



Myths and Perception of Management Students and Faculty towards Covaxin and Covishield Vaccines, Vijayawada, Andhra Pradesh

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Introduction: With the vaccination drive underway, it is important to dispel any myths about vaccines circulating in India. Lack of proper understanding and lack of exposure to the science behind the functioning of a vaccine people have different perceptions towards two vaccines i.e., Covishield and Covaxin, which are available in India. It is the need of the hour to dispel the myths and misconceptions around both vaccines.

Materials and Methods: A study has been undertaken to know the perceptions of management students and faculty towards Covaxin and Covishield vaccines, Vijayawada, Andhra Pradesh. A structured questionnaire is prepared and forwarded to around 2000 respondents of different Management colleges located in Vijayawada. A convenient sampling technique was adopted and got 412 responses and analyzed with SPSS software.

Results: Out of 412 respondents, majority 55.3%(228) respondents are believing that side effects are less with Covaxin, followed by 27.9%(115) respondents believes that no many differences between both brands, followed by 16.7%(69) respondents are thinking that side effects are less with Covishield in the study area.

Conclusions: It has been concluded that the Majority of the respondents in the study area are well versed with the dose, mode of vaccines. Inefficacy and effectiveness, side effects of vaccines, respondents are different opinions. The government has to promote the two vaccines and take steps to curtail the myths about these two vaccines through advertisements in electronic media, print media

Keywords: Covaxin; covishield; perception; management students; management faculty; myths.

1. INTRODUCTION

With the COVID-19 pandemic wreaking havoc in India, vaccination is one of the most effective defense mechanisms. Unless there is mass vaccination, the pandemic will continue to come in waves and create marvelous destruction. The government has to take all steps so that in India and everyone above the age of 18 years can now get vaccinated. There are primarily two vaccines being administered in India – Covishield and Covaxin [1].

1.1 The Benefits of Vaccination

The COVID-19 vaccines produce fortification against the disease, as a result of developing an immune response to the SARS-Cov-2 virus. Developing immunity through vaccination means there is protection against the illness and its consequences [2]. This immunity helps people fight the virus if exposed. Getting vaccinated may also protect people because if everyone is protected from getting infected and from disease, everyone is less likely to infect someone else. This is predominantly significant to save from harming people at increased risk for severe illness from COVID-19, such as healthcare providers, older or elderly adults, and people with other medical conditions [3,4,5].

1.2 Covid Vaccines in India

Currently, India has two vaccines. The first one is the AstraZeneca-Oxford vaccine, Covishield. It is being manufactured in India by the Serum Institute of India. The other one is the home-grown Covaxin, manufactured by Bharat Biotech. Both vaccines have a high victory rate and are given across the country. Both the vaccines are administered intramuscularly.

1.3 Properties of the Vaccines

1.3.1 Covaxin

According to the makers of Covaxin rigging the Whole-Virion Inactivated Vero Cell-derived

technology. Here, an inactive virus is injected into the recipient's body. While this virus is inept at infecting the person, it can train the immune system on how to fight an active virus if it enters the body. Covaxin has an efficacy of over 78%, which is pretty impressive in a large country like India.

1.3.2 Key features

COVAXIN® is incorporated with immune-potentiates, also known as vaccine adjuvants, which are added to the vaccine to increase and boost its immunogenicity. It is a 2-dose vaccination regimen given 28 days apart.

Covaxin is a vaccine with no sub-zero storage, no reconstitution requirement, and ready to use liquid presentation in multi-dose vials, stable at 2-8°C. Pre-clinical studies demonstrated strong immunogenicity and shielding efficacy in animal challenge studies conducted in hamsters & non-human primates. The vaccine received DCGI approval for Phase I & II Human Clinical Trials in July 2020.

A total of 375 subjects have been enrolled in the Phase 1 study and generated outstanding protection data without any reactogenicity. Vaccine-induced neutralizing antibody titers were observed with two divergent SARS-CoV-2 strains. The percentage of all the side effects combined was only 15% in vaccine recipients. In the Phase 2 study, 380 participants of 12-65 years were enrolled. COVAXIN® led to tolerable safety outcomes and enhanced humoral and cell-mediated immune responses. A total of 25,800 subjects have been registered and randomized in a 1:1 ratio to receive the vaccine and control in an Event-Driven, randomized, double-blind, placebo-controlled, multicentre phase 3 study.

