



KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING COVID 19 VACCINE AMONG OUT PATIENTS VISITING A TERTIARY CARE HOSPITAL: A CROSS SECTIONAL STUDY.

Mahesh Kamal Babu Tinnaluri

Junior Resident, Department of Community Medicine, Vilasrao Deshmukh Government Medical College, Latur, Maharashtra, India.

Anand Raghuveer Aradwad

Assistant Professor, Department of Community Medicine, Vilasrao Deshmukh Government Medical College, Latur, Maharashtra, India.

Ajit Nagaonkar

Head of Department, Department of Community Medicine, Vilasrao Deshmukh Government Medical College, Latur, Maharashtra, India.

ABSTRACT

Background and Aims: Implementation and Success of Any Vaccine program and control of pandemic is dependent on the people's knowledge, attitude and practices. People having good knowledge, attitude and practices tends to have higher acceptance rate for any vaccine program.

Objectives of study:

1. To evaluate the knowledge, attitude and practices of people regarding COVID 19 Vaccine.
2. To evaluate Prevalence of COVID 19 among vaccinated people. **Materials and Methods:** the present study was a cross sectional hospital-based survey conducted among 300 study participants attending OPD General Medicine of tertiary care hospital using preformed pretested Questionnaire. The questionnaire was analyzed using SPSS version 21. **Results:** Among 300 study participants, mean age was 46.7 ± 14.35 years, Low Socio-economic status and Low Education status were risk factors for lack of adequate knowledge, attitude and practice. Older participants (>40 years) were more willing to take the COVID-19 vaccine ($p < 0.004$) as they believed the vaccine is Safe and considered it as societal responsibility. Younger participants (<40 years) prefer natural immunity rather than COVID vaccine ($p < 0.0001$) and there was Statistically significant change in attitude upon counseling and use and importance of vaccine, among younger personnel who didn't take vaccine ($p < 0.01$). 84(28%) were COVID 19 Positive before taking COVID 19 Vaccine. Among 75 people who took 1st dose of COVID 19, 14(18.7%) got COVID 19 infection, among 75 people who took 1st dose of COVID 19, 65(86.7%) followed Precautionary measures. Among 149(56.9%) who took 2nd dose, only 3(2%) had got COVID 19 infection. Among 149(56.9%) who took 2nd dose, 145(97.3%) followed Precautionary measures. 67(25.6%) were COVID 19 Positive before taking 1st dose of Vaccine. 65(77.3%) had followed precautionary measures before Getting COVID 19 Positive and 19(22.7%) didn't follow precautionary measures before Getting COVID 19 Positive. **Conclusion:** We have to improve the Knowledge, Attitude and Practice among population not only in regards with COVID 19 Vaccine but also every government health intervention for the benefit of people.

KEYWORDS : KAP study, COVID 19 Vaccine.

INTRODUCTION:

India, the second most populated country in the world with population. Any infectious disease possesses a grave threat to our country because of large population and unmet medical needs.¹ In December 2019, the novel Corona-virus (Covid-19) first came to light in Wuhan, China and within one month only, it has been proclaimed as a public health emergency worldwide.² The outbreak of corona virus-related disease was coined as Corona pandemic by World Health Organization.³ Despite being imposing travel-related restrictions, social distancing, and other preventive measures to control corona related infection, India has witnessed a spike in Covid-19 cases. It is of utmost important to control this pandemic in large populated country like India and for that the most powerful tool is mass immunization. Due to advancements in medical and Biotechnology we were able to prepare Vaccine against COVID 19, and it saved millions of lives so far.⁴

