Original Article

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Knowledge and perception towards COVID-19 vaccination among health care workers at a tertiary care centre

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Abstract

Background: Coronavirus disease 2019 (COVID-19) has caused an enormous impact on the health care system. The most effective way of controlling infectious diseases like COVID-19 is often vaccination. Health care workers have a key role in reducing the burden of the pandemic, role modeling preventive behaviours, and helping to vaccinate others.

Objective: The aim of the study was to find the knowledge, and perception towards COVID-19 vaccination among health care workers.

Methods: A descriptive cross-sectional study was conducted at Kathmandu Medical College Teaching Hospital from 1st June 2021 to 30th June 2021. Ethical clearance was taken from the institutional review committee (Ref. 2005202101). Convenience sampling was done. All the health care workers of the hospital who provided consent for the study were included in the study. Collected data were entered and analysed using SPSS v.24.

Results: In this study, 270 health care workers were included, out of which 90 (33.3%) were male and 180 (66.7%) were female. The majority (176, 65.2%) of the health care workers got vaccinated to boost their immunity. The most common factor causing COVID-19 vaccine hesitancy in health care workers initially was the safety of the vaccine (133, 49.3%).

Conclusion: The majority of the participants had good knowledge and positive perception of the COVID-19 vaccines. It demonstrates the need for effective education and communication designed to enhance knowledge about the COVID-19 vaccine and to teach vaccine counselling skills to the health care workers.

Key words: Coronavirus disease-19; vaccines; Health personnel; Knowledge; Perception.

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INTRODUCTION

Coronavirus disease 2019 (COVID-19) has caused an enormous impact on the health care system and economy.[1,2] World Health Organisation declared COVID-19 as a pandemic on March 11, 2020.[3] Well established herd immunity gained by infection or vaccination is required to completely halt the spread of COVID-19.[2,4] The most effective way of controlling infectious diseases is often vaccination.[5-7] Vulnerable population are the highest priority for vaccination.[6] Although immunisation has successfully reduced the global burden of illness and death, public confidence in vaccines can be affected by various concerns.[8-10] Vaccine hesitancy can lead to delays and refusal and sometimes contribute to disease outbreaks.[10] Health care workers have a key role in reducing the burden of the pandemic, role modelling preventive behaviours, and helping vaccinate others.

Information obtained from this study will help identify potential concerns to be addressed to ensure adequate vaccine uptake among health care workers and enable

the development of educational programs and strategies to overcome this barrier.

The aim of the study was to find the knowledge, and perception towards COVID-19 vaccination among health care workers.

METHODOLOGY

A descriptive cross-sectional study was conducted in Kathmandu Medical College Teaching Hospital (KMCTH), Kathmandu, Nepal from 1st June 2021 to 30th June 2021. Ethical clearance was taken from the institutional review comittee of KMCTH with (KMC-IRC, Ref.2005202101). All the health care workers of KMCTH were included in the study. Written consent was taken from each participantbefore data collection.

The sample size derived was 267 by using the formula sample size= $(Z^2 \times p \times q) / e^2$.Where, Z= 1.96 at 95% Confidence Interval (CI), p= prevalence taken as 50% for maximum sample size calculation, q= 1-p, e= margin of error, 6%. However, 270 samples were taken.

Semi-structured questionnaires were developed after reviewing previously published related studies with modifications, Questionnaire was divided into fourparts. The first part included a socio-demographic profile of the healthcare workers about COVID-19 vaccines, The second part consisted of seven questions to assess the knowledge of the health care workers, and the third part included five questions to assess the perception of the health care workers towards COVID-19 vaccines.

The collected data werecoded and entered inIBM SPSS Statistics for Windows, version 24.0. Frequency and percentage were calculated to find out the knowledge and perception of the health care workers towards the COVID-19 vaccines.

