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Original Research Article

Study on perception of Omicron, attitude, and acceptance of COVID-19 vaccine among first year MBBS students in a medical college of Assam

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ABSTRACT

Background: The SARS-CoV-2 new variant B.1.1529 known as a variant of concern (VOC) has become global concern since detected in 26th November 2021. Effective and safe COVID-19 vaccines have been approved for use since the end of 2020 and countries are actively vaccinated the different age group especially HCWs and other risk population. The present studies have been initiated to know the perceptions on new variant Omicron, knowledge and attitudes of COVID-19 vaccine and its acceptance among the first-year medical students in a tertiary care teaching hospital in a district of Assam.
Methods: An institutional based cross-sectional study was conducted among first year medical students from April to June, 2022 at FAAMCH, in Barpeta of Assam. By convenience sampling technique 116 students were participated and data were collected using self-administered structured questionnaires regarding perception of SARS-CoV2 new variant Omicron, their knowledge and attitudes and acceptance on COVID-19 vaccination. Data were analysed in SPSS-16 version.
Results: Among the study participants 95.68% were aware of new variant omicron, 29% were on diagnostic test, 94.83% on mode of transmission and 100% on precautionary measures. 100% study participants were aware on COVID-19 vaccine and 97% have taken two doses of COVID-19 vaccines.
Conclusions: The study showed that the 111 (95.68%) study participants were aware about new variant Omicron. The level of knowledge on COVID-19 vaccine was 78 (67.24%) average, attitude and acceptance level was 103 (88.79%) found to be higher among the study participants.

Keywords: Acceptance, COVID-19 vaccine, Omicron, SARS- CoV-2

INTRODUCTION

The Coronavirus disease 2019 (COVID-19) has emerged as a global pandemic. The disease has infected over 421 million people globally, with over 5.8 million deaths from coronavirus disease in 2019. The new SARS-CoV-2, variant of concern (VOC) (named initially B.1.1.529), variant Omicron was first reported to WHO from South Africa on 24 November 2021. Omicron cases are increasingly being reported from countries outside of South Africa and also reported from many countries including India. The new variant reported spreading faster than the delta variant in countries with documented community transmission.[1] The risks of hospitalization, intensive care unit admission and mortality though reported lower comparatively with other variant, but found to be affecting the people who are not fully vaccinated. The COVID-19 vaccination campaign in India began on 16th January, 2021 as a part of control measure against COVID-19. Mass vaccination against COVID-19 has emerged as a key preventive strategy. The COVID-19 vaccination in India had started with a focus on frontline health care workers and later, in a phased manner drive extended to senior citizens and aged more

than 45 years with co-morbidities. As the health care professionals were the first groups to receive COVID-19 vaccine, their attitudes on acceptance and factors related to the vaccination also important among the medical students. Immunization programmes are only successful when there is a high acceptance rate of the vaccine. While vaccination is effectively recognized as an effective way to reduce and eliminate the burden of COVID-19, its effectiveness depends on the population willingness to be vaccinated with COVID-19 vaccine. Recent studies from other countries have identified many factors that influence the acceptance of the COVID-19 vaccination.

So, the present study has been initiated with the aim and objectives to know the perceptions about the SARS-CoV-2 Omicron variant among the first year UG medical students. To know the knowledge, attitudes and acceptance of COVID-19 vaccines among the students.

METHODS

A cross-sectional study was conducted among first year medical students at FAAMC and H, Barpeta district of Assam from April to May 2022. By convenient sampling method a total of 116 students were participated in the study. Those who were absent on the day of survey excluded from the study. Institutional ethics committee permission was obtained for this study. Data were collected by questionnaire method from the study participants. Informed consent was obtained from the participants.

Data collection tools

The data were collected by predesigned pretested questionnaire. The questionnaire consisted of four sections- a) demographic details, b) perceptions on Omicron, c) knowledge on COVID-19 vaccine, d) attitudes and acceptance on COVID-19 vaccine. Students were also asked about their vaccination status and positive history on COVID-19 infection. For section c (knowledge), participants were given two options, yes/no responses where one mark for correct and zero for no response. The level of knowledge was assessed assuming more than >75% categorized good, 50-75% as average and <50% as poor. Section d consist of questions on statements regarding different aspects of COVID-19 vaccination with five options strongly agree, agree, neither agree nor disagree, disagree and strongly disagree.

