

Prevalence of COVID infection among vaccinated vs non-vaccinated RNs working in selected hospital of Delhi.

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Abstract: COVID-19 vaccines are a critical tool for controlling the ongoing global pandemic. Even after vaccination, some nurses developed symptomatic or asymptomatic infections with SARS-CoV2. So the investigators decided to conduct a study in Apollo Delhi with a purpose to assess the occurrence of COVID-19 infection among vaccinated and non-vaccinated nurses working in selected hospital of Delhi. The research approach was retrospective and descriptive and research design was non-experimental. Total enumerative sampling technique was used. The data was collected from Apollo Delhi database (for the nurses who got infected between April to June 2021) with permission from Group Director Nursing, Assistant Director Nursing and Head of Human Resource Department. The result showcased that majority of the nurses who contracted infection were vaccinated, but none of them died, nor they required hospitalization. This implies that COVID-19 vaccines protected them from becoming severely ill, and significantly reduce the likelihood of hospitalization and death.

Key Words: Prevalence of COVID-19, COVID vaccination, Vaccination among nurses

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I. Introduction

In late 2019, a novel severe acute respiratory syndrome emerged caused by SARS-CoV-2 which was termed as coronavirus disease 2019 (COVID-19). On 11 March 2020, the World Health Organization declared this infection as a pandemic. The novel coronavirus disease (COVID-19) has immensely overwrought the existing healthcare systems across the world. The COVID-19 outbreak has imposed great threat to public health worldwide. As the world is battling the COVID-19 pandemic, the frontline healthcare workers such as doctors, nurses, paramedics, ambulance personnel were engaged in the direct diagnosis, treatment, and care of the COVID-19 infected patients and play a dominant role in flattening the pandemic growth curve and reducing the infection fatality rate.

Vaccine against COVID-19 is the effective game-changing tool to control COVID pandemic. However, vaccination for COVID-19 is voluntary, it is advisable to receive the complete schedule of COVID-19 vaccine for protecting oneself against this disease and also to limit the spread of this disease to the close contacts¹. Two vaccines, Covishield® (AstraZeneca's vaccine manufactured by Serum Institute of India) and Covaxin® (manufactured by Bharat Biotech Limited) were granted emergency use authorization by the Central Drugs Standard Control Organization (CDSCO) in India².

COVID-19 vaccines demonstrated outstanding efficacy in clinical trials and effectiveness in real-world data. Regardless of the fact that vaccination against SARS-CoV-2 is a foremost strategy to change the course of the COVID-19 pandemic worldwide, some people still become infected with SARS-CoV-2 after vaccination. A small percentage of fully vaccinated persons (i.e. who has taken all recommended doses of an COVID-19 vaccine authorized by FDA) develop symptomatic or asymptomatic infections with SARS-CoV-2, the virus that causes COVID-19 despite the high level of vaccine efficacy³. So the investigators decided to conduct a study in Apollo Hospitals Delhi with a purpose to assess the occurrence of COVID-19 infection among vaccinated and non-vaccinated nurses.

II. Material And Methods

- **Research approach:** Retrospective and Descriptive
- **Research design:** Non-experimental design
- **Research Variable-** Prevalence of COVID infection
- **Settings of the study-** Indraprastha Apollo Hospitals, Delhi
- **Data collection method-** Apollo Delhi Vaccination/ Covid infection data base

- **Target population:** Registered nurses suffering/ suffered from Covid- 19 infection while working at tertiary care hospitals
- **Sample:** Registered nurses suffering/ suffered from Covid- 19 infection while working at Indraprastha Apollo Hospitals, Delhi
- **Sample Size:** 94 (Total 98 nurses contracted COVID-19 infection; data of 4 nurses could not be retrieved)
- **Sampling Method:** Total enumerative (All nurses suffering/ suffered from Covid- 19 infection)
- **Inclusion criteria:**
 1. Nurses who contracted infection between April and June 2021
 2. Nurses working in both COVID and Non- COVID units
- **Exclusion criteria**
 1. RNs on leave during data collection period would not be part of the study.
- **Ethical considerations:** Permission from Group Director Nursing, Assistant Director Nursing and Head of Human Resource Department were obtained prior to data collection
- **Tool used for data collection:** Hospital data base

