



**DISSERTATION
REPORT: -
A STUDY ON
COVID-19
VACCINE
ACCEPTANCY
AMONG ADULTS
OF AGE GROUP 45
YEARS AND ABOVE**

SUBMITTED BY :

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INTRODUCTION

- Covid-19 disease is a communicable disease, caused by severe acute respiratory syndrome coronavirus-2. Its first case reported in Wuhan (China). It was declared as public health emergency by WHO on 30 January 2020.
- “Globally as of 6th may 2021 about 154,815,600 confirmed cases are reported with inclusion of 3,236,104 deaths. A total of 1,170,942,729 vaccine doses have been administered.”
[Covid19.Who.Int]
- On 25th march a nationwide lockdown was announced by government of India to limit the spread of coronavirus. Second wave of COVID-19 in India was emerged in march 2021, which was scarier than the first wave. On 30 April 2021, it became the first country to report over 400,000 new cases in a 24-hour period.

- In India, from 3 January 2020 to 7 May 2021, there have been 2,15,03,828 confirmed cases of COVID-19 with 36,53,460 active cases, 176,06,841 people recovered and 234,140 deaths, a total of 16,49,73,058 vaccine doses have been administered. [<https://www.Covid19india.Org/>]
- To control this pandemic and to reduce the morbidity and mortality due to coronavirus researchers have developed vaccines which is the safest way to immunize people from coronavirus.
- Vaccines have developed in two doses form; a person is said to be fully vaccinated when 2 doses of vaccines are administered and partially vaccinated if he has received only one dose of the two-dose protocol
- India started its vaccination programme on 16th January 2021.
- In India about 9.4% of people have received at least one dose of vaccine by 5 May 2021 out of which 2.19 percent people are fully vaccinated in India and 7.21 are partially vaccinated.” [Our world in data].

OBJECTIVE OF THE STUDY

1. To find the proportion of respondents with complete, partial, or not vaccinated.
2. To study association between demographic characteristics and complete vaccination with two doses.
3. To study main concern and primary reasons for non or delayed vaccination

METHODOLOGY

- It was a cross sectional study design conducted between 15th April 2021 to 20th June 2021 at civil Hospital Ahmedabad.
- **Non-probability** (convenient sampling technique) sampling technique was used for obtaining samples. **324** respondents of age group 45 years and above were interviewed for the study.
- We included patients and their relatives visiting the hospital for treatment and diagnosis and some respondents by sending self-administered questionnaire with the help of google forms.
- Complete vaccination with two doses of COVID-19 vaccination has been taken as proxy measure for vaccine acceptancy and incomplete vaccination with only one dose or no vaccination (0 dose) has been taken as proxy measure for vaccine hesitancy.

- **Exclusion Criteria:** pregnant women and lactating mothers' people below age of 45 years and people who are COVID positive, people with serious post COVID complications during the study were excluded from this study.
- **Data Collection Procedure:** - data was collected with the help of self-administered questionnaire by sending google form on social media and by mail and by interviewing patients and relatives visiting civil hospital Ahmedabad for treatment and diagnosis.
- **Study Tool:** : questionnaire was prepared as a study tool to collect data regarding vaccination knowledge, attitude and practice, and sociodemographic characteristics, dependent and independent variables that include a set of 17 questions in closed format.
- Questionnaire was first tested with 10 colleague and civil hospital staff to check whether the questionnaire was easily understood by them or not.

- **DATA PROCESSING:** data collected from 324 respondents was entered in excel and all the data variables were given numeric codes. Some common responses were given same codes.
- We found 23 missing values in the data, so we discarded all 23 responses from the data set, so that the analysis could be done correctly. After removing 23 responses, we found a set of 301 responses for the final analysis. Then after complete processing of data we copied this excel data set in IBM SPSS 22 for further analysis.
- **DATA ANALYSIS:** I conducted univariate quantitative analysis using frequency distribution of all the variables.
- To find the association between complete vaccination and socio-demographic characteristics bivariate analysis was done by using chi square test.
- Study recoded and combined categories in some variables, like vaccination status age group, literacy level, time taken to reach at vaccination center and whether the respondents had concern regarding vaccination or not to conduct chi square test, and regression analysis.