Data analysis

All data obtained was coded and entered in Microsoft excel sheet and analysed using the statistical software Statistical Package for Social sciences (SPSS 16.0). Tests were applied percentages, Chi-square/Fisher exact test.

RESULTS

A total of 116 first year medical students had participated in the study.

Demographic details are shown in Table 1 where age group 17-25 years, male 68 (58.62%) and female 48 (41.37%); 75 (64.65%) rural; 16 (13.79%) semi-urban; 39 (33.62%) from urban area. About 49 (42.24%) participants reported being tested for COVID-19 and 21 (18.10%) had given positive family history for COVID-19 infection. All (100%) participants had received two doses of COVID-19 vaccine.

Table 2 shows that all the study participants had taken COVID-19 vaccine (Covishield/Covaxin), 113 students have completed both two doses of COVID-19 vaccine. Regarding COVID-19 infection; only 10 (8.62%) had infected with mild symptoms. 95 (81.89%) had given history of family members/friends infected with COVID-19 infection.

Table 1: Demographic information.

Gender/religion	Place of residence			
	Rural	**Semi-urban**	**Urban**	**Total**
Female				
Christian	1	0	2	3
Hindu	8	5	19	32
Muslim	6	3	4	13
Total	15	8	25	48 (41.79%)
Male				
Hindu	14	5	14	33
Muslim	31	3	1	35
Total	45	8	15	68 (58.62%)
Grand total	60 (51.72%)	16 (13.79%)	40 (34.48%)	116

Table 2: Vaccination status of study participants.

Regarding vaccination status	**Doses taken**	**N (%)**
	Completed three doses	8 (6.89)
	Completed two doses	113 (97.41)
	1st dose	All (100)
Vaccine (Covaxin/Covishield)	Covaxin	24 (20.69)
	Covishield	92 (79.31)
COVID-19 suspects	Attacked by COVID-19 with severe symptom	Nil
	Had COVID-19 with mild symptoms	10 (8.62)
	Had suspected symptoms but did not verify with doctor	8 (6.89)
	Not attacked by COVID-19	98 (84.48)
	Family members or friends infected with COVID-19	95 (81.89)
COVID-19 test	COVID-19 test done by	113 (97.41)
	COVID-19 test not done by	3

Table 3 shows about the perception on Omicron among the participants. Among 116 participants, 111 (95.69%) had aware about the new variant Omicron, detection 29 (25%), 60 (51.72%) about first reported country; 110 (84.83%) about transmission and 116 (100%) known about the precaution against the Omicron.

Table 3: Perception/awareness on Omicron among the study participants.

Perception/awareness on Omicron	Yes (%)	No (%)
Aware of Omicron	111 (95.69)	5 (4.3)
Can omicron can be detected by current SARS-CoV2 PCR diagnostic test	29 (25)	87 (75)
Country first reported omicron	60 (51.72)	56 (48.27)
COVID-19 transmission	110 (94.83)	6 (5.17)
COVID-19 precaution	116 (100)	0

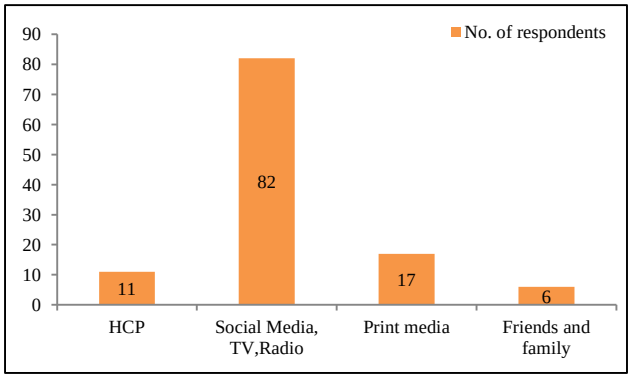

Figure 1: Sources of information on COVID-19 vaccination among the study participants.

The present study found that about 66 (56.89%) participants had information from social media, 17 (14.65%) from print media, 15 (12.93%) from TV, 11 (9.48%) from health care professionals, 6 (6.1%) from friends and family.

Table 4: Association between knowledge and gender.

