Short communication

COVID-19 Vaccination status amongst college students and staff during offline classes

Abstract:

Aim: To understand the status of COVID-19 vaccination amongst students and staff during offline classes. **Study design:** Questionnaire with open ended questions was sent to participants through social media. **Place and Duration of Study:** The present study was conducted in Bhavan's Vivekananda College of Science, Humanities and Commerce, Sainikpuri, Secunderabad from 12th-15th September, 2021. **Methodology:** Questionnaire was sent to all staff members, second and third year students of undergraduate and first year students of post graduate programmes who were attending classes during the study period. Total 1263 responses were received out of approximately 2500 students. **Results:** The survey results have shown that 1128 participants (89.3%) out of 1263 have received vaccination and out of them, 742 participants (65.78%) have received single dose of vaccine and 386 (34.22%) participants have received two doses. Majority of them have received Covishield (74.5%), followed by Covaxin (24.11%).

Conclusion: The present study necessitates all educational institutions to conduct similar kind of studies to understand the current status of vaccination and safety measures taken by students and staff during Covid-19 pandemic during offline classes. This will help to keep the campuses safe and prevent further spread of infection to avoid third wave of corona virus.

Key words: COVID-19 Vaccination, College students, Types of vaccines, offline classes ~~Chi-square test, ANOVA~~.

Introduction:

Though strong measures were taken by India to contain the spread of COVID-19 through better diagnostics and treatment, actual solution will be provided by vaccines by enhancing immunity and containing the disease spread[1]. For all elements of COVID-19 vaccine administration in India, the Indian government has constituted a National Expert Group on Vaccine Administration for COVID-19 (NEGVAC) in April 2020[2].The Guidelines for National COVID Vaccination Program have been reviewed and revised on 21st June 2021 and states that vaccination will be prioritized as the following: Health care workers, front line workers, citizens above 45 years of age, citizens with second dose due, citizens 18 years and above. States/UTs may decide their own prioritization of vaccine schedule within the population group of citizens more than 18 years of age [3]. The eligible age for vaccination in India is currently 18 and above and this will surely benefit both undergraduate and postgraduate students as most of them fall in the age group of 18 - 23 years[3]. Approved COVID-19 vaccines provide a high degree of protection against getting seriously ill and dying from the disease, although no vaccine is 100% protective[4]. The safety and efficacy data from clinical trials of vaccine candidates are examined by Drug regulator of India and all the COVID-19 vaccines that receive license will have comparable safety and efficacy[5]. However, it must be ensured that the entire schedule of vaccination is completed by only one type of vaccine as different COVID-19 vaccines are not interchangeable. The Covid Vaccine Intelligence Network (CoWIN) platform is providing convenient and safe pre-booking of vaccination appointments[6]. India's drug regulator has approved emergency use of Covishield (the Oxford-AstraZeneca vaccine inn India) and Covaxin, manufactured by Bharat Biotech with restricted use[7].

To comprehend the vaccine confidence and hesitancy, various parameters like vaccine confidence-trust in the effectiveness and safety of vaccine, vaccination complacency where vaccination is not a deemed preventive action, vaccination convenience where availability is easy, are taken into consideration[8]. A survey in India in December, 2020 indicates that approximately 11,000 respondents revealed that 53% were unsure about taking the COVID-19 vaccine[9]. About 69% of respondents have mentioned in another citizen-survey platform in Delhi that there is no urgent need to get immunized and the key reasons for this kind of hesitancy included restricted information about side-effects, efficacy levels, and perceived high immunity levels [10]. As per available recent data on vaccination status in India at large, 42.2% people have

got at least one dose and fully vaccinated are only 13.5%[11]. In account of all the above information stated, there is a need to know the actual status of vaccination in the current scenario where colleges have opened for physical classes and urgent requirement for 100% vaccination.

The methodology for the study included a questionnaire with most of the questions contained pre-defined answers and circulated as Google form ~~to various colleges of city~~ and a total number of 1263 participants have responded to the questionnaire. The responses were analyzed by using statistical tools like Chi-square test, ANOVA one way classification and descriptive statistics through python.

The major observations from the study are: 1. Majority of participants are in the age of 18-20 years, followed by 21-23 years. 2. The students who have responded to the questionnaire are mostly undergraduate as percentage of students in colleges belong to undergraduate courses is more than in post graduate courses. 3. A good percentage of participants are vaccinated (89.3%), with majority of them received single dose (Table.1).

Table.1: Number and percentage indication of responses to various questions in the questionnaire, pertaining to vaccination in the colleges.

