

**A STUDY ON KNOWLEDGE, ATTITUDE, AND PERCEPTION OF
ADULTS OF AGE 18-45 YEARS ON COVID-19 VACCINE**

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

by

Rakesh Reddy Surusani

Under the Supervision and Guidance of

Ms. Sunita Nigam

2021

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled: A Study on Knowledge, Attitude, and Perception of Adults of age 18-45 on COVID-19 vaccine is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Rakesh Reddy Surusani

Date: 02-07-2021

CERTIFICATE

This is to certify that Mr. Rakesh Reddy Surusani in partial fulfilment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed his internship at P D Hinduja Hospital and Medical Research Centre during March 22nd 2021 to June 19th 2021.

Place: Mumbai

Director Materials,

Date: 02-07-2021

P D Hinduja National Hospital

CERTIFICATE

This is to certify that dissertation titled: A Study on Knowledge, Attitude, and Perception of Adults of age 18-45 on COVID-19 vaccine is a record of the research work undertaken by Rakesh Reddy Surusani in partial fulfilment of the requirement for the award of the degree of MBA (Hospital and Health Management) from IIHMR University, Jaipur under my guidance and supervision and his approach to the research study has been sincere, scientific, and analytical.

Faculty Guide

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Date:

ABSTRACT

Title- A Study on Knowledge, Attitude, and Perception of adults of age 18-45 years on COVID-19 vaccine.

Name of Author- Dr. Rakesh Reddy Surusani

Background- Its nearly two years since the start of pandemic and we have made huge strides towards finding the cure for the virus, nearly 300 vaccine proposals have been made and presently in India 3 vaccines have been approved for administration. The vaccination program in India started on 16th January 2021. Nearly 300 million people have been vaccinated. The government hopes to vaccinate all Indians by the end of this year, but the effort has been hampered by a poor pace, a lack of doses, and vaccine reluctance. People are still unaware of vaccines available and hesitant towards immunisation against covid. Hesitancy about vaccine is a complex issue, it is a continuum between complete acceptance and complete denial of vaccine.

Objectives- To assess the knowledge, attitude, and perception of adults of age group 18-45 years towards vaccines and immunisation against covid-19 and give relevant recommendations.

Methodology- The study is based on primary data collected through online questionnaire. A total of 222 participants were involved in the study. The population sample included were in the age group of 18-45 years and the sampling method applied was convenience sampling. The responses were collected with the informed consent of the respondent. Analysis was done using IBM SPSS version 26.0. and two types of analysis were carried out, univariate and bivariate analysis.

Results- The results showed that most of the study participants were highly educated and were knowledgeable regarding the vaccine and had a positive perception towards need for vaccine. The overall knowledge score was found to be 88.7% and perception score was 94.2%. a strong correlation between vaccine efficacy and vaccine acceptance was found. Respondents from rural areas were less aware of available vaccines. Participants felt there is a need to raise awareness regarding the importance of vaccine.

Conclusion- There is a need to raise awareness regarding the vaccines and government needs to implement policies and action plans to improve the immunisation status. People from the rural areas who do not have the access to information need to be made aware.

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Chapter 1: INTRODUCTION

SARS-COV-2, the virus that has caused the pandemic of coronavirus disease has been around now for almost 2 years. The world has come to a halt and the healthcare industry is overburdened with positive covid cases and lack of healthcare infrastructure. Rapid diagnostics have been established, and much effort is being made to produce effective vaccinations and treatments (1). In the eleven months since the SARS-CoV-2 virus and its genome were discovered, the scientific community has made an extraordinary effort that has resulted in the development of over 300 vaccine proposals (2).

Many possible COVID-19 vaccines are being developed by scientists all around the world. All these vaccinations are intended to train the body's immune system to detect and safely inhibit the virus that causes COVID-19 (3). Despite the amazing amount of research that has been done since the virus was originally identified, there are still many unknowns regarding this disease. For a new disease like covid-19 it is difficult to predict which type of immune response and which vaccine will be more effective. There are now 102 COVID-19 vaccine candidates in clinical trials and 185 candidates in pre-clinical research across the world (4).