ETHICAL CONSIDERATION

- To conduct this study, I obtained approval from Dr. J. V. Modi (Medical Superintendent, Civil Hospital Ahmedabad).
- From each identified participant, consent was taken, objective and the purpose of the study and time required to conduct interview was explained to the participants before administering the questionnaire so that participants can consciously decide whether they want to participate in the study or not.
- To ensure the confidentiality of each participant we did not ask the name of the participants and the city where they live, in-stead we used form number to record the responses.

RESULTS

SOCIO-DEMOGRAPHIC CHARACTERISTICS

SERIAL NO.	CHARACTERSTIC	CATAGORY	FREQUENCY	PERCENTAGE
1.	GENDER	MALE	192	63.8
		FEMALE	109	36.2
2.	AGE GROUP	45-50 YEARS	49	29.6
		51-55 YEARS	109	36.2
		56-60 YEARS	76	25.2
		ABOVE 60	27	9
3.	TYPE OF RESIDENTS	RURAL	94	31.2
		URBAN	207	68.8
4.	BPL CARD POSSESSION	NO	247	82.1
		YES	54	17.9
5.	EMPLOYEMENT STATUS	UNEMPLOYED	96	31.9
		EMPLOYED	205	68.1
6.	LITERACY LEVEL	ILLITERATE	14	4.7
		PRIMARY	43	14.3
		MIDDLE	58	19.3
		SECONDARY	101	33.6
		GRADUATION AND MORE	85	28.2

KNOWLEDGE REGARDING COVID-19 AND VACCINATION

SR. NO.	KNOWLEDGE ABOUT COVID-19 AND COVID-19 VACCINATION	CATAGORIES/ RESPONSES	FREQUENCY	PERCENTAGE
1.	ANY FAMILY MEMBER SUFFERED FROM COVID-19	NO	186	61.8
		YES	115	38.2
2.	INFORMATION ABOUT VACCINATION CAMPAIGN	NO	3	1
		YES	298	99
3.	KNOWLEDGE ABOUT NEAREST VACCINATION CENTRE	NO	11	3.7
		YES	290	96.3
4.	HOW MANY DOSES OF VACCINE NEEDED FOR COMPLETE VACCINATION	1	14	4.7
		2	235	78.1
		MORE THAN 2	40	13.3
		DON'T KNOW	12	4

5.	TIME TAKEN TO REACH AT VACCINATION CENTRE	LESS THAN 30 MINUTES	242	80.4
		30-59 MINUTES	48	15.9
		1-2 HOURS	4	1.3
		DON'T KNOW	7	2.3
6.	HOW MANY DOSES OF COVID-19 VACCINE HAVE YOU TAKEN	0	40	13.3
		1	224	74.4
		2	37	12.3
7.	PRIMARY REASON FOR NOT VACCINATING OR DELAY IN VACCINATION	VACCINE NOT AVAILABLE	28	9.3
		FEAR OF COMPLICATION	186	61.8
		DO NOT TRUST VACCINE	21	7
		NO TRANSPORTATION AVAILABLE	2	0.7
		ANYONE ADVISED NOT TO TAKE VACCINE	30	10
		OTHER	34	11.3
8.	HAD ANY PERSONAL CONCERN ABOUT VACCINE	NO	37	12.3
		YES	225	74.8
		MAY BE	39	13

9.	MAIN CONCERN RELATED TO COVID-19 VACCINE	I AM ALREADY HEALTHY	2	0.7
		VACCINE NOT NEEDED/HELPFUL	37	12.3
		FEAR OF COMPLICATION/SIDE EFFECTS	195	64.8
		DO NOT TRUST VACCINE	22	7.3
		OTHER	29	9.6
		NO CONCERN	16	5.3
10.	HOW COVID-19 VACCINE HELPS/BENEFIT	PREVENT OCCURANCE OF COVID-19	196	65.1
		PREVENT DEATH AND SERIOUS COMPLICATION DUE TO COVID-19	78	25.9
		NO BENEFIT	27	9
11.	VACCINATION STATUS	COMPLETE	37	12.3
		INCOMPLETE	264	87.7
12.	RATING TO GOVERNMENT HEALTH SYSTEM	1	5	1.7
		2	29	9.6
		3	85	28.2
		4	168	55.8
		5	14	4.7