High fever, dry cough, respiratory difficulties, chest pain, extreme shortness of breath, and bilateral pulmonary infiltration are all signs of Covid-19 virus-related infection. A core strategy for preventing this deadly virus is through vaccinations. As SARS-CoV-2 is an exceptionally infectious and communicable virus that affects communities worldwide hence, Covid-19 vaccination are the most effective treatment for this disease^{5,6}. Thus, mass immunization is necessary to reduce the spread of infection. However, anti-vaccination sentiment has grown, giving rise to the phenomenon of vaccine hesitancy.⁷ Vaccine hesitancy is amongst the top ten risks of public health declared by the WHO, that have wreaked havoc on immunization programs worldwide, as it remains a significant roadblock in achieving optimal vaccination

Targets. People all over the world were waiting and hoping for a vaccine since the virus first emerged. Understanding why people are reluctant to get the Covid-19 vaccination done is essential, as it can aid health officials in increasing vaccine awareness and limiting the disease's spread.⁸ As a result, there is a pressing need for a more up-to-date and nuanced understanding of vaccine-related attitudes and the factors influencing people's intentions to take up Covid-19 vaccines.

METHODS:

1. **Study Design:** Cross sectional hospital-based survey.
2. **Study Period:** 6 months
3. **Study population:** OPD General Medicine of tertiary care hospital
4. **Sample size:** By using epi info software with reference study done by Kumari A et al, KAP study on COVID-19 vaccine and vaccination programme among the general population, the sample size came to be 295, we included 300 study participants.
5. **Sampling Method:** Consecutive sampling method was used for selecting Patients, till desired sample size obtained.
6. **Inclusion Criteria:** All OPD Patients >18 years attending, OPD and patients willing to participate in study.
7. **Exclusion Criteria:** Patients who are not willing to participate in study.

Data Collection:

A pretested proforma was prepared and it was administered to OPD patients attending Tertiary care hospital. All question were asked face to face and the responses were recorded and a total of 300 patients were administered questionnaire about their Knowledge, Attitude and Practices in regards to COVID

vaccines available in India. All items were modified using a Likert scale in five points ranging from strongly disagree (1) to strongly agree (5). pilot study was carried out with 25 participants to ensure that the questions and response formats were understood. The majority of respondents indicated that the language used was simple, and the questionnaire's length was also suitable.

Statistical Analysis:

The data collected was entered in Microsoft Excel sheet and later analyzed using SPSS software version 21 and the Quantitative data was expressed as Mean and Qualitative data as Frequency. The statistical test applied between Quantitative data to measure significance was Student T test and the statistical test applied between Qualitative data to measure significance was Chi square test and Man Whitney U test. P value less than 0.05 was statistically significant.

RESULTS:

In regards to Demographic Characteristics of study participants, 100(33.3%) were aged 51-60 years, 75(25%) were aged 41-50 years, 65(21.7%) were aged >60 years, 45(15%) were aged 31-40 years and 15(5%) were aged 21- 30 years. 176(58.7%) were males and 124(41.3%) were females. 132(44%) were of urban residence and 168(56%) were Rural residence. According Kuppaswamy classification of education, 93(31%) studied up to Middle school, 80(26.7%) studied up to Primary school, 59(19.7%) studied up to High school, 27(9%) studied up to intermediate school, 26(8.7%) were illiterate and 15(5%) were Graduates. 130(43.3%) were Semi Skilled workers, 91(30.3%) were unskilled workers, 46(15.3%) were Skilled workers, 13(4.3%) Clerical/Shop owner and Unemployed each and semiprofessional were 7(2.3%). 120(40%) were Lower Middle class, 110(36.7%) were Lower class, 30(10%) were middle class, 20(6.7%) were upper middle class and upper class each.

