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Study on Awareness, Psychosocial Predictors and Vaccine Acceptance for COVID-19 in Health Care Workers in Central India

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ABSTRACT

Background: The outbreak of novel coronavirus disease (COVID-19) first seen in December 2019 in China, became an international emergency and has been a global pandemic since then. Various vaccines are in development to help encounter this pandemic, and multiple vaccine have been given emergency approval for use. With announcement of new vaccines, vaccine awareness should be analyzed. We plan to assess the awareness, psychosocial predictors, factors that might lead to refusal or delay in vaccination for our better understanding and utilization of vaccines. **Methods:** A survey was conducted using self-administered questionnaire among health care workers of central India. All the health care workers were contacted personally, telephonically and through mails to fill the google form. (Survey was open for responses for one-week time). No intervention was done. Data was analyzed through Excel and charts. **Results:** 320 participant's data were included in this study. Out of these 120 were male and 200 were females. The mean age was 26.2 years. 61.8% participants believed that there are better ways to prevent diseases that can be prevented by vaccine. 15.9% participants had a bad reaction to vaccine in the past. 15.9% participants believed it was more important for men to take vaccine than women. 78.1% participants believed that COVID-19 vaccine should be compulsory when available. 62.5% participants agreed to travel long distance to be vaccinated, 22.5% are willing to wait over 2 hours at a vaccine center, and 75.9% participants are willing to pay for COVID-19 vaccine. When new vaccine is announced, 77.5% would wait for others to take vaccine first. 80.9% participants were willing to take COVID-19 vaccine once available. Reasons for not taking vaccine were, 7.1% were concerned about the side-effects of vaccines, 4.3% were concerned about bad reaction to vaccine, 4% thought there wasn't enough time for scientists to assess the risks, 2.8% participants believed shortcut was taken to develop vaccine, 2.1% thought it might not be effective and 0.3% have fear of needles. **Conclusion:** There are various factors, which lead to the acceptance, refusal or delay of vaccination. Reasons for not taking vaccines should be explored to educate patients and provide them correct information. Internet and Media plays an important role in educating and spreading awareness. Utilizing these can help increase awareness among people, and improve the health consequences of the population.

Keywords: COVID-19, vaccination, hesitancy, beliefs.

INTRODUCTION

Corona virus disease 2019 (COVID-19) is an acute respiratory infectious disease that cause symptoms like fever, diarrhoea, dry cough. The first case was in Wuhan, China in December 2019. It has since spread worldwide, leading to an ongoing pandemic. [1]

Vaccines save many lives each year. They help the body's immune system to recognize and fight the viruses and bacteria they target.[2] WHO has been working in collaboration with scientists and global health organizations for fast development of vaccines, and control COVID-19.[3] The National health authorities of various countries have approved nearly six vaccines for public use for COVID-19.[4]

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The term vaccine hesitancy includes delay in acceptance and refusal of vaccines despite the availability of vaccine services. It is influenced by factors such as convenience and confidence. Vaccine hesitancy was first observed in 2011, when people hesitated to be immunized despite the recommendation from doctors, and awareness about possible mortality and morbidity. Based upon these concerns, the Strategic Advisory Group of Experts (SAGE) on immunization established the SAGE working group on vaccine hesitancy in March 2012. [5]

Measures have been taken by MoHFW (Ministry of Health and Family Welfare), to understand the vaccine hesitancy, the myths and misconceptions regarding it. Using better communication methods, through social media to provide correct information is undertaken. [6]

Since COVID-19 vaccines are new vaccines, there might be hesitancy for its acceptance as well; hence, we did this study to understand it more and for better utilization of resources.

MATERIALS AND METHODS

Study Design: Survey.
Duration: One-time study conducted in one-week duration in January.
In our study, health care workers were considered. A survey conducted in UAE for analysis of COVID-19 vaccine preference used a questionnaire based on WHO SAGE working group on immunization vaccine determinants. We modified the same questionnaire based on Indian population and used it in our paper. Data received was then analyzed using Excel Spreadsheets, Graphs and Charts.

Statistical Analysis:
Descriptive analysis was used to describe patient's clinical features. Categorical variables were expressed as numbers and percentages.

RESULTS

320 participant's data were included in this study. Out of these 120 were male and 200 were females. The mean age was 26.2 years with age range from 19-71 years. The demographic data of participants is shown in [Table 1].

Table 1: The demographic profile of participants.

