Knowledge, Attitude And Practice Towards COVID-19 Vaccination Among Residents Of Urban Health Training Centre Field Practice Area Of Western Rajasthan: A Cross-Sectional Study

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ABSTRACT

Introduction: Vaccination is one of the most important public health measures and safe and effective vaccine for the Coronavirus disease 2019 (COVID-19) has been an important target of healthcare agencies across the globe for control of the pandemic. The present study aimed to assess knowledge, attitude & practice of COVID-19 vaccination among patients attending Urban Health Training Centre (UHTC).

Methods: This cross-sectional observational study was conducted at the field practice area of the Urban health training center (UHTC) associated with a Medical College of western Rajasthan. A total of 350 participants aged 18 years and above, of either gender attending the OPD at UHTC, were included in the study. A pre-designed, semi-structured schedule, translated into the local language (Hindi), was used to collect relevant information.

Results: Out of 350 participants, 174(49.71%) had very good knowledge, 109 (31.14%) had good and 67(19.14%) had poor knowledge of covid-19 vaccination. 329 (94%) participants had faith in the vaccination program and 325 (92.9%) had the attitude of the need for a vaccine. Covishield vaccine was the choice of the vaccine in maximum participants (76.7%) due to its easy availability. Localized pain was the most experienced side effect after the first and second dose of the vaccine.

Conclusion: Current study revealed that 19.14% of participants still had poor knowledge of the covid-19 vaccination after more than one and half years of its launch. So there is a need to emphasize creating a more effective awareness program toward covid-19 vaccination.

Keywords: Covid-19 vaccine, Knowledge, attitude, practice, SARS Cov-2

INTRODUCTION

COVID-19 disease, caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), is a new coronavirus and was first detected in China.[1] The disease rapidly spread throughout the world and became a serious public health concern. On March 11, 2020 World health organization (WHO) declared the COVID-19 as a pandemic.[2] It had affected 223 countries, with over 253 million confirmed cases and 5.1 million deaths recorded globally[3]. The iincidence was higher in the Americas (95.2 million cases and 2.3 million deaths) and Europe (81.5 million cases and 1.5 million deaths) than in South East Asia (43.3 million cases and 0.7 million deaths), Western Pacific (9.8 million cases and 0.3 million deaths) and Africa (6.8 million cases and 0.15 million deaths)[3]. In India, covid-19 disease cases reported more than 34 million and 0.45 million deaths.

The impact of this disease is continuously growing with some countries are experiencing the

third wave of viral emergence. Vaccination is one of the most important public health measures developed in the history of medicine that enabled the prevention of serious infectious diseases and has been looked upon as the major means of controlling the COVID pandemic. A safe and effective vaccine for the COVID-19 has been an important target of healthcare agencies across the globe on a priority basis.[4]

Vaccination against COVID-19 is voluntary in most countries, and it is therefore important to understand the existing opinions of the local population for better implementation of the vaccination program. In India, at present multiple vaccines are available, of which Covishield and Covaxin have been used by the government for mass vaccination.

The acceptance of the new vaccine developed within a very short period with limited scientific data, was uncertain by both healthcare experts and the public at large. In addition, many false theories have come across various social platforms against vaccination for COVID-19. It is because of these reasons that vaccine hesitancy had become an important challenge in the immunization campaign against COVID-19.[5-7]

Only a few studies were done regarding the knowledge and perspective regarding the COVID-19 vaccine and it was found that around 50% of participants are intended to get the vaccine.[8-9] It is anticipated that there will be great variation in vaccine-related perspectives and attitudes across countries and within countries as well, depending on demographic factors, education levels, and overall knowledge regarding COVID-19 and the vaccines available.

In this study, we aimed to find out the knowledge, attitude, and practice regarding COVID 19 vaccination and COVID appropriate behavior; and their relation to various socio-demographic variables, as well as the barriers that can be hurdles during the immunization program.

MATERIAL AND METHODS:

Study design and study setting

This cross-sectional observational study was conducted at the field practice area of the Urban health training center (UHTC) associated with a Medical College of western Rajasthan. The study was carried out till the required sample size was fulfilled.

study population

All populations aged 18 years and above, of either gender attending the OPD at UHTC, and residing in the area for more than 6 months of the period from the time of starting of this study, were included in the study whereas people with severe hearing loss or low IQ were excluded.