RESULTS

In this study, the questionnaire was distributed to 300 health care workers of Kathmandu Medical College and Teaching Hospital. Thirty questionnaires were subsequently excluded because of incomplete data. So, the final response was from270 health care workers who were included in the study, out of which 90 (33.3%) were male and 180 (66.7%) were female (Table 1). Most of the participants included in the study were doctors 123 (45.6%). The source of information regarding the COVID-19 vaccine for most of the participants was from the online source. Out of 270 participants, 113 (41.9%) had attended lectures/ seminars on COVID-19 vaccines (Table 1).

The majority of the participants answered the questions in the knowledge section correctly. The knowledge of the participants on COVID-19 vaccines is shown in (Table 2).

The perception of the participants toward COVID-19 vaccines is shown in (Table 3).The reason that convinced the majority of the health care workers to get vaccinated was to boost their immunity 176 (65.2%). The most common factor causing COVID-19 vaccine hesitancy in health care workers initially was the safety of the vaccine 133 (49.3%).

Table 1: Socio-demographic profile of participants

	Characteristics	n (%)
1.	Gender	
	Male	90 (33.3)
	Female	180 (66.7)
2.	Age	
	18- 25 years	84 (31.3)
	25- 40 years	160 (59.3)
	>40 years	26 (9.6)
3.	Occupation of health care workers	
	Doctor	123 (45.6)
	Nurse	97 (35.9)
	Housekeeping staff	15 (5.6)
	Technician	35 (13)
4.	Years of experience	
	1-5 years	161 (59.6)
	6-10 years	70 (25.9)
	>10 years	39 (14.4)
5.	Previously infected with COVID-19	
	Yes	99 (36.7)
	No	166 (61.5)
6.	Education level	
	Primary and secondary level	18 (6.7)
	Higher secondary	57 (21.1)
	Bachelor	130 (48.1)
	Master	65 (24.1)
7.	Source of information regarding COVID-19 vaccine	
	Lectures/seminars	35 (13)
	Online	76 (28.1)
	Newspaper	6 (2.2)
	TV news	52 (19.3)
	Government portfolios	51 (18.9)
	Colleagues	50 (18.5)
8.	Attended lecture/ seminars on COVID-19 vaccine	
	Yes	113 (41.9)
	No	157 (58.1)

Table 2: Knowledge on COVID-19 vaccines

	Questions	n (%)
1.	The vaccine available in Nepal is given via the intramuscular route	
	Yes	255 (94.4)
	No	15 (5.6)
2.	Vaccination against COVID-19 gives full protection from acquiring Covid-19 infection in future	
	Yes	83 (30.7)
	No	186 (68.9)
3.	Pregnant and lactating mothers should not be given the COVID-19 vaccine	
	Yes	144 (53.4)
	No	126 (46.7)
4.	There is always a need fora second dose to make the vaccine more effective	
	Yes	232 (85.9)
	No	38 (14.1)
5.	Recommendation by the WHO for the timing of booster dose vaccine given to health care workers is usually after 8 to 12 weeks after 1st dose	
	Yes	226 (83.7)
	No	44 (16.3)
6.	Covishield is the first vaccine to get approval for use against COVID-19 disease in Nepal	
	Yes	248 (91.1)
	No	22 (8.1)
7.	Covishield is the first vaccine to get approval for use against COVID-19 disease worldwide	
	Yes	114 (42.2)
	No	156 (57.8)

Table 3: Perception towards COVID-19 vaccines

	Questions	n (%)
1.	Did you ever expect the vaccine to come this soon?	
	Yes	118 (43.7)
	No	152 (56.3)
2.	What convinced you to get the COVID-19 vaccine	
	Free of cost	57 (21.1)
	Required for international travel	9 (3.3)
	Boost immunity	176 (65.2)
	No longer need mask	11 (4.1)
	Institutional protocol	17 (6.3)
3.	Did you initially plan to get the vaccination for your parents (> 65 years of age)?	
	Yes	209 (77.4)
	No	60 (22.2)
4.	What hesitation you had initially about getting the COVID-19 vaccines?	
	Safety of the vaccine	133 (49.3)
	Efficacy of the vaccine	46 (17)
	Underlying health issues	19 (7)
	No hesitation	72 (26.7)
5.	We need to continue wearing the mask and maintain social distance even after getting vaccinated?	
	Yes	209 (77.4)
	No	60 (22.2)