Sr. no	Variable	Category	Values
1.	Sex	Male	120 (37.5%)
		Female	200 (62.5%)
2.	Marital status	Married	64 (20%)
		Unmarried	254 (79.3%)
		Separated/Divorced/ Widow	2 (0.62%)
3.	Education	Post graduate	107 (33.4%)
		Graduate	151(47.1%)
		Diploma	20 (6.2%)
		Under graduate	42 (13.1%)
4.	Occupation	Government	51(15.9%)
		Semi- government	8 (2.5%)
		Private	143 (44.6%)
		Self- employed	13 (4.06%)
		Retired	1 (0.3%)
		Not working	104 (32.5%)

Knowledge awareness:
All 320 participants had heard about COVID-19 disease and 316 (98.7%) understood what a vaccine is. 314 (98.1%) participants believed that a vaccine is needed for COVID-19 whereas 6 (1.8%) believed it was not needed.

Beliefs, attitude about health and prevention:
198 (61.8%) participants believed that there are better ways to prevent diseases that can be prevented by a vaccine. Around 300 (93.7%) participants believed that the vaccine strengthens the immune system.
Participants were asked about the preventive measures they took for COVID-19. 218 (68.1%) followed social distancing all the time, 97 (30.3%) followed it a little and 5 (1.5%) did not follow social distancing at all. Regarding the use of mask, 287 (89.6%) used to wear a mask all the time, 32 (10%) wore it sometimes and 1 (0.3%) did not wear mask at all.

Experience with vaccination:
It was seen that 51(15.9%) participants had a bad reaction to vaccine in the past while 269 (84%) did not. Any past event might discourage 64 (20%) participants from taking COVID-19 vaccine for themselves and their families.
36 (11.2%) participants knew someone who does not take vaccine because of religious or cultural reasons. In addition, 164 (51.2%) participants have heard or received negative information about vaccines. [Figure 1]

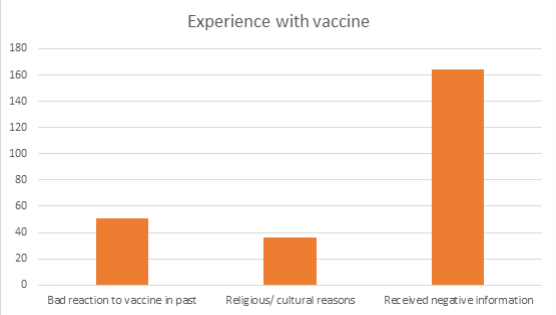

Figure 1: Experience with vaccine

Health system and providers:
It was recorded that 189 (59%) were quite satisfied with their health professional's answers to their questions related to vaccination, 124 (38.7%) were a little satisfied whereas 7 (2.1%) participants were not at all satisfied.

Benefits of vaccine and social norms:
When asked about the importance of COVID-19 vaccine, 281(87.8%) participants believed it was very important, 37 (11.5%) thought it is of little importance and 2 (0.6%) considered it as not at all important.
287(89.6%) participants thought it was very important for themselves and their families to be vaccinated for COVID-19, 28 (8.7%) thought it was of little importance whereas 5 (1.5%) thought it was not important at all.
51 (15.9%) participants believed it was more important for men to be vaccinated than women.

Communication and Policy:
The information source for COVID-19 vaccine in the majority was the internet for 181(56.5%) participants, television for 59 (18.4%) participants, the government website for 46(14.3%) and newspaper for 34 (10.6%) participants.
For more information on vaccines, 22 (6.8%) participants would ask their friends or family, 142 (44.3%) would ask health care workers and 156 (48.7%) would browse the internet.

The majority, which is 250 (78.1%) participants, believed that COVID-19 vaccine should be made compulsory when available whereas 70 (21.8%) thought it should not be compulsory.

Geographical barriers and Cost:

200 (62.5%) participants agreed to travel a long distance to be vaccinated while 120 (37.5%) will not.

The maximum amount of time that they are willing to spend at a vaccine center to get vaccine was over 2 hours for 72 (22.5%) participants, 1-2 hours for 70 (21.8%) participants, less than 1 hour for 79 (24.6%) and less than 30 minutes for 99 (30.9%) participants.

243 (75.9%) participants are willing to pay for COVID-19 vaccine if it is not available free of cost while 77 (24%) are not willing to pay.

Mode of administration:

Majority of participants 213 (66.5%) preferred injectable mode of vaccine administration, followed by 79 (24.6%) for oral route and 28 (8.7%) for nasal spray.

Vaccine scepticism:

To enquire about the doubts regarding vaccine safety and efficacy, it was seen that, 286 (89.3%) participants thought vaccines are safe while 34 (10.6%) did not. According to 300 (93.7%) participants vaccines are effective while 20 (6.2%) did not believe so.

