



KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS COVID-19 VACCINATION AMONG THE BENEFICIARIES OF COVID VACCINATION CENTRE IN CENTRAL INDIA: A CROSS-SECTIONAL STUDY

Community Medicine

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ABSTRACT

Introduction: Coronavirus disease (COVID-19) is an infectious disease caused by coronavirus (SARS-CoV-2). Vaccines are the most important public health measure to protect the population from COVID 19. This survey aims to gather information on knowledge, attitude and practices of people towards COVID-19 vaccine. **Methodology:** This cross-sectional study was conducted among 507 beneficiaries who came to COVID Vaccination Centre of Central India. A semi-structured questionnaire with four sections (socio-demographic, knowledge, attitude and practices) was utilized during data collection. **Results:** 99.61% and 84.42% had the knowledge about the vaccine being given and the number of doses. 92.90% and 90.73% felt that the vaccine was safe and efficient. Most of the study participants followed COVID appropriate behaviour even after vaccination. The mean score of knowledge about COVID vaccination was significantly more among those less than 45 years of age and those who were skilled workers and Professional.

KEYWORDS

COVID vaccine, Knowledge, Attitude, Practices

INTRODUCTION:

Coronavirus disease (COVID-19) is an infectious disease caused by coronavirus (SARS-CoV-2).^[1] In India, from 3 January 2020 to 5:30pm CET, 4 February 2022, there have been 41,952,712 confirmed cases of COVID-19 with 500,055 deaths, reported to WHO.^[2] COVID-19 primarily affects the respiratory system with a range of symptoms.^[3,4] This virus is generally more fatal for the elderly and those with a history of comorbidities.^[5,6]

Vaccines are the most effective strategy to protect the population from COVID 19.^[7] This is in addition to the main preventive measures of keeping a safe distance, avoiding crowds, wearing a mask, cleaning hands regularly.^[8] It is important to understand the current views of populations as vaccination against COVID-19 is voluntary in most countries.^[9]

The COVID-19 vaccine was launched in India in phases.^[10] The beneficiaries were initially found to be hesitant to receive the vaccine due to several reasons.^[11] In order to have a wide coverage of the population by vaccination, it is critical to comprehend people's views.

Therefore, this study aims to gather information and interpret the current knowledge, attitude and practices of people towards COVID-19 vaccine.

MATERIALS AND METHODS:

This cross-sectional study was conducted from the March 2021 to May 2021 among beneficiaries coming to COVID Vaccination Centre of Central India and giving consent to participate. Approval of Institutional Ethics Committee was obtained.

Sampling procedure:

The sample size was calculated using the following equation:

$$n = \frac{z^2 pq}{d^2}$$

$$n = 1.96^2 \times 0.5 \times (1 - 0.5) / 0.05^2$$

$$n = 384.16 \approx 384$$

Assuming a 10% non-response rate, a sample size of $423.5 \approx 424$ participants was estimated. To achieve this sample size in 3 months and considering the holidays, daily first 7 beneficiaries coming for vaccination were included in the study. If any beneficiary of these 7 was not willing to participate then that beneficiary was not included in the study. At the end, our sample size (507 participants) exceeded this estimate.

Measures:

A semi-structured questionnaire with four sections (socio-demographic, knowledge, attitude and practices) was utilized during data collection.

To assess the level of knowledge, attitudes and practices of the study participants, a total of 13 items structured questions (including 5-items for knowledge, 4-items for attitudes and 4-items for practices) was utilized. The expected response from knowledge and Attitude sections (mostly 'Yes') was coded as 1, while the 'No/ Don't know' responses were coded as 0. The total score was obtained by summing the raw scores of items and ranged from 0-5 for knowledge and 0-4 for attitude section, with the higher score indicating the greater level of knowledge and attitude towards COVID-19 vaccinations. An additional question was asked about the source of their knowledge about COVID-19 vaccines.

Statistical Analysis:

The categorical and quantitative variables were expressed in terms of frequencies, percentages and mean, SEM respectively. Two Means were compared by using t-test and Mann-Whitney U test. Three Means were compared by using one-way ANOVA. Proportions were compared by using chi-square tests and Fisher's exact test. Multivariate linear regression analysis was done for significant variables in univariate analysis. All statistical tests were considered significant at 95% confidence interval with a p-value less than 0.05. The data analysis was performed using Microsoft Excel 2019 and SPSS version 25.0.

RESULTS:

Among the 507 study participants, 39.05% and 35.90 % belonged to the age group of 18-37 years and 38-57 years respectively. Also, 56.80% were males. Majority of the participants were Hindu (85.40%), married (71.01%) and belonged to nuclear family (59.57%). The gender wise distribution of study participants as per each knowledge variable is presented in Table 1. Majority of study participants had the knowledge about the vaccine being given (99.61%), the number of doses of the vaccine (84.42%) and the necessity to wear Mask, practice repeated hand washing/ sanitization and social distancing even after vaccination (99.01%). Majority 91.34% had responded that fever is the side effect following vaccination. Also, 67.65% participants knew that COVID-19 infection can occur even after vaccination.

