

Survey to assess knowledge and attitude of healthcare workers towards COVID-19 vaccination in a tertiary care hospital.

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Abstract

Background: The COVID-19 pandemic has caused significant mortality and morbidity world over, besides compromising the economic and social well-being of people. COVID-19 vaccination has been the most effective way to contain the pandemic, however, it is expected that protection declines with time. Therefore, now recommended the use of the booster dose.

Aim: To assess the knowledge and attitude of Health Care Workers (HCWs) in a tertiary-care hospital towards COVID-19 vaccination, including the booster dose.

Methodology: This is a cross-sectional, self-administered, online questionnaire based study. The questionnaire was forwarded to HCWs including doctors, paramedical, office, technical and non-technical staff, as Google forms. Follow-up with senior staff of respective departments was done to encourage their staff to fill the form. Assistance was provided if any difficulty arose while filling the form. The questionnaire included demographic details, comorbidities, history of vaccination, attitude towards adverse events experienced, booster dose, and vaccination for children. Data was analyzed descriptively.

Results: In this study, responses were received from 298 participants. With mean age 31.2 ± 13.5 years. 179 (60.1%) were females. Majority of responders were vaccinated (87%) with two doses. Only 153 (51%) participants agree that vaccines will prevent COVID-19 infection, however, 136 (46%) of the 298 participants strongly agree, 106 (36%) agree that vaccines will prevent progression to severe infection. Majority of the responders 272 (91%) were willing to receive the booster dose, and 217 (73 %) recommended vaccination for children. Adverse events were experienced by 134 (45%) participants most of which were resolved with symptomatic management. While 3 subjects required hospitalization for Serious Adverse Events (SAE) including fever, chest pain, syncope respectively. They were discharged after the SAE was resolved. Survey shows 244 (81.8%) responders consider vaccines to be safe.

Conclusion: In this survey, the majority of the HCWs have received vaccination and believe vaccines may be effective in preventing progression to severe COVID-19 infection. HCWs were willing to take the booster dose, and recommend vaccination for children. Overall, we conclude that HCWs had a favourable attitude towards COVID-19 vaccination programme.

Keywords: Health care workers, Attitude, Knowledge, COVID-19 vaccination.

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Introduction

The COVID-19 pandemic has caused significant mortality and morbidity world over [1], besides compromising the economic and social well-being of people. The long-term success of public health response to COVID-19 pandemic depends on acquired immunity in a sufficient proportion of population [2], which would be achieved by widespread vaccination. The level of immunity provided by the COVID-19 vaccination varies based on

the vaccination administered, the time between doses, as well as individual circumstances and virus variants [3]. Furthermore, studies [4,5] have indicated that humoral immunity developed with COVID-19 vaccination may wane over time or even vanish. As a result, a booster dose is currently recommended by many health care/regulatory bodies [6] to ensure long-term immunity. The World Health Organization, with the support of the Strategic Advisory Group of Experts (SAGE) on immunization continues to review the emerging evidence on the need for a booster

dose for the currently available COVID-19 vaccines which have received Emergency Use Listing (EUL) [7]. COVID-19 vaccines even offer protection to people who had COVID-19, including protection against being hospitalized from a new infection [8]. It is concerning that it is still possible to become infected after being vaccinated, however, once a large portion of the population is vaccinated, odds of getting infected are lowered because of ‘herd immunity’[9]. Observations during the recent Omicron surge revealed that those who were boosted were 21-times less likely to die from COVID-19 compared to those who were unvaccinated, and 7-times less likely to be hospitalized [10]. The COVID-19 vaccinations have undergone and will continue to undergo the most rigorous safety assessment ever [11].

Materials and Methods

This is a cross-sectional, self-administered questionnaire based online survey, conducted in the Department of Clinical Pharmacology and Therapeutics, NIMS Hospital, after receiving NIEC approval. Waiver of consent obtained. All the Health Care workers (HCWs) of NIMS Hospital, Hyderabad, Telangana, India, who were willing to participate were included and participants who were unwilling to take part in the survey were excluded. The questionnaire included demographic details, co-morbidities, attitude towards COVID-19 vaccination, booster dose, vaccination for children; history of vaccination, and adverse events experienced. The questionnaire was made available to HCWs including doctors, paramedical, office, technical and non-technical staff, as google forms through available electronic media. Follow-up with senior staff of respective departments was done to encourage their staff to fill the form. Assistance was provided if any difficulty arose while filling the form. The details of HCWs were kept confidential and the data recorded were used for assessing the attitude of HCWs towards COVID-19 vaccination.

