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Original Research Article

Knowledge attitude and practice towards COVID-19 booster dose among health care workers: a cross sectional study

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ABSTRACT

Background: Amidst the emerging COVID-19 variants worldwide, India started the COVID precautionary or booster dose vaccination by early 2022. Protecting the healthcare force is crucial, as they are critical drivers in increasing vaccine uptake among the public. Objective was to assess COVID-19 Booster dose vaccine coverage among Health Care Workers (HCWs) and to know the reasons for vaccine booster dose hesitancy.
Methods: A cross-sectional study was conducted among health care workers in Vijayapura city, during April-May 2022. The questionnaire in google form was shared to the target population, wherever necessary phone in interview was done. Data was tabulated in MS office Excel and analyzed using appropriate statistical tests.
Results: Out of 275 participants from different levels of health care system, 50% were males, 75% in age group <40 years and 67% were from urban area. 37% of the participants took precautionary dose of vaccine against COVID-19. Among those who did not take a booster shot, 22.5% were hesitant to take the vaccine and the reasons were: "Lack of faith in vaccination", "two doses are sufficient", and "Fear of side effects". Socio demographic factors such as age, gender and residence were found to be statistically significant with the COVID Booster vaccination status.
Conclusions: Majority health workers are aware of booster dose vaccination, reasons for not taking booster dose were mainly lack of need and fear of side effects.

Keywords: COVID-19 vaccination, Health care workers, COVID-19 booster dose immunization

INTRODUCTION

Globally, more than 433 million people were infected with COVID-19 as of February 2022, and there have been about 6 million fatalities since its emergence in 2019.[1] Vaccination was proved as a key public health strategy as it is effective in reducing the risk of infection and severity of disease, thereby reducing the disease morbidity and mortality.[2,3] The process of vaccine development fastened from in vivo testing to vaccination implementation in population in just under one year, which has created a fear in public regarding its safety. India started to administer the first COVID vaccine on 16 January 2021.[4] The HCWs and frontline workers were prioritised for vaccination as they are more exposed to the infection, which was later extended to the people above 60 years and to people above 45 years with co morbidities.[5] On May 2021 the vaccination program started for people above 18 years also. By the end of July 2021, 23.4% of the population received first dose and 6.1% population received the second dose vaccination in the country.[6] Vaccination drive for adolescents aged 15-18 years started in the month of January 2022, which later expanded to less than 12-year-old children also.[7] Amidst the surge in COVID-19 cases and the emergence of Omicron variant of concern, the precautionary booster

dose of COVID vaccine was provided in January 2022.[8] The first priority to get the booster dose vaccine was given to the HCWs and people above 60 years with co morbidities. The rest of the population was given booster dose vaccination in a phased manner. Though India's COVID vaccination status remains better when compared to other countries, vaccine acceptance is still a challenge.[9] Studies suggest that challenges were faced for first and second dose of vaccine due to mistrust, misinformation and vaccine hesitancy, which might be the same with booster dose vaccination too.[10]

Nearly 1800 HCWs (including doctors, nurses and grassroot level workers) lost their lives due to COVID-19 in last two years in India.[11] The HCWs played a pivotal role in managing the health system at all levels as they engaged in casualty management, planning, target group identification, community engagement, mobilisation, service delivery, tracking, and follow-up. They are the navigators and connectors between the communities and health systems, therefore their confidence in the vaccination process will ensure a positive impact on vaccination uptake by the communities.[12] Some studies suggested that COVID-19 vaccination among HCWs had a positive correlation with their willingness to motivate their patients to receive the vaccine.[13] Data on the knowledge, attitude and practice among HCWs towards the precautionary booster dose of COVID-19 is scarce, therefore this study aimed to to assess the COVID-19 Booster dose vaccine coverage among HCWs and to explore the reasons for booster dose hesitancy.

Objectives

Objectives of current study were; to assess COVID-19 Booster dose vaccine coverage among HCWs and to know the reasons for COVID vaccine Booster Dose hesitancy.