S. No	Parameters	Category	No. of responses	% of responses
1	Gender of participants	Male	525	41.6%
		Female	738	58.4%
2	Age of participants	**18-20**	**955**	**75.6%**
		21-23	216	17.1%
		24-26	15	1.2%
		27-30	0	0%
		31-40	24	1.9%

		41-50	23	1.8%
		51-60	17	1.3%
		>60	11	0.9
3	Semester of study /staff	First	51	4%
		Second	201	15.9%
		Third	501	39.7%
		Fifth	450	35.6%
		Staff	60	4.8%
4	Nature of participants	Undergraduates	1019	80.7%
		Postgraduates	184	14.6%
		Staff	60	4.8%
5	Number and % of participants vaccinated for COVID-19 during study period.	Vaccinated	**1128**	**89.3%**
		Not vaccinated	135	10.7%
6	Non-vaccinated participants planning to take it in near future.	Planning to take	**121**	**89.3%**
		Not Planning to take	14	10.7%
7	Dose of vaccine completed	**1st Dose**	**742**	**65.78%**
		2nd Dose	**386**	**34.22%**
8	Inhibitions about vaccine safety due to short time testing in clinical trails	Having inhibitions	344	27.2%
		Not having	919	72.8%

9	Type of vaccine taken based on choice or availability	Covaxin	272	24.11%
		Covishield	**841**	**74.55%**
		Sputnik V	8	0.7%
		Other	7	0.6%
12	Reasons for refusing the vaccine	Feeling as vaccine doesn't have any positive benefits	15	10.9%
		Person feeling as healthy	16	11.9%
		Anticipating as vaccination causes serious side effects	9	7%
		Fear as painful act	10	7.6%
		Vaccine not available	19	13.9%
		Does not want to reveal	66	48.7%

4. The percentage of study participants received two doses of vaccine is comparatively higher (34.2%) when compared to reported values of overall population in India at time of study[11]. 5. Participants have not shown much hesitancy towards vaccine administration in the current situation when compared to earlier studies[9,10]. 6. The percentage of hesitancy to receive vaccination is only 10.7% out of the non-vaccinated group and the reasons are not sounding any valid. 7. There is a strong association observed with respect of gender and age to type of vaccine received (Table.2).

Table 2: Association between Gender and Age to the type of Vaccine received

a. ~~Association between Gender and Type of Vaccine received using Chi-square test through Python~~

Null Hypothesis H_0: There is no Association between Gender and Type of Vaccine received **Alternative Hypothesis H_1:** There is an Association between Gender and Type of Vaccine received.

Gender	*Type of Vaccine received*					
	Covaxin	*Covishield*	*Sputnik V*	*Not vaccinated*	*Other*	*Grand Total*
Female	179	479	5	69	6	738
Male	93	362	3	66	1	525
Grand Total	272	841	8	135	7	1263

Gender Vs Type of Vaccine received	Test	p-value	Conclusion
	Chi-square	**0.017**	~~There is a significant association~~ Reject H_0

b. ~~Association between Age and Type of Vaccine received using Chi-square test through Python.~~

Null Hypothesis H_0: There is no Association between Age and Type of Vaccine received

Alternative Hypothesis H_1: There is an Association between Age and Type of Vaccine received

Row Labels	**Covaxin**	**Covishield**	**Sputnik V**	**Not**	**Other**	**Total**

				vaccinated		
18-20	195	**650**	6	97	7	955
21-23	55	138	1	22	0	216
24-26	3	9	0	3	0	15
27-30	0	2	0	0	0	2
31-40	9	11	1	3	0	24
41-50	6	17	0	0	0	23
51-60	4	13	0	0	0	17
Other	0	1	0	10	0	11
Grand Total	**272**	**841**	**8**	**135**	**7**	**1263**
Age Vs Type of Vaccine received	Test	p-value	Conclusion			
	Chi-square	**0.0000000020**	~~There is a significant association~~ Reject H_0			

~~8. No association was observed between Gender and Age in feeling any side effects after receiving vaccination apart from slight fever (data not shown).~~

The present study will help to understand the current status of vaccination in the country as a sample model and helps to identify unvaccinated students and staff and develop strategies to educate them to receive vaccination and achieve 100% vaccination in the college campus to make protective against COVID-19 infections, apart from following other COVID protocols. Many universities are checking the vaccination data of students joined and if once institutes have this data, it will be easier for them to manage students as and when they come to the campus or hostels[12].Vaccination status has no bearing on the admission process, and unvaccinated students are still permitted. A similar database for students under 18 will help in the similar lines for

higher secondary educational institutions, but the vaccination hasn't been rolled out yet for them, necessitates to be more careful in code of conduct against COVID-19.

Conclusion: Students and staff of all colleges in the country need to be well educated and motivated by conducting similar kinds of studies and promoting vaccination drives in the college campuses themselves to ensure 100% vaccination. Keeping campuses safe and preventing the spread of infection is the need of the day for any educational organization. It is advised to follow fresh recommendations of the National Expert Group on Vaccine Administration for COVID-19 (NEGVAC) regarding COVID-19 vaccination[13].

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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