Gender	Knowledge			Total
	Good	Average	Poor	
Male	24	41	3	68
Female	11	37	0	48
Total	35	78	3	116

Our null hypothesis was that there is no association between level of knowledge and gender. Using Fishers exact test, p value- 0.1016 (>0.05) which was not significant. This means there was no association regarding knowledge on omicron and gender of the respondents.

Table 5: Association between knowledge and residence.

Residence	Knowledge			Total
	Poor	Average	Good	
Rural	3	39	18	60
Semi-urban	0	11	5	16
Urban	0	28	12	40
Total	3	78	35	116

Our null hypothesis was that there is no association between level of knowledge and place of residence of the respondents. Using Fisher's test, p value- 0.7699 (>0.5); not significant.

Table 6: Knowledge on COVID-19 vaccine among the study participants.

Aware/knowledge on COVID-19 vaccine	Yes (%)	No (%)
1. Aware of COVID-19 vaccine	116 (100)	0
2. Which pharmaceutical company are developing vaccines in India?	49 (42.24)	67 (57.75)
3. Can you name the vaccine available in India?	107 (92.24)	9 (7.75)
4. Are you aware of common side effects of COVID-19 vaccine?	102 (87.93)	14 (12.06)
5. Are you worried about side effects would interfere with daily activities?	74 (63.79)	42 (36.20)
6. How much duration is required between two doses of vaccine?	98 (84.48)	18 (15.51)
7. What type of vaccine is Covishield/ Covaxin?	42 (36.20)	74 (63.79)
8. What is the recommended storage temperature of covid-19 vaccine?	26 (22.41)	90 (77.58)
9. COVID-19 vaccine could help to reduce severe COVID-19 disease?	101 (87.06)	15 (12.93)
10. After receiving 2nd dose of vaccine, the protective immunity response can be seen after how many weeks?	31 (26.72)	85 (73.27)

Table 7: Factors that influencing to take decision to get the COVID-19 vaccine.

I am concerned	Strongly disagree (%)	Disagree	Neither agree nor disagree	Agree	Strongly disagree
COVID-19 vaccine might not be available to me	17 (14.65)	48 (41.37)	25 (21.55)	23 (19.82)	3 (2.5)
I might have immediate serious side effect after taking covid-19 vaccine	10 (8.62)	51 (43.96)	30 (25.86)	46 (39.65)	6 (5.1)
COVID-19 vaccine was rapidly developed and approved	9 (7.75)	32 (27.58)	23 (19.82)	46 (39.65)	6 (5.1)
I might have unforeseen future effects of the Covid-19 vaccine	3 (2.5)	37 (31.89)	43 (37.06)	31 (26.72)	2 (1.72)
COVID-19 vaccine may be faulty or fake	22 (18.96)	57 (49.13)	32 (27.58)	4 (3.44)	1 (0.86)
COVID-19 vaccine is being promoted for commercial gains of pharmaceutical companies	17 (14.65)	57 (49.13)	32 (27.58)	9 (7.75)	1 (0.86)
After getting covid-19 vaccine I do not need to follow preventive measures such as wearing a mask, use of sanitizer and social distancing	56 (48.27)	48 (41.37)	10 (8.62)	2 (1.72)	0

Knowledge on COVID-19 vaccine

All the study participants were aware about COVID-19 vaccine availability in the country. The name of pharmaceutical company developing vaccine, only 49 (42.24%) replied "yes" and 67 (57.75%) "do not know". The knowledge about COVID-19 vaccine, 102 (87.93%) were aware about side-effects.

Responses towards (attitudes and factors influencing to get) COVID-19 vaccine among the study participants

In the present study, 100 (86.20%) out of 116 participants had reported to accept the COVID-19 vaccination, on availability of vaccine, responses 105 (90.51%) willing to get the vaccine; attitudes towards receiving a COVID-19 vaccine 113 (97.41%) positive responses against 3 (2.58%) (Figures 2 and 3).