In Regards to Knowledge Questionnaire of COVID 19 vaccine, 179(59.7%) had correct response, 80(26.7%) had incorrect response and 41(13.4%) doesn't know about on when will be Protective immunity Against COVID 19 infection will be achieved, 156(52%) had correct response, 86(28.7%) had incorrect response and 58(19.3%) doesn't know about who are Eligible for taking COVID 19 Vaccine. 190(63.3%) had correct response, 43(14.3%) had incorrect response and 67(22.4%) doesn't know about when to take COVID Vaccine after having COVID 19 infection. 176(58.6%) had correct response, 40(13.4%) had incorrect response and 84(28%) doesn't know about what Covid Vaccines made Available for free by Government. 195(65%) had correct response, 56(18.7%) had incorrect response and 49(16.3%) doesn't know about weather COVID 19 Vaccine Safe to take or not. 258(86%) had correct response, 17(5.7%) had incorrect response and 25(8.3%) doesn't know about if government is providing vaccine at free of cost or not. 156(52%) had correct response, 86(28.7%) had incorrect response and 58(19.3%) doesn't know about if we take another Type COVID vaccine after first dose with some other Vaccine. 145(48.3%) had correct response, 80(26.7%) had incorrect response and 75(25%) doesn't know about if Vaccine prevents against onset of severe form of COVID 19. 164(54.7%) had correct response, 85(28.3%) had incorrect response and 51(17%) doesn't know about if Can we get COVID 19 Infection even after taking Vaccine. 175(58.3%) had correct response, 60(20%) had incorrect response and 65(21.7%) doesn't know about if More benefit of getting COVID 19 vaccine over its Risk. 145(48.3%) had correct response, 90(30%) had incorrect response and 65(21.7%) doesn't know about if they were aware of nearest government facility providing COVID 19 Vaccine.

In regards to Attitude Questionnaire towards COVID 19 Vaccine, 84(28%) disagree, 82(27.3%) agree, 72(24%) strongly agree, 41(13.7%) strongly Disagree and 21(7%) were neutral

in their response for After Getting COVID 19 Vaccine, if they need to follow precautionary measures or not. 89(29.7%) strongly agree, 87(29%) agree, 72(24%) disagree, 32(10.7%) strongly Disagree and 20(6.7%) were neutral in their response for When their turn comes for Vaccination, if they will take COVID 19 Vaccine or not. 80(26.7%) strongly agree, 80(26.7%) agree, 80(26.7%) disagree, 40(13.3%) strongly Disagree and 20(6.7%) were neutral in their response for If they prefer natural immunity by having disease/ sub clinical infection rather than taking vaccine. 87(29%) disagree, 78(26%) agree, 69(23%) strongly agree, 42(14%) strongly Disagree and 24(8%) were neutral in their response for weather Taking COVID 19 Vaccine is a Societal responsibility. 84(28%) strongly agree, 82(27.3%) agree, 78(26%) disagree, 35(11.7%) strongly Disagree and 21(7%) were neutral in their response for weather Availability of COVID 19 Vaccine free of Cost is reason for me taking Vaccine.

In regards to practical Questionnaire towards COVID 19 Vaccine, 262(87.3%) had either partial or complete COVID 19 vaccine and 75(28.6%) had taken first dose of COVID 19 Vaccine, 149(56.9%) had taken 2 doses and booster doses taken among 38(14.5%). 262(87.3%) taken vaccine by walk in and 38(12.7%) had taken through COWIN app. Among 38 people who not taken vaccine, 13(34.2%) will take COVID 19 Vaccine, 19(50%) will not take COVID 19 Vaccine and 6(15.8%) were not sure of taking COVID 19 Vaccine. 235(89.7%) had taken Government Facility and 27(10.3%) had taken at private Facility. 235(89.7%) had taken Free Vaccine and 27(10.3%) had taken Paid Vaccine. 241(80.3%) were Following precautionary measures like wearing mask, social distancing and hand sanitation against COVID 19 and 59(19.7%) were not Following precautionary measures like wearing mask, social distancing and hand sanitation against COVID 19. 256(85.3%) will recommend their family and friends to get Vaccinated against COVID 19. 251(83.7%) will also advice their fellow colleagues and neighbours to follow precautionary measures. In regards to General Questionnaire on COVID 19, 84(28%) were COVID 19 Positive before. Among 75 people who took 1st dose of COVID 19, 14(18.7%) got COVID 19 infection, among 75 people who took 1st dose of COVID 19, 65(86.7%) followed Precautionary measures. Among 149(56.9%) who took 2nd dose, only 3(2%) had got COVID 19 infection. Among 149(56.9%) who took 2nd dose, 145(97.3%) followed Precautionary measures. 67(25.6%) were COVID 19 Positive before taking 1st dose of Vaccine. 65(77.3%) had followed precautionary measures before Getting COVID 19 Positive and 19(22.7%) didn't followed precautionary measures before Getting COVID 19 Positive.

