

Original research article

Knowledge and attitude towards new COVID-19 vaccine among health care workers at the beginning of vaccination in a tertiary care center: A cross sectional study s

¹Ayyali Ambarish, ²Nagesh HN, ³Radha A

¹Assistant Professor, Department of General Medicine, Shri Atal Bihari Vajpayee Medical College and Research Institute, Bengaluru, Karnataka, India

²Associate Professor, Department of Pharmacology, Shri Atal Bihari Vajpayee Medical College and Research Institute, Bengaluru, Karnataka, India

³Assistant Professor, Department of Pharmacology, St Peter's Medical College, Hospital and Research Institute, Bengaluru, Karnataka, India

Corresponding Author:

Nagesh HN

Abstract

Background: Due to fast-track approval of the vaccine, acceptance of the new vaccine remains uncertain by health care workers. As currently many of them have fear towards quick development of vaccines and its safety trial which have led to may have questions, take or “Wait and see”, approach, want more information. The aim of this study was to assess health care workers’ knowledge, attitude and acceptance towards COVID-19 vaccine.

Methods: A cross sectional study conducted at Shri Atal Bihari Vajpayee Medical College & Research Institute and its associated hospitals, Bangalore, Karnataka. After obtaining approval from Institutional Ethics Committee, the health care workers were provided with online data collection forms (Google forms) and the questionnaire responses were analyzed. Data collected was assessed by using descriptive statistics.

Results: A total of 400 participants’ response rate was 91.5%, in that 55.5% Males and 44.5% females.65.5% of health care workers were ready to accept that vaccination is good idea to prevent COVID-19. 58.2% & 53.3% of participants were more concern about efficacy & side effects in taking vaccination respectively. 77.9% of the health care workers were willing to get COVID -19 vaccine but only 40.2% and 43.5% were recommend public and family to take vaccine respectively.56% of post COVID -19 infective Health care workers are ready to take vaccine.

Conclusions: Confidence on COVID-19 vaccine was less due to the concern about efficacy & side effects of new vaccine. Knowledge about route, doses and interval between doses were satisfactory in Health Care Workers. Most of healthcare workers were willing to take vaccine and are not ready to recommend to public. So, by this study we conclude that sensitisation programs are required to attain attitude, Knowledge and practice towards new vaccination in health care workers.

Keywords: Knowledge, attitudes, COVID-19 vaccine, healthcare workers

Introduction

When the SARS-CoV-2 novel corona virus was first reported in Wuhan, China, the pandemic has infected more than 160 million people and claimed more than 3.3 million lives ^[1]. Development of a vaccine against the virus is considered a pivotal moment in the efforts to curb disease spread and begins the resumption of normalcy in everyday life. In order to respond quickly and effectively to the COVID-19 pandemic, a broad range of COVID-19 vaccines are being investigated globally. As of 18 February 2021, at least seven different vaccines across three platforms have been distributed globally according to the World Health Organization (WHO) ^[2]. Despite this unprecedented scientific discovery, vaccine hesitancy biggest challenge in the global response against the vaccine acceptability. Several studies indicate that healthcare professionals (HCPs) play a paramount role and can significantly affect the general public’s decisions to receive the COVID- 19 vaccine ^[3, 4]. Now government of India has commenced the vaccination for Health Care Workers (HCW). Due to fast track approval of the vaccine, acceptance of the new vaccine remains uncertain by health care workers.

The aim of this study was to assess health care workers’ knowledge, attitude and acceptance towards COVID-19 vaccine so that it helps to initiate awareness.

Objectives

To assess the knowledge, attitude and practice about current COVID-19 Vaccine among health care

providers.

Materials and Methodology

Study design

An institutional based cross-sectional study.

Study area and period

This study was conducted at Shri Atal Bihari Vajpayee Medical College & Research Institute and its associated tertiary care hospitals, Bangalore, Karnataka. The study was conducted in the month of April 2021.

Method

A semi-structured questionnaire was prepared by the researchers to understand the various socio-demographic characteristics of the responders. Knowledge, attitude and practices (KAP) questionnaire was developed by taking the facts from WHO, CDC and ICMR guidelines. This questionnaire contained questions to assess knowledge about the current COVID-19 vaccine preparation, route of administration, doses, etc. The questionnaire also assessed about behaviors like vaccine promotion among colleagues, family and the society at large.

After obtaining approval from Institutional Ethics Committee, the Health Care Workers were provided with online data collection forms (Google forms), which included informed consent, questionnaire on socio-demographic status, knowledge and attitude about COVID-19 vaccine. The questionnaire responses were analyzed by using descriptive statistics in Statistical Package for Social Sciences (SPSS), Windows Version 17.0).

