

## Original Research Article

# Knowledge, attitudes and practice among healthcare workers towards COVID-19 in a tertiary care centre in north India

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## ABSTRACT

**Background:** Coronavirus disease pandemic has affected the entire world and till date, there is no definitive cure for it with prevention of infection and knowledge about the disease being the only proven effective methods to contain it. Healthcare workers (HCWs) are highly susceptible to getting infected and their knowledge about COVID-19 infection has been known to be inversely proportional to the rates of COVID-19 infection.

**Methods:** Cross-sectional questionnaire-based study assessing knowledge, attitude and practices towards COVID-19 preventive measures was carried out amongst HCWs at a tertiary care hospital in North India.

**Results:** Around 95% of HCWs had received training regarding COVID-19 infection and more than 95% HCWs had adequate knowledge about COVID-19 infection. More than 95% HCWs experienced anxiety and fear while monitoring and treating COVID-19 patients. 85% HCWs felt that there is sufficient awareness in the society regarding COVID-19 infection. Most of the respondents followed correct practices for avoidance of COVID-19 infection with around 90% respondents using face masks and practicing frequent hand washing. Social distancing and avoidance of large gatherings was practiced by around 95% respondents. More than 95% respondents had either taken COVID-19 vaccine or wish to take it.

**Conclusions:** The study suggested that the majority of HCWs had good knowledge and positive attitude toward COVID-19 but there are still some lacunae present in the knowledge regarding prevention of COVID 19 infection. Further education and training are required for HCWs so as to fight COVID and prevent its spread in a better way.

**Keywords:** COVID 19 infection, Corona virus, Healthcare workers, KAP study, Knowledge

## INTRODUCTION

Coronavirus disease 2019 (COVID-19) after being first reported in Wuhan City of China in December 2019 spread to over 223 countries and became a global pandemic.<sup>1</sup> COVID 19 infection presented with a multitude of symptoms with the spectrum of presentations ranging from completely asymptomatic patients (around 80%) to severe illness including shortness of breath, septic shock and multi-organ failure in 20%, and fatal in 2% mainly due to severe acute

respiratory distress syndrome (ARDS) with there being no definitive treatment for the infection as yet.<sup>2</sup> Elderly and those with underlying chronic disease have been known to be at higher risk for severe COVID infections. Coronavirus spreads mainly from person-to person by close contact with infected people. The best prevention is to avoid being exposed to COVID-19. This is done by washing hands with soap and water, and using face masks, isolating confirmed and suspected cases.<sup>3</sup> Sound knowledge of the disease and a positive attitude have been known to contain outbreaks of the pandemic. Lack

of knowledge, overcrowding and illiteracy have helped in the propagation of COVID 19 virus especially in our part of the world. India reported the first case of COVID 19 on 27 January 2020.<sup>4</sup> There have been around 4.5 crore documented cases of COVID in India so far with there being over 5 lakh reported deaths due to COVID infection.<sup>5</sup> Healthcare workers (HCW's) are the most susceptible group to get infected because of close contact with COVID cases and there have been multiple reports which indicated significantly higher number of COVID-19 death rates among healthcare workers.<sup>6</sup>

Similar to the general population, lack of knowledge increases the risk of infection in healthcare workers and it was found that the rates of infection were inversely proportional to increase in knowledge about COVID-19.<sup>7</sup> There have been limited studies done in tertiary care hospitals in India to assess the knowledge, attitudes and practices of frontline healthcare workers.<sup>8</sup>

We performed the study with the aim of assessing the knowledge levels, attitudes and practices amongst healthcare workers towards covid-19 preventive measures at a tertiary care hospital in North India.

**METHODS**

A cross-sectional questionnaire-based study was conducted to assess the KAP related to COVID-19 among the consenting HCWs aged between 18-60 years working in Government Medical College (GMC), Jammu (India) between June 2021 to July 2021. The questionnaire was constructed and hand delivered to all these HCWs and the filled questionnaires were collected after 1 week from these respondents. Those who did not respond after first week were given another week to respond. Those who did not respond even after 2 weeks were excluded. The study was questionnaire based where data on demographic factors, knowledge, attitudes and practices on COVID-19 prevention among healthcare workers. To assess knowledge of the respondents, the questionnaire had 20 questions each with a 'yes' or 'no' answer. For attitude and practices, there were 10 questions each with a 'yes' or 'no' answer accounting for a total of 40 questions that had to be answered by each participant with each correct answer equalling 1 score with higher scores indicating more knowledge about COVID-19.

All consenting healthcare workers who responded to questionnaire were included in the study while those who did not consent or did not respond to questionnaire were excluded from the study. A total of 500 healthcare workers were handed out these questionnaires out of which 284 (56.8%) responded. All the eligible HCWs were informed about the objectives of the study, and a written consent was taken from all the participants before answering the questionnaire. The study was approved by the Institutional Ethics Committee GMC Jammu.