ASSOCIATION BETWEEN COMPLETE VACCINATION AND SOCIODEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

SR. NO.	CHARACTERSTICS	CATAGORIES	RESPONDENTS RECEIVED COMPETE VACCINATION	PROPORTION RECEIVED FULL VACCINATION
1.	GENDER	MALE	22	11.5
		FEMALE	15	13.8
2.	AGE GROUP	45-50 YEARS	16	18
		51-60 YEARS	13	7
		ABOVE 60 YEARS	8	29.6
3.	TYPE OF RESIDENTS	RURAL	11	11.7
		URBAN	26	12.6

4	POSSESSION OF BPL CARD	NO	34	13.8
		YES	3	5.6
5.	EMPLOYEMENT STATUS	UNEMPLOYED	12	11.5
		EMPLOYED	25	12.2
6.	LITERACY LEVEL	UP TO PRIMARY	3	5.3
		MIDDLE	6	10.3
		SECONDARY	7	6.9
		GRADUATION AND MORE	21	24.7
7.	ANY FAMILY MEMBER SUFFERED FROM COVID-19	YES	19	16.5
		NO	18	9.7
8.	TIME TAKEN TO REACH AT VACCINATION CENTRE	LESS THAN 30 MINUTES	32	13.2
		MORE THAN 30 MINUTES	5	8.5
9.	HAD ANY PERSONAL CONCERN OR WORRIES RELATED TO COVID-19 VACCINE	NO	21	56.8
		YES/MAY BE	16	6.1

ASSOCIATION

- Analysis was conducted to find out the association between socio-demographic characteristics, time taken to reach vaccination center and whether one has personal concern with vaccination or not with complete vaccination.
- To find the significant association we did bivariate analysis using chi square test.
- It was found that age group, personal concern and education level of respondent have significant association with complete vaccination.

RESULT OF BINARY LOGIT REGRESSION ANALYSIS

SR. NO	VARIABLE	CHARACTERSTIC	SIG.	EXP B	CI LOWER	CI UPPER
1.	GENDER	MALE@				
		FEMALE	.866	.918	.339	2.484
2.	TYPE OF RESIDENTS	RURAL@				
		URBAN	.943	1.035	.401	2.672
3.	BPL CARD POSSESSION	NO@				
		YES	.953	.956	.218	4.205
4.	EMPLOYEMENT STATUS	UNEMPLOYED@				
		EMPLOYED	.950	1.040	.298	3.629

5.	FAMILY MEMBER SUFFERED FROM COVID-19	NO@				
		YES	.376	.682	.294	1.583
6.	PERSONALLY, HAVE ANY CONCERN	NO@				
		YES/MAY BE	.000	12.063	4.912	29.627
7.	AGE GROUP	45-50@				
		51-60	.139	.278	.051	1.517
		ABOVE 60	.048	.203	.042	.987
8.	LITERACY LEVEL	UPTO PRIMARY@				
		MIDDLE	.044	.134	.019	.947
		SECONDARY	.114	.321	.078	1.314
		GRADUATION AND MORE	.075	.372	.125	1.105
9.	TIME TAKEN TO REACH VACCINATION CENTRE	LESS THAN 30 MINUTES@				
		MORE THAN 30 MINUTES	.482	1.541	.462	5.141

