

# The Impact of COVID-19: A Comparison of Nurses' Turnover Intentions Before and During the COVID-19 Pandemic in Qatar

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## Research Article

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# Abstract

## Background

Several research studies have been conducted to have a better understanding of the reasons behind the intention of nurses to leave their jobs. To date, few studies have been conducted to explore how COVID-19 contributes to nurses' turnover intentions. This study aims at exploring nurses' turnover intentions before COVID-19 and during COVID-19.

## Methods

A cross-sectional study was conducted using the Turnover Intention Scale (TIS-6), where a convenience sample of 512 registered nurses participated from Hamad Medical Corporation (the largest healthcare provider in Qatar) from August to September 2020.

## Results

A total of 512 nurses were included in the final analysis. The majority were between 31–40 years (61.5%), 67.6% females, 76.4% married, 79.9% had a BSN, 43% have less than 5 years of experience, 60.4% have worked in COVID-19 designated facilities. There was a significant difference between turnover intentions before and during COVID-19; the turnover intentions were higher during COVID-19 compared to before COVID-19 ( $p < 0.01$ ).

## Conclusion

Nurses in Qatar have higher turnover intentions during COVID-19 compared to before COVID-19. The participants' characteristics and stress levels are playing a major role in nurses' decision to leave during COVID-19. Understanding the factors that contribute to the turnover intentions is crucial for workforce planning, especially during pandemics. Addressing the factors associated with turnover intentions will positively be reflected in nurses' well-being and turnover intentions.

## Background

Nurses' turnover intentions have always been an international concern. Several research studies have been conducted to measure and have a better understanding on why nurses intend to leave their jobs. A systematic review undertaken by Halter and colleagues (2017) has shown that the most strongly supported determinants are at the individual level, which are stress and burnout, job dissatisfaction, and commitment [1]. These determinants became more significant as the demand for nurses is increasing in these crucial times brought by the coronavirus. The Coronavirus Disease 2019 (COVID-19) has increased the pressure on the healthcare system around the world. The virus continues to spread to more than 260

countries, infecting millions worldwide. During COVID-19 pandemic thousands of patients were admitted and the death toll was at an unspeakable rate. Nurses work for extended hours in an unsuitable working condition as hospitals reached maximum capacity. A large amount of studies proved that in pandemics like COVID-19, nurses accumulate high stress and were at risk in developing mental health issues [2].

Nurses are working daily with the threat of getting infections. Unfortunately, there is no detailed report on the number of nurses who got infected with COVID-19. However, The International Council of Nurses (ICN) reported on June 3, 2020, that more than 600 nurses died from the 450,000 healthcare workers who acquired the virus [3]. Zhang and Small (2020) estimated that 1,652 healthcare workers died fighting COVID-19 as of May 2020 through the capture and recapture method. The thought of being infected among nurses may increase their defensive behavior and decrease their willingness to work with infected patients [2, 4–9]. Labrague and De Los Santos (2020) support that the fear of being infected with the coronavirus among nurses impacts their intent to leave the profession and organization. In previous pandemics (e.g., H1N1), the absenteeism rate among nurses was higher during outbreaks compared to normal situations [7, 10, 11].

Several research studies have been conducted to have a better understanding of the reasons behind the intention of nurses to leave their jobs. To date, few studies have been conducted to explore how COVID-19 contributes to nurses' turnover intentions. This study aims at describing the nurses' turnover intentions in Qatar before and during the COVID-19 pandemic.

## Methods

This cross-sectional, survey-based descriptive study was conducted in Hamad Medical Corporation (HMC) from August 2020 to September 2020. HMC was tasked to assign some of its nurses to designated COVID-19 facilities. These COVID-19 facilities were commissioned by the Ministry of Health in Qatar to primarily take care and manage patients infected by the virus. After receiving approval from the International Review Board (IRB) a survey link was disseminated to approximately 12,000 nurses through the corporate's official email. Participants were asked to declare whether they were assigned or deployed to a COVID-19 facility or not. We allocated one month for data collection and several reminders were sent to improve the response rate.

## Data Collection

The first part of the survey included the participants' characteristics; gender, age, marital status, years of experience, education level, whether they are working with COVID-19 patients or not, role, area of expertise (the area or department of work), and deployment during COVID-19 (duration of assignment in a COVID-19 facility). To measure the difference of stress levels between the stress before COVID-19 and during the COVID-19, the nurses were asked to recall their stress levels before COVID-19 and compare it to their day-to-day stress during the COVID-19 pandemic. A questionnaire was added asking the participant to

categorize their stress levels into a 5-point Likert-scale (no stress at all, mild, moderate, much, and extreme stress).

