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# Nurses' preparedness and response to COVID-19

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ABSTRACT

*Introduction:* Coronavirus disease is the most striking pandemic across the world that every country is addressing and talking about it now. Nurses deliver the highest level of functioning in the health care team. Nurses need to understand the COVID-19 preparedness and response process. Therefore, it becomes very important to assess a nurse's knowledge of preparedness and response to Corona Virus Disease (Covid-19).

*Methods:* The research approach was quantitative in nature by using the descriptive cross-sectional survey among nurses working under MOH Hospitals in Najran region, KSA. The sample participated in the survey was 594 and the tool used for the study was a modified questionnaire on Nurse's preparedness and response to COVID-19. The questionnaire contained five parts and the first part included basic information of the nurses and the second part was composed of yes or no questions assessing the nurse's Knowledge on COVID-19 preparedness and the third part composed of facility and response readiness to triage screening and the fourth part consist of nurses preparedness and readiness on COVID and fifth part composed of nurse's preparedness and readiness on personal protective equipment's and the study was approved by Institutional Review Board (IRB). Data was presented by using descriptive and inferential statistics.

*Results:* Our study results found that overall knowledge of COVID preparedness was adequate. However, the nurse's preparedness on personal protective equipment was moderate. Majority of respondents were Registered Nurses 587(98.9%)and most of the respondents were employed by the Ministry of Health 586(98.7%)and the nurse's knowledge of preparedness was 456(76.8%) and the facilities preparedness and response readiness was 549(92.4) and adequate supply of personal protective equipment (PPE) 519(87. 3%).

*Conclusion:* The findings of the study exhibit that nurses have an adequate level of knowledge towards the preparedness and response to coronavirus diseases.

## 1. Introduction

Coronavirus is the most striking pandemic globally, where every country is trying hard to address it 35. (WHO, 2020aa, 2020bb, 2020bc) Coronavirus, also termed as COVID-19, is a viral infection. COVID-19 has been an emerging health problem over the past two decades (Gentile & Abenavoli, 2020). In December 2019, the infection was first discovered in Wuhan, Hubei province in China (Wuhan City Health Committee, 2020). Previously, the disease, which had not been discovered in humans and this zoonotic species, spread between people and animals. (El Zowalaty & Järhult, 2020). The WHO named the disease COVID-19 on January 30, 2020 (WHO, 2020aa, 2020bb, 2020bc). Initially, the WHO identified this disease as an outbreak on March 11, 2020 (WHO, 2020a; WHO, 2020b; WHO, 2020b). By July 8, 2020, approximately 11,974,919 COVID-19 cases had been reported in more than 216 nations (WHO, 2020a; WHO, 2020b; WHO, 2020b).

The transmission of COVID-19 occurs through respiratory droplets. Individuals contract this condition by touching contaminated surfaces and later, touching their face, that is, mouth, eyes, or nose. According to scientific evidence, COVID-19 is the most transmittable disease. There is also a possibility of spread before an individual exhibits the symptoms. The period between exposure and the onset of symptoms is approximately five days, although it may range between two days to two weeks (Fan et al., 2020). Coughing, fever, and difficulties in breathing are common COVID-19 symptoms. Other complications may include acute respiratory distress syndrome and pneumonia (Shereen, Khan, Kazmi, Bashir, & Siddique, 2020). Up to date, there is no scientifically proven treatment or vaccine for this condition. Correspondingly, supportive and symptomatic therapy is the primary treatment intervention. Some of the recommended measures for preventing COVID-19 include thorough

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handwashing, maintaining a distance from other individuals, and covering the mouth and nose while sneezing or coughing. Additionally, self-isolation and controlling people who are suspected cases also prevent transmission.(Cascella, Rajnik, Cuomo, Dulebohn, & Di Napoli, 2020).The WHO has also recommended various measures to combat COVID-19, including the enforcement of curfews, quarantining suspects, travel restrictions, cancellation of public events, and facility closures (Al-Tawfiq, Al-Homoud, & Memish, 2020). Some of these measures in practice include the Hubei quarantine, worldwide quarantine, border closures, travel restrictions, and screening at airports (Ahmed & Memish, 2020). South Korea and China have implemented effective curfew strategies. Countries have also issued travel advisories concerning regions with society transmissions. Additionally, governments have shut down schools and higher learning institutions in more than 216 countries, impacting about 1.5 billion students (Cucinotta & Vanelli, 2020).

