

Conducting Nursing Research in Saudi Arabia during the COVID-19 Pandemic: Insights and Lessons Learned

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ABSTRACT

Background: Nursing plays a critical role in patient care, and nurses generate numerous research ideas that can enhance disease management. The COVID-19 pandemic has created a universal experience that necessitates the exploration of the lessons learned regarding nursing research input during the pandemic.

Aim: This study aimed to investigate the barriers and challenges of conducting nursing research during the pandemic in Saudi Arabia. **Methods:** We conducted a questionnaire-based study. The first part of the questionnaire collected demographic data, background education, and work experience. The second part consisted of 17 questions related to research and handling COVID-19 patients.

Results: The study included 413 nurses in Saudi Arabia, of whom 303 (73.4%) were females, and 198 (47.9%) were non-Saudi. Of the respondents, 260 (63.0%) held a Bachelor of Science in Nursing degree. Findings indicated that 95 (23.0%) respondents felt non-supportive administration hindered research implementation, 118 (28.6%) lacked confidence in conducting research independently or as a group, and 121 (29.3%) were hesitant to integrate new concepts and lacked research expertise to share their ideas. Moreover, 119 (28.8%) found nursing research methodology perplexing and frustrating, and 115 (27.8%) believed that nursing research should be replicated to increase its generalizability.

Conclusion: The study suggests that nurses require better training and support to conduct research during infectious disease outbreaks. Further research is needed to determine the impact of having more nurses with research expertise.

Keywords: Nursing research, Questionnaire-based study, COVID-19, Pandemic era.

INTRODUCTION

The Coronavirus Disease 2019 (COVID-19) continues to be one of the vexing pandemics since 2019. The global population's usual existence had been disrupted, and the human career's life had been interrupted by lockdown ¹. The Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has spread throughout the world ². As of December 2021, there were more than 649 million confirmed cases of coronavirus disease 2019 (COVID-19) over the world. The real case positive rate, on the other hand, is projected to be 10 (3-24) times more than the number of confirmed cases, according to different models ³. The response to this pandemic and the ability of acute care facilities to satisfy the demand of COVID-19 infected individuals were given global priority. There has been little attention to health care workers who work beyond acute care ⁴.

The function of nurses in primary healthcare (PHC) varies ⁵. Healthcare workers (HCWs) played a major role in caring for those infected with SARS-CoV-2. Due to the extraordinary pressure caused by the pandemic, the international health care systems were stretched and have to deal with COVID-19 and non-COVID-19 patients and excreted a huge impact on HCWs. Nurses had put their lives at risk in order to do their tasks, and this caused a great deal of fear of the possibility of infection ⁶. In addition, nurses had helped in the preparation and facilitated testing and care of other patients with emerging

infectious diseases and contributed to the learning from these diseases ⁷. This study aimed to explore the barriers and challenges of conducting nursing research during the COVID-19 era in the Saudi Arabia.

MATERIALS AND METHODS

Study Design: This questionnaire was sent to nurses through different WhatsApp group in Riyadh city, Saudi Arabia in Aug-Sept 2020. All the recruited participants were informed about the research aim at the beginning of the survey. The questionnaire survey consisted of two parts which we have categorized in table (1) as first part and in table (2) as second part. The first part included the age, gender, marital status, nationality, educational qualification, total working experience, working experience in the current institution, types of working institutions and nurses infected with COVID-19. The second part consisted of 17 questions related to the nurses and their research background and efforts during the pandemic, as well as handling COVID-19 patients (Table 2).

We incorporated the Barriers and Challenges of Conducting Research (BCCR) Questionnaire, which is a 20-item self-report Likert scale with a 5-point response choice (1= strongly disagree and 5= strongly agree). The BCCR was developed by **Konwar and Kalita** ⁸ to explore the barriers and challenges of conducting nursing research and communicating research findings into practice in

terms of the following factors (5 subscales): Organizational factors (6 items), individual factors (4 items), impression of related factors (4 items), and quality of nursing research (4 items). Each factor's score is analyzed alone. A high score implies higher barriers and challenges of conducting research and a low score means a lower barriers and challenges of conducting research. Cronbach's alpha values ranges from 0.84 to 0.96, which indicate a good internal consistency ⁹.

Inclusion criteria: Nurses who were currently employed in any healthcare setting in Saudi Arabia during the study period, holding a valid nursing license, and have a minimum of six months of working experience. Additionally, only those who voluntarily agreed to participate and provided informed consent at the beginning of the survey, and who fully complete both parts of the questionnaire were included.