Statistical analysis

The minimum sample size required for this survey was calculated to be 298, considering 95% confidence level, alpha at 5%, and population to be HCWs who are employed at NIMS, Hyderabad. The data was analysed using descriptive statistics. Age of the participants is represented as mean \pm SD, gender distribution, responses to questionnaire and adverse events were represented as proportions.

Results

A total of 301 HCW’s accessed the questionnaire of which 3 participants were not willing to participate in the survey and hence excluded. Among the evaluable participants (n=298), profession-wise distribution showed 70 (24%) were doctors, 57 (19%) nurses, 51 (17%) technicians, 43(15%) workers, 40 (13%) non-technical staff and 37 (12%) physiotherapists. The mean age of the participants

in this survey was 31.2 ± 13.5 years with 179(60.1%) being females and 119 (39.9%) males. Co morbidities were present in 99 (33%) participants, with diabetes mellitus being the most common followed by hypertension, hypothyroidism and bronchial asthma.

Majority 262 (87%) of participants received two doses of COVID-19 vaccine, 26 (9%) had one dose, and 13 (4%) did not receive the vaccine. COVID-19 immunisation prevents COVID-19 infection according to 153 (51%) of participants, whereas 124 (42%) disagree and 21 (7%) don't know.

COVID-19 immunization prevents severe COVID-19 infection, according to 136 (46%) of the 298 people who strongly agree, 106 (36%) agree, 30 (10.1%) disagree, and 26 (8.7%) don't know about COVID-19 infection.

Around 114 (38.2%) of participants said that they don't know whether the currently available COVID-19 vaccines can prevent infection from different newer strains, while 83 (27.8% disagree), 65 (21.8%) definitely agree, and 36 (12%) agree.

As depicted in Figure 1, majority of participants 272 (91%), were willing to take booster dose of COVID-19 vaccination.

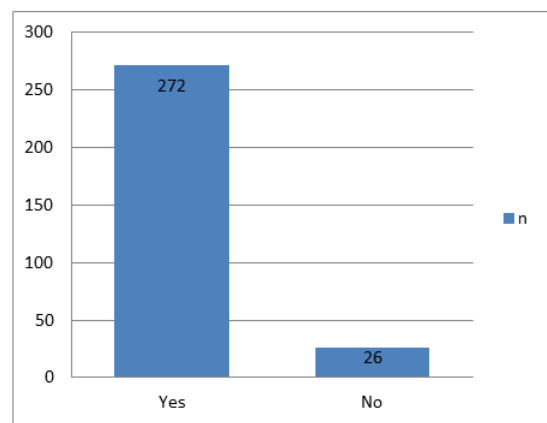


Figure 1. Depicts the willingness of participants to take booster dose of COVID-19 vaccination.

As shown in Figure 2, out of all the participants, 217 (73%) participants were willing to recommend vaccination for children

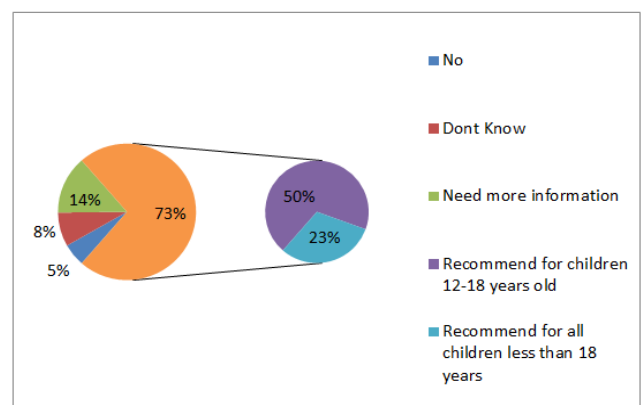


Figure 2. Depicts the participants attitude toward COVID-19 vaccination for children.