The widely used Turnover Intention Scale (TIS-6) is a 6-item self-administered questionnaire that was adapted from Roodt's (2004) original 15-item scale. A five-point Likert scale was used to rate the responses. The midpoint of the scale is 18. The scores below 18 indicate a desire to stay. If the scores are above 18 it indicates a desire to leave the organization. The minimum score a participant can get is 6 and the maximum is 30. There are no reverse scores in the TIS-6. The study undertaken by Bothma and Roodt (2013) confirmed that the TIS-6 is a reliable and valid tool to construct and predict actual turnover intention and behavior ( $\alpha = 0.80$ ). In order to compare the participant's TIS-6 score before COVID-19 and during COVID-19 the nurses were asked to answer two sets of TIS-6. The nurses were asked to recall their feelings and emotions before COVID-19 when answering the first set of TIS-6 and during COVID-19 when answering the second set of TIS-6. Please see (Supplementary Appendix A)

### *Ethical approval*

This research project has been reviewed and approved by the IRB at the Medical Research Center (MRC) in Hamad Medical Corporation (MRC-01-20-609), and the study has been conducted in full conformance with principles of the "Declaration of Helsinki" for Good Clinical Practice (GCP). The invitation to participate was sent to all nurses via HMC official corporate email, along with a cover letter explaining the study's purpose and expectations. Informed consent was obtained from all study participants in the survey. After data collection, the data was coded and double-checked by the principal investigator; The data was stored in a protected computer following Hamad Medical Corporation (HMC)'s policies and guidelines.

## **Results**

The data collected from a total of 512 nurses with a response rate of 4.3%. The sample was calculated based on the number of nurses working in HMC and with a CI of 95% (50% the response distribution and 5% margin of error), the estimated sample size was 373. We increased it to 500+ to overcome any incomplete surveys.

### *Participants' demographics*

The majority were between 31-40 years (61.5%). Among the study participants, 67.6% were females, 76.4% were married, 79.9% were BSN graduated, 43% of them were with less than 5 years of experience in the field, 60.4% of the study samples was assigned in a COVID-19 designated facility during the pandemic, besides 40% of the participants were working at the bedside, 40% were not deployed during the crisis, among them, 47% were deployed in a COVID-19 facility for less than 6 months (Table 1).

### *Stress levels during and before COVID-19*

There was a significant difference between turnover intentions before and during COVID-19; the turnover intentions increased during COVID-19. (Table 2). This table illicit the eminent difference as the subjects

with no stress and mild stress were decreased from 8.8%, 49% to 2.1%, 15.8% respectively, and during COVID-19. Other participants with much and extreme stress were increased from 12.7%, 3.9% to 33.2%, 17.6%, respectively. Thus, the stress among staff was significantly increased compared to the level of stress before COVID-19.

Shapiro-Wilk's test results were (0.00, 0.00) for both turnover intentions before and during COVID-19 respectively ( $P > 0.05$ ) were approximately normally distributed with skewness of 0.705 (SE=0.108) and kurtosis of 0.216 (SE = 0.215) for turnover intentions before COVID-19, and turnover intentions during COVID-19 with skewness of 0.433 (SE=0.108) and kurtosis of 0.645 (SE = 0.215) for turnover during COVID-19.

The values for asymmetry and kurtosis between -2 and +2 were considered acceptable to prove normal univariate distribution [12].

Table 3 illicit the result derived from the Wilcoxon Signed-Ranks Test, which indicates that turnover intentions of nurses during COVID-19 were statistically significantly higher than turnover before COVID-19 ( $Z = -11.058$ ), ( $p < 0.01$ ) and further illicit the association between demographic variables and turnover intentions among nurses. Mann-Whitney test has indicated no significant association between gender difference and turnover intentions before or during COVID-19.

Where else, there was a statistically significant difference between the age groups of the study participants on turnover intentions before (Kruskal-Wallis  $H = 8.878$ ), with a high mean rank of 280.48 for the age group 51yrs and with the low mean rank of 215.72 for the age group between 21 - 30yrs of age with  $p = 0.031$ . Also, most of the age groups except the 21-30yrs of age have more turnover intentions before COVID-19 with a high mean rank of 265.57 for the age group 31-40yrs and with the low mean rank of 224.53 for the age group between 21 - 30yrs of age with  $p = 0.125$  during COVID-19.