Exclusion criteria: Nurses who were on temporary or medical leave during the study period, who were working outside the specified geographical area of Saudi Arabia, or who were non-registered healthcare workers like nursing assistants or medical technicians.

Ethical approval: Ethical approval for this study (E-21-6358) was received from Institutional Review Board at King Saud University, Riyadh, Saudi Arabia. All the participants signed informed consent forms. The participants were excluded if they did not fill the questionnaire completely. The Helsinki Declaration was observed throughout the study's conduction.

Statistical analysis

The data were gathered in MS excel, and then the means and percentages were calculated. We used descriptive statistics to investigate the barriers and challenges of conducting nursing research for the first research question. The second set of study questions looked at the relationship between nurses' sociodemographic data and the barriers and challenges of conducting nursing research.

RESULTS

In this study, 413 nurses answered the survey with a mean age of 33.10 ± 9.8 years. 303 (73.4%) were females, 248 (60.0%) were married, and 215 (52.1%) were Saudi. Most nurses (260, 63.0%) had BSN qualification, and 194 (47.0%) had working experience in their current institutions between 1-5 years. The majority (379, 91.80%) were working in governmental hospitals and 194 (47.0%) were previously infected with COVID-19 (Table 1).

Table (1): Baseline characteristics of nurses involved in this study (N=416)

Baseline characteristics	Variables	Frequency (%)
Age (Years)	20-30	139 (33.70%)
	31-40	208 (50.30%)
	41-50	52 (13.00%)
	51-63	14 (3.0%)
Gender	Female	303 (73.40%)
	Male	110 (26.60%)
Marital Status	Single	154 (37.30%)
	Married	248 (60.0%)
	Divorce	8 (1.90%)
	Widow	3 (0.70%)
Nationality	Saudi	215 (52.10%)
	Non-Saudi	198 (47.90%)
Education *	Diploma	83 (20.10%)
	BSN	260 (63.0%)
	MSN	55 (13.30%)
	PhD	4 (1.00%)
	DNP	8 (1.90%)
Overall working experience	1 to less than 5 years	94 (22.80%)
	5 to less than 10 Years	123 (29.80%)
	10 to less than 15 Years	108 (26.20%)
	15 Years or more	88 (21.30%)
Work experience in current institution	1 to less than 5 years	194 (47.00%)
	5 to less than 10 Years	111 (26.90%)
	10 to less than 15 Years	63 (15.30%)
	15 Years or more	45 (10.90%)
Type of working Institutions	Government Hospital	379 (91.80%)
	Government Clinic	24 (5.80%)
	Private Hospital	10 (2.40%)
Nurse previously infected with COVID-19	Yes: Confirmed	194 (47.00%)
	Yes: Suspected	23 (5.60 %)
	Not Infected	196 (47.50 %)

* BSN: Bachelor of science in nursing; MSN: Master of Science in nursing; PhD: Doctor in Philosophy; DNP: Doctor of Nursing Practice. All the data are represented as N, %

In relation to the organizational factors, 127 (30.80%) agreed that they do not have the authority to change the patient care procedures, 100 (24.20%) were neutral and 99 (24.00%) disagreed. Table-2 illustrates barriers and challenges of conducting nursing research during the COVID-19 pandemic. In relation to the support of administration in implementation of research, (6.80%) strongly agreed and 95 (23.0%) agreed. Of the respondents, 107 (25.9%) strongly agreed, and 35.6% agreed that there were inadequate money and material. In relation to individual factors, 19 (4.6%) and 118 (28.6%) strongly agreed and agreed, respectively in relation to inadequate supportive working environment. When asked about nurses' unwillingness to change/try new ideas, 18 (4.4%) strongly agreed and 85 (20.6%) agreed. In addition, 55 (13.3%) strongly agreed and 130 (31.50%)

agreed that nurses are isolated from knowledgeable colleagues with whom to discuss the research. Of the respondents, 45% either strongly agreed or agreed that there was a need to pay heavily to publish research findings and that this is discouraging. On the other hand, 124 (30.0%) disagreed that most research conducted by nurses is not relevant to nursing education and practice. The response was divided in relation to difficulties in

finding the relevant literature and that protocols for nursing research are too structured with routine and no freedom for experiments with new ideas. It is interesting to note that about one third of the respondents felt that many nursing research studies have methodological inadequacies or flawed methodology, hence are not publishable by medical journals (Table 1).