COVAXIN® demonstrated 78% vaccine efficacy against mild, moderate, and severe COVID-19 disease. The efficacy against severe COVID-19 disease was 100%, with an impact on reduction in hospitalizations.

1.3.3 Covishield

The Covishield vaccine works on a different mechanism – the viral vector method. Here, an active but harmless virus is injected into the body. It impersonates the primary illness, and the body produces pathogens that keep the body geared up to fight the active, harmful COVID viruses in the future. It has an efficiency of approximately 82%.

The Covishield COVID-19 (AZD1222) (C19VAZ) vaccine, formerly known as ChAdOx1 nCoV-19, is made from a virus (ChAdOx1), a weakened version of a common cold virus (adenovirus). Genetic material has been added to the ChAdOx1 construct, which is used to make proteins from the SARS-CoV-2 corona virus called Spike glycoprotein (S).

On February 15, 2021, the World Health Organization (WHO) recommended the Serum Institute of India Pvt Ltd COVID-19 Vaccine (ChAdOx1-S [recombinant]) known as COVISHIELD. On March 19, 2021, the WHO confirmed that the AstraZeneca COVID-19 vaccine (Covishield) has a positive benefit-risk profile, with tremendous potential to prevent infections and reduce deaths worldwide [6,7].

With the vaccination drive underway, it is important to dispel any myths about vaccines circulating in India. Lack of proper understanding and exposure to the science behind a vaccine can prove harmful to the many individuals who are withholding themselves from getting vaccinated. At the same time, it is essential to educate oneself about these vaccines from the suitable sources [8,9,10,11].

Common side effects with Covaxin and Covishield:

On the arm where you got the shot

- Pain
- Redness
- Swelling

Throughout the rest of your body:

- Tiredness
- Headache
- Muscle pain
- Chills
- Fever
- Nausea

Some of Myths about covid-19 vaccines:

- 1) The COVID vaccine is unsafe because it was developed so quickly
- 2) The COVID vaccine renders people sterile.
- 3) COVID vaccine is not safe to get when you are menstruating.
- 4) The COVID vaccine has a micro-tracking chip
- 5) Covid vaccine will make me infertile
- 6) Vaccination may result in severe side effects or even death
- 7) Vaccine can weaken the immune system and infect you with the virus
- 8) The vaccine is unsafe for pregnant women
- 9) The virus has mutated and the vaccine won't work
- 10) Alcohol consumption should make vaccination ineffective
- 11) Non-vegetarian food should be avoided after vaccination

1.4 Need of the Study

While some doubts are caused by the fast-tracked approval process for the two vaccines, Covishield and Covaxin. There are also several myths about efficacy, effectiveness, side effects, and adverse effects of Covishield and Covaxin. The myths like Covaxin will create fewer side and negative effects, and Covishield is more effective and less price vice versa. The rumors and myths are causing people to wait to make their choice rather than taking the available vaccine. It was unfortunate that some people were spreading misinformation about vaccination.

It is time to curtail all myths about two vaccines, for that one should know the public's perceptions. Hence an attempt has been made to understand the perceptions of the educated and knowledgeable Management students and faculty towards Covaxin and Covishield vaccines, Vijayawada, Andhra Pradesh.

1.5 Objectives of the Study

- 1) To know about the faculty knowledge about Covaxin and Covishield vaccines
- 2) To study the perception of Management students and Faculty perception towards Covaxin and Covishield vaccines, Vijayawada, Andhra Pradesh
- 3) To examine the influence of demographical factors of Management students and faculty perception towards Covaxin and Covishield vaccines

1.6 Hypothesis of the Study

- 1) Opinions regarding overall trust in the vaccines are not dependent on the role of respondents.
- 2) Opinions regarding general trust in vaccines are not dependent on gender.
- 3) Opinions regarding overall confidence in the vaccines are not dependent on age
- 4) Opinions regarding overall trust in the vaccines are not dependent on location

1.6.1 Scope of the study

The research has been conducted at Vijayawada (urban, rural areas) of Andhra Pradesh. The study results cannot be extended to other districts and other states of India.

2. MATERIALS AND METHODS

A descriptive Research method is adopted for this study. A convenient sampling technique is adopted for this study. A structured questionnaire is forwarded to 1900 management students and faculty of different, management colleges located in Vijayawada of Andhra Pradesh to collect

primary data. Out of that, 412 responses are received from the management students and management faculty. The secondary data is collected through journals, websites, newspapers, and Government statistics. The data is analyzed with SPSS software.