The participants with more than 5yrs of experience have merely the same turnover intentions before COVID-19, while the participants between 31 – 50yrs of age have merely the same turnover intentions during COVID-19. The distribution of turnover intentions before/during is the same across categories of Age with the significance level of .031.

Meanwhile, the authors also found that there was a statistically significant difference among the different marital groups of the study participants on turnover intentions before (Kruskal-Wallis  $H = 5.224$ ) and during (Kruskal-Wallis  $H = 9.885$ ), with a high mean rank of 283.98 among the single (unmarried) group and with the low mean rank of 248.28 among the married group with  $p = 0.073$  (before) and with a high mean rank of 294.41 among the single (unmarried) group and with the low mean rank of 225.00 among the other categories of the marital status group with  $p = 0.007$  (during). The participants with a single state have more than the other participants with marries and other marital statuses of turnover intentions during COVID-19. The distribution of turnover intentions during COVID-19 is the same across categories of marital status with the significance level of .007.

Furthermore, this study reveals that there was a statistically significant difference among the groups with varying years of experience among the study participants on turnover intentions before (Kruskal-Wallis  $H= 14.983$ ) and during (Kruskal-Wallis  $H= 5.744$ ), with a high mean rank of 280.96 for the participants with 5 - 10yrs of experience and participants with less than 5yrs of experience has a low mean mark of 227.52 with  $p=0.001$  before and from the above tables, the results summaries that there was a statistically significant difference among the groups with different years of experience of the study participants on turnover intentions during COVID-19 (Kruskal-Wallis  $H= 7.587$ ), with a high mean rank of 282.19 for the participants with 5 - 10yrs of experience and participants with less than 5yrs of experience has a low mean mark of 240.48 with  $p=0.023$ .

The findings conclude that the participants with 5-10yrs of experience have more turnover intentions during COVID-19 than the other groups who possess merely the same turnover intentions during COVID-19.

The results showed a statistical significance among the study participants in terms of stress before COVID (Kruskal-Wallis  $H=47.952$ ), with a mean of 333.63 with extreme stress and a mean of 186.60 with no stress with  $p=0.000$ . The most significant number of participants has mild stress before COVID-19, then participants who are with either moderate, much, and extreme stress with very few participants have no stress. The above tables illicit that there is a statistical

As far as the education level is concerned, it is evident from this study findings that there was a statistically non-significant difference among the groups with different educational qualification of the study participants on turnover intentions before (Kruskal-Wallis  $H= .245$ ), a high mean rank of 265.14 for the participants with nursing graduation and diploma graduate participants with 253.49 low mean ranks with  $p=0.885$ . The participants with any educational qualification except that graduates have merely the same turnover intentions before COVID-19, where else graduates posed more turnover intentions before COVID-19. Meanwhile, there is a statistically significant difference among the groups with different educational qualifications of the study participants on turnover intentions during (Kruskal-Wallis  $H= .827$ ), a high mean rank of 270.44 for the participants with nursing graduation and diploma graduate participants with 244.79 low mean ranks with  $p=0.661$ . These tables help to conclude that the participants with any educational qualification except just graduates have merely the same turnover intentions during COVID-19, where else graduates posed more turnover intentions during COVID-19.

For the clinical expertise, there is a statistically significant difference among the study participants with different expertise of the on turnover intentions before (Kruskal-Wallis  $H=4.509$ ), with a high mean rank of 276.62 among the participants with critical care expertise and participants with med/surgical expertise with 246.31 low mean rank with  $p=0.342$ . The participants with critical care and emergency expertise have more turnover intentions before COVID-19 than participants with other expertise. Further, these study found that there is a statistically significant difference among the study participants with different expertise on turnover intentions during COVID-19 (Kruskal-Wallis  $H=3.275$ ), with a high mean rank of 271.17 among the participants with critical care expertise and participants with other than the listed

expertise with 241.55 low mean rank with  $p=0.513$ . These tables help to establish the statement that the participants with critical care expertise have more turnover intentions during COVID-19 than participants with other expertise, where else the participants with medical/surgical and emergency, pediatric, and other expertise are merely the same turnover intentions during COVID-19.