The Kingdom of Saudi Arabia (KSA) reported its first confirmed case on March 2, 2020. The case, which was reported in Qatif, involved a Saudi who has traveled through Bahrain from Iran. The second confirmed case, reported on March 4, 2020, was a companion to the first case (MOH, 2020). . By July 8, KSA had 217,108 positive cases and 2017 mortalities in almost all regions. The country also reported a total of 154,839 recoveries (Arab News, 2020).

Healthcare workers remain at the frontline during this pandemic. Globally, 11 million nurses are in direct contact with patients, families, and communities (ICN, 2020).

Nurses' role during this pandemic has expanded from caring for the sick to recover. As a result, nurses require adequate knowledge and skills to deliver a practical approach to responding to this outbreak and managing critical situations (Covid et al., 2020). Nurses working in the intensive care unit, emergency department, infection control, and general wards are highly susceptible to contracting COVID-19. (Munoz-Price et al., 2019) Healthcare practitioners can reduce the transmission rate and the risk of COVID-19 in hospitals through proper handwashing, hand hygiene, and personal protective equipment (PPE) (Khan & Karataş, 2020). Thus, there is a need for adequate resources, knowledge, and training in mitigating hospital-acquired COVID-19 (Bird, 2020).

Early nursing interventions play a vital role in prevention, (Tables 1-5) preparedness, and response to the impacts of the COVID-19 pandemic. The WHO emphasizes utilizing the hospital readiness checklist for COVID-19 to enhance prevention and management among health care professionals (WHO, 2020a; WHO, 2020b; WHO, 2020b). Nurses form a significant proportion of professionals in healthcare. As a result, they require necessary training to equip them with specific skills for delivering quality care to COVID-19 patients (WHO, 2020a; WHO, 2020b; WHO, 2020b). Therefore, adequate knowledge of COVID-19, effective response, and critical preparedness are essential for frontline nurses (WHO, 2020a; WHO, 2020b; WHO, 2020b) Limited researches have addressed the overall preparedness challenges and resource limitations in managing COVID-19. Nurses' preparedness and their capacity to respond to COVID-19 are other concerns emerging from this pandemic's management (Ughasoro, Esangbedo, & Udorah, 2019). This study aimed to ascertain the level of knowledge on preparedness and effective response to COVID-19 among nurses working under the Ministry of Health Hospitals in Najran, KSA.

**Table 1**
Base line Information of the Nurses.

| S. No | Variable | Category | Frequency | Percentage % |
|---|---|---|---|---|
| 1 | Are you an RN | Yes | 587 | 98.8 |
| | | No | 7 | 1.2% |
| 2 | Are you employed by MOH | Yes | 594 | 100% |
| 3 | In what setting do you currently work | Hospital | 561 | 94.4% |
| | | Primary health care | 33 | 5.6% |
| 4 | Has your workplace provided information, regarding the novel coronavirus and how to recognize and respond to possible case? | Yes | 586 | 98.6% |
| | | No | 8 | 1.3% |
| 5 | Has your workplace instituted travel/exposure history screening for all patients with fever and/or respiratory symptoms | Yes | 569 | 95.7% |
| | | No | 25 | 4.2% |
| 6 | Does your workplace have airborne infection isolation rooms ("negative pressure rooms") available on your unit? | Yes | 531 | 89.3% |
| | | No | 63 | 10.6% |
| 7 | Is there a plan to isolate a patient with possible novel coronavirus infection? | Yes | 573 | 96.4% |
| | | No | 21 | 3.5% |

**Table 2**
Nurses Knowledge on COVID-19–19 Preparedness.

| S. No | Variable | Category | Number | Percentage % |
|---|---|---|---|---|
| 1 | Is the Nurse aware of the WHO guideline for Health Care Workers on COVID-19 preparedness? | Yes | 456 | 76.7% |
| | | No | 138 | 23.3% |
| 2 | Does the Nurse correctly state all four symptoms of COVID-19–19 (Cough, shortness of breath, fever, sore throat)? | Yes | 545 | 91.7% |
| | | No | 49 | 8.3% |
| 3 | Does the Nurse know the major risk factors of the disease? | Yes | 531 | 89.3% |
| | | No | 63 | 10.6% |
| 4 | Does the Nurse know the preventive measures to avoid contracting the disease? | yes | 553 | 93.0% |
| | | No | 41 | 7.0% |
| 5 | Is the Nurse aware of the current situation in the country, the state she/he resides, and her/his community? | Yes | 585 | 98.5% |
| | | No | 9 | 1.5% |
| 6 | Are the Nurses are responsible for the preparedness of COVID-19 care. | Yes | 564 | 95% |
| | | No | 30 | 5% |