When a new vaccine is developed, 72 (22.5%) participants would prefer to get it first, while majority 248 (77.5%) would wait for others to get it first. [Figure 2]

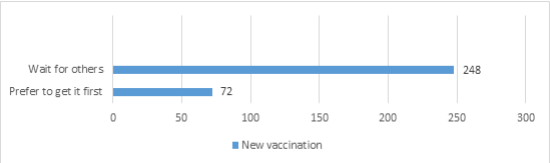

Figure 2: New vaccination

Lastly, the participants were asked, if they would like to get the vaccine for COVID-19, once the vaccine is available. 259 (80.9%) participants answered yes while 61 (19%) participants would not take the vaccine.

The reasons for not taking the vaccine were as follows:

9 (2.8%) participants believed shortcut was taken to develop a vaccine, 13 (4%) thought there wasn't enough time for scientists to assess the risks, 7 (2.1%) thought it might not be effective, 1 (0.3%) had fear of needles, 23 (7.1%) were concerned about the side-effects of vaccines and 14 (4.3%) were concerned about a bad reaction to the vaccine. 45 (14%) participants chose multiple options among these. [Figure 3]

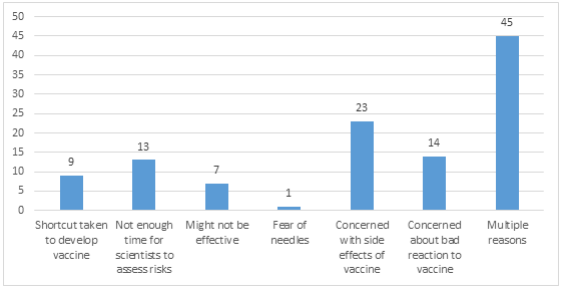

Figure 3: Reasons for not taking vaccine.

DISCUSSION

We conducted this study among health care workers, to understand awareness, psychosocial predictors and vaccine acceptance.

In our study, we found that all the participants knew about COVID-19 and majority (98.7%) understood what vaccines are. Majority of them believed that a vaccine is needed to combat COVID-19.

Participants (61.8%) believed that there are better ways to prevent vaccine-preventable diseases. On inquiring about preventive measures, maximum participants followed social distancing and worn masks, indicating a good awareness regarding prevention for COVID-19.

The role of vaccination experience, it was seen that 15.9% had bad reaction to vaccine while 20% participants were discouraged to take vaccine because of their experience. Religious and cultural barriers play a role in avoiding vaccination. 11.2% participants knew someone who had religious or cultural barriers in accepting a vaccine. Moreover, around 51.2% participants had received negative information about vaccines at some point in their life. Hesitancy because of negative experience and cultural belief was seen in study conducted in UAE as well. [7]

We found that participants were quite satisfied with their health providers and a positive finding was seen that, the majority believed that not only COVID-19 vaccine is important, but also it is also important for people to be vaccinated for themselves and their families.

On the other hand, around 15.9% participants believed that it was more important for men to take vaccine as compared to women. This reflects on the social norms prevalent in our country.

We found that role of internet was profound in providing information source on vaccine for majority of participants. Hence, Internet should be explored further in educating and creating awareness among people.

On analyzing the policy-making of our country, 78.1% believed that COVID-19 vaccine should be made compulsory for all. Geographical barriers may hinder vaccination in 37.5% participants, who would not travel long distance for the vaccine. Maximum participants would like to spend less than 30 minutes

at a vaccination center. 75.9% participants are willing to pay for the vaccine, if it is not provided free.

Although majority believed that vaccines are safe and effective, there was some hesitancy regarding vaccination despite being a health care worker. Maximum participants that is 77.5% would wait for others to take vaccine first. Similar findings were seen in a study on vaccine hesitancy, that medical staff had doubts regarding vaccination. [8]

Despite all hesitancy and beliefs, 80.9% agreed to take COVID-19 vaccine once available. The participants who would not take the vaccine had various reasons. Being concerned with the side effects of vaccines was the most common reason, followed by concern regarding bad reaction, lack of time for scientists to assess risks regarding vaccine, shortcut taken to develop vaccine; it might not be effective and lastly fear of needles. Around 45% of participants had choose multiple reasons from these to avoid the vaccine. Similar concerns were found in a study conducted on COVID-19 vaccine. [9]

Hence, more focus should be on understanding vaccine hesitancy, the factors that are related to it, as it may delay vaccination or may lead to refusal of vaccination. [10] This lack of awareness can lead to health consequences of the vaccine preventable diseases. [11]

CONCLUSION

There are various factors, which lead to the acceptance, refusal or delay of vaccination. Reasons for not taking vaccines should be explored to educate patients and provide them correct information. Internet and Media plays an important role in educating and spreading awareness. Utilizing these can help increase awareness among people, and improve the health consequences of the population.

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