Table (2): Barriers and challenges of conducting nursing research in the COVID-19 era. *

Number	Questions related to barriers and challenges of conducting nursing research	Variables	Frequency (%)
I Organizational Factors			
1	The Nurses does not feel she/he has enough authority to change patient care procedures	Strongly Agree	38 (9.20%)
		Agree	127 (30.80%)
		Neutral	100 (24.20%)
		Disagree	99 (24.00%)
		Strongly Disagree	49 (11.90%)
2	Administration does not cooperate in implementation of nursing research	Strongly Agree	28 (6.80%)
		Agree	95 (23.00%)
		Neutral	111 (26.90%)
		Disagree	129 (31.2%)
		Strongly Disagree	50 (12.10%)
3	Inadequate manpower	Strongly Agree	107 (25.90%)
		Agree	147 (35.60%)
		Neutral	68 (16.50%)
		Disagree	49 (11.90%)
		Strongly Disagree	41 (9.90%)
4	Inadequate money and material	Strongly Agree	82 (19.90%)
		Agree	129 (31.20%)
		Neutral	83 (20.10%)
		Disagree	81 (19.60%)
		Strongly Disagree	38 (9.20%)
5	Inadequate supportive or encouraging working environment	Strongly Agree	70 (16.9%)
		Agree	152 (36.80%)
		Neutral	64 (15.50%)
		Disagree	86 (20.80%)
		Strongly Disagree	41 (9.90%)
II Individual Factors			
6	The nurse does not have confidence to conduct a research project either independently or as a team member	Strongly Agree	19 (4.6%)
		Agree	118 (28.6%)
		Neutral	105 (25.40%)
		Disagree	121 (29.3%)
		Strongly Disagree	50 (12.1%)
7	The nurse is unwilling to change/ try new ideas?	Strongly Agree	18 (4.4%)
		Agree	85 (20.6%)
		Neutral	93 (22.50%)
		Disagree	147 (35.6%)
		Strongly Disagree	70 (16.49%)
8	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	Strongly Agree	55 (13.3%)
		Agree	130 (31.50%)
		Neutral	99 (24.00%)

		Disagree	112 (27.1%)
		Strongly Disagree	17 (4.1%)
9	Need to pay heavily to publish research findings, hence discouraging.	Strongly Agree	28 (6.8%)
		Agree	139 (33.7%)
		Neutral	127 (30.8%)
		Disagree	87 (21.1%)
		Strongly Disagree	31 (7.5%)
III	Impression of Related Factors		
10	The most research conducted by nurse is not relevant to the nursing education and practice.	Strongly Agree	16 (3.9%)
		Agree	88 (21.3%)
		Neutral	117 (28.3%)
		Disagree	146 (35.4%)
		Strongly Disagree	46 (11.1%)
11	It is difficult to find the relevant literature.	Strongly Agree	28 (6.8%)
		Agree	101 (24.5%)
		Neutral	118 (28.6%)
		Disagree	124 (30.0%)
		Strongly Disagree	41 (9.9%)
12	Protocol for nursing research is too structures and routine, no freedom to experiment with new ideas, hence boring.	Strongly Agree	31 (7.5%)
		Agree	121 (29.3%)
		Neutral	121 (29.3%)
		Disagree	114 (27.6%)
		Strongly Disagree	26 (6.30%)
13	Nursing research experts often differ in their views of the methodology, which makes it confusing and frustrating.	Strongly Agree	22 (5.3%)
		Agree	119 (28.8%)
		Neutral	142 (34.4%)
		Disagree	102 (24.7%)
		Strongly Disagree	27 (6.50%)
IV	Quality of Nursing Research		
14	Generally, nursing research studies are not need-based, topics/areas are repeatedly common	Strongly Agree	21 (5.10%)
		Agree	112 (27.1%)
		Neutral	113 (27.40%)
		Disagree	122 (29.5%)
		Strongly Disagree	45 (10.90%)
15	Many Nursing research studies have methodological inadequacies or flawed methodology, hence, not publishes by standard journals.	Strongly Agree	23 (5.6%)
		Agree	134 (32.4%)
		Neutral	133 (32.2%)
		Disagree	90 (21.8%)
		Strongly Disagree	33 (8.0%)
16	The conclusions drawn from research are not justified.	Strongly Agree	20 (4.8%)
		Agree	94 (22.8%)
		Neutral	150 (36.30%)
		Disagree	114 (27.6%)
		Strongly Disagree	33 (8.0%)
17	The research findings have not been tried out in other similar settings to enhance its generalizability.	Strongly Agree	18 (4.4%)
		Agree	115 (27.8%)
		Neutral	166 (40.2%)
		Disagree	84 (20.3%)
		Strongly Disagree	27 (6.50%)

* Data are represented as N, %

DISCUSSION

The aim of this study was to explore the barriers and challenges in conducting nursing research during the era of COVID-19. As this study was conducted amid the first year of the COVID-19 pandemic, 47% of nurses reported infection with SARS-CoV-2. Certainly, the pandemic had put tremendous pressure on healthcare workers and had resulted in a significant percentage of them being infected with SARS-CoV-2. The number of infected HCWs in the first wave of the pandemic paralleled those in the general population and were mostly community transmission¹⁰⁻¹².

