Original Article

Are the COVID Warriors Confident about COVID Vaccine? A Survey among the Healthcare Workers of West Bengal to Explore their Perception about COVID-19 Vaccine and causes of Vaccine Hesitancy

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Introduction : Deaths of Healthcare Workers (HCWs) from COVID-19 infection were reported from various parts of West Bengal months after rolling out of Vaccines for them. Empirical data suggested that those HCWs who died due to COVID- 19 were either not vaccinated or partially vaccinated. which points to Vaccine hesitancy among them.

Objectives : (1) To study the perception of HCWs of West Bengal about COVID-19 Vaccine. (2) To determine the level of vaccine hesitancy and its causes among the study population.

Methods : A cross sectional exploratory survey was conducted on 400 HCWs. A prevalidated questionnaire was administered which contained questions on profile of the study population, perception about COVID-19 Vaccine, Vaccine hesitancy.

Results : 70% of the study population were nurses and only 13% were trained in COVID-19 Vaccination. 44% chose Mask as the most effective strategy to prevent COVID infection followed by Vaccination (36%), social distancing and sanitization. 37% HCWss were hesitant to take Vaccine when offered. Causes of Vaccine hesitancy as admitted by the study population - doubts about Vaccine effectiveness (56%), concern about side effects (30%), difficulty in availability of Vaccine (9%) and confusion about Vaccination strategy (5%).

C**onclusion :** Vaccine confidence among HCWs can inspire the general public for a better coverage of Vaccine among all. The findings of this study will help the program managers to effectively plan strategies to enhance risk perception and Vaccine confidence among General Public. [*J Indian Med Assoc* 2022; **120(2):** 23-6]

***Key words* : Vaccine acceptance, Vaccine confidence, Vaccine hesitancy, COVID-19, HCWs.**

Since December 2019, COVID-19 has affected more than 3 million people of the World and continues to spread in cycles. A month later, the World Health Organization (WHO) announced COVID-19 as a Public Health Emergency[1]. By the end of 2020, United States (9,208,876 cases), India (8,229,313), and Brazil (5,545,705) were the three most affected countries due to this outbreak[2]. Due to increased exposure and higher rates of transmission among the medical fraternity, the Healthcare Workers (HCWs) with COVID-19 infection expressed symptoms of mood swings and sleep disorders[3]. Similar studies from Iran[4] and China[5] revealed that the nurses experienced extreme physical and mental fatigue while rendering patient care thus affecting the quality of care. A study in Greece[6] revealed that Nurses and Doctors working in public hospitals had issues of sleep disturbances during the pandemic.

Editor's Comment :

- Vaccine hesitancy is complicated, situtaion specific and it varies across time, place and vaccines. Various factors like complacency, convenience and confidence influence vaccine hesitancy. It is essential to generate vaccine confidence in general public to ensure higher coverages that ultimately will help to fight against a vaccine preventable disease.

In Ethiopia[7], HCWs reported that they were overburdened due to the increased number of COVID-19 patients admissions. Another study from Pakistan revealed that COVID-19 exposure had a considerable influence on the mental health of HCWs[8].

It is essential for all individuals to understand the risks of COVID-19 disease and also follow COVID Appropriate Behavior (CAB) like using Mask, regular Sanitization, maintaining Social Distance to limit its spread. This is more so in case of HCWs who should act as role models for general public in following CAB. Since the HCWs work at hospitals they have higher risk of secondary infection or spreading the Virus to colleagues, family and friends[9], which can only be prevented if the HCWs have appropiate knowledge of the disease and infection control measures. Another important aspect to mitigate pandemic risk is to ensure high immunization coverages against COVID-19, which is being rolled out in a prioritized strategic manner starting with HCWs. In India, Covishield a recombinant

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Received on : 08/12/2021
Accepted on : 15/02/2022

Vaccine against the spike proteins and Covaxin, an inactivated vaccine were offered exclusively to the HCWs and the Frontline workers to protection against COVID-19 infection and its complications and also to prevent the spread of COVID-19 infection among the community.

The VIN-WIN study, conducted on 1.59 million HCWs and Front Line Workers of Indian Armed Forces revealed that vaccination with Covishield Vaccine reduced the risk of breakthrough infections by around 91 - 94%.[9] But in West Bengal, deaths of HCWs were reported from various parts of the state even months after rolling out of Vaccines for HCWs. Empirical data suggested that those HCWs who died due to COVID- 19 were either not Vaccinated or partially Vaccinated. Till date there is no study in the State of West Bengal to investigate whether Vaccine hesitancy existed among the HCWs and the causes of such Vaccine hesitancy. Vaccine hesitancy refers to delay in acceptance or refusal of Vaccines despite availability of vaccine services[10]. Vaccine hesitancy is complicated, situation specific and it varies across time, place and Vaccines. Various factors like complacency, convenience and confidence[10]. It is essential to generate Vaccine confidence in general public to ensure higher coverages influence vaccine hesitancy. On the other hand, Vaccine confidence among HCWs can inspire even the general public to have better Vaccine confidence leading to a better coverage of Vaccine among the general population. This might help us to inform the program managers to effectively plan strategies to enhance knowledge and Vaccine confidence among general population.

