



ISSN: 2832-7926

Global Journal of
Aging & Geriatric Research

DOI: 10.33552/GJAGR.2023.02.000539

Iris Publishers

Research Article

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A Retrospective Case Review Of COVID-19 Infections Among Health Care Workers in A General Hospital, Qatar

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Received Date: May 08, 2023

Published Date: May 15, 2023

Abstract

The COVID-19 pandemic, caused by the SARS-CoV-2 virus, has been one of the most significant public health challenges in recent history. Qatar is one of the many countries that have been affected by the pandemic, with a significant number of COVID-19 cases reported. The study's aim is to assess various factors such as demographics, severity, vaccination status, and admission status of healthcare workers who tested positive for COVID-19. The methodology used in this study involved the selection of a sample of COVID-19-positive healthcare workers to ensure the representativeness of the sample, Slovin's formula was used to randomly select 31% (266/857) of the positive cases. Overall, the methodology used in this study involved a systematic approach. The study's findings provide valuable insights into the demographics, severity, vaccination status, and quarantine period of COVID-19-positive healthcare workers. These insights can help inform strategies to protect the health of healthcare workers and mitigate the impact of the pandemic on healthcare systems.

Keywords: COVID-19; Pandemics; Healthcare workers; General hospital

Introduction

The COVID-19 pandemic caused by the SARS-CoV-2 virus has had a severe impact on public health worldwide [1]. The virus was first identified in Wuhan, China, in December 2019, and has since rapidly spread across the world, resulting in millions of infections and deaths. Qatar is one of the countries affected by the pandemic,

with a significant number of COVID-19 cases reported [2]. Between November 2021 and March 2022, 857 staff members in a general hospital in the State of Qatar tested positive for COVID-19, emphasizing the risks healthcare workers face while fighting against the pandemic. The high rate of infection among hospital



staff is a cause for concern, as it may lead to staff shortages and compromise the quality of care provided to patients.

In response to the pandemic, the Ministry of Public Health in Qatar has recommended COVID-19 vaccination for hospital staff as one of the most effective ways to prevent infection and reduce the severity of illness. Furthermore, the ministry recommended a 7-day quarantine for COVID-19 positive patients, as quarantine is essential to prevent the spread of the virus to other individuals [2,3]. In February 2021, the hospital began a vaccination program for its staff, their families, outsourced contract workers, and members of the local community. The program was administered and monitored by the hospital's IPC team in coordination with the ministry of public health.

To ensure the safety of staff and patients, Infection Prevention and Control (IPC) measures have been implemented in hospitals, with IPC teams monitoring breakthrough COVID-19 cases among staff and ensuring that enough manpower is available to maintain the quality of care provided to patients. These measures are crucial to prevent the spread of the virus in healthcare facilities and to protect the health of both staff and patients. The main goal of the study is to assess various factors such as demographics, severity, vaccination status, and admission status of healthcare workers who tested positive for COVID-19. The information obtained can provide valuable insights into the characteristics of healthcare workers most affected by the disease and help plan effective measures to protect them from future infections.

Methodology:

The methodology used in this study aimed to assess the factors contributing to COVID-19 infections among healthcare workers. The study focused on a general hospital in the State of Qatar, which reported 857 COVID-19 positive cases among healthcare workers between November 2021 and March 2022. To ensure the representativeness of the sample, the Slovin's formula was used to randomly select 31% (266/857) of the positive cases. This statistical method helped in determining the appropriate sample size for the population. Once the sample was selected, data was collected from the Infection Prevention and Control (IPC) database on demographics, vaccination status, severity of infection, and hospital admission of the COVID-19 positive healthcare workers.

The IPC database provided valuable information on the effectiveness of infection control measures implemented in the hospital. The collected data included information on age, gender, and occupation, which provided insights into the characteristics of healthcare workers who are more likely to be affected by COVID-19. The vaccination status of the healthcare workers was also recorded to assess the effectiveness of vaccination programs in preventing COVID-19 infections among healthcare workers. Severity of

infection was assessed based on the clinical symptoms and outcomes of the COVID-19 positive healthcare workers, allowing healthcare organizations to plan for staffing needs and allocate resources accordingly. Additionally, hospital admission status was recorded to assess the overall burden of illness among healthcare workers and plan for the appropriate allocation of healthcare resources. Overall, the methodology used in this study involved a systematic approach to the selection of a representative sample and the collection of data on key factors related to COVID-19 infections among healthcare workers. The use of the IPC database as a source of information allowed for a comprehensive assessment of the effectiveness of infection control measures implemented in the hospital.