METHODS

Study design and participants

A cross-sectional study was conducted among HCWs in Vijayapura city. Data was collected in the months of April-May 2022 just months after Booster/precautionary dose was launched by the government. Convenient sampling method was used to collect the data. Mainly health workers in medical college hospitals, district hospital and Urban PHCs from Vijayapura city were contacted and all HCWs who were willing to consent were included in our study. Ethical approval for this survey was taken from the institutional ethical committee. Our study was done when there was a surge of COVID cases and concerns regarding omicron variant of the virus, so the study questionnaire had to be done on online and telephonic survey. Telephone numbers of the HCWs were collected from the officials in charge of hospitals and primary health centers. A total, 275 participants responded to our study.

Procedure

Data was gathered through a semi structured questionnaire in Google form, which was administered either via WhatsApp application or through telephonic interview, if they did not have a smart phone. Before starting the study, the participants were asked to give the informed consent and participant anonymity and confidentiality was maintained.

Study tool

Sociodemographic profile was assessed using semi structured questionnaire, containing questions on age, gender, place of residence, education, etc. Information regarding the history of COVID infection, participants vaccination status (First, second and booster dose), Reasons for not taking COVID booster dose vaccination, and few questions to assess the knowledge, attitude and practice of the participants regarding booster dose of covid vaccine were included.

Statistical analysis

The data obtained were converted in excel sheet and analyzed using a statistical package for the Social Sciences (Version 20). Results were presented as counts and percentages, and diagrams. Appropriate statistical tests were used to find association between different variables in the study.

RESULTS

Demographics

Out of 275 participants, three fourth (75%) of the participants were aged 25-39 years. 50% of the participants were females and 67% were residing in urban area. Our study consisted of diverse group of participants working at different levels in the health care system. Majority participants in our study were Medical Interns (17.5), Medical college Post Graduate students (17.1%), Doctors (15.6%), Nurses (14.9%), and supporting staffs (12.4%). Other HCWs such as ASHA workers (6.5%), Lab technician (5.1%), Pharmacist (4%), ANM (3.6%), MSW (1.8%) and PRO (1.5%) also participated in the study.

COVID infection and vaccination status among health care workers

Nearly 40% participants in our study had a history of previous COVID infection. 37% HCWs were vaccinated with the precautionary dose, 55% completed second dose, 6% had taken only one dose vaccine and the rest 2% did not take COVID vaccination. The reasons for not taking booster dose vaccination are given in (Figure 1). Also, seven participants reported that they took different brand vaccine for either of the first, second or booster dose

vaccination as they believed it will provide more efficacy and the side effects will be less.

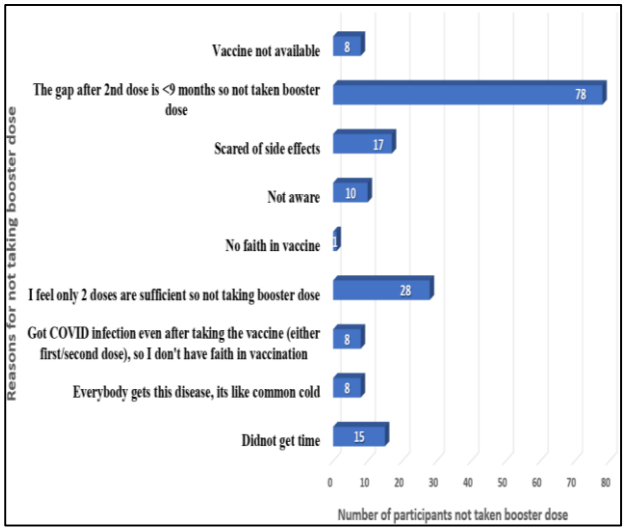

Figure 1: The reasons for not taking booster dose vaccination.

Knowledge towards booster dose vaccination among healthcare workers

Majority (96%) HCWs were aware of booster dose vaccination, and they got to know about it through official circulars, televisions and other HCWs. Almost 80% of the health workers had good knowledge towards booster dose vaccination (Figure 2).