With the above background, the present study was contemplated with the following objectives.

Aims and Objectives

(1) To study the perception of HCWs of West Bengal about COVID-19 Vaccine.

(2) To determine the level of vaccine hesitancy and its causes among the study population.

Materials and Methods

A cross sectional exploratory survey was conducted from August, 2021 to November, 2021 involving HCWs (Doctors and Nurses) presently working under Government of West Bengal. The study site was the Apex training centre for the HCWs of West Bengal.

Sample size and Sampling : According to the systemic review on Worldwide Vaccine Hesitancy conducted by Sallam M[11] eight surveys on HCWs were identified with Vaccine acceptance rates ranged between 27.7% in the Democratic Republic of Congo to 78.1% in Israel (average = 52%). Considering the above, we considered an average prevalence of Vaccine hesitancy as 48% among HCWs, the sample size for the survey will be =(1.96 x 1.96x 0.48 x 0.52)/ (0.05x0.05)= 383. Total 400 HCWs including Doctors and Nurses who attended any training program at the Apex training centre of West Bengal during the mentioned period were included in the study after obtaining informed consent from them. A prevalidated questionnaire was filled up by the study population after the instructions were explained to them. The questionnaire consisted of 3 parts- A. Profile of the study population included informations on job profile, specific role in COVID-19 mangement, training in COVID-19 vaccination, exposure in COVID ward, whether infected with COVID-19 etc. B Perception about COVID-19 Vaccine including safety measures against COVID-19. C Vaccine Hesitancy and its causes.

Data Entry & Analysis : Data was entered in MS EXCEL sheet and analysis was done.

Ethics : Ethical approval for the study was obtained from Institutional Ethics Committee.

Results

Table 1 shows the Profile of the study population relevant to the present study. Majority of the study population were nurses (70%), 56% involved in patient care, only 13% were trained in COVID-19 Vaccination, 16% had exposure in COVID Wards, and 21% were infected with COVID-19 Virus at least once in lifetime.

Table 2 describes the perception of the study population about COVID-19 Vaccine. Majority study participants chose Mask (44%) as the most effective strategy to prevent COVID infection followed by vaccination (36%), Social distancing and Sanitization. Most (46.5%) of the study participants opined that the vaccination roll out was done in a hurry. Majority admitted that they got information on vaccines from the Government Agency and preferred Indian made Vaccines over Foreign Vaccines. When asked about challenges against the vaccination program in India, 51% pointed out that emergence of new strains was the most important challenge followed by lack of awareness, large population size, rumours and social taboos.

Table 3 shows that in the present study, 148 out of 400 (37%) HCWs admitted that they were not ready to take vaccine when offered.

Fig 1 shows the distribution of study population (n=148) according to the cause of Vaccine hesitancy as admitted by the study population - doubts about vaccine effectiveness (56%), concern about side effects (30%), rumours about Vaccine in Social media (9%) and confusion about vaccination strategy (5%).

Fig 2 showing the bar diagram depicts the causes of non receipt of COVID -19 Vaccines among 40 participants (out of the 148 Vaccine Hesitant HCWs) who did not receive vaccines till the end due to reasons

Table 1 — *Profile of the study participants (n=400)*

Variables	Values in numbers
Gender :	
Male	108
Female	292
Age (years) :	
Mean	38
Marital Status :	
Married	268
Unmarried	132
Job profile :	
Doctor	120
Nurses	280
Educational status :	
Postgraduate	248
Graduate	152
Residence :	
Urban	324
Rural	76
Received training in COVID-19 vaccination :	
Yes	52
No	348
Specific role in COVID-19 management :	
Patient care	224
Monitoring	96
Training	28
Administration	52
Exposure in COVID wards :	
Yes	64
No	336
Infected with COVID-19 Virus at least once in lifetime :	
Yes	84
No	316

Table 2 — *Perception of study population about COVID-19 vaccine (n=400)*

Variables	Values
Most effective Preventive Strategy against COVID-19 infection :	
Vaccine	144
Mask	176
Social distancing	64
Sanitization	16
Source of information for COVID-19 vaccines :	
Government agencies	204
News/Television	112
Social Media	44
Friends	12
Health Personnel	28
Roll out time of vaccination :	
Appropriate	116
Delayed	98
Done in hurry	186
Challenges for vaccination programme : (multiple options)	
Emergence of new strain	188
Lack of awareness	96
Rumours	76
Social taboo	40
Large size of population	52
Budget constraint	12
Preference for vaccine manufacturer in future :	
Indian	364
Foreign	76

like- Allergy (13) , COPD (4), Fever (3), Lactating mother (4), COVID positive (4), doubt about effectiveness (4), fear of side effects (4), rheumatoid arthritis (4).