According to COVID 19 Knowledge Questionnaire association with Demographic Features like Age, Gender, Socio economic status, Education, Occupation and Residence, there was statistically significant association between SES, Education and knowledge Questionnaire Q1, Q3, Q8 and Place of Residence was statistically significant associated with knowledge Questionnaire Q5. According to COVID 19 Attitude Questionnaire association with Demographic Features like Age, Gender, Socio economic status, Education, Occupation and Residence, there was statistically significant association between SES, Education, Occupation and Attitude Questionnaire A1, Age, SES, Education, place of residence and Attitude Questionnaire A3, Age and Attitude Questionnaire A5. According to COVID 19 Practical Questionnaire association with Demographic Features like Age, Gender, Socio economic status, Education, Occupation and Residence, there was statistically significant association between Education and Attitude Questionnaire P2, Occupation and P6, P7. Low Socio-economic status and Low Education status were risk factors for lack of adequate knowledge, attitude and practice. Older participants (>40 years) were more willing to take the COVID-19 vaccine (p <

0.004) as they believed the vaccine is Safe and considered it as societal responsibility. Younger participants (<40 years) prefer natural immunity rather than COVID vaccine ($p < 0.0001$) and there was Statistically significant change in attitude upon counseling and use and importance of vaccine, among younger personnel who didn't take vaccine ($p < 0.01$).

DISCUSSION:

Mass vaccination is considered to be an effective public health measure to control the COVID-19 pandemic. We conducted this cross-sectional survey to evaluate the knowledge, attitude, practices and concerns of people regarding the COVID-19 vaccine attending OPD of tertiary care hospital. A representative sample of 300 participants were recruited to answer the predeveloped validated questionnaire on knowledge, attitude and practices regarding the COVID-19 vaccine.

Majority of older people took COVID 19 Vaccine and only few younger study participants were not willing to take vaccine, 262(87.3%) had either partial or complete Vaccine and Among 38 people who did not taken vaccine, After Counselling regarding importance and benefit of COVID 19 Vaccine, 13(34.2%) will take COVID 19 Vaccine, 19(50%) will not take COVID 19 Vaccine and 6(15.8%) were not sure of taking COVID 19 Vaccine. There is a need for ASHA and Anganwadi workers to trace the people and families who were not vaccinated and educate them on importance and benefit of COVID 19 Vaccine. Just educating them on Vaccine is not enough as the preventive measures such as Washing hands and Wearing Masks and following COVID appropriate behavior will not decrease COVID 19 infections, but following safe hand wash techniques will also decrease gastrointestinal diseases of public health importance and wear mask in public places will lead to decrease in spread of Respiratory infections.

According to research by Kourlaba et al⁹, individuals who rely on social media for COVID-19 vaccination information are unlikely to be vaccinated. This necessitates the dissemination of accurate COVID-19 vaccination updates through a reputable source to the general population, particularly rural residents and those with lower socioeconomic standing. Similar willingness rates were obtained in trials undertaken in Australia (80%)¹⁰ and the United Kingdom (76.9%).¹¹

This conclusion is consistent with studies performed in Australia¹⁰ and Greece⁹, where persons aged 65 and older were eager to get vaccinated, however the other research conducted in France¹² found that those aged 75 and older were hesitant to be vaccinated.