Result:

According to the study conducted in a general hospital in the State of Qatar, out of the 857 COVID-19 positive cases, 266 cases were selected for analysis using the Slovin's formula. Most of the cases were female (64%) and aged between 31-40 years (61%). The most common ethnicities were Indian (31%) and Filipino (24%) [4]. The study found that most of the COVID-19 positive healthcare workers in the sample had mild or asymptomatic (72% and 28%, respectively), except for one moderate case with pneumonia. None of the cases required hospital admission, which reflects the relatively young age of the staff in addition to the effectiveness of the infection control measures in place and high vaccination coverage. Regarding vaccination, most healthcare workers in the sample were vaccinated against COVID-19, with 37% having received the primary dose and 61% having received the additional booster dose. Only a small minority of healthcare workers (2%) were not vaccinated, suggesting that vaccination is an effective measure for preventing COVID-19 infections among healthcare workers [4].

The quarantine period for COVID-19 positive healthcare workers was mostly 7 days (52%), with 46% being quarantined for 10 days and 2% for 14 days. This was according to the changing guideline of quarantine requirements over that period. These findings can aid in planning staffing needs during the quarantine period and allocating resources accordingly. The study found that all the COVID-19 positive healthcare workers in the sample acquired the infection from the community, either through exposure to a family member or post-travel. These findings underscore the importance of adhering to infection control measures within and outside healthcare settings. Overall, the study's findings provide valuable insights into the demographics, severity, vaccination status, and quarantine period of COVID-19 positive healthcare workers. These insights can help inform strategies to protect the health of healthcare workers and mitigate the impact of the pandemic on healthcare systems [Table 1,2,3].

Table 1: Demographics of COVID19 staff.

Age	n = 266	% frequency
20-30	27	10.15%
31-40	163	61.28%

41-50	61	22.93%
51-60	15	5.64%
Gender	n = 266	% frequency
Female	170	63.91%
Male	96	36.09%
Nationality	n = 266	% frequency
Indian	82	30.83%
Filipino	65	24.44%
Jordanian	29	10.90%
Tunisian	21	7.89%
Egyptian	17	6.39%
Qatari	10	3.76%
Nepalese	7	2.63%
Iranian	4	1.50%
Libyan	4	1.50%
Yemeni	4	1.50%
Bangladeshi	3	1.13%
British	3	1.13%
Kenyan	3	1.13%
Sudanese	3	1.13%
Syrian	3	1.13%
Iraqi	2	0.75%
Palestinian	2	0.75%
Somalian	2	0.75%
Sri Lankan	1	0.38%
Uganda	1	0.38%

Table 2: Severity of Illness among COVID19 staff.

INITIAL SYMPTOMS	n = 266	% frequency
Asymptomatic	74	27.82%
Body pain	5	1.88%
Cold	5	1.88%
Cough	17	6.39%
Fever	26	9.77%
Flu-like symptoms	126	47.37%
Throat pains	13	4.89%
SEVERITY	n = 266	% frequency
Asymptomatic	74	27.82%
Mild	191	71.80%
Moderate	1	0.38%
ADMISSION	n = 266	% frequency
Hospital Admission	0	0.00%
Not Admitted	266	100.00%

Table 3: Vaccination status among COVID19 staff.

VACCINATION	n = 266	% frequency
Booster	163	61.28%
Primary Dose	98	36.84%

Unvaccinated	4	1.50%
Incomplete (1 dose)	1	0.38%
Quarantine days	n = 266	
7 days	139	52.26%
10 days	123	46.24%
14 days	4	1.50%

Conclusion:

A recent study revealed that COVID-19 vaccination significantly reduced symptom severity and quarantine period in healthcare workers who tested positive for COVID-19. This finding is consistent with previous research conducted by Maltezou et al. (2021), which also demonstrated the effectiveness of COVID-19 vaccination in reducing absenteeism and morbidity related to COVID-19 [5]. The study's results support the importance of implementing strong infection prevention and control measures, along with vaccination campaigns, to manage the workforce during the COVID-19 pandemic. The findings can be used to inform healthcare organizations' policies and practices regarding COVID-19 vaccination and infection control measures for healthcare workers.

These results highlight the significance of prioritizing the health and safety of healthcare workers, which can ultimately ensure the continuity of essential healthcare services during the pandemic. By following best practices, healthcare organizations can mitigate the impact of COVID-19 on healthcare workers and the healthcare system. Moreover, the Qatari government demonstrated unwavering support for the healthcare sector by swiftly creating multiple executive committees at national, ministerial, and hospital levels. They allocated enough budget and expedited the procurement of all necessary items related to the pandemic. Consequently, there was a steady supply of Personal Protective Equipment (PPE) and HEPA

filters throughout the pandemic, along with the administration of vaccines to both healthcare workers and the public.

Acknowledgement

None.

Conflict of interest:

No Conflict of interest.

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