- Acceptancy with binary logit regression it was found that age group, literacy level and personal concern were having significant association with complete vaccination with two doses of vaccine.
- In addition to this it was found that female received complete vaccination 0.082 times less than males. Further it was found that urban respondents received full vaccination 1.035 times more than their rural counterpart.
- In addition to this analysis says that respondents who possess BPL card received complete vaccination .044 times less than respondents who do not have BPL card.
- Also employed respondents received full vaccination 1.040 times more than unemployed respondents. Analysis pertaining to age group suggests that respondents of age group 51-60 years received complete vaccination 0.722 times less than respondents of age group 45-50 years, similarly respondents of age group above 60 years received full vaccination 0.797 times less than respondents of age group 45-50 years.
- In addition to this analysis regarding literacy and complete vaccination says that respondents with literacy level of middle, secondary and graduation and more received complete vaccination 0.866, 0.679, 0.628 times less than the respondents with primary education.

DISCUSSION

- In this study it was found that 12.3 percent of the respondents were fully vaccinated with two doses of COVID-19 vaccine, 13.3 percent respondents were not at all vaccinated, and 74.4 percent respondents were partially vaccinated with one dose of vaccine, this indicates that around 87.7 percent respondents had vaccine hesitancy
- This result shows similarity with previous studies namely “COVID-19 vaccine hesitancy worldwide: that says that large variability in COVID-19 vaccine acceptance rates was reported in different countries and regions of the world. A sizable number of studies reported COVID-19 acceptance rates below 60%, which would pose a serious problem for efforts to control the current COVID-19 pandemic”.

- Less educated, having BPL card, who had some concern related to COVID-19 vaccine, and who take longer time to reach at vaccination centre, were having more vaccine hesitancy.
- One study with medical students by supports our study finding and suggests that “only 53% students agreed to participate in a covid-19 vaccine trial and 23% of students were unwilling to take a covid-19 vaccine immediately. Students willing to take the vaccine were more likely to trust public health experts, had fewer concerns about side effects.
- Most common reason for covid-19 vaccine hesitancy or delay in taking vaccine was fear of complication due to vaccine (62%), other reasons were distrust in vaccine anyone advised for not taking vaccine, vaccine unavailability.
- Similar results were obtained in a study “individual preferences for covid-19 vaccination in china, study found a higher probability of vaccinating when the vaccine was more effective; risks of serious side effects were small”
- Another similar study suggest that “an increase in vaccine efficacy from 50% to 70% and to 90%, a significantly lower incidence of major side effects and longer protection duration (5 years vs 1 year) was associated with an increase in the probability of accepting a vaccine”

CONCLUSION AND RECOMMENDATION

- Analysis from chi square test suggest that age group and educational level are significantly associated with complete vaccination
- It indicates that educated people are more aware about health issues and have less hesitancy towards COVID-19 vaccine.
- As educational level increases, people have more confidence in health system and covid-19 vaccine safety.
- The main reasons for delay or hesitancy towards vaccination are fear of complication (62 percent), someone advice against vaccination (10 percent), vaccines not available (9 percent) and distrust on new covid-19 vaccine (in 7 percent respondent)

- So, to combat this situation health system must educate people regarding safety of COVID-19 vaccine so that people believe that there is no adverse effect or complication due to vaccine.
- It is very important to build confidence and trust in safety and efficacy of covid-19 vaccine.
- . Awareness campaign should be implemented to explain the risk of covid-19 and to promote the safety and efficacy of covid-19 vaccine.
- Decreasing the fear of complication will help to increase the covid-19 vaccine acceptancy and complete vaccination which will result in herd immunity.
- Government of india and ministry of health and family welfare should enhance the efforts to improve trust for covid-19 vaccine among people.

REFERENCES:

1. SOARES P, ROCHA JV, MONIZ M, GAMA A, LAIRES PA, PEDRO AR, DIAS S, LEITE A, NUNES C. FACTORS ASSOCIATED WITH COVID-19 VACCINE HESITANCY. *VACCINES*. 2021; 9(3):300.

- [VACCINES | FREE FULL-TEXT | FACTORS ASSOCIATED WITH COVID-19 VACCINE HESITANCY \(MDPI.COM\)](#)

2. SALLAM M. COVID-19 VACCINE HESITANCY WORLDWIDE: A CONCISE SYSTEMATIC REVIEW OF VACCINE ACCEPTANCE RATES. *VACCINES*. 2021; 9(2):160.