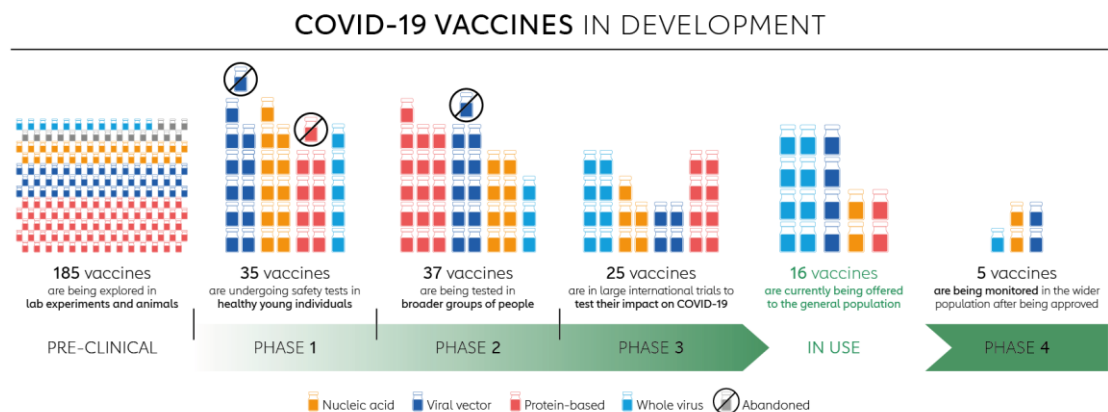


Figure 1.1: Number of COVID-19 vaccines in development

There are significant distinctions between regular vaccine development and vaccine development under the stress of a raging pandemic. Because of the pandemic's pressure, numerous operations are being carried out at financial risk, with no guarantee that the candidate vaccine will be safe and effective, including extremely early production and build-up to commercial size before the establishment (5). Following the validation of the new vaccine, the next set of issues will be connected to its manufacturing and distribution. It will be necessary to overcome technological, organisational, regulatory, and economic

challenges. The industrial technology required to scale up manufacturing to a billion doses will be determined by the type of vaccination that works best (6).

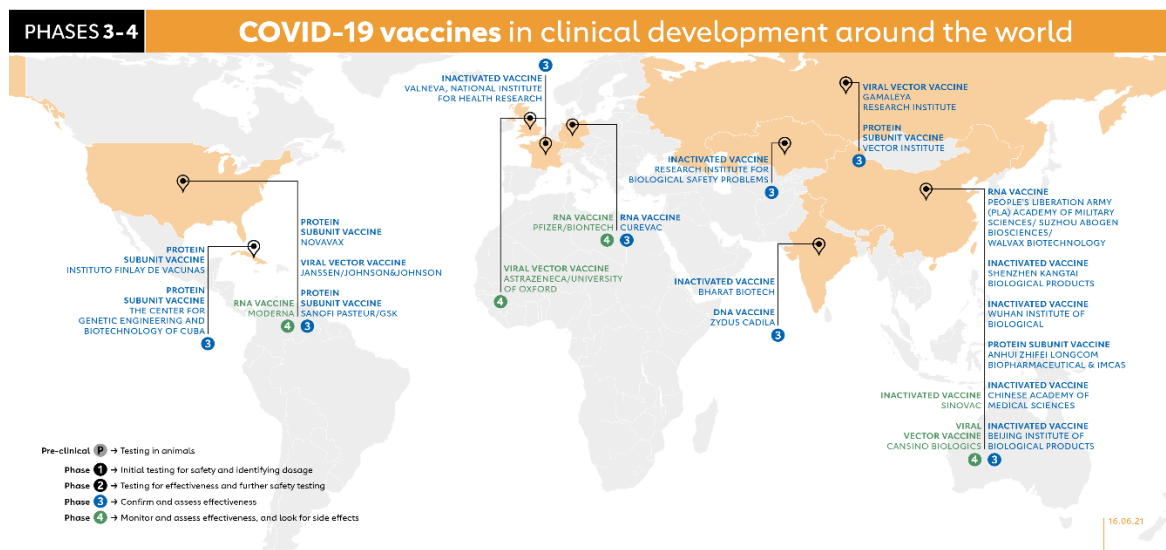


Figure 1.2: COVID-19 vaccines in clinical development around the world

India is one of the world's largest vaccine supplier but is still facing a shortage of vaccine due to the sudden rise in the cases linked to the new variant. India reported 168,912 new COVID-19 cases on April 12, the largest day number yet (7). Newer variants are surfacing in India and people are not following the covid norms. India has so far given 260 million doses of three approved vaccines- Covishield, Covaxin and Sputnik V. The government hopes to vaccinate all Indians by the end of this year, but the effort has been hampered by a poor pace, a lack of doses, and vaccine reluctance. Since the beginning of the push in January, just 3.5 percent of individuals have been fully vaccinated, and 15 percent have gotten one shot (8).

The introduction of any vaccination raises a slew of concerns. Based on past research on the introduction of different vaccines, we can list the barriers that occur at the level of Vaccine – such as manufacturing, trials, marketing, safety, and cold chain management. Acceptance, anxiety, obedience, readiness to pay, location preference, or worry for potential bad consequences are all examples of ethics and efficacy or benefit. Vaccine acceptance is a social tool that is critical for the beginning, execution, and maintenance of any immunisation programme (9)(10).