DISCUSSION

Currently, more than a dozen COVID-19 vaccines are under development.[11,12] As COVID-19 vaccines are being rolled out; frontline health care workers are prioritized as candidates for vaccination.[13] Perception of health care workers can strongly influence the general public's opinion on vaccination.

This study found that, out of the 270 participants, the majority of the health care workers of KMCTH had an adequate level of knowledge on a seven-item questionnaire regarding COVID-19. The majority was aware of the route of vaccine administration; the importance of second dose of vaccine recommended duration for receiving a booster dose, vaccines approved in Nepal and worldwide, and safety of vaccines for pregnant and lactating women.

Most of the participants had a good perception of COVID-19 vaccine, getting vaccinated, vaccinating older family members, and continuing other preventive measures even after getting vaccinated. The educational status of health professionals had a significant impact on perceptions that are related to COVID-19 vaccine safety.

Various studies have been conducted to assess the knowledge, attitude, and perception of the health care workers towards COVID-19. The published literature shows that health care workers have good knowledge regarding COVID-19.[11,12] Several studies has also been conducted to assess the knowledge and perception of the health care workers towards COVID-19 vaccines and to know the acceptance of vaccines among this group. In this study, initially only 72 (26.7%) health care workers had no hesitation in getting vaccinated and 198 (73.3%) were hesitant in getting vaccinated. The vaccine acceptance rates varies in studies conducted in various countries ranging from 38.3% in Nepal,[14] 39.3% in Ghana,[15] 57.6% in US,[16] 61.7% in Iraq,[17] 64% in Ethopia,[18] and 73.63% in China.[19] High rates were associated with good knowledge regarding the severity of COVID-19, and health care workers' trust in the vaccines. Lower vaccine acceptance rates may be due to earlier study dates (when prospects of the vaccine rollout were uncertain), health care workers' limited knowledge about vaccines, concerns about vaccine safety, and lack of trust in government management capacity.

In this study, the most common factor causing COVID-19 vaccine hesitancy in health care workers initially was related to "the safety of the vaccine" 133 (49.3%). So, to overcome this hurdle in effective vaccination, communication and education strategies for clinical workers should be considered. Poor vaccination acceptance can prolong the pandemic, and hence, it is recommended to conduct educational programs focusing on the safety, benefits, and efficacy of COVID-19 vaccines.

It is important for health systems to achieve high COVID-19 vaccination coverage rates among frontline health care personnel, to ensure an adequate workforce to treat patients. Health care workers need to be trained to make strong vaccine recommendations and respond effectively to vaccine-hesitant persons.

The limitation of the study is that since the study was carried out in only one health institution and the sample size is also small, the results may not be extrapolated to the whole population of health care workers. Also, the questionnaire used was not standard questionnaire.

CONCLUSION

The study revealed an important insight regarding the knowledge and perception towards the COVID-19 vaccines among the health care workers. Majority of the participants had good knowledge and positive perception towards the COVID-19 vaccines. Deficiencies in knowledge were noted in certain areas and these should be addressed through educational intervention. In countries where epidemic is on the rise, strategies to keep health care workers updated with proper information related to COVID-19 are important. It also demonstrates the need for an effective education and communication designed to enhance knowledge about the COVID-19 vaccine and to teach vaccine counseling skills.

To know the exact scenario, knowledge and perception of all the health care workers in national level should be included. So, it is recommended to conduct similar studies in other medical colleges and hospitals of Nepal.

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