3. RESULTS AND DISCUSSION

Out of 412 respondents, the majority, 51.2% (210) respondents are female, followed by 48.8% (201) respondents who are male in the study area.

Out of 412 respondents, majority 53.9% (222) respondents are in the age group of below 25 years, followed by 24% (99) respondents are in the age group of 25-45, followed by 19.7% (81) respondents are in the age group of 45-65, followed by 2.4%(10) respondents are in the age group of above 65 in the study area.

Out of 412 respondents, the majority 50.7 % (209) respondents belong to the rural area followed by 49.3 % (203) respondents belong to urban areas in the study area.

Table 1. Based on Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	211	51.2	51.2	51.2
	Male	201	48.8	48.8	100.0
	Total	412	100.0	100.0	

Source: Field Survey

Table 2. Based on Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25-45	99	24.0	24.0	24.0
	45-65	81	19.7	19.7	43.7
	65 above	10	2.4	2.4	46.1
	Below 25	222	53.9	53.9	100.0
	Total	412	100.0	100.0	

Source: Field Survey

Table 3. Geographical location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	RURAL	209	50.7	50.7	50.7
	URBAN	203	49.3	49.3	100.0
	Total	412	100.0	100.0	

Source: Field Survey

Table 4. Marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	170	41.3	41.3	41.3
	Unmarried	242	58.7	58.7	100.0
	Total	412	100.0	100.0	

Source: Field Survey

Out of 412 respondents, the majority 58.7 % (242) respondents are unmarried followed by 41.3 % (170) respondents who are married in the study area.

3.1 Vaccinated or Not

Out of 412 respondents, the majority, 67 % (276) respondents are vaccinated against covid-19. The number is followed by 33 % (136) respondents who are not vaccinated against covid-19 in the study area.

3.2 Profession

Out of 412 respondents, the majority, 54.12 % (223) respondents are Management faculty, followed by 45.87 % (189) respondents are Management students in the study area.

3.3 Which Brand You Vaccinated

Out of 412 respondents, the majority, 34.5 % (142) respondents are vaccinated against covid-19 with Covishield, followed by 33% (136) respondents who are not vaccinated against covid-19, 32.5% (134) respondents are vaccinated against covid-19 with Covaxin brand in the study area.

3.4 Analysis

3.4.1 Test 1.

3.4.1.1 Null hypothesis

Opinions regarding overall trust in the vaccines are not dependent on the role of respondents.

3.4.1.2 Alternative hypothesis

Opinions regarding overall trust in the vaccines are dependent on the role of respondents.

3.4.2 Level of Significance

$\alpha = 0.05$

Here we compare the significant value with the level of significance. If the considerable value is greater than the significance level, we accept our null hypothesis; otherwise, we reject our null hypothesis.

For this hypothesis, if the significant value (0.000) is less than the significance level (0.05), we reject our null hypothesis. Therefore, opinions regarding overall trust in the vaccines are dependent on the role of respondents.

Table 5. Have you vaccinated against COVID-19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	136	33.0	33.0	33.0
	Yes	276	67.0	67.0	100.0
	Total	412	100.0	100.0	

Source: Field Survey

Table 5a. Profession

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Faculty	189	45.87	45.87	45.87
	students	223	54.12	54.12	100.0
	Total	412	100.0	100.0	

Source: Field Survey

Table 6. If yes, what brand you took

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Covaxin	134	32.5	32.5	32.5
	Covishield	142	34.5	34.5	67.0
	NOT VACCIN	136	33.0	33.0	100.0
	Total	412	100.0	100.0	

Source: Field Survey

Table 7. Overall trust in the vaccines

		Count				Total
		Overall trust on				
		Covaxin	Covishield	No trust in any brand	Trust on both brands	
Role	FACULTY	29	17	4	139	189
	STUDENT	54	45	9	115	223
Total		83	62	13	254	412

Table 8. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.708	3	.000
Likelihood Ratio	22.198	3	.000
N of Valid Cases	412		

3.4.3 Test 2

null hypothesis; otherwise, we reject our null hypothesis.

3.4.3.1 Null hypothesis

Opinions regarding overall trust in vaccines are not dependent on gender.

For this hypothesis the significant value (0.006) is less than the level of significance (0.05);we reject our null hypothesis. Therefore, opinions regarding overall trust in the vaccines are dependent on gender.

3.4.3.2 Alternative hypothesis

Opinions regarding overall trust in the vaccines are dependent on gender.