All the participants, irrespective of whether deployed in the COVID-19 facilities or not, have turnover intentions during COVID-19 ( $p=.047$ ). Understandably, there is a statistically significant difference among the study participants with a different area of deployment on turnover intentions during COVID-19 (Kruskal-Wallis  $H=9.613$ ), with a high mean rank of 297.78 among the participants with critical care deployment and participants with other than the listed main areas of deployment with 242.90 low mean rank with  $p=0.047$ . Further, the hypotheses test summary by SPSS with a  $p$ -value of 0.047 states that the distribution of turnover intentions is the same across categories of deployment.

The data's from this study is concluding that there is a statistically significant difference among the study participants with varying duration of deployment on turnover intentions during COVID-19 (Kruskal-Wallis  $H=1.833$ ), with a high mean rank of 160.47 among the participants with 3-6 months of deployment and participants with less than 2 months of deployment with 145.68 low mean rank with  $p=0.047$ . It means turnover intentions during COVID-19 was high among the participants with 3-6 months of deployment in a COVID-19 facility was high, after 6 months, their turnover intentions during COVID-19 was less reaching the same with the participants deployed less than 2 months.

## Discussion

This study was trying to measure the impact of COVID-19 on nurses' turnover intention in Qatar. To the researcher's knowledge, this is the first study that compared the turnover intentions of nurses before COVID-19 and during COVID-19. The results showed that nurses in Qatar have significantly higher turnover intentions during COVID-19 compared to before COVID-19 ( $Z = -11.058$ ), ( $p<0.01$ ). This is true in some studies that nurses have a high turnover intention because of the psychological response to fear of COVID-19 [13-15]. In addition, this study showed that stress is significantly higher among nurses during COVID-19 compared to before COVID-19. This is consistent with previous studies where nurses accumulate higher stress during pandemics and is a strong determinant for nurses to leave their jobs [2, 16]. It is important to discover other factors associated with the nurses' stress and turnover intention during COVID-19 in order to mitigate and retain nurses during pandemics.

Furthermore, in this study nurses above 30 years old have higher turnover intentions during COVID-19 while nurses ages 21-30 years old have a significantly lower turnover intentions than before COVID-19. Multiple studies support that age significantly influences turnover intentions [15, 17, 18]. In addition, nurses working in Qatar for 5-10 years have higher turnover intentions than nurses working for less than 5 years before and during COVID-19. This contrasts with previous studies wherein normal circumstances the young, single, and new nurses have a higher tendency to leave their jobs [19, 20]. A probable explanation would rest on the nurse's perception of stability, work-life family balance, and health concerns

during COVID-19. The findings were alarming for hospital managers since the senior and more experienced nurses were considering leaving their jobs.

Another finding is that the length of deployment to a COVID-19 facility also affects a nurse's turnover intentions. This study shows that nurses who worked in a COVID-19 facility for more than three months have a significantly higher turnover intention than those who did not work in a COVID-19 facility. The study suggests that hospitals should consider decreasing the deployment period of nurses. Especially for nurses deployed in critical care. The study also showed that critical care nurses have higher turnover intention scores compared to other participants who were assigned elsewhere during COVID-19. Different studies have shown that even before the COVID-19 pandemic, nurses in the critical care units have higher stress and are more dissatisfied because of their continuous exposure to traumatic and stressful work experience resulting in higher turnover intentions [21, 22]. In the state of Qatar, critical care units were expanded to admit more critical patients; nurses without or minimal critical care experience have undergone crash courses or trainings in order to be safely and efficiently deployed in ICUs to fill the workforce [23]. Critical care nurses witness a lot of patient sufferings which caused a lot of emotional distress and grief during the COVID-19 pandemic [2].

It is also interesting to note that in the study of Nashwan, et. al. (2020) the nurses who were more knowledgeable and less exposed were willing to take care of patients infected with COVID-19 in Qatar. A possible explanation is that although nurses find it an obligation to work during COVID-19, the stress and the nurses' characteristics during COVID-19 were important factors in their decision to leave their work [2, 4, 15].

## **Limitations**

There are three major limitations in this study that could be discussed in future research—first, the possibility of selection bias. Although the invitation was sent to about 12,000 nurses working in HMC the response rate was only 4.3%. The non-respondents were either too stressed to complete the survey or not interested at all to participate. Second, the survey was carried out months after the peak of COVID-19; the stress level and TIS-6 were asked as recall questions with a possible recall bias.