Sample Size

The sample size was calculated at a 95% confidence interval, taking 5% absolute allowable error, by using the below formula for estimation of the single sample proportion

$$N = \frac{(Z_{1-\alpha/2})^2 \ P\,(1-P)}{E^2}$$

Where P = 64.5% (unawareness regarding COVID vaccine) from the study by Bhartiya S et al[10] the required sample size came to be 350.

Data collection method

The necessary approval for the study was taken before the commencement of the study from the Institutional Ethical Committee. Consecutive sampling was applied to achieve the required sample size.

After taking oral informed consent from study participants and explaining the nature of this study, each one of them was moved to a separate room at the OPD one by one. They were interviewed with a pre-designed, semi-structured schedule, translated into the local language (Hindi) which contained information on the socio-demographic profile of the respondents and questions related to knowledge, attitude, and practice regarding COVID-19 vaccination and COVID appropriate behavior. The total knowledge scores were calculated by allotting one point to each correct response and no point to an incorrect response. giving equal weightage to all articles, summing to a maximum knowledge score was 5. This score was divided into three categories, score 3-5 - very good knowledge, score 2-2.99 - good knowledge and score less than 2 - poor knowledge.

Statistical analysis

Data were entered into a Microsoft Excel spreadsheet and analyzed using SPSS 21 [trial version] [IBM Corp., Armonk, New York]. Descriptive statistics were used and the Pearson chi-square test was used for bivariate analysis as a test of significance; taking a p-value of < 0.05 as statistically significant.

Results:

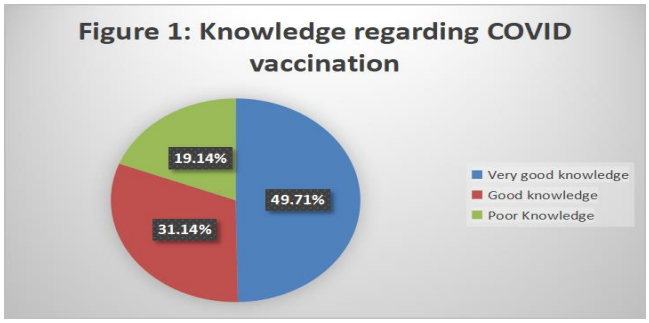
The mean age of study participants was 37.14 years with a standard deviation of 14.02 years. Most of the participants belonged to the age group of 18-30 years i.e., 150 (42.9%). Most of the participants (61.4%) were male, belonged to the Hindu religion (93.7%), and were unemployed (40.3%). Most of them were illiterate (26%) and 35.7% of the participants were from class II (upper middle) socioeconomic status. (Table 1).

Table 1. Sociodemographic profile of study participants (N-350)

		NUMBER	PERCENTAGE
AGE GROUP (years)	18-30 years	150	42.9
	31-40 years	83	23.7
	41-50 years	53	15.1
	51-60 years	35	10.0
	>60 years	29	8.3
	(mean±SD) (Range)	37.14±14.02 (18-80 years)	
GENDER	Female	135	38.6
	Male	215	61.4
RELIGION	Hindu	328	93.7
	Muslim	14	4.0
	Others	8	2.3
EDUCATION	Illiterate	91	26.0
	Up to secondary	75	21.4
	Up to senior secondary	68	19.4
	Graduate and above	116	33.1
OCCUPATION	Unemployed	141	40.3
	Skilled	128	36.6
	Semiskilled	64	18.3
	Unskilled	17	4.9
SOCIOECONOMIC STATUS: (Modified BG Prasad scale 2020) (Based on income in Rs. per capita per month)	Class I (Upper)	114	32.6
	Class II	125	35.7
	Class III (Middle)	77	22.0
	Class IV	33	9.4
	Class V (Lower)	1	.3

Among study participants 49.71% had very good knowledge, 31.14% had good and 19.14% had poor knowledge regarding COVID-19 vaccination. (Figure 1)

Figure 1. Knowledge about covid-19 vaccination among study participants (N-350).