3.4.5 Test 3

3.4.4 Level of significance

3.4.5.1 Null hypothesis

$\alpha = 0.05$

Opinions regarding overall trust on the vaccines are not dependent on age.

Here we compare the significant value with the level of significance. If the significant value is greater than the significance level, we accept our

3.4.5.2 Alternative hypothesis

Opinions regarding overall trust in the vaccines are dependent on age.

Table 9. Overall trust on

		Count				Total
		Overall trust on				
		Covaxin	Covishield	No trust in any brand	Trust on both brands	
Gender	Female	42	22	11	136	211
	Male	41	40	2	118	201
Total		83	62	13	254	412

Source: Field Survey

Table 10. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.509	3	.006
Likelihood Ratio	13.207	3	.004
N of Valid Cases	412		

3.5 Based on Age

Table 11. Based on age

		Count				Total
		Overall trust on				
AGE		Covaxin	Covishield	No trust in any brand	Trust on both brands	
	25-45	21	19	3	56	99
	45-65	7	6	0	68	81
	65 above	0	0	0	10	10
	Below 25	55	37	10	120	222
Total		83	62	13	254	412

Source: Field Survey

Table 12. Chi-square tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.485	9	.000
Likelihood Ratio	38.704	9	.000
N of Valid Cases	412		

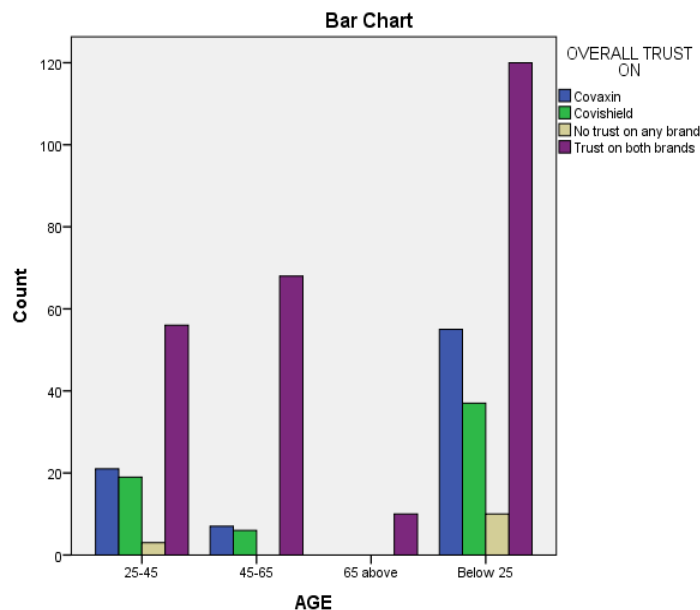


Fig. 1. Overall trust on vaccines

3.5.1 Level of significance

$\alpha = 0.05$

Here we compare the significant value with the level of significance. If the significant value is greater than the significance level, we accept our null hypothesis; otherwise, we reject our null hypothesis.

For this hypothesis, the significant value (0.000) is less than the level of significance (0.05); we

reject our null hypothesis. Therefore, opinions regarding overall trust in the vaccines are dependent on age.

3.5.2 Test 4

3.5.2.1 Null hypothesis

Opinions regarding overall trust in the vaccines are not dependent on location.

3.5.2.2 Alternative hypothesis

Opinions regarding overall trust in the vaccines are dependent on location.

greater than the significance level, we accept our null hypothesis; otherwise, we reject our null hypothesis.

3.6 Based on Location

3.6.1 Level of significance

$\alpha = 0.05$

For this hypothesis, the significant value (0.033) is less than the significance level (0.05), so we reject our null hypothesis. Therefore, opinions regarding overall trust in the vaccines are dependent on location.

Here we compare the significant value with the level of significance. If the significant value is

Table 13. Based on location

		Count				Total
		Overall trust on		No trust in any brand	Trust on both brands	
		Covaxin	Covishield			
GEOGRAPHICAL LOCATION	RURAL	46	26	11	126	209
	URBAN	37	36	2	128	203
Total		83	62	13	254	412

Source: Field Survey

Table 14. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.750	3	.033
Likelihood Ratio	9.386	3	.025
N of Valid Cases	412		

3.6.2 Association between price of the vaccine and income of the respondents

Table 15. Income(In Lakhs/Year) * Perceptions Towards Covaxin/Covishield On Following Parameters [Price of the brand] Crosstabulation