To establish the requisite herd immunity to limit viral transmission and halt the pandemic, more than 82 percent of the population must be vaccinated, which needs widespread acceptance and low reluctance. As a result, understanding variables related with

vaccination acceptance and reluctance is required to make policy changes and assist public health professionals in creating a conceptual framework and educational campaign targeted at improving general population knowledge (11). Hesitancy about vaccine is a complex issue, it is a continuum between complete acceptance and complete denial of vaccine. The behaviour responsible for hesitancy may be due to belief, ease of access, confidence, and complacency. Many experts believe that addressing vaccination reluctance at the population level is the best way to go. They believe it is possible to do this through increasing openness in policy decision-making, providing the public and health practitioners with up-to-date information about the rigorous processes used before the introduction of new vaccines, as well as via diverse post-marketing surveillance of vaccine-related incidents (12).

As a result, social support and attempts to overcome reluctance about the COVID-19 immunisation are critical, particularly in low-resource settings. This will assist to promote immunisation and build confidence between the general public, health officials, and policymakers, resulting in improved pandemic control and fewer lives lost (13)

1.1. AIM

The aim of this study is to assess the knowledge, attitude, and perception of adults of age 18-45 years regarding the vaccination against covid-19, which will help the policy makers to plan and improve immunization methods, restructure the mass media strategies, and educate people regarding the importance of vaccination to fight the pandemic.

Chapter 2: REVIEW OF LITERATURE

S no	Author and Year	Study Location	Sample Size	Salient Features
1	2021 Muhammed Elhadi	Libya	15,087	Participants agreed to have serious concerns over vaccine related complications. Most subjects believed that vaccine should be provided for free of cost. The binomial logistic regression indicated that belonging to the medical

				sector vs the public had no effect on vaccine acceptance. Acceptance was statistically related with younger demographics, particularly those aged 31–40 (13).
2	2021 Martin C.S Wong Eliza L.Y. Wong	Hong Kong	1,200	The acceptance rate of vaccine was 37.2%. The estimated acceptance rates followed a “J-shaped” distribution with age, with higher percentage of young adults (18–24 years) and then increasing gradually with age. Acceptance of the COVID-19 vaccination is not related to perceived vulnerability. Recommendation from the government has been a strong influence for positive acceptance (11).
3	2020 Harapan	Indonesia	1,359	A very high proportion of participants had positive response for vaccination if the efficacy is above 95%. Acceptance of a COVID-19 vaccination was heavily impacted by the vaccine's baseline efficacy. It may be difficult to prepare the general public to accept a vaccination with low efficacy (14).

4	2020 Jagdish Khubchandani	United States	1,878	Half the participants were very likely to get vaccinated against covid-19. Participants with a lower level of education, wealth, or perceived risk of infection were more likely to say that they were clearly not willing to receive the COVID-19 vaccination. Vaccine hesitancy was associated with gender, employment, income, and fear of getting infected by covid-19 (15).
5	2020 Farzana Islam	New Delhi, India	513	Almost 80% of the study population was positive towards immunization against covid-19. More than half the participants were willing to pay for the vaccine and majority felt healthcare staff needs to be first vaccinated (16).

2.1. OBJECTIVES-

- 1) To assess the knowledge of the people regarding the available vaccines and vaccination against covid-19
- 2) To assess the attitude of people towards the vaccination and vaccines available.
- 3) To assess the perception of people regarding what needs to be done with the vaccination policies.

Chapter 3: METHODOLOGY

3.1. RESEARCH QUESTION- What is the Knowledge, Attitude and Perception of adults of age 18-45 years regarding the covid-19 vaccination.

3.2. RESEARCH DESIGN- Cross-sectional, descriptive type of study.

3.3. SETTING- Online Survey using google form was forwarded through means of Email, WhatsApp, and other social media platforms.

3.4. STUDY POPULATION- Inclusion Criteria- People from the general population who are in the age group of 18-45 years.

Exclusion Criteria- Children and Old age population.

3.5. RESEARCH PROCEDURE APPLIED-

The survey contained the following section-

The first section included the sociodemographic details like age, sex, place of residence and their educational status. To ensure anonymity, participant names and other personal information were not included; after providing their consent to proceed with the survey, they were directed to the next section. The second section contained 4 questions with multiple choices on the general knowledge of the participants regarding the vaccines including the vaccines currently available in India, to which age groups are they available, and who is eligible to take those vaccines. The third section included 12 questions based on modified 5-point Likert scale regarding attitude towards the vaccine including questions whether they wish to take the vaccine, the reason they want to take the vaccine and what information is necessary to take a decision regarding a vaccine. The final section included 5 questions with multiple choices on the perception towards vaccine importance, whether there is a need to take vaccine if they feel safe about the vaccine and is there necessity to promote vaccination against covid-19. The questionnaire was developed with the help of literature review of earlier research papers of vaccine questionnaires, opinions of epidemiological experts and open ended interviews by authors (17–20).