III.Results

Total 98 nurses got COVID-19 infection between April and June 2021. Out of them, the investigators could retrieve data of 94 nurses. No nurse was having any past history of COVID-19, none required hospitalization and no one died because of COVID- 19 infection. Following are the findings on the basis of the objectives formulated i.e. to assess the prevalence of COVID 19 infection among vaccinated and non-vaccinated nurses.

Table 1: Frequency and percentage of the demographic characteristics of nurses who contracted COVID infection

N=94

S. NO.	ITEM	FREQUENCY (F)	PERCENTAGE (%)
1.	Gender		
a	Female	89	94.7
b	Male	5	5.3
2.	Age (in years)		
a	21-25	54	57.4
b	26-30	24	25.5
c	>30	16	17.1
3.	Unit Posted		
a	COVID Unit	29	30.9
b	Non- COVID Unit	65	69.1
4.	Management		
a	Home isolation	92	97.9
b	Apollo Hostel isolation	2	2.1
c	Hospitalization	0	0

The data given in table 1 describes that total 94 nurses contracted COVID 19 infection, out of which majority were females (94.7%); more than half of the nurses (57.4%) were in the age group of 21-25years; most of them were posted in non- COVID units (69.1%); majority (97.9%) were on home isolation and none was hospitalized.

Table 2: Prevalence of COVID 19 infection among vaccinated and non-vaccinated nurses

N=94

S. NO.	ITEM	FREQUENCY (F)	PERCENTAGE (%)
1.	COVID Vaccination Status		
a	Vaccinated	71	75.5
b	Not Vaccinated	23	24.5
2.	History of contact with COVID infected person		
a	Unknown	38	40.4
b	At work	46	48.9
c	Outside work	10	10.6

The data presented in table 2 and figure 1 & 2 describe that among the 94 nurses who had acquired COVID 19 infection, 75.5% were vaccinated and 24.5 % were not vaccinated. 48.9% nurses stated that they had a contact with COVID 19 infected persons at work whereas 40.4 % stated that they were not aware about the contact.

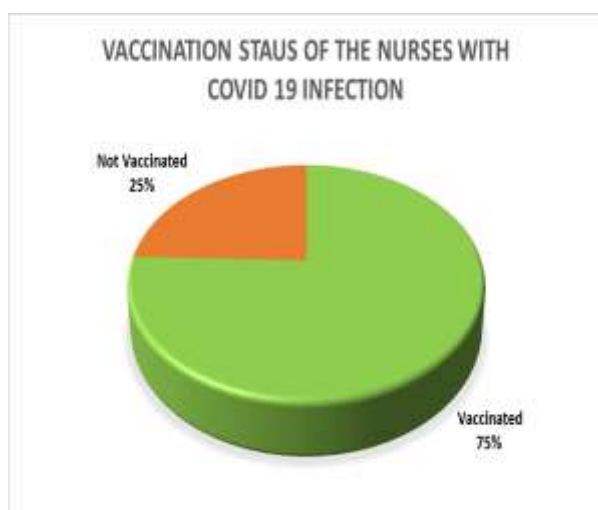


Fig:1 Percentage of vaccination status of nurses infected of contact with COVID 19 infection

