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Original Research Article

Knowledge and attitude of people above 18 years regarding COVID-19 vaccination in a rural area of Kerala

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ABSTRACT

Background: The COVID vaccination programme in conjunction with other control measures, are needed to control the COVID-19 pandemic. The mass vaccination with COVID vaccines, will help to increase the herd immunity. This study is an attempt to assess the knowledge and attitude of the adult population of a panchayat area of Thrissur district of Kerala towards COVID-19 vaccination and socio-demographic determinants associated with it.
Methods: We have done a cross-sectional study among 350 study participants selected by cluster sampling technique from a panchayat area of Thrissur district of Kerala and the data was collected, using a pretested semi structured questionnaire. The knowledge and attitude were assessed by proportion and association of socio-demographic determinants was found out using 't' test and 'ANOVA' test.
Results: The result obtained, showed 94.3% of persons responded that there is a vaccine for preventing COVID and 85.2% were aware that Covishield and Covaxin were the vaccine freely available. The 78.3% respondents knew that there should be 84 days between the doses of Covishield and 77.1% knew that 28 days for Covaxin. The 100% respondents had attitude to take the vaccine and 99.1% were ready to continue COVID prevention measures even after vaccination. As per this study, younger age (p=0.04) and religion (0.000) had an association with knowledge.
Conclusions: The high level of knowledge and a100% attitude towards COVID vaccination may be due to high political will and accountability of the governments towards it. The places with low acceptance rate can be able to model on it.

Keywords: COVID-19 vaccination, Knowledge, Attitude, Association

INTRODUCTION

Coronavirus disease (COVID-19) is an infectious disease that has spreads rapidly throughout the world. In March 2020, the world health organization (WHO) declared the COVID-19 outbreak as a pandemic.[1]3COVID-19 is caused by a newly discovered corona virus now named as the severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). The most common signs of infection with COVID-19 include fever, dry cough, and shortness of breath or difficulty in breathing, and tiredness or fatigue.[2]

Most people (~80%) experience mild disease and recover without requiring hospitalization. However, globally, around 20% of people who contract COVID-19 become more seriously ill and have trouble in breathing. In more severe cases, the infection can cause pneumonia, severe acute respiratory syndrome, kidney failure and even lead to death.[3]

So, for the effective control of COVID-19 social distancing, face mask use and sanitizer use have to be ensured. In addition to that COVID-19 vaccination has started. There are now several vaccines that are in use in

the world against COVID-19. The first mass vaccination programme started in early December 2020 and as of and as of 15 February 2021, 175.3 million vaccine doses have been administered. At least 7 different vaccines (3 platforms) have been administered.[4] India began administration of COVID-19 vaccines on 16 January 2021. As of 13 October 2021, India has administered over 964 million doses overall, including first and second doses of the currently-approved vaccines. India initially approved Oxforda AstraZeneca vaccine (manufactured under license by Serum institute of India under the trade name Covishield) and Covaxin (a vaccine developed locally by Bharat Biotech). They have since been joined by the Sputnik V (manufactured under license by Dr. Reddy's laboratories, with additional production from Serum institute of India being started in September, Moderna vaccines, Johnson and Johnson vaccine and ZyCoV-D (a vaccine locally developed by Zydus Cadila) and other vaccine candidates undergoing local clinical trials.[5]

The acceptance and hesitancy are largely determined by people's knowledge, attitude, practices and concerns regarding the safety, efficacy, risks and benefits associated with the COVID-19 vaccination program.[6] Some western studies have assessed people's opinion regarding the vaccination program before the introduction of the vaccine using semi-structured surveys.[7-10] Over 80% of the population of India have a positive response for getting anti COVID shots. India has one of the lowest vaccine hesitancies in the world. Vaccine centers in India have witnessed large number of people willing to get COVID vaccine resulting in overcrowding and mismanagement. In a study conducted in west India, knowledge, attitude, and practice (KAP) of the local population towards the COVID-19 vaccine was critical to understand the epidemiological dynamics of disease control, and the effectiveness, compliance, and success of the vaccination program.[11]

Kerala is a state with high literacy, so the knowledge and attitude of the persons towards COVID vaccination may be high. As per the statistics of Oct 13 more than 93% were vaccinated against COVID-19. Even then not of much study taken place in Kerala to evaluate knowledge and attitude of persons towards COVID-19 vaccination.[12]

This study is an attempt to assess knowledge and attitude of the adult population of a panchayat area of Thrissur district of Kerala towards COVID-19 vaccination and socio-demographic determinants associated with it.