3.6. DURATION OF STUDY- 10th May to 5th June 2021

3.7. SAMPLE SIZE- 222

3.8. SMAPLING TECHNIQUE- Convenience sampling

3.9. RESEARCH INSTRUMENT- The tool was constructed based on the research objectives, review of literature, and guidance of the experts.

3.10. STATISTICAL METHODS APPLIED- Data was collected through google form and responses analysis was done using IBM SPSS version 26.0. two types of analysis were carried out with univariate and bivariate analysis. In univariate analysis descriptive and frequencies were seen and in bivariate cross tabulation, correlation, and non-parametric test (Chi square) were conducted.

3.11. ETHICAL CONSIDERATION- All respondents were informed about the research study and only after their consent responses were collected. Participants were assured of the reliability and confidentiality of the data.

Chapter 4: RESULTS

The study was conducted through an online survey. Around 224 responses were recorded. All the respondents belong to the age group of 18-45. Out of the 224 responses received 222 participants opted to take part in the survey. The descriptive mean age of the sample (μ) is 28.04 and standard deviation (α) is 6.62 indicating most participants belonged to age group of 22-35.

The frequency distribution table can demonstrate the demographic variables in the sample characteristics, it was observed that among the participants around 52.7% were males and 47.3% were females, 15.3% of the respondents belonged from the rural areas and 84.7% of the sample belonged from the urban residence. Out of the 222 respondents 45% are post-graduates, 47.3% are graduates, 1.4% are primary and 6.3% have completed secondary education. In terms of the employment status 103 respondents are employed, 87 are students and 32 respondents are unemployed.

Table 4.1: Demographic characters of respondent sample (N=222)

VARIABLE	CHARACTERISTICS	FREQUENCY
GENDER	Male	117 (52.7)
	Female	105 (47.3)
RESIDENCE	Rural	34 (15.3)
	Urban	188 (84.7)
EDUCATION		

	Primary Education	3 (1.4)
	Secondary Education	14 (6.3)
	Graduate	105 (47.3)
	Postgraduate	100 (45.0)
EMPLOYMENT STATUS		
	Employed	103 (46.4)
	Unemployed	32 (14.4)
	Student	87 (39.2)

Out of the 222 respondents 169 have been vaccinated and 53 have not been vaccinated yet. (Figure 4.1). Assessing the knowledge of the respondents regarding the vaccines almost all the participants were aware of the vaccines available in India. 91% of the respondents heard about all three vaccines presently approved in India. 5% of the respondents heard only about Covaxin, 3.6% of the sample heard only about Covishield and 0.5% have heard only about Sputnik V. When the respondents were asked to which age groups the vaccine is available in India 86.9% have responded 18 and above years of age, 1.8% have responded to 18 below and 11.3% have responded that all age groups have the vaccine available.

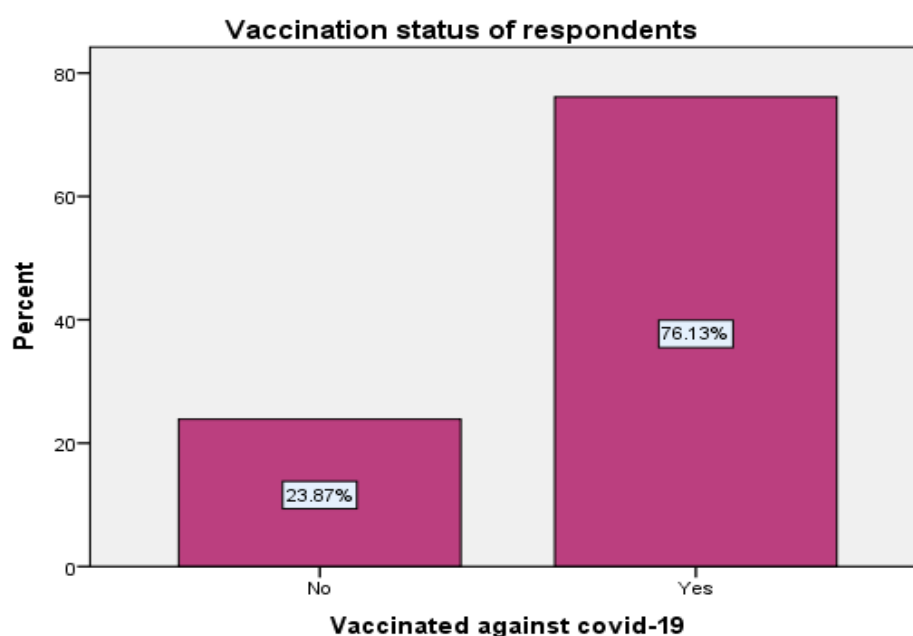


Figure 4.1: Vaccination Status

The respondents when asked about who is eligible to take the vaccine against covid-19, 20.3% have responded that those who are at risk, 3.2% have responded that those who

have recovered from covid-19, 0.9% responded that those who have tested positive and 75.7% have responded all the above are eligible to get vaccinated. (Table 4.2).

