

COVID 19 Vaccine Booster Acceptance and Hesitancy among Health Care Professional

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Abstract

Problem: COVID-19 continued to mutate and spread in 2022 despite the introduction of safe, effective vaccines and medications. In India, rates of COVID-19 vaccination are gradually improving, albeit unevenly and moreover, evidence suggested that the humoral response to vaccination is substantially reduced within 6 months, necessitating additional doses (including boosters) to achieve adequate levels of protection.

Methodology: This study has its main objective to evaluate the acceptance rate of COVID-19 booster vaccine among HCPs. The structured questionnaire draft was adapted from previous studies of COVID-19 vaccine hesitancy which include demography, awareness about COVID-19 and variants, history of infection and vaccination, current threat about the infection and booster dose acceptance and hesitancy. **Findings:** In this study, more than 72% of the participants accepted and they had better scientific knowledge about the importance of vaccines. On the other hand, 28% were hesitated to receive the vaccines predominantly due to the efficacy of the vaccine, as the vaccines were developed in the short duration and lesser trials done.

Conclusion: This study has limitations including the questionnaire interviewed about general COVID-19 vaccine, whereas several COVID-19 vaccines, each with different efficacy results, are now being distributed.

Keywords: COVID-19, vaccine, acceptance, hesitancy

Introduction

Healthcare professionals (HCPs) have experienced disproportionately high levels of COVID-19 associated morbidity and mortality; therefore, they were prioritized for receiving COVID-19 vaccine booster doses. Recent reports have been increasingly suggesting that the effectiveness of COVID-19 vaccines had declined in several countries within six months after the primer doses' rollout (Stepanek et al., 2021).

In various countries, the political views on making mandatory of COVID-19 vaccination at the workplace; at the same time, the emergency and urgent need of vaccination among high risk exposures including HCPs. Indeed, variations in the policy of mandatory vaccination at the workplace could infringe some rights of employees, at the same of selection of effective vaccines are doubtful (Riva et al., 2022).

It was clearly evident in population-level studies from Scotland, the United States, and Qatar that protection from COVID-19 symptomatic infection can be expected from the two-dose vaccination regimes that were effective against the Delta variant (Klugar et al., 2021) and doubtful against Omicron. Vaccine hesitancy is defined by the WHO as "delay in acceptance or refusal of vaccination despite the availability of vaccination services". The aim of this study is to evaluate the COVID-19 booster vaccine among HCPs. The

primary objective is to assess the levels of COVID-19 vaccine acceptance and hesitancy among HCPs, and the secondary objective is to explore the potential demographic, anamnestic, and psychosocial determinants of the COVID-19 vaccine among the HCPs. The main objective of the study is to evaluate the acceptance rate of COVID-19 booster vaccine among HCPs.

Materials and Methods

This is a prospective and observational study, and the study populations were Health care workers including interns, residents, consultants, paramedical professionals where medical, nursing and Allied health science students were excluded. The structured questionnaire draft was adapted from previous studies of COVID-19 vaccine hesitancy (Klugar et al., 2021; Stepanek et al., 2021). This questionnaire have five sections including demographic characteristics, awareness about COVID-19 and variants, history of infection and vaccination, current threat about the infection and booster dose acceptance and hesitance.

Descriptive statistics will be performed to present all the study variables; nominal variables, e.g., gender, profession and discrete events, and ordinal variables, e.g., acceptance and hesitancy details, have been described using frequencies (n) and proportions (%). The numerical variables, e.g., age, have been described using central tendency and dispersion properties.

Results

Among the study participants, 53.3% were in the age group of 18 to 30 years and males dominated with 55%. The high risk exposure HCPs (Nurses) were largely involved in this study (33%) followed by interns (29%). Predominantly, co-morbidities were not found, the detailed details of the participants were depicted in table 1.

Acceptance and hesitancy is two faces of the thought that may due to external influences, personal tragedy, peer group observations and fear. In this study, more than 72% of the participants accepted and they had better scientific knowledge about the importance of vaccines. On the other hand, 28% were hesitated to receive the vaccines predominantly due to the efficacy of the vaccine, as the vaccines were developed in the short duration and lesser trials done.

Discussion

Vaccine hesitancy is defined as unwillingness to get the vaccines due to various intrinsic and extrinsic reasons, and it will make the communities to get more awareness and reducing the documentation relate to herd immunity coverage (Wiysonge et al., 2022). The acceptance rate among healthcare providers varied where 40% (Hong Kong) (Wang et al., 2020), 36% (New Mexico) (Shekhar et al 2021), 65% (Ireland) (Murphy et al., 2021), 69% (United Kingdom) (Murphy et al., 2021), 71% (France) (Schwarzinger et al., 2021), 67% (USA) (Shekhar et al 2021), and Nigeria (49%) (Babatope et al., 2023).