**Table3**
Facility Preparedness and Response Readiness on Triage/Screening.

| S. No | Variable | Category | Number | Percentage % |
|---|---|---|---|---|
| 1 | Does health care workers explain the reason for triage/screening to patients? | Yes | 549 | 92.4% |
| | | No | 45 | 7.6% |
| 2 | Is there a designated screening area to check the temperature before patient entrance into the health care facility and patients are being screened? | Yes | 584 | 98.3% |
| | | No | 10 | 1.7% |
| 3 | Are patients been asked for symptoms of COVID-19 infection before allowed into the health facility?. | Yes | 585 | 98.4% |
| | | No | 9 | 1.6% |
| 4 | Adequate supplies of hand gloves, facemask, PPE available for use by health workers. | Yes | 432 | 72 0.7% |
| | | No | 162 | 27.3.% |
| 5 | Is there a designated well-ventilated Isolation room? | yes | 408 | 68.6.% |
| | | no | 186 | 31.3% |
| 6 | Is the distance of at least 2 m (arm's length) maintained between nurses and patients and in between patients? | yes | 478 | 80.4% |
| | | No | 116 | 19.6% |
| 7 | Is there crowding at the entrance of the facility? | Yes | 463 | 77.9% |
| | | No | 131 | 22.1% |

**Table 4**
Nurse's effective response to COVID-19.

| S. No | Varıable | Category | Number | Percentage % |
|---|---|---|---|---|
| 1 | Are there any additional PPEs? | Yes | 299 | 50.3% |
| | | No | 295 | 49.7% |
| 2 | Does your workplace have sufficient PPE stock on hand to protect staff if there is a rapid surge in patients with possible coronavirus infections? | Yes | 369 | 62.1% |
| | | No | 225 | 37.9% |
| 3 | Have you been trained on safely donning and doffing (putting on and taking off) PPE?. | Yes | 585 | 98.5% |
| | | No | 9 | 1.5% |
| 4 | Have you been fit-tested for a respirator in your hospital? | Yes | 570 | 96% |
| | | No | 24 | 4% |
| 5 | Does your workplace have an overflow plan to place additional, trained staff to enable safe care provision to patients in isolation for possible novel coronavirus? | Yes | 428 | 72.1% |
| | | No | 166 | 27.9% |
| 6 | Does your workplace have the policy to address employees with suspected or known exposure to the novel coronavirus? | Yes | 527 | 88.7% |
| | | No | 67 | 11.3% |
| 7 | Has your workplace implemented informational campaigns or other secondary screening isolation to ask patients with symptoms and travel/exposure history to call ahead to the hospital/clinic before coming in? | Yes | 544 | 91.6% |
| | | No | 50 | 8.4% |
| 8 | To the best of your knowledge, have any patients at your facility been identified as possible coronavirus cases. | Yes | 530 | 89.2% |
| | | No | 64 | 10.8% |
| 9 | Has your hospital/workplace ensure appropriate staffing for possible novel coronavirus infection.. | Yes | 345 | 58.1% |
| | | No | 249 | 41.9% |
| 10 | Has your hospital/workplace ensure Rapid Response Team. | Yes | 531 | 89.4% |
| | | No | 63 | 10.6% |
| 11 | Does your management support your activities? | Yes | 510 | 85.8% |
| | | No | 84 | 14.2% |
| 12 | Have you attended any training program on novel coronavirus? | Yes | 456 | 76.7% |
| | | No | 138 | 23.3% |
| 13 | Is there anything else you'd like us to know about your hospital's preparedness to respond to possible novel coronavirus cases? | Yes | 348 | 58.5% |
| | | No | 246 | 41.4% |

## 2. Methods

### 2.1. Study design

A cross-sectional survey was conducted among nurses working in Hospitals in the Najran region, Saudi Arabia, from June 8 to 22.

### 2.2. Setting and participants

The study focused on nurses working in the Ministry of Health Hospitals in Najran. A total of 9 hospitals participated in the study. Nurses working in all the departments interacting with COVID-19 patients were the target population. The researcher explained the research objectives and methods to all participants before asking them to provide consent to participate. Initially, the researcher targeted 800 nurses. However, only 594 nurses participated in an online survey. The inclusion criteria entailed nurses working in the Ministry of Health hospitals, genders, and nationalities, including Saudi and non-Saudis. The study also considered nursing practitioners like nursing technicians, staff nurses, charge nurses, and head nurses. The exclusion criteria included nurses with a plan to resign, administrative staff, and nurses working in clinics. Nurses' preparedness and response to the COVID-19 online survey questionnaire were distributed through an online link. The researcher eliminated incomplete data.