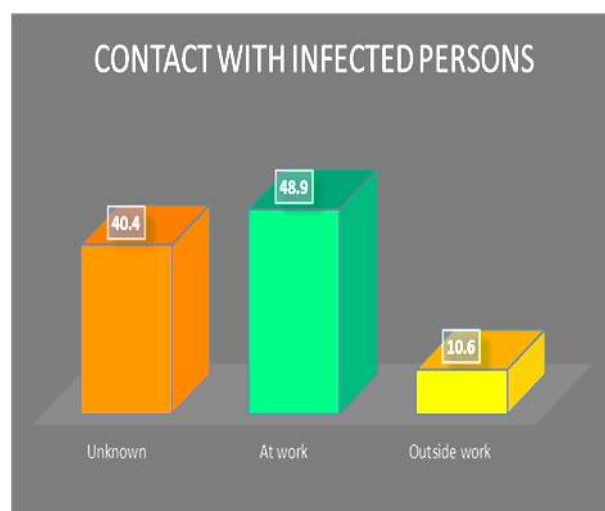


Fig2: Percentage of Nurses with the history infected person

Table 2(A): Prevalence of COVID 19 infection among vaccinated nurses

N=71

S. NO.	ITEM	FREQUENCY (F)	PERCENTAGE (%)
1.	COVID Vaccination Status		
a	Vaccinated with First Dose only	18	25.4
b	Vaccinated with Both Doses	53	74.6
2.	Vaccinated with Which Vaccine		
a	Covishield	70	99
b	Covaxin	1	1
3.	Got infected after how many days of first dose of vaccination		
a	0-20 days	6	8.5
b	21-40 days	6	8.5
c	41-60 days	15	21.1
d	61-80 days	23	32.4
e	81-100 days	17	23.9
f	>100 days	4	5.6
4.	Got infected after how many days of second dose of vaccination		
a.	0-20 days	9	16.9
b	21-40 days	14	26.4
c	41-60 days	23	43.4
d	>60 days	7	13.3

Table 2(A) and figures 3-6 depicts that amongst the vaccinated nurses, 74.6% nurses were vaccinated with both the doses and 25.5% with only first dose. 99% were vaccinated with covishield and 1% with covaxin. 32.4% of the vaccinated nurses acquired COVID 19 infection after 61-80 days and 23.9% after 81-100 days of first dose of vaccination. 32.4% of the nurses developed COVID 19 infection after 41-60 days of the second dose. 25.3% nurses got only first dose of vaccine.

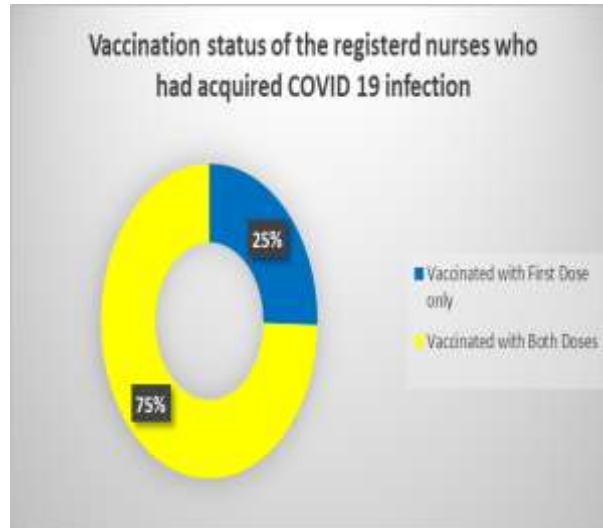


Fig3: Percentage of the vaccination status of the registered nurses who had acquired COVID 19 infection