Attitude towards booster dose vaccination among healthcare workers

Only 60% HCWs had a positive attitude towards the booster dose of COVID vaccine in our study. 41% of participants reported they were either unaware or doesn't know about the protection and safety of the COVID vaccines (Table 1).

The variables such as age, gender and residence had a statistically significant association with the booster dose vaccination status. Among those who took vaccination 69% were <40 years and 31% were ≥40 years. More than half the participants (59%) who took the vaccination were females and also three fourth (74.5%) of them resided in urban areas. 65.7% participants who took vaccination were graduates and 25.5% were pursuing their post-graduation. Only 9% participant took vaccination who had high school education and none with primary school education took vaccination (Table 2).

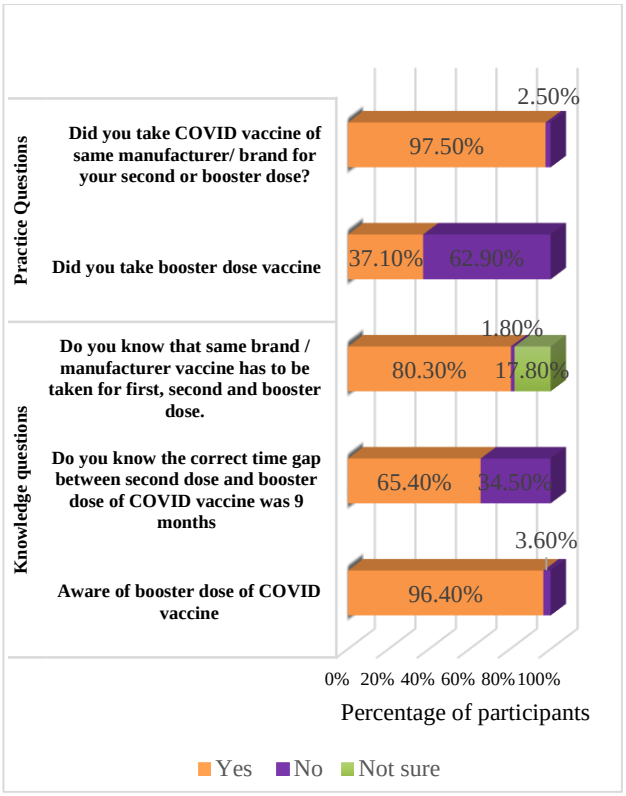

Figure 2: Knowledge and practice towards booster dose vaccination among healthcare workers.

Table 1: Attitude of health care workers towards booster dose vaccination.

Attitude questions	Agree	Disagree	Not sure	Don't know
I think the booster dose will protect me from severe COVID-19 infection.	202 (73.5)	6 (2.2)	49 (17.8)	18 (6.5)
I think the booster dose will protect me from symptomatic COVID-19 infection.	144 (52.4)	39 (14.2)	73 (26.5)	19 (6.9)
I think the booster dose can prevent community transmission of SARS-CoV-2	135 (49.1)	36 (13.1)	83 (30.2)	21 (7.6)
I think the booster dose has the ability to tackle the new circulating variants of SARS-CoV-2	101 (36.7)	39 (14.2)	105 (38.2)	30 (10.9)
I think the booster dose is as safe as the previous doses of COVID-19 vaccines	180 (65.5)	9 (3.3)	57 (20.7)	29 (10.5)
I think the benefits of Booster dose outweigh its risks.	177 (64.4)	7 (2.5)	36 (13.1)	55 (20)
Are you willing to take similar booster dose in future	210 (76.4)	18 (6.5)	0	47 (17.1)

Table 2: Association between socio demographic factors & booster dose vaccination status.