In one of the research projects done in Japan¹³, it was shown that low-income individuals had a lower vaccination acceptance rate. Similarly, socioeconomic characteristics impacted the willingness to pay for the vaccination in research done in China.¹⁴ As India is a country with significant economic differences, government officials should guarantee that vaccinations are offered for free or at reduced costs to those from lower socioeconomic classes in order to ensure widespread immunization. When an immune individual contacts a sick person, they are less likely to get infected, preventing the illness from spreading further. With a sufficient number of immune individuals, transmission rates may be reduced enough, resulting in High immunization.¹⁵

Previous research from the United States and Australia predicted that there would be a considerable disparity in vaccination uptake rates across the various demographic categories, including age, CDC COVID-19 risk groups, and occupation.^{16,17} Between 'coercive' and 'persuasive' tactics, there is a continuing dispute over the most effective technique

to encourage vaccination uptake.¹⁸ As the coercive tactics (e.g., mandating vaccination) do not address the fundamental cause of Vaccine Hesitancy or Vaccine Resistance, we believe that the latter approach will generate superior outcomes. As a result, they may cause an increase in refusals to vaccinate in response to the policy. On the other hand, persuasive tactics (e.g., educational initiatives) tend to target the underlying issues and may thus aid in boosting vaccination uptake.¹⁹

We may infer, based on the findings of this research and a recent study from India, that awareness of COVID-19 and its vaccine may help minimize Vaccine Resistance and Vaccine Hesitancy.²⁰ In our study 87.3% were either partially or completely vaccinated and it is upon health care workers to do a survey periodically in their respective sectors and make them adhere to vaccination schedule. It is upon Government to provide adequate Vials of Vaccines available at vaccine sites for proper vaccination drive.

Our study revealed that people aged >45 years, residing in urban areas and belonging to upper or upper middle socioeconomic class have comparatively high knowledge but still though many people are relying on authentic information sources, the issue of concern is the information obtained from social media as it might provide false information, thus increasing vaccine hesitancy among people.

This calls for the need to convey correct COVID-19 vaccine updates through reliable sources to the public, especially people residing in the rural districts and belonging to lower socio-economic status. Moreover, the government should use and direct the social media platforms to deliver authentic information about the vaccine to alleviate vaccine dropout rates and enhance the willingness. The willingness of getting vaccinated is multifaceted and is largely influenced by various drivers and barriers.

The determinants of COVID-19 vaccine include usefulness of the vaccine in eradication of the disease, recommendation by doctors and role models, sufficient data available about the safety of the vaccine and considering it a societal responsibility to get vaccinated. Though various drivers are associated with the vaccine acceptance, there are certain concerns related to the perceived safety of the vaccine, perceived efficacy, perceived risks and rapid development of the vaccine that might hold people back in getting vaccinated. Our results depict that people belonging to the low socioeconomic status and residing in rural areas have greater aversion to the COVID-19 vaccine which is a matter of concern as nearly 70% of the Indian population resides in rural areas.

Our study has certain strengths and limitations. The identified drivers and barriers associated with COVID-19 vaccine can help health authorities to analyze gaps and further build vaccine literacy.

CONCLUSION

This cross-sectional research aims to determine the acceptance and reluctance of the COVID-19 vaccine among individuals by evaluating their knowledge, attitude, and vaccination practices. The research has highlighted worries about the acceptability of vaccines, which might impact the mass immunization campaign.

This study's results would aid public health policymakers and concerned government authorities in implementing effective ways to promote widespread vaccination adoption. Since this is cross-sectional research that provides a snapshot of community reactions at a particular moment in time, longitudinal studies should be conducted to get insight into people's attitudes and worries surrounding the vaccination in light of the evolving circumstances in India.