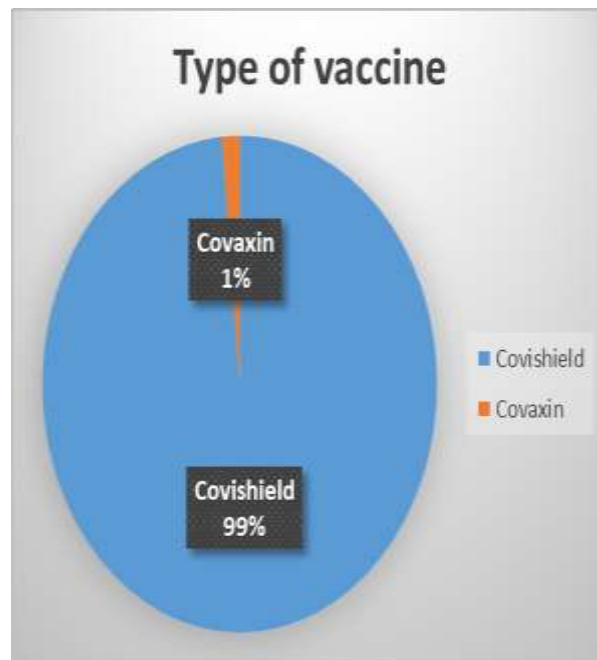


Fig 4: Percentage of type of vaccine that the Nurses has received

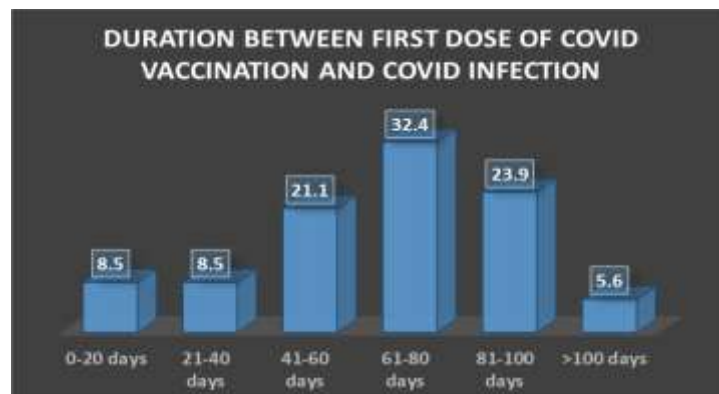


Fig 5: Percentage of nurses with regard to the duration between First dose of COVID vaccination and COVID infection

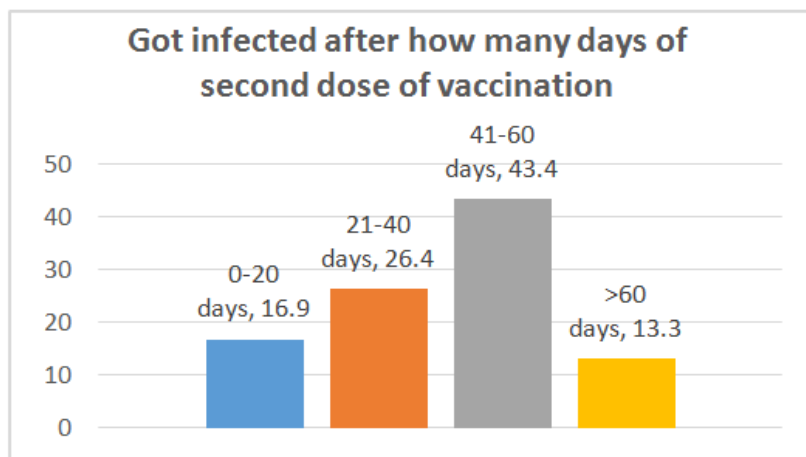


Fig6: Percentage of nurses with regard to the duration between first dose of COVID vaccination and COVID infection

IV. Conclusion

The study revealed that 75.5% of the registered nurses who had contracted infection are vaccinated and out of them 75% was vaccinated with both doses of vaccination. Majority of them 99% had covishield vaccine. Amongst them 32.4% of nurses developed infection after 61-80 days after first dose and 41-60 days after second dose respectively. None of them were hospitalized and 99.7% were under home isolation. Center for Disease Control and Prevention stated that COVID-19 vaccines are effective at preventing most infections, but like other vaccines, they are not 100% effective. COVID-19 vaccines protect people from becoming severely ill, and significantly reduce the likelihood of hospitalization and death.

References

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