### 2.3. Instruments

Nurse' preparedness and response to the COVID-19 online survey questionnaire was sent to MOH nurses in Najran. The tool used for this study was a modified questionnaire of the WHO-Hospital Readiness Checklist for COVID-19 (WHO, 2020a; WHO, 2020b; WHO, 2020b).The questionnaire comprised five domains. The first section focused on collecting demographics and participants' personal information. The second section comprised six items for evaluating the nurses' knowledge regarding COVID-19 preparedness. The third section consisted of 11 domains for assessing the overall facility preparedness and response readiness through approaches like triage/screening. The fourth section consists of 13 items, ascertaining the overall nurses' response to managing PPEs, training, and safety precautions. The fifth section had one domain to determine nurses' knowledge concerning PPEs. The participants earned one point for every correct response and zero for an incorrect response. The questionnaire had a highest score of 34 points. Thus, participants' preparedness and the response would range between 0 and 34. In this study, participants with scores above 23 points demonstrated a high level of knowledge. Consequently, those who scored between 12 and 22 had moderate knowledge, and those who scored below 12 points depicted inadequate preparedness.

Ethical Approval

The Institutional Review Board (IRB) approved this study on June 21 with registration number KACST, KSA: H-11-N-081. Before taking part in the study, all respondents provided consent. The study also adhered to all ethical principles throughout the research period. The investigator also informed the respondents on using the study data and findings for research purposes only. Confidentiality, anonymity, and rights of the participants were fully ensured throughout the study period.

### 2.4. Statistical analysis

Data entry and statistical analysis were done using the SPSS21 statistical software package. Descriptive statistics were used to measure the

**Table 5**
Nurse's preparedness and readiness on Peroneal Protective Equipment's.

| S. No | Varıable | Category | Yes, I have access on my unit. | Sort of, I have to go somewhere else in the facility to get it. | No, I don't have any access | I don't know |
|---|---|---|---|---|---|---|
| 1 | Do you have access to sufficient personal protective equipment(PPE) (PPE) for airborne precautions in your unit | Gloves | 504(84.9%) | 76(12.8%) | 10(1.7%) | 4(0.06) |
| | | Gowns | 487(81.9.%) | 92(15.6%) | 10(1.7%) | 5(0.08) |
| | | Coveralls | 302(50.8%) | 124(20.9%) | 144(24.3%) | 24(4.0%) |
| | | N95 Respirator | 468(78.8%) | 92(15.5%) | 29(4.9%) | 5(0.08) |
| | | Face Shield | 403(67.9%) | 138(23.3%) | 49(8.2%) | 4(0.06) |
| | | PAPR(Powered air-purifying respirator) | 243(40.9%) | 130(21.9%) | 189(31.9%) | 32(5.3%) |

study variables, such as frequency and percentage distribution.

## 3. Results

The Nurses' preparedness and response to the COVID-19 online survey questionnaire were distributed online to participating nurses between June 8 and 22. A total of 463 nurses responded within seven days. An additional 131 Nurses responded in the following days. The overall response rate was 98% (n = 594).

A majority of the respondents, 587, were registered nurses, representing 98.8% of the participants. Notably, these nurses worked in MOH Hospitals. Regarding the work setting, most of the respondents, 94.4% (561), worked in Hospitals. Additionally, 98.7% of the respondents reported that the workplace provided information about COVID-19 identification and response. About 531(89.3%) of the respondents disclosed the availability of airborne infection isolation rooms ("negative pressure rooms") in their units. Lastly, a total of 573 (96.4%) respondents revealed that they followed the isolation guidelines for the patients with possible COVID-19 symptoms.

The present study reported the nurse's knowledge of COVID-19 preparedness. A majority of the nurses, specifically 456(76.7%), were aware of the WHO guidelines for COVID-19 preparedness. Notably, about 545 (91.7%) respondents identified cough, shortness of breath, fever, and sore throat as COVID-19 symptoms. Regarding risk factors, 531 (89.3%) nurses were well versed in preventive measures. Approximately 98.5% of the participants were aware of the country's current situation and the community. About 564 (95%) respondents reported that nurses are responsible for COVID-19 care preparedness.

