
		41-50 years old	.228	.129	.395	-.13	.58
Are you having contacts with COVID-19 patients?	18-25 years old	26-30 years old	-.084	.069	.744	-.27	.11
		31-40 years old	-.075	.069	.819	-.26	.12
		41-50 years old	-.125	.081	.534	-.35	.10
		51-60 years old	-.228	.108	.220	-.52	.07