Most of the study participants 28.99% had knowledge about the COVID vaccination from Television, followed by Friends 18.74% (Fig. 1).

As seen in Table 4, the mean score of knowledge about COVID vaccination was significantly more among study participants less than 45 years of age as compared to those 45 years and above ($P=0.006$). In addition, the knowledge about COVID vaccination was significantly more among the study participants who were skilled workers and

Professional ($P=0.004$). Table 5 shows that after using Multiple regression in variables that were statistically significant by univariate analysis, Age remained significantly associated with knowledge about COVID vaccination ($P=0.005$).

The gender wise distribution of study participants as per each attitude variable is presented in Table 2. Majority of study participants felt that the vaccine was safe (92.90%) and efficient (90.73%). Also, majority 91.91% of participants were willing to take second dose of vaccine even after having side effects and will encourage the family members to take the vaccine (98.82%).

The gender wise distribution of study participants as per each practice variable is presented in Table 3. Most of the study participants have not registered themselves for the vaccination (77.12%) and not scared of taking the vaccine (95.27%). Majority of study participants who have taken their first dose of the vaccine followed COVID appropriate behaviour like wearing mask 99.02%, practicing hand sanitization 99.02% and avoiding crowded places 87.25% even after vaccination. No significant difference was found between males and females knowledge, attitude and practices regarding vaccination.

DISCUSSION:

Among the 507 study participants, most of the study participants were 18-57 years of age and males similar to that found by Binu Mathew et al.^[12] and Metadel Adane et al.^[13], but differed from that found by Alpamys Issanov et al.^[14]

In the present study, 99.61% had the knowledge about the vaccine being given and 84.42% had knowledge about number of doses which was similar with the findings by Md Emran Hossain et al.^[15] Also, 99.01% participants had knowledge regarding the COVID appropriate behaviour even after vaccination like that found by Md. Mostafizur Rehman et al.^[16] In our study, 67.65% participants knew that COVID-19 infection can occur even after vaccination which was slightly more than that found by Adebowale Jeremy Adetayo et al.^[17] Age and Profession variables were found to be significantly associated with knowledge like that found by Mohammedjud Hassen Ahmed et al.^[18]

Majority of study participants in our study felt that the vaccine was safe and efficient. These results were higher as compared to the study done by Muhammed Elhadi et al and Shiva Raj Acharya et al.^[19, 20] Also, majority of participants were willing to take second dose of vaccine even after having side effects and will encourage the family members and friends to take the vaccine. Kishore Jugal found the similar findings.^[21] Azharuddin Sajid Syed Khaja et al also found no significant association between various variables and attitude.^[22]

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Conflicts of Interest: None

Table 1: Gender wise distribution of study participants as per each knowledge variable

Knowledge Variables	Male	Female	Total	Chi Sq. d.f. P Value
Do you know that you have come for COVID vaccine?				0.3222*
Yes	286 (56.64)	219 (43.37)	505 (99.61)	
No	2 (100.00)	0 (0.00)	2 (0.39)	
Don't Know	0 (0.00)	0 (0.00)	0 (0.00)	
How many doses of vaccine will be given?				0.506 1 0.476
One	29 (61.70)	18 (38.30)	47 (9.27)	
Two	242 (56.54)	186 (43.46)	428 (84.42)	
Don't Know	17 (53.13)	15 (46.88)	32 (6.31)	
Are there any Side effects of this vaccine?				0.088 1 0.7662
Yes	159 (57.40)	118 (42.60)	277 (54.64)	
No	90 (61.22)	57 (38.78)	147 (28.99)	
Don't Know	39 (46.99)	44 (53.01)	83 (16.37)	

Is it necessary to wear Mask, practice repeated hand washing/sanitization and social distancing even after vaccination?				0.3260*
Yes	286 (56.97)	216 (43.03)	502 (99.01)	
No	2 (100.00)	0 (0.00)	2 (0.39)	
Don't Know	0 (0.00)	3 (100.00)	3 (0.60)	
Can COVID – 19 infection occur even after vaccination?				0.02593 1 0.87206
Yes	194 (56.56)	149 (43.44)	343 (67.65)	
No	43 (55.13)	35 (44.87)	78 (15.38)	
Don't Know	51 (59.30)	35 (40.70)	86 (16.97)	

* Fischer's Exact test is applied.