**Statistical analysis**

The descriptive statistics were used to present the demographics of participants and frequencies of personnel with adequate knowledge, positive attitude, and applying safety practices most of the time. Data collected was entered into Excel worksheets and Statistical analyses were performed with Statistical Package for the Social Sciences (SPSS), version 25 (IBM Corp., Armonk, NY).

**RESULTS**

The study population included 284 healthcare workers of which 90 were males and 194 were females. 58 were aged <25 years, 182(%) were between 25-30 years of age and 44 were >30 years with an average age of 27.3 years. There were 146 doctors, 70 nurses, 38 ward assistants, 22 operation theatre technicians and 8 dental surgeons. 42 were undergraduate, 118 graduates and 124 post graduates of which 227 were urban residents while 57 were rural residents. 231 were married while 53 were unmarried. Over 94.7% of the healthcare workers had received training on COVID-19 while 5.3% had not (Table 1).

**Table 1: Socio demographic profile of the study population.**

Characteristic	No (total n = 284) (%)
<b>Sex</b>	Male 90 (31.7)
	Female 194 (68.3)
<b>Age group (in years)</b>	< 25 58 (20.4)
	25-30 182 (64.1)
	>30 44 (15.5)
<b>Occupation</b>	Doctors 146 (51.4)
	Nurses 70 (24.6)
	Ward assistant 38 (13.4)
	Operation theatre technicians 22 (7.7)
	Dental surgeons 8 (2.8)
<b>Education</b>	Undergraduate 42 (14.8)
	Graduate 118 (41.5)
	Post graduate 124 (43.7)
<b>Residence</b>	Urban 227 (79.9)
	Rural 57 (20.1)
<b>Marital status</b>	Married 231 (81.3)
	Unmarried 53 (18.7)
<b>Training for COVID 19</b>	Trained 269 (94.7)
	Untrained 15 (5.3)

**Knowledge**

An 82 to 100% of the respondents answered correctly to the knowledge assessment questionnaire (Table 2). The question 5 on the knowledge questionnaire 'antibiotics are used to treat COVID 19' had the least correct

responses. 100% of the respondents knew COVID to be a viral infection spreading via close contact to an infected

person. Overall 96.5% respondents had adequate knowledge about COVID 19 infection.

**Table 2: Knowledge questionnaire items.**

Knowledge questionnaire items	Yes, n (%)	No, n (%)
<b>Is Covid-19 a viral infection?</b>	284 (100)	0 (0)
<b>Can a person infected with Covid-19 infect others?</b>	278 (97.9)	6 (2.1)
<b>Most common organ involved in covid-19 is lungs.</b>	281 (98.9)	3 (1.1)
<b>Are healthcare workers at higher risk of infection than the general public?</b>	284 (100)	4 (1.4)
<b>Antibiotics are used to treat covid-19?</b>	51 (18)	233 (82)
<b>Isolation period for covid-19 is 14 days?</b>	268 (94.4)	16 (5.6)
<b>Common symptoms of covid-19 include fever, dry cough, difficulty breathing, malaise?</b>	283 (99.6)	1 (0.4)
<b>A patient infected with covid-19 may have no symptoms at all?</b>	276 (97.2)	8 (2.8)
<b>Can an asymptomatic person transmit disease?</b>	271 (95.4)	13 (4.6)
<b>Covid-19 is more dangerous for people with comorbidities like diabetes, cancer, COPD?</b>	284 (100)	0 (0)
<b>One effective way to reduce spread of covid-19 is Test, Trace and Isolate?</b>	279 (98.2)	5 (1.8)
<b>A person with covid-19 may have loss of smell and taste as a presenting complaint.</b>	277 (97.5)	7 (2.5)
<b>There is no effective drug for covid-19</b>	276 (97.2)	8 (2.8)
<b>Suspected covid-19 patients should be quarantined/isolated.</b>	269 (94.7)	15 (5.3)
<b>Diarrhea or constipation is a symptom of covid-19.</b>	266 (93.7)	18 (6.3)
<b>The disease is more dangerous in pregnant women.</b>	270 (95.1)	14 (4.9)
<b>Washing hands with water and soap can help eliminate the disease.</b>	283 (99.6)	1 (0.4)
<b>Covid-19 is transmitted by close contact with an infected person.</b>	284 (100)	0 (0)
<b>Covid-19 vaccines are available in the market.</b>	284 (100)	0 (0)
<b>Lockdown is one effective measure to slow the spread of infection.</b>	252 (88.7)	32 (11.3)