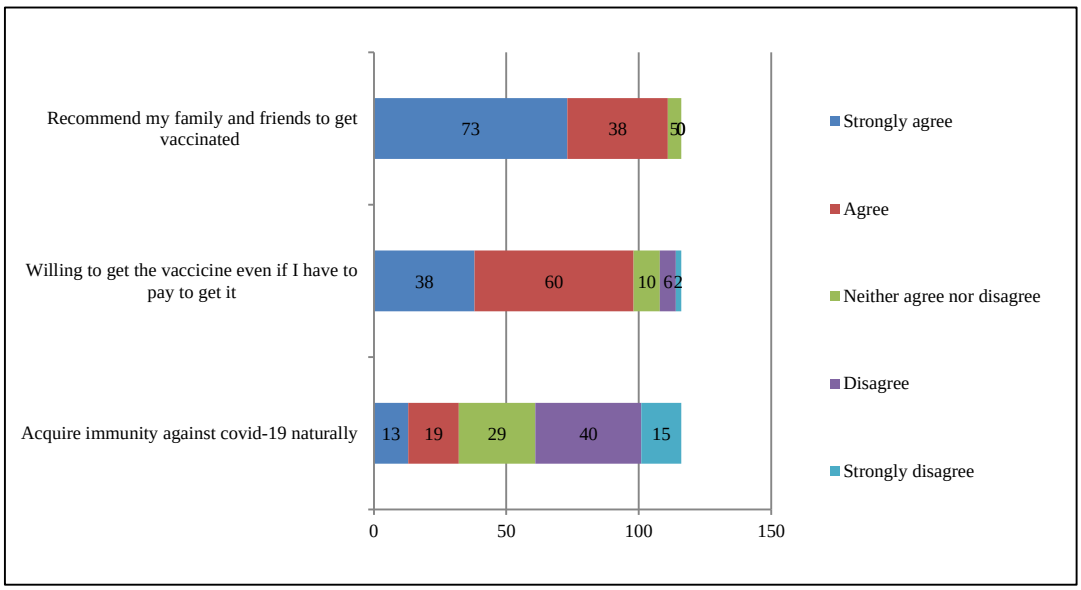

Figure 2: Attitudes on COVID-19 vaccination (when my turn of vaccination comes).

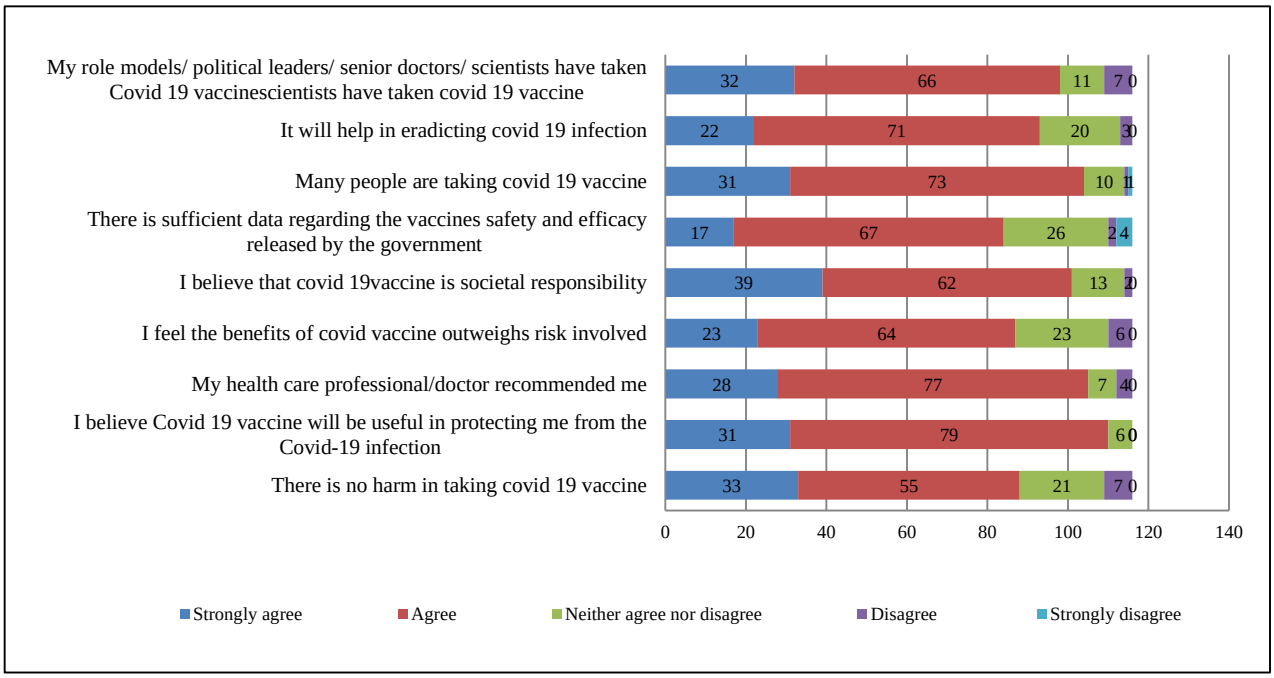

Figure 3: Attitudes on COVID-19 vaccination (statements regarding I will take/have taken because).