		Count			Total
		PERCEPTIONS TOWARDS COVAXIN/COVISHIELD ON FOLLOWING PARAMETERS [Price of the brand]			
		COVAXIN	COVISHIELD	NO MANY DIFFERENCES BETWEEN BOTH BRANDS	
INCOME(IN LAKHS/YEAR)	10 LAKHS AND ABOVE	4	0	9	13
	2.5 TO 5 IAKHS	21	29	36	86
	5-7.5 LAKHS	2	12	56	70
	7.5 TO 10 LAKHS	2	3	43	48
	LESS THAN 2.5	42	126	27	195
Total		71	170	171	412

Source: Field Survey

Table 16. Symmetric measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.634	.000
	Cramer's V	.448	.000
N of Valid Cases		412	

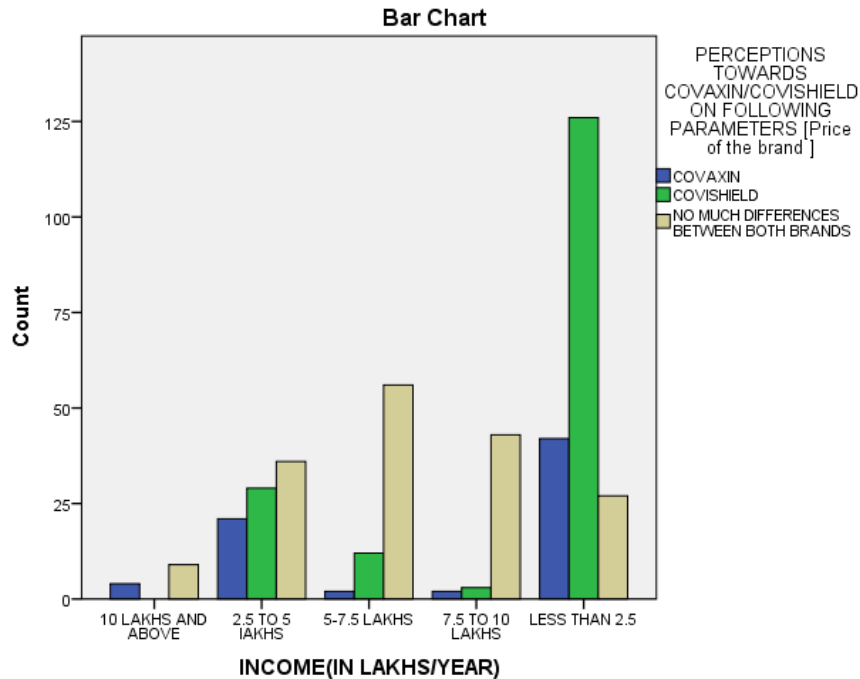


Fig. 2. Perceptions towards covaxin and covishield

The formulae for Cramer's V is given by

$$\sqrt{\frac{\chi^2}{n \min(r - 1, c - 1)}}$$

Here the value of Cramer's V is 0.448. Based on the V value, we conclude that there exists a high association between the variables.

Out of 412 respondents, the majority, 51.2% (210) respondents are female, followed by 48.8%(201) respondents who are male in the study area.

Out of 412 respondents, majority 53.9% (222) respondents age is below 25 years followed by 24% (99) respondents age is in between 25-45, followed by 19.7% (81) respondents age is in between 45-65, followed by 2.4%(10) respondents age is above 65 in the study area.

Out of 412 respondents, the majority, 50.7% (209) respondents belong to the rural area,

followed by 49.3%(203) respondents belong to urban areas in the study area.

Out of 412 respondents, the majority, 58.7 % (242) respondents are unmarried, followed by 41.3 % (170) respondents who are married in the study area.

Out of 412 respondents, the majority, 54.1 % (223) respondents are students, followed by 45.9 % (189) respondents who are faculty in the study area.

Out of 412 respondents, majority 47.3%(195) respondents yearly income is less than 2.5 lakhs, followed by 20.9% (86) respondents annual income is in the range of 2.5 to 5 lakhs, followed by 17% (70) respondents income is 5-7.5 lakhs, followed by 11.7%(48) respondents income is in the range of 7.5- 10 lakhs in the study area.

Out of 412 respondents, the majority, 67 % (276) respondents are vaccinated, followed by 33 % (136) respondents are not vaccinated in the study area.