Most of the participants had good knowledge (98.9%), a positive attitude (97.7%), and correct practice (96%) about the use of masks before vaccination as well as after vaccination, followed by hand hygiene (87.7%, 87.4%, 80.3% respectively). The least knowledge, attitude, and practice were found regarding avoiding social gatherings (58.6%, 56%, 49.1% respectively). (Table-2).

Table 2. KAP of Covid-19 appropriate behavior among study participants (N-350).

	knowledge		Positive attitude		correct practice	
	N	%	N	%	N	%
Covid-19 appropriate behavior pre-vaccination						
Mask	346	98.9	342	97.7	336	96
Hand hygiene	307	87.7	306	87.4	281	80.31
Avoid social gathering	205	58.6	196	56	72	49.1
Social distancing	244	69.7	236	67.4	210	60
Covid-19 appropriate behavior post-vaccination						
Mask	342	97.7	341	97.4	324	92.6
Hand hygiene	292	83.4	287	82	255	72.9
Avoid social gathering	185	52.9	170	48.6	140	40
Social distancing	230	65.7	205	58.6	212	60.6

Most participants had faith in the vaccination program (94%) and most had a positive attitude regarding COVID vaccination (92.9%). Covishield vaccine was the choice of vaccine for the study subjects (76.7%), and the reason for the same is mostly due to its easy availability (75.5%). (Table-3)

Table 3. Attitude towards covid-19 vaccination among study participants (N-350).

	Attitude	Number	Percent
	Need of vaccination	325	92.9
	Faith in the vaccination program,	329	94
Choice of vaccine	Covishield	237	67.7
	Covaxin	66	18.9
	Others	47	13.4
Reason for Covaxin (n-66)	Efficacy	36	54.6
	Side effect	3	4.6
	Short dose interval	21	31.8
	Efficacy & Side effect	1	1.5
	Efficacy & Short dose interval	4	6.1
	ALL (Efficacy, Side effect & Short dose interval)	1	1.5
Reason for Covishield (n-237)	Easy availability	179	75.5
	Efficacy	27	11.4
	Travel certificate	4	1.7
	Easy availability & Efficacy	21	8.9
	Efficacy & Travel certificate	4	1.7
	ALL (Easy availability, Efficacy & Travel certificate	2	0.8

Most of the participants had completed either one dose of vaccine (94.6%), among them 257 (77.6%) had taken 1st dose and 74 (22.4%) had taken both doses of any vaccine. Maximum participants i.e., 266 (80.4%) had taken the Covishield vaccine. Localized pain was the most experienced side effect after the first and second dose of vaccine i.e., 66.1% and 42.4% respectively (Table 4).

Table 4. Practice towards covid-19 vaccination among study participants (N-331).

	Practice	Number	Percent
	Vaccination status	331	94.6
Vaccination taken (n-331)	Covishield	266	80.4
	Covaxin	65	19.6
Number of doses (n-331)	First	74	22.4
	Second	257	77.6
Side effect after the First dose (n-331)	Fever	175	52.9
	Localized pain	219	66.1
	Body ache	82	24.8
	Nausea vomiting	8	2.4
Side effect after 2nd dose (n-257)	Fever	61	23.7
	Localized pain	109	42.4
	Body ache	46	17.9
	Nausea vomiting	3	1.2

The study depicted that the age group and socio-economic status of the study participants were significantly associated with knowledge of the COVID-19 vaccination ($p<0.05$)(Table 5).

Table 5. Association of Knowledge of covid-19 vaccination with various factors among study participants (N-350).