Regarding hospital facilities' preparedness and response readiness for triage /screening, most of the respondents, 549 (92.4%), reported have knowledge of triage and screening for all patients. On the other hand, 584 (98.3%) respondents revealed that their facilities had a designated screening area for temperature checks as patients came into the hospital. About 585 (98. 4%) respondents mentioned that all patients were asked about COVID-19 symptoms before being allowed into the hospital premises. Participants were also queried on concerns about preparedness and the adequacy of supplies like hand gloves, facemask, and PPE. Nearly 162 (27.3%) of respondents revealed that they had inadequate supplies, especially PPE. A total of 186 (31.3%) respondents mentioned that they did not have a designated, well-ventilated isolation room. Furthermore, nearly 116(19.6%) participants disclosed that they maintained a distance of at least 2 m (arm's length) with other nurses and patients. Regarding crowding in hospitals, 463 (77.9%) respondents reported that they had a well-prepared entrance to reduce overcrowding.

The study results indicated nurses' preparedness and response to the COVID-19 pandemic. Concerning PPEs, 295 (50.3%) participants reported that they lacked adequate PPEs. A significant proportion of the respondents, 369 (62.1%), stated that their workplaces had enough PPEs. A total of 585 (98.5%) respondents expressed that they had been trained for donning and doffing off PPEs. Furthermore, about 570 (96%) participants had undergone the respirator fit test within their hospital as facilities were mostly concerned about staffing and supplies.

Nurses were also asked to report on their preparedness concerns. A total of 428 (72.1%) participants reported that their workplaces had an overflow plan to place more trained personnel in isolation rooms. Almost 527 (88.7%) mentioned that the workplace had a policy for discussing exposed or suspected cases among practitioners. Around 544 (91.6%) nurses reported that their workplace had implemented informal campaigns and screening and isolation rooms for symptomatic patients or those with travel/exposure history. The role of nursing during the outbreak had expanded from caring for the sick. Therefore, this indicated the importance of adequate staffing to deliver quality care to the patients during the pandemic. Around 345(58.1%) reported that their hospital had ensured appropriate staffing to manage the crisis, while 531(89.4) respondents described that the workplace had a rapid response team. Regarding management and support activities, 510 (85.8%) respondents disclosed that they received adequate support from their administrators. Based on of training programs, 456 (76.7%) participants reported that they received adequate training on COVID-19 control and preventive measures.

Nurses depend on PPE to safeguard themselves and their patients from contracting and transmission this infection. Thus, it is essential to have an adequate PPE supply in the workplace. Nearly 504 (84.9%) respondents reported that they had an adequate supply of gloves and gowns. The remaining respondents mentioned a lack of adequate supplies. A considerable number of participants claimed that they encountered severe challenges with the shortage of coveralls 124 (20.9%), N95 mask 92(15.5%), and face shield 138(23 3%). PPE shortages meant that nurses, doctors, and other frontline practitioners were not well equipped to care for COVID-19 patients while safeguarding themselves from infection. Hence, the WHO reported that severe disruption to the global supply and misuse of PPEs predisposed frontline practitioners to infection.

## 4. Discussion

Nurses are the first line practitioners in caring for patients and combating COVID-19 transmissions in hospital and community settings. Therefore, the necessitate preparedness to combat this unique pandemic. The American Nurses Association continues its strategic support to control and prevent further spread while securing nurses in healthcare teams and the public (Shannon, 2020). Preparedness includes early identification and notification. Nurses require the necessary safeguards, including quality PPE for protection and quality care provision to COVID-19 patients. Nurses need familiarity with the COVID-19 protocols, infection control guidelines, early identification, quarantine procedures, and preventive measures within the healthcare settings (Biscayart et al., 2020; Han, Kang, & Kwon, 2019).

The present study focused on evaluating the nurses' knowledge of preparedness and response to COVID-19 in the Najran Region, Saudi Arabia. The results highlighted that the overall knowledge of COVID-19 preparedness was adequate. However, nurses' preparedness for PPE was moderate. Variability was also found among nurses based on the workplace, exposure, screening, and recognizing cases. Therefore, these results demonstrated that nurses required adequate COVID-19 preparedness training to increase their knowledge of prevention, control, and management. A recent survey carried out on nurses' COVID-19 preparedness in the US supports this study's findings. In this study, about 87% of nurses were scared to report to work, while 36% reported caring for a positive case. The study also emphasized that nursing represents the largest sector in the global healthcare system. As a result, nurses should be central in preparedness. Besides, rapid intervention implementation, health promotion, education, community engagement, and strategic planning are the essential strategies to safeguarding public health (Tener, 2020).