Table 4.2: Frequencies (n) and percentage (%) distribution of knowledge of the respondents regarding vaccine.

QUESTION	RESPONSE	FREQUENCY
Are you aware of the vaccine available		
	Yes	221 (99.5)
Vaccines have you heard about		
	Covaxin	11 (5)
	Covishield	8 (3.6)
	Sputnik V	1 (0.5)
	All the Above	202 (91)
Vaccine is available for which age groups		
	18 and above	193 (86.9)
	Below 18 years	4 (1.8)
	All the above	25 (11.3)
Who is eligible to take vaccine		
	Who are at risk	45 (20.3)
	Who have recovered from covid-19	7 (3.2)
	Who have tested positive for covid-19	2 (0.9)
	All the above	168 (75.7)

To assess the attitude of respondents against covid-19 vaccines a 5-point Likert scale was administered. Looking at the reasons to choose whether to get vaccinated or not majority of the respondents have strongly disagreed upon not wanting to take vaccine and only

4.5% have said they do not wish to take vaccine. Most of the respondents have agreed strongly to take vaccine to protect themselves and their family members. About complications of vaccine participants varied from agree to neutral and few have strongly agreed that they have concerns over complications of vaccine. Half the participants have strongly agreed that vaccination will be useful to control the pandemic and 36% have agreed upon the same. A quartile of the participants agreed that recommendation by their workplace or college has prompted them to take vaccine and rest have been neutral or disagreed with the statement. When asked about preferring natural immunity over vaccine very few have agreed, and majority were varying from neutral to disagreeing to the statement.

When asked about which information is necessary for you to take decision regarding vaccine majority of the participants have strongly agreed that they need information about the vaccine efficacy, safety, and the side effects to decide. If vaccine went well in others nearly all the respondents have varied from strongly agreeing to being neutral that this information is needed to take a stand about vaccine. Almost half the respondents have agreed that their colleagues getting vaccinated has an influence on them. Nearly all the respondents barring a few have agreed that if vaccine is available, they are willing to get the jab.

Table 4.3: Frequencies (n) and percentage (%) distribution of attitude of the respondents regarding vaccine.

Reason for vaccination	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Do not wish to take vaccine.	20 (9.0)	10 (4.5)	18 (8.1)	59 (26.6)	115 (51.8)
To protect myself.	174 (78.4)	37 (16.7)	9 (4.1)	1 (0.5)	1 (0.5)
To protect family and loved ones.	182 (82)	34 (15.3)	5 (2.3)	-	1 (0.5)

Concerned about complications of vaccine.	28 (12.6)	55 (24.8)	80 (36)	42 (18.9)	17 (7.7)
Vaccine will be useful to control the disease.	119 (53.6)	80 (36)	21 (9.5)	-	2 (0.9)
Recommended by your workplace or college.	30(13.5)	56(25.2)	57 (25.7)	54 (24.3)	25 (11.3)
Prefer natural immunity rather than vaccine.	30 (13.5)	24 (10.8)	57 (25.7)	76 (34.2)	35 (15.8)
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Information necessary to take decision on vaccine					
Vaccine Efficacy.	159 (71.6)	53 (23.9)	8 (3.6)	2 (0.9)	-
Vaccine safety and side effects.	146 (65.8)	58 (26.1)	8 (3.6)	3 (1.4)	-
Vaccine went well in others.	72 (32.4)	86 (38.7)	52 (23.4)	8 (3.6)	4 (1.8)
Colleagues are getting vaccinated.	35 (15.8)	60 (27)	60 (27)	51 (23)	16 (7.2)
Vaccine is available for vaccination	90 (40.5)	68 (30.6)	42 (18.9)	15 (6.8)	7 (3.2)

To assess the perception of participants regarding the vaccines they were asked whether there is a need to take vaccine and 214 respondents have answered yes and 8 have responded with no need to take vaccine. 96.4% respondents feel vaccines are safe. When the respondents were asked which one of the current approved vaccines, they prefer to

get jabbed with 35.1% have said Covaxin, 46.4% wanted Covishield, 14% wanted Sputnik V, and 4.5% wanted none of the above. (Figure 4.2). When the respondents were asked whether they would recommend people to get vaccinated almost all of them have responded with a yes. 196 respondents feel there is a need to raise awareness regarding the importance of vaccination and 19 have responded there may be a need.