## **Conclusion**

Consistent with prior evidence, our study findings suggest that nurses in Qatar have higher turnover intentions during compared to before COVID-19. Participants' characteristics and stress levels are playing a major role in nurses' decision to leave during COVID-19. Understanding the factors that contribute to the turnover intentions is crucial for workforce planning, especially during pandemics. Addressing the factors associated with turnover intentions will positively be reflected in nurses' well-being and turnover intentions.

## **Relevance For Clinical Practice**



The COVID-19 pandemic exerted a huge influence on nurses worldwide. The findings of the study have important implications for nursing leaders as it highlights the difference between nurses' turnover intentions before and during COVID-19 pandemic. Nursing leaders need to exhaust all possible measures and resources to support frontline nurses and address their physical, mental, and social needs. Supporting nurses through developing a safe and healthy working environment is essential. Evidence-based strategies should be followed by nursing leaders to retain and support nurses all the time especially during pandemics.

## Declarations

### Ethics approval

The study was approved by the Medical Research Center (MRC) – Institutional Review Board (IRB) at Hamad Medical Corporation (MRC-01-20-609). Informed consent was obtained from all study participants in the survey.

### Availability of data and material

All data generated during this study is included in this published article.

### Competing interests

The authors declare that they have no competing interests.

### Funding

This study was funded by the Medical Research Center at Hamad Medical Corporation.

### Authors' contributions

AJN, AAA, RCV, AN, MMA: Research design, Data collection, Statistical analysis, Literature search, Manuscript preparation.

All authors read and approved the final manuscript.

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## Tables

**Table 1. Demographics Nurses Turnover Intention**

<b>CHARACTERISTICS</b>	<b>CATEGORIES</b>	<b>N</b>	<b>PERCENTAGE (%)</b>
<b>Gender</b>	Male	166	32.4
	Female	346	67.6
<b>Marital status</b>	Single	115	22.5
	Married	391	76.4
	Other	6	1.2
<b>Education</b>	Diploma	43	8.4
	BSN	408	79.7
	Graduate Studies	31	11.9
<b>Assigned to a COVID-19 facility</b>	Yes	309	60.4
	No	203	39.6
<b>Role during crisis</b>	Bedside nurse	205	40
	Charge Nurse, Coordinator	307	60
<b>Original Unit of Assignment</b>	Med/surg	138	27
	Critical Care	93	18.2
	Emergency	78	15.2

	Pediatrics	48	9.4
	Other	155	30.3
<b>Area of Assignment in a COVID-19 Facility</b>	Not Deployed	205	40
	Critical Care	86	16.8
	Emergency	49	9.6
	Quarantine Facilities	40	7.8
	Other	132	25.8

	<b>MEAN</b>	<b>SD</b>
<b>Age</b>	36.54	7.42
<b>Years of experience as a nurse</b>	6.54	4.46
<b>Deployment duration in a COVID-19 facility (n=307)</b>	4.36	2.41

		<b>FREQUENCY</b>	<b>PERCENTAGE</b>
<b>Stress level during covid-19</b>	No stress	11	2.1
	Mild	81	15.8
	Moderate	160	31.3
	Much	170	33.2
	Extreme	90	17.6

<b>Stress level before covid-19</b>	No stress	45	8.8
	Mild	251	49
	Moderate	131	25.6
	Much	5	12.7
	Extreme	20	3.9

**Table 2. Stress levels before and during COVID-19**

	Statistic	df	Sig.	Mean	95% CI
<b>TO before COVID-19</b>	.105	512	.000	13.24	12.83 - 13.66
<b>TO during COVID-19</b>	.089	512	.000	15.54	15.03 - 16.04

**Table 3. Comparison of TO Intentions before and during COVID-19**

	Turnover Intention Sig. (2-tailed)	
	Before COVID-19	During COVID-19
<b>Gender</b>	.259	.859
<b>Age</b>	.031*	.125
<b>Marital status</b>	.073*	.007*
<b>Years of experience</b>	.001*	.023*
<b>Education</b>	.885	.661
<b>The original field of expertise</b>	.342	.513
<b>Working in a COVID-19 designated facility</b>	-	.648
<b>Role during the pandemic</b>	-	.136
<b>Deployment</b>	-	.047*
<b>Deployment duration</b>	-	.400
<b>Stress level</b>	.000*	.000*

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SupplementaryAppendixA.docx](#)