	Variable	very good n(%)	good n(%)	poor n(%)	chi-square p-value
Age	18-30	90(60)	43(28.7)	17(11.3)	**χ^2 =32.251 P=0.0001**
	31-40	45(54.2)	19(22.9)	19(22.9)	
	41-50	24(45.3)	17(32.1)	12(22.6)	
	51-60	5(15.3)	20(57.1)	10(28.6)	
	>60	10(34.5)	10(34.5)	9(31)	
Gender	Female	64(47.4)	38(28.1)	33(24.4)	χ^2 = 4.09 P=0.129
	Male	110(51.2)	71(33)	34(15.8)	
Religion	Hindu	163(49.7)	104(31.7)	61(18.6)	χ^2 = 5.962 P= 0.202
	Muslim	9(64.3)	1(7.1)	4(28.6)	
	Others	2(25)	4(50)	2(25)	
Socioeconomic status	Class I	69(60.5)	32(28.1)	13(11.4)	**χ^2 = 31.225 P= 0.0001**
	Class II	72(57.6)	34(27.2)	19(15.2)	
	Class III	20(26)	31(40.3)	26(33.8)	
	Class IV & V	13(38.2)	12(35.3)	9(26.5)	

DISCUSSION:

Vaccination has been found to be the only solution for eradicating certain diseases like smallpox and controlling infectious diseases like rubella, diphtheria, polio, etc in many parts around the globe. Vaccines against SARS-CoV-2 are also being looked upon to end or at least control the COVID-19 pandemic.[11] A large number of vaccine candidates are being developed and are in different phases of a clinical trial.

As vaccine hesitancy is still a barrier to vaccination programs; knowledge, attitudes, and practices (KAP) of the population towards the

COVID-19 vaccination is important to understanding the epidemiological dynamics of disease control, and the effectiveness, compliance, and success of the vaccination program.

In this study, the mean age of the study participants was 37.14±14.02 years with and most of the participants belonged to the age group of 18-30 years (42.9%), 61.4% were male, 93.7% were Hindu and 40.3% were unemployed. Maximum participants had the educational qualification of graduate and above (33.1%) and 35.7% participants were from class II (upper middle) socioeconomic status. These findings were in line with the study conducted by Al-Marshoudi S et al.[12] who found the mean age of participants as 38.27 years with a standard deviation of 10.45 years. Elhadi M et al.[13] found the mean of study participants as 30.6 years with a standard deviation of 9.8 years, 41.3% were males. Similar results were reported by the study conducted by Ahmad MH et al.[14] where the mean age was reported 32.7±11.8 years.

In the present study, 49.7% had very good knowledge, 30.5% had good and 21.8% had poor knowledge of covid-19 vaccination, which was quite similar to the study findings of Al-Marshoudi S et al.[12] which found 45% of participants had knowledge of COVI-19 vaccine. Ahmad MH[14] et al reported that 93.9% of participants in his study knew the 2nd dose of vaccine and 64% of participants had good knowledge about it. The results were contrary to the findings of a study conducted by Bhartiya et al where 58.0% of the study subjects rejected the presence of a vaccine against COVID-19.[10] This difference might be due to difference in the time period of study as vaccination programs were just launched at that time and people were not aware of the vaccine as they were in the current study.

Due to an initial strong measure to curb the pandemic, many countries are observing increasing levels of mistrust in government capacity to handle the covid-19 pandemic. Pandemic has triggered widespread misinformation that has undermined both understanding and acceptance of science and another measure to control it[15] and this extends to the issue of vaccine acceptance also. In the present study, 94% of participants had faith in the vaccination program and 92.9% had the attitude of the need of vaccine. Covishield vaccine was the choice of the vaccine in maximum participants i.e. 76.7% due to its easy availability. While a study from Mesesle M.[16] reported that only 64.9% of participants were agreed about the vaccination safety and had a positive attitude toward the vaccination and similar findings were noted in a study conducted by Al-Marshoudi S et al.[12] which depicted that 59.3% of respondents did not have any concerns regarding the vaccine.

In the present study, knowledge was significantly associated with age-group and socioeconomic status but the study conducted by Mesesle M.[16] found that educational status and residence were found to be a significant factor associated with the awareness toward covid-19 vaccination ($p<0.05\%$).

CONCLUSION:

This study showed that nearly half of the study participants had very good knowledge of COVID vaccination. Knowledge of COVID vaccination was significantly associated with age and socioeconomic status. Almost all participants (94%) had good faith in the vaccination program. The gap still persists regarding COVID appropriate behavior after vaccination. Looking at the looming risk of 3rd wave and current hesitancy for 2nd dose of vaccine, IEC activities need to be escalated to improve knowledge and acceptability of vaccine.

CONFLICT OF INTEREST:

None

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