Results

Out of 400 participants we received 366 responses, in that 55.5% were Males and 44.5% were females. Out of 366 respondents 13.1% Doctors, 16.7% Postgraduates, 26.2% Interns, 32.2% Nurses, 7.1% Paramedical staff, 1.6% technicians and 3% were Group D workers.

Table 1: Socio demographic profile of study subjects (n=366)

Variables	Characteristics	Number (Percentage)
Gender	Male	203 (55.5)
	Female	163 (44.5)
Religion	Hindu	326 (89.0)
	Muslim	27 (7.7)
	Christian	12 (3.1)
	Others	01 (0.2)
	Marital Status	Married
	Single	255 (69.7)
Education Level	High school	16 (4.4)
	Not gone to school	6 (1.6)
	Primary School and below	3 (0.8)
	Secondary school	76 (20.7)
	University and above	265 (72.4)
Occupation	Doctor	48 (13.1)
	Postgraduate	61 (16.7)
	Interns	96 (26.2)
	Nurse	118 (32.2)
	Paramedical staff	26 (7.1)
	Technician	06 (1.6)
	Group- D	11 (3)
Annual Income	<50000	206 (56.3)
	500001-120000	75 (20.4)
	120001- 170000	22 (6.0)
	>1700001-250000	11 (3.0)
	>250000	52 (14.2)
Area of Residence	Rural	62 (16.9)
	Urban	304 (83.1)

Table 2: Attitude on COVID -19 Vaccine among subjects (n=366)

Attitude questions	Average score (%)
Vaccination is a good idea because I feel less worried about catching COVID-19 infection & its complications	65.5

Concerned about the efficacy of the COVID-19 vaccine	58.2
Concerned about the side effects of the COVID-19 vaccine	53.3

Table 3: Knowledge on COVID -19 Vaccine among subjects (n=366)

Questions		Number (Percentage)
COVID-19 vaccines approved at present in India	Correct response	123 (33.6)
	Wrong response	243 (66.4)
Route of Vaccine	Correct response	206 (56.3)
	Wrong response	160 (43.7)
COVID Vaccines approved for use	Correct response	285 (77.9)
	Wrong response	81 (22.1)
Interval between doses	Correct response	215 (58.7)
	Wrong response	151 (41.3)
Number of doses	Correct response	228 (65.3)
	Wrong response	138 (37.7)

Table 4: Willingness for COVID -19 vaccine among subjects (n=366)

Questions	Average score (%)
Willingness to get COVID- 19 Vaccine	77.9
Not willing to take COVID-19 vaccine	36.5
You recommend the public to take the COVID-19 vaccine	40.2
Recommend your family to take COVID-19 vaccine	43.5
If you already had COVID-19 infection, will you take the vaccine	56.1

Discussion

The immediate goal of the global vaccination is to minimize the death rate, severity of the disease, overall disease burden and to achieve desired herd immunity.

While vaccines are known to be successful public health measures, an increasing number of people believe vaccines are neither safe nor necessary [6]. This behavior is determined by issues of confidence or trust in the vaccine or provider, perceived lack of need or value for the vaccine and issues with access to the vaccine [7].

Our cross-sectional study showed 65.5% of Health Care Workers were ready to accept that vaccination is good idea to prevent COVID-19 but 58.2% of participants were more concern about efficacy and 53.3% were concerned about side effects in taking vaccination.

In our study COVID- 19 Vaccine acceptance rate reported was 77.9% which is higher than other studies and non-acceptance rate reported was 36.5%.

A similar vaccine acceptance rate was reported by a study in Iraq (61.7%) [8], which was higher than in two studies in the USA, where more than half of all HCWs were undecided and delayed the decision to be vaccinated [9, 10]. Low acceptance rates were also reported among healthcare workers in Ghana (39.3%) [11], the Democratic Republic of Congo (27.7%) [12], Egypt (21%) [13], and Nepal (38.3%) [14]. Studies in Nigeria and Saudi Arabia reported intended vaccine uptake rates of 50.2% [15] and 50.52%, respectively [16].

HCWs were willing to take COVID vaccine but most of them were not ready to recommend vaccine to their family (43.5%) and public (40.2%).

HCWs possess good knowledge about route, dose interval and number of doses but knowledge about different types of vaccines approved in India was poor.

Conclusion

Confidence on COVID-19 vaccine in health care workers was less due to the concern about efficacy & side effects of new vaccine. Most of them were willing to take vaccine and are not ready to recommend to public and family.