**Table 3: Attitude questionnaire items.**

Attitude questionnaire items	Yes, n (%)	No, n (%)
<b>Everyone needs not get vaccinated.</b>	12 (4.3)	272 (95.7)
<b>Covid-19 is fatal in all cases.</b>	2 (0.7)	282 (99.3)
<b>Frequent hand washing/social distancing/wearing masks in public prevent spread of covid-19.</b>	282 (99.3)	2 (0.7)
<b>Vaccinated people cannot get infected at all.</b>	13 (4.6)	271 (95.4)
<b>Vaccinated people don't need to wear masks when out</b>	11 (3.9)	273 (96.1)
<b>People who are vaccinated will have no symptoms/less severe symptoms.</b>	274 (96.4)	10 (3.6)
<b>Have you experienced anxiety/fear while monitoring covid patient.</b>	271 (95.4)	13 (4.6)
<b>Do you believe covid-19 doesn't affect young people?</b>	8 (2.8)	276 (97.1)
<b>Do you think covid-19 can be treated at home?</b>	259 (91.2)	25 (8.8)
<b>Do you think that awareness regarding covid-19 disease in society sufficient?</b>	242 (85.2)	42 (14.8)

**Attitude**

Respondents with correct responses to attitude questionnaire items ranged from 85 to 99.3%. More than 95% healthcare workers experienced anxiety and fear while monitoring and treating COVID 19 patients. 85% HCWs felt that there is sufficient awareness in the society regarding COVID 19 infection. Around 5 % respondents felt that there is no need to wear masks post vaccination and people who have been vaccinated can not get infected (Table 3).

**Practice**

A 66-98% respondents followed correct practices for avoidance of COVID 19 infection. Around 90% respondents were using face masks and practicing frequent hand washing. Social distancing and avoidance of large gatherings was practiced by around 95% respondents. More than 95% respondents had either taken COVID vaccine or wish to take it (Table 4).

**Table 4: Practice questionnaire items.**

Practice questionnaire items	Yes, n (%)	No, n (%)
Do you use face masks when going out?	254 (89.4)	30 (10.6)
Do you use hand sanitizer when going out?	221 (77.8)	63 (22.2)
Do you practice frequent hand washing?	262 (92.3)	22 (7.7)
Do you follow social distancing?	270 (95.1)	14 (4.9)
Do you avoid going out if not necessary?	278 (97.9)	6 (2.1)
Do you avoid large gatherings?	267 (94)	17 (6)
Have you been on a vacation recently?	31 (10.9)	253 (89.1)
Do you avoid touching your mouth, nose and eyes frequently?	189 (66.5)	95 (33.5)
Do you avoid consuming outdoor food to prevent Contracting and spreading covid-19?	198 (69.7)	86 (30.3)
Do you wish to take covid-19 vaccine or have already taken it?	272(95.8%)	12(4.2%)

## DISCUSSION

Having claimed more than 5 lakh lives in India alone, COVID pandemic has been the deadliest pandemic and has been responsible for creating havoc in lives of majority of the global population.<sup>5</sup> HCWs are the frontline workers who are maximally exposed to COVID 19 infection and their knowledge, attitude, and practice decide the impact and magnitude of COVID 19 infection.

Our present study included responses from 284 HCWs in tertiary care centre in North India with majority of the respondents lying in the age group of 25-30 years and majority of the respondents being graduates living in urban areas. The study revealed that most of our healthcare workers had sufficient knowledge and right attitude towards COVID-19 and its prevention. The level of knowledge in our centre was better than other reported studies in HCWs which suggested appropriate knowledge in 69-74% of HCWs.<sup>9,10</sup> The difference might be due to high prevalence of COVID 19 training (~95%) in HCWs in our centre. The study revealed that around 90 % of the health care workers practiced appropriate COVID 19 preventive measures and more than 95% had either received COVID 19 vaccine or were willing to take it. In a study conducted by Uzuntarla et al amongst healthcare workers, the found similar proportion of HCWs (90%) following correct preventive measures for COVID 19 infection.<sup>11</sup>

It was observed that a significant number of healthcare workers (>95%) felt either anxious or feared infection during management of COVID 19 infected patients which is higher than the study by Zhang et al, who showed that around 85% of the HCWs were afraid of getting infected while caring for COVID 19 infected patients.<sup>12</sup> 15% of the respondents still believed that the awareness regarding COVID was not sufficient in the society.

This study has some limitations in the interpretation of results due to certain reasons. Firstly, it has taken account of knowledge, attitude and practices amongst healthcare workers in a single tertiary care centre which might not

truly represent the knowledge and attitude of the HCWs of the entire region. Secondly, the results showing high level of knowledge regarding COVID 19 infection may be due to high percentage of HCWs working in our centre having received COVID 19 training and as such, the results can not be generalised to all healthcare workers across the region and also, to the general population. Further, similar larger sized studies would be required to estimate knowledge and attitude amongst HCWs on a national level and amongst the general population so that appropriate interventions can be made and further spread of COVID 19 can be prevented.

## CONCLUSION

The study suggested that the majority of HCWs at our centre had good knowledge and positive attitude toward COVID-19 but there are still some lacunae present in the knowledge regarding prevention of COVID 19 infection. Further education and training are required for HCWs so as to fight COVID and prevent its spread in a better way.

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