METHODS

We had done a cross-sectional study among the adult population of Mulamkunnathukavu panchayat area of Thrissur district of Kerala during the month of October 2021. The sample size was calculated using the formula $4pq/l^2$. Proportion of persons ready to accept vaccine were taken as 63%[13] and relative precision was taken as 15% of proportion (9.5) for estimating sample size. The Sample size was obtained at 105 and it was multiplied by 2 for the design effect. The desired minimum sample size was 210 and we took 350 study participants. As cluster sampling technique was used to select the sample, 14 clusters were selected from 14 ward area of that panchayat; each cluster contained 25 participants. We excluded those who are not ready to give consent as well as those who couldn't comprehend.

We conducted an interview with help of data collectors, using pre-tested and validated semi-structured questionnaire. We collected the socio demographic details and knowledge and attitude of study participants. The knowledge and attitude were assessed using 6 questions for each, and each question is scored 0 and 1. More than 1 correct answer containing questions, at least 1 correct answer was given full score. The maximum score in both sections was 6 each. The data collectors were provided with N95 mask, and sanitizer. Strict COVID protocol was followed during entire data collection.

The data collected were coded and entered in Microsoft excel and analysis was done in SPSS software. The estimation of COVID-19 vaccination knowledge and attitude was done with proportion and association between socio-demographic determinants and mean score of knowledge was done using "t" test and ANOVA test.

Ethical consideration

Before starting the study, approval was obtained from research committee and ethical committee of medical college Thrissur. Informed written consent was obtained from each informant and assurance were given to them that confidentiality would be maintained in all aspects, pertaining to the study.

RESULTS

The study was conducted among the 350 participants of above 18 years from a panchayat area of Thrissur district of Kerala. Among the study participants 65.4% were below 45 years and minimum age was18 and maximum was 75. Mean age (SD) was 39.38 (11.74) years. Only 7 participants belonged to Muslim religion. Majority of participants were living in nuclear families (73.1) and 51.5% reported, that they were not having any job or housewives. The 42 (12%) persons had co-morbidity, in that 15 had diabetes mellitus, 13 had hypertension.

Knowledge

Table 1 shows that 330(94.3%) persons responded that there is a vaccine for preventing COVID-19 and 85.2% were aware that Covishield and Covaxin were the vaccines given by the government, free of cost at public hospitals. Among the study participants 331 knew there were 2 doses for this vaccine. The knowledge of time gap between the doses of Covishield and Covaxin, they had

confusion because both have different time interval between doses. Regarding the effectiveness of the vaccine 32.6% didn't know about it. The mean score (SD) of knowledge was 4.008 (0.96).

Table 1: Knowledge regarding COVID-19 vaccination among study participants.

Questions	Response	Number (%)
Availability of vaccination for COVID-19 prevention	Yes	330 (94.3)
	No	20 (5.7)
What are vaccines available freely for COVID-19 in India?	Covishield and Covaxin	298 (85.2)
	Covishield	33 (9.4)
	Covaxin	10 (2.9)
	Other combinations	9 (2.6)
Number of doses of COVID-19 vaccine Covishiled	2 doses	331 (94.6)
	Single dose	13 (3.7)
	Don't know	6 (1.7)
The time gap between 2 doses of Covishield (Days)	>84	274 (78.3)
	28	47 (13.4)
	21	Nil
	Don't know	29 (8.3)
The time gap between 2doses of Covaxin (Days)	28	270 (77.1)
	42	34 (9.7)
	14	10 (2.9)
	Don't know	36 (10.3)
The effectiveness of COVID-19 vaccination?	40-60%	61 (17.4)
	70-90%	175 (50)
	Don't know	114 (32.6)

Table 2: The association of knowledge with socio-demographic determinants.