Variables		Booster dose vaccination		Chi square	P value
		Taken	Not taken		
Age (years)	≥40	32 (31.4)	36 (20.8)	3.84	0.04*
	<40	70 (68.6)	137(79.2)		
Gender	Female	60 (58.8)	79 (45.7)	4.44	0.035*
	Male	42 (41.2)	94 (54.3)		
Residence	Rural	26 (25.5)	67 (38.7)	5.024	0.025*
	Urban	76 (74.5)	106 (61.3)		
Education	PG	26 (25.5)	39 (22.5)	4.8	1.8
	Degree	67 (65.7)	105 (60.7)		
	High school	9 (8.8)	24 (13.9)		
	Primary school	0	5 (2.9)		

*p<0.05 is statistically significant

DISCUSSION

To the best of our knowledge, there are very few studies on COVID-19 booster dose vaccine acceptance by the HCWs engaged at various levels of health facilities in India. The present study is intriguing because of the heterogeneity of participants from both genders, different age groups and various healthcare levels (including medical college, PHC and sub-centres), as well as from HCWs who delt with COVID-19 patients. We engaged grass root level HCWs also in this study as they play a vital role in introducing the booster dose vaccination in the community and also, they will be maintaining a good relationship with the community leaders. Studies have shown that these community health workers help in vaccine promotion and acceptance through community dialogue and engagement, health education, and by clearing the myths related to COVID vaccination with their own and their patient's vaccination experiences.[14] Reviews suggest that the COVID-19 vaccine hesitancy among HCWs ranged between 4.3% to 72% worldwide.[15] In the current study only 37% HCWs were vaccinated with the precautionary booster dose but almost half (55%) the participants had completed the second dose vaccination. Nearly 22.5% (N=63) HCWs in our study reported that they were not willing to take the vaccination, which is more when compared to a study by Pal S et al., where only 7.9% participants were hesitant to receive the vaccine.[16] Whereas another study by Koh et al showed 26.2% vaccine hesitancy among health care workers.[1] This difference could be due to the socio cultural and economic differences among the participants and different time periods of the study. Similar results were observed in the beginning of COVID vaccination among HCWs in Odisha in a study by Sabat et al.[17] Among the individuals who did not receive the COVID booster dosage, 45% reported that they were ineligible to take booster dose because they had delayed receiving the first or second dose out of concern for potential side effects and other health problems. They were confused regarding the safety of vaccine in the beginning as they felt the clinical trials were rushed for producing vaccines in a short period of time. All the above-mentioned HCWs were prepared to receive the booster dose once they are eligible for it. A longitudinal study by Evans et al. showed many HCWs (59.7%) who were unsure or reluctant to take vaccine got vaccinated later in their follow up study.[18]

Our study showed statistically significant association of vaccine intake with age, gender and residence of the HCWs. Majority who took vaccine were from urban area, in the age group <40 years and females. Opposite findings were shown in a study by Litaker et al where age group >50 years and males favoured COVID Vaccine intake.[19] The present study showed a mean positive response for knowledge and attitude questions related to COVID booster dose vaccination as 80% and 60% respectively. Jemal et al in his study found similar knowledge level (88%) regarding COVID vaccines in Ethiopian HCWs, but the proportion of participants with positive attitude were much higher when compared to our study.[20] Even though the HCWs had adequate knowledge regarding the booster dose vaccine, comparatively reduced proportion of participants showed positive attitude towards booster dose vaccine, especially regarding the effectiveness of vaccine against factors such as: the emerging new variants, preventing symptomatic disease and its prevention in community transmission.

CONCLUSION

This study gives an insight in to the acceptance of COVID Booster dose vaccination by the HCWs in northern Karnataka. HCWs are at greater risk of contracting the disease and unless wide acceptance of booster dose vaccine by HCW's happen, it is difficult to promote the acceptance of vaccine in the community to curtail the virus transmission. Though health workers are knowledgeable about COVID booster advantages, many HCW's delayed in receiving initial doses of the vaccine due to worries because of which they were ineligible for the timely booster vaccination. Also, some HCWs

exhibited a modest acceptance of receiving a vaccine booster dose. These results will help the public health officials to scale up educational efforts to disseminate reliable information on introduction of a new vaccine and to provide recommendations about receiving a vaccine booster.

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