The survey showed that 29.30% of nurses felt that the concept of nursing research is routine and boring, and this is worrisome. Also, 27.10% of nursing research topics perceived as commonly repeated and 32.4% of nurses feel that publication is discouraging due to the financial costs that is also troubling. More training of nurses in research skills and literature-seeking abilities is important. One-fourth of nurses expressed difficulties in finding the relevant literature. The writing skills for the HCWs need to be empowered as well, since 32.40% of nurses confirmed that methodology was confusing and frustrating. Furthermore, 27.80% of nurses confirmed that nursing research has not been replicated to increase its generalizability.

In this study, only 50.50% of the respondents were Saudi and this is due to the low number of Saudi nurses in the country. By 2025, the population of Saudi Arabia is predicted to reach 37 million. Nurse recruitment, retention, training, and performance has become a major challenge in shaping healthcare delivery in Saudi Arabia because of the country's rapid population expansion and the increasing prevalence of non-communicable diseases, such as obesity and diabetes. As a result of the country's disproportionate reliance on foreign nurses and the consequent nursing shortage, Saudi Arabia faces particular difficulties. On a global scale, there is also a shortage of qualified nurses. The global nursing and healthcare workers' labor shortfall is being affected by current trends, including the pandemic burden and burnout issues, that was changing over the course of the pandemic^{13, 14}. In addition, there are also distinct social and cultural concerns for the nurses in Saudi Arabia and that Saudi nurses felt the need to recruit more and retain these nurses¹⁵. It is expected that the number of Saudi nursing graduates from 2019 to 2027 will be approximately 26,200, thus further enhancing the workforce¹⁶. In addition, nursing education for males was introduced in Saudi Arabia in 1948¹⁷.

Globally, nurses played a major frontline role during the COVID-19 pandemic in handling patients¹⁸, and in this study 32.4% of nurses were infected with SARS-CoV-2. In another study from Saudi Arabia,

83.2% of nurses had good knowledge and treatment skills related to COVID-19¹⁹.

Many studies documented challenges faced by HCWs during the pandemic including emotional and psychological distress²⁰⁻²³. At the same time, our study explored the research status and potentials among nurses in Saudi Arabia. In a previous review of studies of research among critical care nurses, 70.2% of studies were clinical practice topics and 68.1% were observational cohort studies²⁴. The findings from this study showed the need for better nursing research as well as the need for training, mentorship, financial support, and collaborations as had been also highlighted in previous studies^{25, 26}. Of the respondents, 44.8% felt that nurses are isolated from knowledgeable colleagues with whom to discuss the research. However, in a previous study of nursing students, there was a high positive attitudes toward research and usefulness of research²⁷. It is also important to increase the image of nursing by increasing research and collaboration²⁸. Of the respondents, 32.2% of nurses felt that nursing research studies are not need-based, and topics/areas are repeatedly common. These findings call for better coordinated nursing research in Saudi Arabia. In view of the Saudi 2030 vision, there is a continued need to further enhance nursing education and research in the country²⁹.

Limitations and strengths:

There are no similar studies have been performed in Saudi Arabia during the pandemic and this could be the first study have been documented. However, our research is subject to the survey-based limitations and convenient sampling among nurses in Saudi Arabia. So, future research is warranted to explore these findings, both at regional and international levels.

CONCLUSION

Our study revealed significant barriers and challenges faced by nurses in conducting research during the unprecedented COVID-19 pandemic in Saudi Arabia. They underscored the significance of nursing research in guiding evidence-based practices and enhancing patient care. The findings also showed a clear need for enhanced training and support for nurses, emphasizing the critical role of organizational and individual factors in facilitating or hindering nursing research. The lack of confidence and motivation among nurses in conducting research, alongside a perceived inadequacy in resources, highlighted the crucial need for institutions to create a more supportive and encouraging environment for nursing research. Recognizing and addressing these motivational barriers, in addition to resource and confidence issues, are essential steps toward empowering nurses to engage in research activities more actively. Nurses need more training and encouragement to conduct research, especially during infectious disease outbreaks or healthcare emergencies. Future research on more

effective methods to support and enable nurses in healthcare research is warranted.

Conflict of Interest: None.

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