Variables	Frequency distribution (%)	Mean score of knowledge	P value from t test"/ANOVA
Age (years)			
Up to 45	231 (66)	4.0823	0.046
Above 45	119 (34)	3.8655	
Sex			
Male	146 (47.2)	4.1	0.228
Female	204 (52.8)	3.97	
Religion			
Hindu	206 (58.9)	3.8204	0.000
Christian	137 (39.1)	4.2701	
Muslim	7 (2)	4.4286	
Family type			
Joint family	94 (26.9)	3.87	0.251
Nuclear family	256 (73.1)	4.02	
Family income (rupees), n=317			
Up to 5000	189 (59.6)	4.0543	0.887
5001-10000	66 (20.8)	4	
Above 10000	62 (19.5)	4	
Education			
Up to primary	54 (15.4)	3.8519	0.27
Up to higher secondary	183 (52.3)	3.9945	
Degree and above	113 (32.3)	4.1062	
Occupation			
No work or housewife	180 (51.5)	3.9278	0.247
Going for other work	140 (40)	4.0786	
Office work	30 (8.5)	4.1667	
Co-morbidity			
Yes	41 (11.7)	3.878	0.357
No	309 (88.3)	4.0259	

P<0.05=there is significant difference.

Table 2 depicts association of mean score of knowledge with socio-demographic determinants. It has shown that, those in the age group less than 45 have more knowledge and this association was statistically significant (p=0.04). in addition to that religion was found to have a significant association with knowledge. But in this study, no other socio-demographic determinants were found out. Regarding knowledge and occupation, it was found that, those going to office for work had more knowledge than others but it was not statistically significant.

Attitude

When we analysed, regarding the attitude of the study participants, it was found that 100% of study participants had a positive attitude for taking the vaccine. All study participants, were ready to give vaccine to their family members as well as all were ready to continue COVID prevention methods, even after COVID vaccination except three. Only 9 persons told they were not ready to take second dose of vaccine in case they experience discomfort after the first dose of vaccination and among the respondents 30% already completed their 2 doses. Even though 3 participants told they are not inclined to continue COVID prevention methods, all study participants were ready to motivate their family members for COVID prevention methods as well as encourage others for COVID vaccination.

DISCUSSION

In this study, 94.3% respondents answered that COVID vaccination could prevent COVID-19 infection and rest of them are also aware of vaccination, as all participants had attitude for vaccination. After the start of COVID-19 vaccination, its awareness may have increased. Our result is entirely different from the result got in the study conducted in urban slums of Mumbai by Bharti et al.[11] In that study also, only 2% didn't have a positive attitude towards vaccination but in our study the attitude was 100%. It has shown the acceptance of COVID-19 vaccination was very high in India. In a study in China, the COVID-19 vaccine acceptability rate was found to be more than 90%.[14] As per El-Elimat et al study the public acceptability of COVID-19 vaccines was fairly low (37.4%) in Jordan.[15]

Regarding the second dose of vaccination 94.7% were aware of it, Ahemmad et al study also pointed out that 64% of study participants aware of 2 dose of vaccination and another study conducted in Greece, where the majority of subjects (88.3%) had good level of knowledge about second dose vaccine against COVID-19.[16,17]

The study participants were having a little confusion regarding the time gap of the Covishiled and Covaxin. The correct response in Covishield was 78.3% and Covaxin (77.1%). It may be due to government of India having changed the time gap between the doses of Covishield two times. Initially the time gap was 4 weeks, then it was changed to 6-8 weeks and later to 84 days.[18]

The effectiveness of vaccine was in a doubt and around 32% told they don't know the effectiveness of the vaccine, but because of the panic situation all were ready to take vaccination.

In our study the age had an association with knowledge of vaccination, younger age had a better mean score of knowledge. Bharati et al study also found out that younger age had better knowledge regarding vaccine availability than older people as well as the acceptance of vaccine is also more in younger age group, but opposite result was got in the study done by Kumari et al.[10] There was an association between religion and knowledge but no other study had this result. Another study shows that the knowledge about vaccines against COVID-19 was affected by the factors like asymptomatic with COVID-19, household income, high-risk of COVID-19, age, belief about vaccine, education level, and religion.[19]

Limitation

The level of knowledge was assessed based on 6 questions only. We have not assessed, the practise of the persons, towards COVID vaccination even though they had a positive attitude, the practise depends on availability and access to vaccination.

CONCLUSION

In our study, it has been found that the knowledge and attitude of the persons regarding COVID vaccination were adequate even though the vaccine development and vaccination process was done in a quick succession. We are of the view that social media and newspapers played a good role in dissemination of knowledge. Usual anti-propaganda against the vaccines doesn't affect the COVID vaccination and all were motivated and ready to motivate others too. In Kerala political/ community leaders' involvement, may have contributed to high level of knowledge and attitude of persons towards vaccination. The states with low acceptance rate may be able to model on it.

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