The present study reported on hospital preparedness and response on triage and screening. Most of the participants revealed that their facilities had a designated screening area for temperature checks. Patients were also screened for COVID-19 symptoms before entering the health care facility. The study also reported that there were designated, well-ventilated isolation rooms for confirmed cases. Healthcare providers also maintained 2-meter social distancing to reduce infection and transmission. Moreover, most of the participants (84.3%) reported receiving the necessary orientation on COVID-19 guidelines. However, some nurses revealed the need for familiarity with the triage and screening guidelines. In this study context, most nurses were adhering to the MOH (MOH, 2020) and WHO guidelines regarding readiness, (PANO, 2020) critical preparedness, and COVID-19 response actions.

These guidelines focused on a hospital triage system, screening, isolation rooms, quarantine procedures, workforce, supplies, structure, and systems to implement life-saving medical interventions.

During the pandemic, the WHO acknowledged that every country should continue to implement all necessary measures to control the virus and decrease the chances of overwhelming health care facilities. Nations were also advised on safeguarding elderly patients with co-morbidities (WHO, 2020a; WHO, 2020b; WHO, 2020b). According to the present study, 504 (84.9%) participants reported having an adequate supply of gloves and gowns, while 124 (20.9%) respondents mentioned a lack of supplies, such as coveralls, N95 masks, and face shields.

Healthcare personnel relies on PPEs to protect themselves and others. Having an adequate PPE supply is inevitable in combating this pandemic. A survey conducted by the Royal College of Nursing (RCN) among nurses on PPEs supports the current study's findings. Based on this survey, 54% of the nurses were coerced into caring for COVID-19 patients without adequate protection. About 49% of these nurses reported they did not receive enough training about donning and doffing, contributing to uneventful distress and anxiety

Similarly, Bergman et al. conducted a study on the impact of multiple consecutive donning on filtering face-piece respirator fit among nurses. Approximately 87% reported reusing a single-use disposable respirator mask with patients (Bergman et al., 2012). The study warned that the reuse of PPEs is a dangerous practice as it heightens the exposure risk. Additionally, 32% and 72% of nurses reported skin or clothing exposure while caring for suspected or confirmed positive patients Therefore, this depicted a high risk of exposure in the clinical setting. Similarly, another on a shortage of PPEs among health care professionals supports the findings of the current study. The interview poll was conducted from April 27 to May 4. The study results reported that 10% of the participants recounted a shortage of surgical masks, stating they wore one mask for an entire shift. Most nurses expressed that they were forced to put their health at risk while caring for highly infectious patients due to inadequate N95 mask supply (Fisher & Shaffer, 2014). Nearly 36% of the nurses also reported the unavailability of hand sanitizer.

The present study revealed the requirement of proper staffing in the healthcare settings. About 58.1% reported having a severe shortage of nursing personnel to manage the crisis. Many recent studies support this finding. For instance, on March 9, 2020, China reported severe challenges due to a workforce shortage. Similarly, the US also reported that they encountered various difficulties due to the nursing shortage (OECD, 2019) Additionally, India also reported that they were facing more significant threats due to the same problem (Sharma, 2020).The WHO reported a shortage of nursing personnel around the globe. Nearly 6 million nurses have been involved in direct care to COVID-19 patients and are the backbones of the health care system (Haddad, Annamaraju, & Toney-Butler, 2020).

The study results are likely to equip the healthcare system in preparations for combating the COVID-19 pandemic. Najran hospitals have dedicated providers to enhance COVID-19 preparedness. Nurses expressed concerns about a staffing shortage and PPEs constraints as the cases arise. Limitations of this study include self-reported bias and the study. This study was conducted in MOH hospitals alone, and preparedness and response were assessed in a Najran region alone. Notably, this study provides a basis for future research.

## 5. Conclusion

The study's findings exhibit that nurses have an adequate level of knowledge towards the COVID-19 preparedness and response. It is undeniable that the nurses' excellent preparedness in the health care domain will make a significant difference in in-patient care. Further study can be carried out among other health care professionals. Training and education programs need to be implemented to increase their knowledge, awareness, and skills among the nurses about this global public health issue.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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*Ethical Considerations*

The study was approved by the Institutional Review Board (IRB) committee. The key aspects of the research ethics of human subjects are confidentiality, privacy, and consent. The aim of the study was explained to the study participant with an emphasis on the confidentiality of any obtained information. Informed consent was secured. Ethical principles were followed throughout the study period. The study samples were being informed that the data will be used for only the research purpose.

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