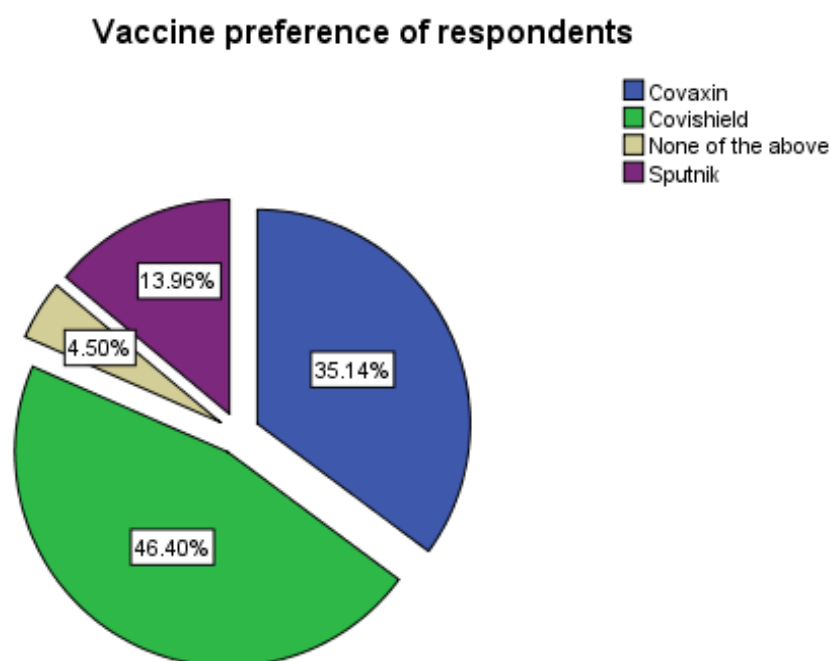


Figure 4.2: Vaccine preference

Table 4.4: Frequencies (n) and percentage (%) distribution of perception of the respondents regarding vaccine.

QUESTION	RESPONSE	FREQUENCY
Need of vaccine		
	Yes	214 (96.4)
Vaccines are safe		
	Yes	214 (96.4)

Covid-19 vaccine do you prefer to take or wanted to	
	Covaxin 78 (35.1)
	Covishield 103 (46.4)
	Sputnik V 31 (14)
	None of the above 10 (4.5)
Recommend people to get vaccinated	
	Yes 219 (98.6)
Need to raise awareness regarding the importance of vaccination	
	Yes 196 (88.3)
	No 7 (3.2)
	May be 19 (8.6)

A descriptive crosstabulation was performed between vaccination status and age group, residence, and employment status to measure the association and how these factors affect the vaccination among participants. In the results participants of age above 30 years nearly everyone is vaccinated, and those who are employed nearly all of them have been vaccinated which can be due to compulsion of vaccination at their workplace. 21.6% of urban population are yet to be vaccinated which may be associated with non-availability of vaccine in the urban areas. Those who are still in college or below 24 years of age half of them are vaccinated which can be attributed to their peer pressure of others getting vaccinated.

In a descriptive cross tabulation of perception with residence, it is observed that all the respondents had a common view about need for the vaccine and its safety. When it comes to vaccine preference participants from rural area preferred to take Covaxin or Covishield and very few wanted sputnik which may be attributed to lack of awareness regarding the vaccine in rural areas. When asked about recommending the vaccine nearly all the participants responded with a yes irrespective of their residence.

In descriptive cross tabulation of perception with education level, respondents with primary and secondary education preferred only the Indian make vaccines whereas the

respondents with higher education status opted for Sputnik as well which shows a gap in the knowledge regarding the vaccine. In terms of improving awareness all the participants have responded that there is a need for creating awareness.

Table 4.5: Cross tabulation of vaccine status with age group, residence, and employment

		Vaccinated	Not vaccinated
Age group	18-20	8 (3.60)	7 (3.1)
	21-25	57 (25.6)	33 (14.8)
	26-30	49 (22)	10 (4.5)
	31-35	17 (7.6)	-
	36-40	17 (7.6)	-
	40-45	21 (9.45)	3 (1.3)
Residence	Rural	29 (13)	5 (2.2)
	Urban	140 (63)	48 (21.6)
Employment	Employed	94 (42.3)	9 (4)
	Unemployed	55 (24.7)	12 (5.4)
	Student	20 (9)	32 (14.4)

Table 4.6: Cross tabulation of perception with residence

		Rural	Urban
Need for vaccines	Yes	32 (14.4)	182 (81.9)
	No		
Are vaccines safe	Yes	32 (14.4)	182 (81.9)
	No		
Vaccine preference	Covishield	18 (8.1)	85 (38.2)
	Covaxin	12 (5.4)	66 (29.7)
	Sputnik V	3 (1.3)	28 (12.6)
	None of the above	1 (0.4)	9 (4)

Recommend vaccine	Yes	33 (14.8)	186 (83.7)
Awareness important	Yes	7 (3.1)	168 (75.6)
	No	-	7 (3.1)
	May be	6 (2.7)	13 (5.8)