Knowledge of HCWs about route, doses and interval between doses were satisfactory.

So, sensitisation programs are required to attain attitude, Knowledge and practice towards vaccination even in health care workers.

Declarations

Ethics approval and consent to participate was obtained.

Ethical approval was obtained from the Institutional Ethical Review Committee of Shri Atal Bihari Vajpayee Medical College & Research Institute (Formerly called Bowring & Lady Curzon Medical College & Research Institute)

Acknowledgement

We gratefully acknowledge to Dean cum Director and Principal of our Institution for giving permission to conduct this study. We all study participants for their participation and valuable information.

References

1. COVID-19 Map-Johns Hopkins Corona virus Resource Center. Available online: <https://coronavirus.jhu.edu/map.html>.
2. Ciardi F, Menon V, Jensen JL, Shariff MA, Pillai A, Venugopal U, *et al*. Knowledge, Attitudes and Perceptions of COVID-19 Vaccination among Healthcare Workers of an Inner-City Hospital in New York. *Vaccines*. 2021;9:516.
3. WHO. Draft Landscape and Tracker of COVID-19 Candidate Vaccines. Available online: <https://www.who.int/publications/m/item/draft-landscape-of-COVID-19-candidate-vaccines>.
4. Griffin DS, Muhlbauer G, Griffin DO. Adolescents trust physicians for vaccine information more than their parents or religious leaders. *Heliyon*. 2018;4(12):e01006.
5. Karafillakis EDI, Apfel F, *et al*. Vaccine hesitancy among healthcare workers in Europe: a qualitative study. *Vaccines*. 2016;34(41):5013-5020.
6. Dubé E, Laberge C, Guay M, Bramadat P, Roy R, Bettinger J. Vaccine hesitancy: An overview. *Hum. Vaccines Immunother*. 2013;9:1763-1773.
7. Dube E, Gagnon D, Nickels E, Jeram S, Schuster M. Mapping vaccine hesitancy-Country-specific characteristics of a global phenomenon. *Vaccine*. 2014;32:6649-6654.
8. Al-Metwali BZ, Al-Jumaili AA, Al-Alag ZA, Sorofman B. Exploring the acceptance of COVID-19 vaccine among healthcare workers and general population using health belief model. *J Eval Clin Pract*. 2021 April, 1-11.
9. Gadoth A, Halbrook M, Matine-Blais R, Gray A, Tobin NH, Ferbas KG, *et al*. Cross-sectional assessment of COVID-19 vaccine acceptance among healthcare workers in Los Angeles. *Ann Internal Med*, 2021. Available from: <https://doi.org/10.7326/M20-7580>.
10. Shekhar R, Sheikh AB, Upadhyay S, Singh M, Kottewar S, Mir H, *et al*. COVID-19 vaccine acceptance among health care workers in the United States. *Vaccines*. 2021;9(2):1-18. doi: 10.3390/vaccines9020119.
11. Agyekum MW, Afrifa-Anane GF, Kyei-Arthur F, Addo B. Acceptability of COVID-19 vaccination among healthcare workers in Ghana. *Adv Public Health*, 2021. 10.1155/2021/9998176.
12. Kabamba Nzaji M, Kabamba Ngombe L, Ngoie Mwamba G, Banza Ndala DB, Mbidi Miema J, Luhata Lungoyo C, *et al*. Acceptability of vaccination against COVID-19 among healthcare workers in the Democratic Republic of the Congo. *Pragmatic Obs Res*. 2020;11:103-109. doi: 10.2147/POR.S271096
13. Fares S, Elmnyer MM, Mohamed SS, Elsayed R. COVID-19 vaccination perception and attitude among healthcare workers in Egypt. *J Prim Care Community Health*, 2021, 12.
14. Paudel S, Palaian S, Subedi N. Risk perception and hesitancy toward COVID-19 vaccination among healthcare workers and staff at a medical college in Nepal. *Risk Manag. Health Policy*. 2021:2253-61.
15. Tobin EA, Okonofua M, Azeke A, Ajekweneh V, Akpede G. Willingness to acceptance a COVID-19 vaccine in nigeria: A population-based cross-sectional study. *J Med Res [Internet]*. 2021;5(2):1-6. Available from: <https://www.alliedacademies.org/allied-journal-of-medical-research>.
16. Qattan AMN, Alshareef N, Alsharqi O, Al Rahahleh N, Chirwa GC, Al-Hanawi MK. Acceptability of a COVID-19 vaccine among healthcare workers in the Kingdom of Saudi Arabia. *Front Med*. 2021 March;8:1-12.