As represented in Figure 3, out of all the participants who received COVID-19 vaccinations, 134 (45%) participants developed adverse events most of which were resolved with symptomatic management.

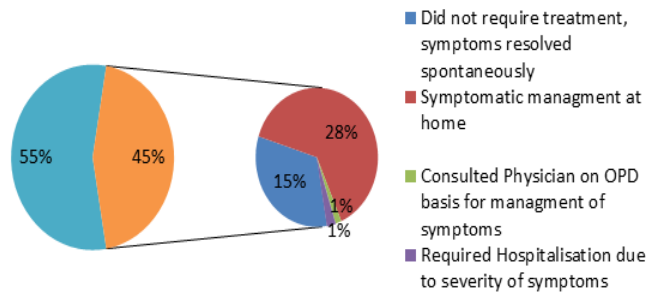


Figure 3. Depicts adverse events following vaccination.

As represented in Table 1, most reported adverse event was fever 80 (62%) followed by pain at injection site 63 (48.8%) and headache 45 (34.9%).

Table 1. Depicts the frequency of adverse events experienced by participants.

Adverse Event	Number of participants
Fever	80 (62%)
Pain at injection site	63 (48.8%)
headache	45 (34.9%)
Generalized body pains	42 (32.6%)
Weakness	39 (30.2%)
Swelling at injection site	28 (21.7%)

Regarding the safety of COVID-19 vaccination, 183 (61%) strongly agree, 61 (21%) agree, and 6 (2%) disagree that COVID-19 vaccinations are safe. However, 21 (7%) said they need more information about COVID-19 vaccines' safety.

Discussion

COVID-19 infection caused by SARS-CoV2 poses the greatest health challenge world over and caused devastating morbidity and mortality globally. The world has seen more than 500 million cases and more than 6 million deaths during this pandemic [12]. The COVID-19 vaccines have been proven to be safe and effective against the disease, and governments across the world have been putting in efforts to relay this information to their populations. To effectively fight against the pandemic, it is necessary to stop the transmission of the virus through herd immunity, which requires a vaccination rate of at least 80-90% and, hence, strong willingness to vaccinate and low vaccine hesitancy is required. During this pandemic, frontline workers which include HCWs were the first people to receive the COVID-19 vaccines in our country. Given the rapid spread of different strain and the fact that the COVID-19 vaccine's humoral protection wears off over time, a COVID-19 booster dose is a crucial aspect of epidemic prevention.

In this survey, we tried to assess the attitude of HCWs towards COVID-19 vaccination and acceptance of booster dose as well as vaccination for children. Out of 298 participants, 262 (87%) were vaccinated with both the doses, 26 (9%) were vaccinated with only one dose and 13 (4%) did not get vaccination at all. According to Jairoun *et al.*,[13] who conducted an online descriptive cross-sectional community-based analysis, 473 (77%) participants received two doses, which is similar to our findings, while 141 (23%) did not receive vaccination. The major reasons for not getting vaccinated were concerns regarding the safety and efficacy of COVID-19 vaccine.

Majority of the participants 242 (81%) agree that COVID-19 vaccinations prevent progression to severe COVID-19 infection, while only 153 (51%) of the participants agree that COVID-19 immunizations prevent COVID-19 infection of any degree. This could be because HCWs reported mild COVID-19 infections following vaccination, which would explain these findings. Tahir *et al.*,[14] did a cross-sectional study on population preferences and attitudes toward COVID-19 immunisation, and found that 469 (53%) of the participants agree that COVID-19 vaccination prevents COVID-19 infection, which is similar to our findings. As there is limited knowledge concerning COVID-19 immunization preventing disease from different strains, most of our participants 197(66.1%) were skeptical that current COVID-19 vaccinations can protect against illness from newer strains. Pal *et al.*,[15] conducted a cross-sectional survey of US HCWs to examine vaccine hesitancy and attitudes toward booster doses for the COVID-19 vaccine, and found that the majority of respondents (63.6%) were concerned that current vaccination may not be effective against new strains which is in line with our study findings.