DISCUSSION

The present study was conducted among the first-year medical students in a medical college of Assam. The participant 116 (100%) were of the SARS-CoV-2 Omicron variant, source of information found to be from national TV 68 (58.62%), 38 (32.75%) social media and 10 (8.62%) others. In the present study, the study participants 29 (25%) agreed on detection test by current SARS-CoV-2 PCR whereas 87 (75%) were not aware on detection test. In a study done by Bhagavathula et al, mentioned, that the COVID-19 rapid test was not reliable for detecting Omicron 40%.[2] The knowledge about COVID-19 vaccine among the study participants were 100% in our study, 92% by Subramaniam et al whereas by Zhang et al showed 78.6% participants had knowledge about the vaccine, 90% by Azimi et al in Kabul.[3-5] The sources of information about COVID-19 vaccine was 11 (9.48%) from HCP, 66 (56.89%) social media, 15 (12.93%) TV, 17 (14.65%) print media, 1 (0.86%) radio and 6 (5.17%) from friends and family. By a study done by Abed et al revealed that 96.5% of study participants were aware on SARS-CoV-2 variant and 85% of students had received at least one dose of approved vaccine

whereas in the present study all study participants (100%) had taken one dose of COVID-19 vaccine, 113 (97.41%) had taken two doses of COVID-19 vaccine.[6] In our study around 103 (88.79%) were concerned about willingness to take vaccine for self and family members. But by Kishore et al revealed in their study that only 70% of study participants were willing to take vaccine and 49% believed that vaccination against COVID-19 could protect them, whereas present study showed 109 (93.96%) participants were willing to accept the vaccination.[7] By Sayed et al found 83.43% vaccine acceptance among their study participants.[8] In a study done by Zeynep et al found 64.5% study participants intended to be vaccinated, 65.7% had information about COVID-19 vaccine, but 57.7% acceptance rate for vaccination by Azimi et al.[5,9] Regarding attitudes and beliefs on COVID-19 vaccination, in the present study, 31 (26.72%) strongly agreed, 79 (68.10%) agreed whereas by Zhang et al, 58.64% study participants believed protection against COVID-19; 66.5% by El-Elimat et al; 113 (97.41%) believed COVID-19 vaccination as societal responsibility in our study whereas Zhang et al found to be 88.36% responsibility to receive the vaccine to protect others.[4,10] On availability of vaccine, present study participants, 103 (88.79%) would to get the vaccine against 13 (11.20%) to get the vaccine. Present study showed that 103 (88.79%) of study participants a positive response towards COVID-19 vaccination. The findings were found be different from Mose et al 84.5%, 87.8% by Delgado-Gallegos et al, in Ethiopia (58.8%) in Bangladesh (78%), by Jeeragyal et al (74.68%), only, 60.2% in a study done by Asif et al.[11-16] The vaccine acceptance among different studies also shown variation such as by Tavolacci et al mentioned 76% willingness to get among medical students compared to other health care students.[17] The findings from Shah mentioned in their study about 34.9% acceptance, 57.7% by Azimi et al in Kabul, 61.16% by Sultan et al 84% willingness to take vaccine, 52.9% by Muhammad et al, in Oman 57.7% whereas the findings were different by Sirikalyanpaiboon et al.[18-22]

The present study was institution based cross-sectional, the data and collected information could not be envisaged as generalized findings.

CONCLUSION

The concluded that the perceptions of Omicron, new variant SARS-Cov2 was satisfactory among all the study participants. The knowledge on COVID-19 vaccine, their attitudes towards COVID-19 vaccination was also exceptionally higher among the study participants. The most important influencing factors accepting vaccination were found to be effective as preventive measure.

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