- [VACCINES | FREE FULL-TEXT | COVID-19 VACCINE HESITANCY WORLDWIDE: A CONCISE SYSTEMATIC REVIEW OF VACCINE ACCEPTANCE RATES \(MDPI.COM\)](#)

3. MALIK AA, MCFADDEN SM, ELHARAKE J, OMER SB. DETERMINANTS OF COVID-19 VACCINE ACCEPTANCE IN THE US. *ECLINICALMEDICINE*. 2020. 26;

- [DETERMINANTS OF COVID-19 VACCINE ACCEPTANCE IN THE US - ECLINICALMEDICINE \(THELANCET.COM\)](#)

4. LENG A, MAITLAND E, WANG S, NICHOLAS S, LIU R, WANG J. INDIVIDUAL PREFERENCES FOR COVID-19 VACCINATION IN CHINA. *VACCINE*. 2021; 39(2):247

- [INDIVIDUAL PREFERENCES FOR COVID-19 VACCINATION IN CHINA - SCIENCEDIRECT](#)

5. HARAPAN H, WAGNER AL, YUFIKA A, WINARDI W, ANWAR S, GAN AK, SETIAWAN AM, RAJMOORTHY Y, HIZIR S, MUDATSIR M. ACCEPTANCE OF A COVID-19 VACCINE IN SOUTHEAST ASIA: A CROSS SECTIONAL STUDY IN INDONESIA. *FRONTIERS IN PUBLIC HEALTH*. 2020. 8(2296-2565); 381

- [HTTPS://WWW.FRONTIERSIN.ORG/ARTICLE/10.3389/FPUBH.2020.00381](https://www.frontiersin.org/article/10.3389/fpubh.2020.00381)

6. MURPHY J, VALLIÈRES F, BENTALL R, SHEVLIN M, MCBRIDE O, HARTMAN T, MCKEY R, BENNETT K, MASON L, GIBSON-MILLER J, LEVITA L, MARTINEZ A, STOCKS T, KARATZIAS T, HYLAND P. PSYCHOLOGICAL CHARACTERISTICS ASSOCIATED WITH COVID-19 VACCINE HESITANCY AND RESISTANCE IN IRELAND AND THE UNITED KINGDOM. *NAT COMMUN*. 2021;12(1): 29

- [HTTPS://WWW.NATURE.COM/ARTICLES/S41467-020-20226-9](https://www.nature.com/articles/s41467-020-20226-9)

7. KHUBCHANDANI J, SHARMA S, PRICE, J.H, WIBLISHAUSER MJ, SHARMA M, WEBB F. COVID-19 VACCINATION HESITANCY IN THE UNITED STATES: A RAPID NATIONAL ASSESSMENT. *J COMMUNITY HEALTH*. 2021;46(2): 270

- [COVID-19 VACCINATION HESITANCY IN THE UNITED STATES: A RAPID NATIONAL ASSESSMENT | SPRINGERLINK](#)

8. KREPS S, PRASAD S, BROWNSTEIN JS, HSWEN Y, GARIBALDI BT, ZHANG B, KRINER DL. FACTORS ASSOCIATED WITH US ADULTS' LIKELIHOOD OF ACCEPTING COVID-19 VACCINATION. *JAMA NETW OPEN*. 2020 OCT ;3(10):E2025594.

- [HTTPS://PUBMED.NCBI.NLM.NIH.GOV/33079199/](https://pubmed.ncbi.nlm.nih.gov/33079199/)

9. LUCIA V, KELEKAR A, AFONSO N. COVID-19 VACCINE HESITANCY AMONG MEDICAL STUDENTS. *JOURNAL OF PUBLIC HEALTH*. 2020;3(10)

- [COVID-19 VACCINE HESITANCY AMONG MEDICAL STUDENTS | JOURNAL OF PUBLIC HEALTH | OXFORD ACADEMIC \(OUP.COM\)](#)