Table 4.7: Cross tabulation of perception with education

		Primary	Secondary	Graduation	Postgraduation
Need for vaccines	Yes	3 (1.3)	13 (5.8)	99 (44.5)	99 (44.5)
Are vaccines safe	Yes	3 (1.3)	13 (5.8)	102 (45.9)	96 (43.2)
Vaccine preference	Covishield	1 (0.4)	5 (2.2)	48 (21.6)	49 (22)
	Covaxin	1 (0.4)	9 (4)	40 (18)	28 (12.6)
	Sputnik V	-	-	13 (5.8)	18 (8.1)
	None of the above	1 (0.4)	-	4 (1.8)	5 (2.2)
Recommend vaccine	Yes	3 (1.3)	14 (6.3)	104 (46.8)	98 (44.1)
Awareness important	Yes	3 (1.3)	8 (3.6)	91 (40.9)	94 (42.3)

	No	-	1 (0.4)	5 (2.2)	1 (0.4)
	May be	-	5 (2.2)	9 (4)	5 (2.2)

A correlation study has been observed between need for the vaccine, vaccine safety, and recommendation for vaccination. It was found that a positive correlation between all the variables was observed at 0.01 level of significance (2-tailed).

Table 4.8: Correlation between need for the vaccine, vaccine safety, and recommendation for vaccination.

		Recommend vaccine	Need vaccine	Vaccine safe
Recommend vaccine	Pearson	1	.396**	.396**
	Correlation			
	Sig. (2-tailed)		.000	.000
Need vaccine	Pearson	.396**	1	.222**
	Correlation			
	Sig. (2-tailed)	.000		.001
Vaccine safe	Pearson	.396**	.222**	1
	Correlation			
	Sig. (2-tailed)	.000	.001	

******. Correlation is significant at the 0.01 level (2-tailed)

From the above result a good correlation between need for vaccine, vaccine safety and recommendation for vaccine is observed. This indicates that participants are recommending vaccine since it is needed to control the pandemic and they have a positive feeling towards the safety of the vaccine.

Table 4.9: Correlation between attitudes of participants

		Vaccine efficacy	Vaccine safety	Vaccine went well	Colleague vaccinated	Vaccine available
Not want vaccine	Pearson	-.089	-.055	.182**	.322**	.063
	Correlation					
	Sig. (2-tailed)	.185	.416	.006	.000	.353
To protect myself	Pearson	.430**	.362**	.062	-.069	.071
	Correlation					
	Sig. (2-tailed)	.000	.000	.354	.304	.293
To protect family	Pearson	.452**	.358**	.087	-.073	.100
	Correlation					
	Sig. (2-tailed)	.000	.000	.198	.279	.137
Concerned about vaccine	Pearson	.061	.122	.317**	.280**	.184**
	Correlation					
	Sig. (2-tailed)	.367	.071	.000	.000	.006
Vaccination needed	Pearson	.270**	.254**	.292**	.097	.339**
	Correlation					
	Sig. (2-tailed)	.000	.000	.000	.150	.000
Recommended by workplace	Pearson	-.062	-.069	.189**	.582**	.201**
	Correlation					
	Sig. (2-tailed)	.356	.303	.005	.000	.003
Natural immunity than vaccine	Pearson	-.012	-.011	.186**	.328**	.009
	Correlation					
	Sig. (2-tailed)	.860	.869	.005	.000	.143

******. Correlation is significant at the 0.01 level (2-tailed)

From the above result there is a strong correlation between vaccine safety, vaccine efficacy and getting vaccinated to protect self and family members. Also, it is observed that correlation exists between colleagues getting vaccinated and willing to take vaccine; concerned about vaccine and vaccine went well in others; need of vaccination and availability; workplace recommendation and colleagues getting vaccinated.

Table 4.10: Chi-Square (χ) statistics for education and knowledge regarding vaccine

	Education	Vaccine heard	Vaccine available for	Vaccine eligible	Aware of vaccine
Chi-Square	160.523 ^a	516.559^a	290.027^b	323.982^a	218.018 ^c
Df	3	3	2	3	1
Asymp. Sig.	.000	.000	.000	.000	.000
a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 55.5.					
b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 74.0.					
c. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 111.0.					

Table 4.11: Chi-Square (χ) statistics for education and attitude regarding vaccine

	Education	To protect myself	To protect my family	Concerned of complications	Vaccine efficacy	Vaccine safety
Chi-Square	160.523 ^a	492.595^b	396.126^a	54.171 ^b	285.351^a	226.901 ^a
Df	3	4	3	4	3	3
Asymp. Sig.	.000	.000	.000	.000	.000	.000
a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 55.5.						
b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 44.4.						