The COVID-19 vaccine constitutes the ultimate intervention that is cost-effective in the struggle to eliminate COVID-19 infection. With concern to vaccine safety or efficiency, anxiety towards the non-acceptance of rapid production and testing (without proper field trials) of vaccines, the hesitancy rate increased (Aw et al., 2021). Other studies highlighted the refusal of vaccines due to mistrust towards the government (Okubo et al., 2021), on other hand, acceptance of vaccines predominantly due to the trust on the government (Edwards et al., 2021).

Vaccination acceptance among the general public may also be humidified by their perceptions that new COVID-19 variants are possibly less severe or that recently authorized may improve disease outcomes and are enough to preclude the need to vaccinate (Choukou et al., 2022; Schwarzinger et al., 2021). The highest vaccine acceptance (70%) among the population was found in nationwide (92.8%)

and in Delhi (79.5%). On the other side, the lowest vaccine acceptance rate (60%) among the general public was established thereby it was determined nationwide (50%), Tamil Nadu (46%), West Bengal (44.3%), and Kashmir (33%) (Kumar et al., 2023). Comparably, this study has higher acceptance rate 72%.

Recommendations

This finding not only adds to the existing evidence on the determinants of COVID-19 vaccine uptake among HCWs but also provide an avenue for recommendations for policy actions by following the scenarios as mentioned.

1. First, a targeted campaign for HCWs should be developed and launched as a stand-alone, since the current approaches target the general population and do not look at the healthcare workforce as a vulnerable population to be targeted.
2. Second, since HCWs are either members of professional bodies, associations, or trade unions such as the Medical Council of India, Nursing and Midwives Council, Pharmacy Board, and Indian Medical Association, this could be used as a platform to mount intensive campaigns to promote the uptake of COVID-19 vaccine.
3. Third, the Ministry of Health should look at different public health interventions that will increase understanding of COVID-19 vaccine knowledge among HCWs and the possibility of making the COVID-19 vaccine mandatory for HCWs who are in direct face-to-face contact with patients in their daily routines by developing and implementing guidelines for the above.

Conclusion

Our study has few limitations including the questionnaire interviewed about general COVID-19 vaccine, whereas several COVID-19 vaccines, each with different efficacy results, are now being distributed globally. Next, although this study used state-of-the-art sampling methodology that aimed to achieve the population representativeness, these samples may not adequately represent the most vulnerable segments of populations as the study area is a rural setup.

Conflict of interest: None

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Table 1: Background Characteristics of HCPs who are respondents (n=480)

Variable	Total, n (%)	Acceptance, n (%)	Hesitancy, n (%)
Age (in years)			
18-30	256 (53.3)	178 (37.1)	78 (16.2)
31-40	108 (22.5)	64 (13.3)	44 (9.2)
>40	116 (24.2)	96 (20)	20 (4.2)
Gender			
Male	265 (55.2)	228 (47.5)	37 (7.7)
Female	215 (44.8)	195 (40.6)	20 (4.2)
Type of HCPs			
Consultants	23 (4.8)	18 (3.8)	5 (1.1)
Residents	96 (20)	84 (17.5)	12 (2.5)
Interns	140 (29.2)	106 (22.1)	34 (7.1)
Nurses	158 (32.9)	135 (28.2)	23 (4.8)
Lab Technicians	27 (5.6)	29 (5)	3 (0.6)
Others	36 (7.5)	29 (6.1)	7 (1.5)
Co-morbidities			
Yes	28 (5.8)	26 (5.4)	2 (0.4)
No	452 (94.2)	389 (81.1)	63 (13.1)

Table 2: Reasons for accepting and being hesitant towards COVID 19 vaccine

Characteristic	Reason	Frequency
Acceptance (n=338) 72.1% (95% CI: 65.9-77.7)	Protect from new variant	96 (28.4)
	Boost up immunity	88 (26.1)
	Recommended by Scientist & Medical Professionals	74 (21.9)
	Compulsion from Government	43 (12.7)
	Compulsion from work place	37 (10.9)
Hesitancy (n=142) 27.9% (95% CI: 22.3-34.1)	Concerns about efficacy of vaccine	45 (31.7)
	Scared about side effects	32 (22.5)
	Observe others & then take vaccine	39 (27.5)
	Rushing and overcrowding in vaccination centres	26 (18.3)