136) respondents who are not vaccinated against covid-19 because of myths like non-vegetarian food should be avoided after vaccination for some time, alcohol should not be consumed, in menstruation times vaccination should not be administered, lack of trust about information like people become infertile, fear of deaths due to covid-19 vaccines.

Out of 412 respondents, the majority, 34.5 % (142) respondents are vaccinated against covid-19 with Covishield, followed by 33% (136) respondents who are not vaccinated against covid-19, 32.5% (134) respondents are vaccinated against covid-19 with Covaxin brand in the study area.

Out of 412 respondents, majority 46.4% (191) of the respondents have completed the first dose, followed by 33% (136) who were not vaccinated against covid-19. A total of 20.6% (85) respondents have completed second dose vaccination against covid-19 the study area.

Out of 412 respondents, majority 43.4% (179) respondents are perceiving there is no that much difference between both brands, followed by 39.1% (111) respondents believe that Covaxin manufacturing technology is superior, 17.5% (72) respondents believe that Covishield manufacturing technology in the study area.

Out of 412 respondents, majority 35.7 % (147) respondents believe that Covaxin is more effective, followed by 35.7 % (147) respondents who believes that no many differences between both brands, followed by 28.6 % (118) respondents are thinking that Covishield is more effectiveness against Covid-19.

Out of 412 respondents, majority 55.3 % (228) respondents are believing that side effects are less with Covaxin, followed by 27.9 % (115) respondents believes that no many differences between both brands, followed by 16.7% (69) respondents are thinking that side effects are less with Covishield in the study area.

Out of 412 respondents, majority 52.2 % (215) respondents believe that adverse effects are less with Covaxin, followed by 30.1 % (124) respondents believes that no many differences between both brands, followed by 17.7% (73) respondents are thinking that adverse effects are less with Covishield in the study area.

Out of 412 respondents, majority 37.4 % (154) respondents are believing that both brands are

effective against new variants, followed by 35.9 % (148) respondents believes that Covaxin is more effective against new variants, followed by 26.7% (110) respondents are believing that Covishield is more effective against new variants in the study area.

44.2 % (182) respondents believe that both brands are accepted by Indians, followed by 34.2 % (142) respondents believes that Covaxin is more accepted in India, followed by 21.6% (89) respondents are believing that Covishield is more accepted brand in India in the study area.

36.4 % (150) respondents believe that global acceptance is high for Covishield, followed by 33.3% (137) respondents believes both brands are equal acceptance globally, followed by 30.3% (125) respondents are believing that Covaxin is more accepted brand in the globe in the study area.

Out of 412 respondents, the majority, 44.2 % (182) respondents believe that no differences between both brands, followed by 31.8% (131) respondents are more trust in Covaxin, followed by 24% (99) respondents trust on SERUM institute in the study area.

Out of 412 respondents, majority 61.7 % (254) respondents no much differences between trust in both brands followed by 20.1% (83) respondents are more trust in Covaxin, followed by 15% (2) respondents trust on Covishield, followed by 3.2% (13) respondents are no trust on two brands in the study area.

Out of 412 respondents, the majority, 94.4 % (389) respondents are aware that both vaccines should be administered intramuscularly and the same dose (0.5ml) should be distributed in the study area.

4. CONCLUSIONS AND RECOMMENDATION

The majority of the respondents in the study area are well aware of the dose and mode of vaccines. Different opinions are about efficacy and effectiveness, side effects of vaccines. The healthcare workers should create awareness and educate people saying that no statistical evidences are available about consumption of alcohol, non-vegetarian food, taking vaccine in menstruation period reduces efficacy. The government has to promote the two vaccines and

take steps to curtail the myths about these two vaccines through advertisements in electronic media and print media. The Social service organizations and celebrities should promote both vaccines and send the message that both are good and effective about covid-19.

The colleges and universities should made a mandatory rule like that no entry without vaccination.

As a part of corporate social responsibility, all industries should concentrate on rural areas to educate rural people by sending health workers to the door step of the people and should motivate rural student's with some vaccination offers and conduct some workshops, seminars in the schools, colleges and universities to curtail myths.

The government should take the help of leading doctors, healthcare professionals and to conduct seminars, workshops to educate students and faculty to promote both vaccines so that all the citizens include students and faculty of India will complete the vaccination process and India will become one of the Covid free nations in near future.

DISCLAIMER

The products used for this research are commonly and predominantly used in our research area and country. There is 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 litigation but the advancement of knowledge. Also, the research was not funded by the producing company rather, it was financed by the personal efforts of the authors.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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