The association between education with knowledge regarding vaccine in bivariate analysis with the help of non-parametric test, results indicate significant Chi-Square values for education and knowledge. In a non-parametric test between education and

attitude towards vaccine, result indicates significant Chi-Square values for education and attitude of the participants. Thus, we can conclude there is a strong association between education, knowledge, and attitude.

The effectiveness and reliability of the Likert twelve statement scale were found to be strong, with a Cronbach alpha value of 0.738 and a reliability of 0.706 when combined with knowledge and perception questions. This shows that the reproducibility of our study is high, and our scale can be used to measure knowledge, attitude, and perception of the covid-19 vaccine.

Chapter 5: DISCUSSION

This is one of the first studies in India which aimed at assessing the knowledge, attitude, and perception of adults of age 18-45 years regarding the covid-19 vaccination. The participants willingly took part in the survey, and it is noticed that most of them are aware of the vaccines and feel positively regarding the need for vaccine to control the pandemic.

Among the participants 76.1% have been already vaccinated and 23.9% are yet to be vaccinated. Almost all the participants felt there is a need for vaccine. A study conducted in 2020 in Saudi Arabia, 65% of participants showed interest to take the covid-19 vaccine once available. Older age people and participants with higher educational qualifications like post graduate degree were more inclined to accept the vaccine (21). In our study 13% of the participants strongly agreed and 25% have agreed that recommendation from the workplace or college has prompted them to take the vaccine. Whereas 25% have disagreed that workplace has prompted them to receive vaccine. A global survey conducted on population of 19 countries to analyse the acceptance of covid-19 vaccine, 14% of the respondents said they would accept the vaccine if it were recommended by their workplace, and 25% have completely disagreed with the statement. China was the highest among the positive responses and Russia being the highest for negative responses on workplace recommendation.(22)

When the respondents were asked whether the vaccine is the way to battle this pandemic more than half the respondents strongly agreed to the statement and only a mere 0.9% have disagreed, only 3% of the participants felt there is no need for vaccine. A KAP study conducted among Chinese residents in 2020, the majority respondents of 90% agreed the pandemic will be controlled and positive responses were majorly associated with people of higher education levels and lower knowledge scores for participants reporting “disagree” and “I don’t know” (23).

In a cross-sectional study conducted to assess the covid-19 vaccine literacy, most of the participants disagreed to statements like they do not want to take vaccines since they are not safe, and they prefer natural immunity rather than vaccine (19). In our study nearly all the respondents felt vaccines are safe and few have disagreed to vaccine being safe. Very few proportions of the respondents strongly agreed that they prefer natural immunity rather than the vaccine, more than half have disagreed to the same statement.

Another research on US adults in April 2020 revealed that 57.6 percent were willing to get vaccinated, while another study on 5000 US participants in May 2020 found that 31.1 percent did not intend to be vaccinated. A recent survey of 1878 US citizens released in December 2020 revealed that 52 percent were extremely likely, 27 percent were somewhat likely, and 7 percent would not take COVID-19 vaccines (15). In our study it is found that participants who belonged to the urban region were more aware of the Russian made vaccine Sputnik whereas participants from rural area are not familiar and did not prefer to take Sputnik when asked to choose a vaccine they would like to take.

Vaccine acceptability varies by geographical location and income level, according to the most comprehensive systematic review of contemporary studies on the general populations of 33 nations. Vaccine acceptability rates in nations such as Kuwait and Jordan are low, compared to greater acceptance rates in countries such as China and Malaysia. This implies that vaccination knowledge should be raised to control the pandemic. Most participants in our research felt that there is a need to raise vaccination awareness.

The study has a few limitations such as convenience sampling is used as the sampling technique, which limits the study from generalising it with larger population. Most study participants are highly educated and hence to draw a better association of knowledge and vaccine perception larger sample with diverse educational background is required. Since the study was conducted online, we may have missed out on more participants and the questionnaire was provided only in English.

Chapter 6: CONCLUSION

An attempt is made to understand the people's knowledge, attitude, and perception regarding the covid-19 vaccines. There are still many unknowns regarding the virus and the first step to tackle the pandemic is getting vaccinated against it. People have different perceptions and beliefs about the current approved virus and there is a need to improve

awareness about the vaccines and their importance. The government needs to bring in policies to change the perception about vaccines and educate people about the vaccines, their working, and the benefits. There was a strong correlation between the vaccine efficacy and vaccine acceptance. The participants who are highly educated know the importance of vaccine and the vaccines which are approved for the usage but focus needs to be on the people who have no access to information and are unaware of the vaccines. The overall knowledge of the participants in this study is 88.7%, and the perception is 94.92%. Most of the study population has a positive view towards vaccine and they feel the awareness regarding vaccine needs to be increased. The mass media marketing strategies need to be ramped up and government should take necessary steps to improve vaccine policies and incentives should be provided if needed to increase the vaccination status.

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