In our study, the majority of participants 272 (91%) were willing to receive the COVID-19 booster vaccine because they believed that COVID-19 vaccination would protect them from contracting a serious COVID-19 infection. In their study of vaccine hesitancy and attitudes for COVID-19 booster dose. Pal *et al.*,[15] found that 83% of participants were willing to acquire a booster dosage in their study on vaccine hesitancy and attitudes for COVID-19 booster doses, which fits our findings.

In the study conducted by Jairoun *et al.*,[13] 70.2% of participants were willing to get a COVID-19 vaccine booster dose. The difference in booster dosage acceptance is due to the fact that the participants in our study were HCWs, as opposed to the general population in the A A Jairoun *et al* study.

Mateusz Babicki *et al.*,[2] conducted a questionnaire based study to know the attitude of general population towards booster dose of COVID-19 vaccination and concluded that 67.4% want to get booster dose; presence of adverse events of varying severity has shown to affect the decision regarding booster dose in this study.

In our study, out of all the participants, 217 (73%) participants were willing to recommend vaccination for children. Because of the insufficient knowledge available on the safety of COVID-19 vaccine in children, 149 (50%) participants recommend vaccination for children aged 12 to 18, while only 68 (23%) participant's advocate vaccination for all children aged 5 to 18. In a cross-sectional study on perception and attitude towards COVID-19 infection conducted by Jugal *et al.*, [16] the willingness to recommend vaccination for children was similar to that of our study, with 63.1% of individuals agreeing to vaccinate children against COVID-19 infection. Han *et al.*, [17] conducted a questionnaire survey at two tertiary hospitals to investigate paediatric and parent attitudes on COVID-19 vaccines, as well as vaccination intentions for children, and found that 64.2% of parents intended to vaccinate their children, which is similar to our findings. W al qerem *et al.*, [18] conducted an internet based cross sectional survey to assess parents attitudes, knowledge and practice towards vaccinating their children against COVID-19. They found that very few participants (30.2%) were willing to vaccinate their children. Inadequate information to the public regarding the safety and efficacy of the vaccine being the main reason for vaccine refusal.

Mild adverse events were experienced by 129 (45%) participants in our study which were managed symptomatically. While 3 subjects required hospitalization for Serious Adverse Events (SAE) including fever, chest pain, syncope respectively. They were discharged after the SAE was resolved. According to the majority of the participants 244 (82%), most of the adverse effects associated with COVID-19 immunisation were of low intensity and resolved spontaneously or with symptomatic treatment. Besides experiencing adverse events majority of participants 244 (81.8%) considered COVID-19 vaccination was safe in our study. Cai *et al.*, [19] did a cross-questionnaire study to learn about Chinese adolescents' perceptions toward COVID-19 vaccines, where 76.3% of individuals considered COVID-19 vaccinations are safe with no or minor side effects which is similar to our findings.

Tolossa *et al.*, [20] performed a cross-sectional survey to learn about health care professional's attitudes on COVID-19 vaccination and associated factors. They observed that nearly half of the participants (48.72%), had a poor attitude about COVID-19 vaccination, however in our study, we found that the HCWs in our institute had an overall positive attitude towards COVID-19 immunization programme. This difference in the observations may be due to the fact that in their study, HCWs worked not only in public hospitals, but also in other health centers and private clinics, where the number of patients encountered is lower as compared to public hospitals, and thus the health care professionals perceive themselves to be at lower risk of exposure to COVID-19. Therefore, they may have a relatively poor attitude about the COVID-19

immunization than HCWs in our study.

No study is without limitations, and because ours is a COVID -19 pandemic situations, we were unable to directly contact all of the participants, therefore used Google forms. This could have influenced the participants' compliance.

Conclusion

In this survey, the majority of the HCWs have received vaccination and believe vaccines may be effective in preventing progression to severe COVID-19 infection. They also believe that vaccines are safe, despite experiencing mild adverse events. HCWs were willing to take the booster dose, and recommend vaccination for children to reduce the chance of COVID-19 infection, which can be fatal in many people. Overall, we conclude that HCWs had a favourable attitude towards COVID-19 vaccination programme.

Acknowledgment

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Conflicts of Interest

No conflicts of interest among authors.

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