Discussion

This study assesses the perception of the HCWs of West Bengal about COVID-19 vaccine and the cause of Vaccine Hesitancy among them. Results were vital to increase the compliance to vaccination guidelines in order control the COVID-19 Pandemic. In the present study majority of the study population were involved in patient care (56%), 16% had exposure in COVID Wards and 21% were infected with COVID-19 virus at least once in lifetime, only 13% were trained in COVID-19 Vaccination and 46.5% of the study participants opined that the Vaccination roll out was done in a hurry. 51% study population admitted that they got information on Vaccines from the Government agency which is similar to the results of a study in Saudi Arabia where 65.4% obtained COVID-19 information from Ministry of Health[12]. This points to the fact that Government websites provides reliable and Updated health information for improving knowledge of HCWs. Majority (44%) study participants in the present study chose Mask as the most effective strategy to prevent COVID infection followed by vaccination (36%), social distancing and sanitization. When asked about challenges against the vaccination program in India, 51% of the study participants perceived that emergence of new strains was the most important challenge followed by lack of awareness, large population size, rumours and social taboos. Similarly in a study at Mumbai, Modi & Nair[13] found out that the 75% were aware of the various infection control measures like respiratory hygiene, cough etiquette and having a separate, well ventilated waiting area for suspected COVID-19 patients. In another study from Saudi Arabia[12] 96.85% nurses demonstrated excellent knowledge about COVID-19 and 83.2% reported significant knowledge of prevention. A study from Iran also showed good awareness and perception of nurses about COVID-19 infection[14]. In the present study 37% HCWs admitted that they were not ready to take vaccine when offered. According to the systemic review conducted by Sallam M[11] on Global Vaccine hesitancy, only eight surveys among HCWs (Doctors and Nurses) were found, with vaccine acceptance rates ranging

Table 3 — *Vaccine Hesitancy*

Vaccine hesitancy in the present study = 148/400 x 100 = 37%

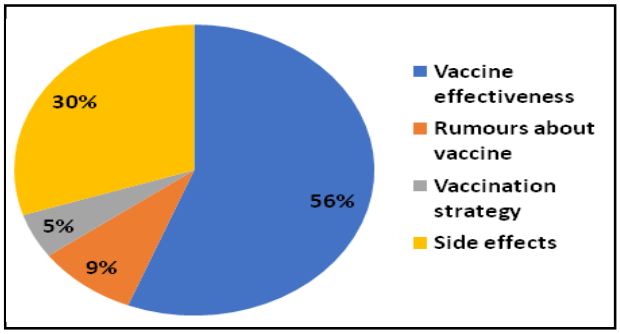

Fig 1 — Causes of Vaccine Hesitancy (n=148)

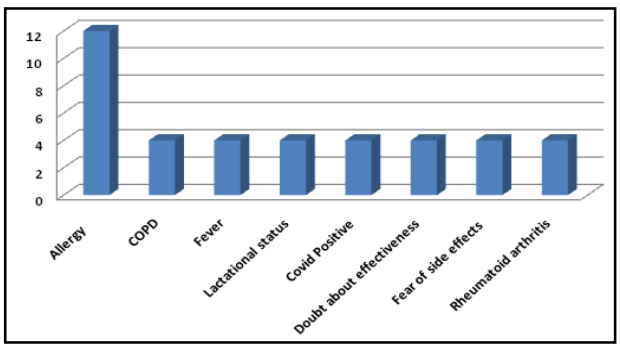

Fig 2 — Causes of non receipt of vaccine (n=40)

from 27.7% in the Democratic Republic of the Congo to 78.1% in Israel. When asked about the causes of vaccine Hesitancy, our study population admitted that they were hesitant about Vaccination due to doubts about Vaccine effectiveness (56%), concern about side effects (30%), rumours about vaccine in social media (9%) or confused with the vaccination strategy (5%). In a similar study from France[15] 80% of healthcare workers could accept the Vaccination against COVID-19 with willingness to get the vaccine increased over time and as Immunization programs became available. Among hesitant professionals, the fear of adverse events was the main concern.[15] According to the WHO/ UNICEF Joint Reporting Form data analysis over three years (2015-2017)[16], knowledge or awareness was the commonest cause of Vaccine Hesitancy in low income countries whereas in upper middle and high income countries risk/benefit (effectiveness *versus* side effect) was most important reason across all three years. In addition to these, religion/culture/socio-economic factors were determining factors behind vaccine hesitancy[10]. Similarly previous studies[10] on Vaccine Hesitancy has so far pointed out that the causes can be grouped under- Awareness, Apprehension, Access, Affordability which can be addressed by patience, learning, persuasion, partnership and planning[17,18]. The baseline information on the interplaying factors that influence vaccination decisions as found in the present study will enable Health Authorities to increase Vaccine coverage for combating the COVID-19 pandemic.

Conclusion :

The present study has a definite role for improvement of guidelines for COVID-19 prevention and control. Additionally the study identified key considerations for designing of a comprehensive training program for HCWs for improvement of their clinical knowledge. Simultaneously, regular updation of websites of MOHFW, WHO and CDC are necessary. Apart from the present COVID-19 pandemic, in future the HCWs may have to deal with many more newer communicable infections. Keeping this in mind, a long-term policy with appropriate infrastructures has to be planned for strengthening of Healthcare Systems. All these will prepare the HCWs to respond timely and appropiately to all future public health emergencies.

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