Table 2: Gender wise distribution of study participants as per each Attitude variable

Attitude Variables	Male	Female	Total	Chi Sq. d.f. P Value
Do you feel that the Vaccine is safe?				1.536 1 0.215213
Yes	264 (56.05)	207 (43.95)	471 (92.90)	
No	6 (85.71)	1 (14.29)	7 (1.38)	
Don't Know	18 (62.07)	11 (37.93)	29 (5.72)	
Do you feel that the Vaccine is efficient?				1.04 1 0.307
Yes	258 (56.09)	202 (43.91)	460 (90.73)	
No	7 (100.00)	0 (0.00)	7 (1.38)	
Don't Know	23 (57.50)	17 (42.50)	40 (7.89)	
Will you take the next dose of vaccine even if you have some side effects after the first dose?				0.567 1 0.4514
Yes	267 (57.30)	199 (42.70)	466 (91.91)	
No	10 (55.56)	8 (44.44)	18 (3.55)	
Don't Know	11 (47.83)	12 (52.17)	23 (4.54)	
Will you encourage your eligible family members and friends to get vaccinated?				0.1853*
Yes	283 (56.49)	218 (43.51)	501 (98.82)	
No	4 (80.00)	1 (20.00)	5 (0.97)	
Don't Know	1 (100.00)	0 (0.00)	1 (0.21)	

* Fischer's Exact test is applied.

Table 3: Gender wise distribution of study participants as per each Practices variable

Practices Variables	Male	Female	Total	Chi Sq. d.f. P Value
Have you registered yourself for the vaccine?				0.0304 1 0.8613
Yes	65 (57.52)	48 (42.48)	113 (22.29)	
No	223 (57.03)	168 (42.97)	391 (77.12)	
Don't Know	0 (0.00)	3 (100.00)	3 (0.59)	
Are you scared to take this vaccine?				0.4754 1 0.4905
Yes	12 (50.00)	12 (50.00)	24 (4.73)	
No	276 (57.14)	207 (42.86)	483 (95.27)	
Don't Know	0 (0.00)	0 (0.00)	0 (0.00)	
Have you taken the vaccine?				
Yes	288 (56.80)	219 (43.20)	507 (100.00)	
No	0 (0.00)	0 (0.00)	0 (0.00)	
Don't Know	0 (0.00)	0 (0.00)	0 (0.00)	
Practices followed after 1st Dose of vaccine: (n=102, M=59, F=43)				
Do you wear Mask?				-- 1 0.5784*
Yes	58(57.43)	43(42.57)	101(99.02)	
No	1(100.00)	0(0.00)	1(0.98)	

Do you practice repeated hand sanitization?				-- 1 0.5784*
Yes	58(57.43)	43(42.57)	101(99.02)	
No	1(100.00)	0(0.00)	1(0.98)	
Do you avoid crowded places?				-- 1 0.5556*
Yes	49(55.06)	40(44.94)	89(87.25)	
No	10(76.92)	3(23.08)	13(12.75)	

* Fischer's Exact test is applied.

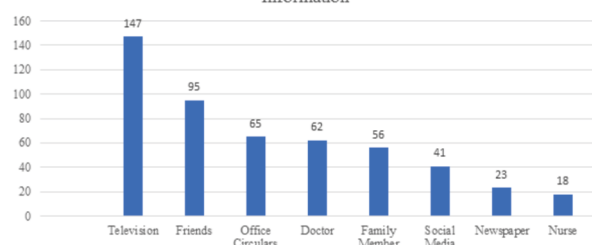
Table 4: Distribution of study participants as per the mean score of Knowledge and Attitude

Variable	Knowledge			Attitude		
	Mean	SEM	P value	Mean	SEM	P value
Age			0.006			0.541
<45 yrs	4.21	0.063		3.77	0.039	
>= 45 yrs	3.93	0.064		3.73	0.038	
Gender			0.996			0.987
Male	4.05	0.061		3.72	0.040	
Female	4.05	0.069		3.77	0.061	
Religion			0.270			0.075
Hindu	4.04	0.050		3.74	0.031	
Buddhist	4.28	0.130		3.79	0.071	
Other	3.9	0.176		3.77	0.076	
Occupation			0.004			0.491
Professional	4.13	0.113		3.71	0.073	
Skilled	4.17	0.083		3.77	0.045	
Unskilled	3.59	0.156		3.63	0.105	
Others	4.05	0.066		3.76	0.042	
Education			0.731			0.946
Graduate & above	4.09	0.066		3.76	0.040	
HSSC & SSC	4.05	0.068		3.74	0.041	
Others	3.91	0.169		3.70	0.100	
Marital Status			0.072			0.326
Married	3.99	0.056		3.73	0.034	
Others	4.2	0.075		3.79	0.046	

Table 5: Multiple regression analysis predicting knowledge towards COVID vaccine

Variables	Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	Beta			Lower Bound	Upper Bound
Age	-0.125	-2.819	0.005	-0.439	-0.078
Occupation	-0.065	-1.457	0.146	-0.218	0.032

Fig.1. Distribution of study participants as per their Source of Information



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