Table 1: Knowledge Questionnaire on COVID 19 Vaccine among Study Participants

Knowledge Questionnaire	Correct	Incorrect	Don't Know
Protective immunity Against COVID 19 infection will be achieved after 14 days of 1st Dose?	179(59.7%)	80(26.7%)	41(13.4%)
People who are Eligible for COVID 19 Vaccine	156(52%)	86(28.7%)	58(19.3%)
we take Vaccine after >3 months duration of COVID 19 infection?	190(63.3%)	43(14.3%)	67(22.4%)
Do you know what Covid Vaccines made Available for free by Government?	176(58.6%)	40(13.4%)	84(28%)
Is COVID 19 Vaccine safe to take or not?	195(65%)	56(18.7%)	49(16.3%)
Do you Know government is providing vaccine at free of cost?	258(86%)	17(5.7%)	25(8.3%)
Can we take another Type COVID vaccine after first dose with some other Vaccine?	156(52%)	86(28.7%)	58(19.3%)
Vaccine prevents against onset of severe form of COVID 19?	145(48.3%)	80(26.7%)	75(25%)
Can we get COVID 19 Infection even after taking Vaccine?	164(54.7%)	85(28.3%)	51(17%)
More benefit of getting COVID 19 vaccine over its Risk?	175(58.3%)	60(20%)	65(21.7%)
Are you aware of nearest government facility providing COVID 19 Vaccine?	145(48.3%)	90(30%)	65(21.7%)

Table 2: Attitude Questionnaire on COVID 19 Vaccine among Study Participants

Attitude Questionnaire	Strongly Agree	Agree	Neit her	Disag ree	Strongly Disagree
After Getting COVID 19 Vaccine, I don't need to follow precautionary measures?	72(24%)	82(27.3%)	21(7%)	84(28%)	41(13.7%)
When my turn comes for Vaccination, I will take COVID 19 Vaccine?	89(29.7%)	87(29%)	20(6.7%)	72(24%)	32(10.7%)
I will not take vaccine; I prefer natural immunity by having disease/ sub clinical infection?	80(26.7%)	80(26.7%)	20(6.7%)	80(26.7%)	40(13.3%)
Taking COVID 19 Vaccine is a Societal responsibility?	69(23%)	78(26%)	24(8%)	87(29%)	42(14%)
Availability of COVID 19 Vaccine free of Cost is reason for me taking Vaccine?	84(28%)	82(27.3%)	21(7%)	78(26%)	35(11.7%)

Table 3: Practices Questionnaire on COVID 19 Vaccine among Study Participants

Practices Questionnaire	Variables	Frequency (%)
Have you taken COVID Vaccine either partial or complete?	yes	262(87.3%)

If taken how many doses have you taken?	1 Dose	75(28.6%)
	2 Doses	149(56.9%)
	Booster taken	38(14.5%)
How did you take your Vaccine?	Walk in	212(80.9%)
	COWIN app	50(19.1%)
If not, are you going to take COVID 19 Vaccine?	Yes	13(34.2%)
	No	19(50%)
	Not sure	6(15.8%)
Did you take COVID 19 Vaccine at government facility or private facility?	Govt	235(89.7%)
	Private	27(10.3%)

Did you get paid vaccine or free vaccine?	Paid	27(10.3%)
	Free	235(89.7%)
Are you Following precautionary measures like wearing mask, social distancing and hand sanitation against COVID 19?	Yes	241(80.3%)
	No	59(19.7%)
I will recommend my family and friends to get Vaccinated against COVID 19?	Yes	256(85.3%)
	No	44(14.7%)
I will also advice my fellow colleagues and neighbours to follow precautionary measures?	Yes	251(83.7%)
	No	49(16.3%)

Table 4: General Questionnaire on COVID 19 Vaccine among Study Participants

General Questionnaire	Yes	No
Are you ever been tested COVID 19 Positive?	84(28%)	216(72%)
Did you get COVID 19 positive after taking 1st dose?	14(18.7%)	61(81.3%)
Did you get COVID 19 positive after taking 2nd dose?	3(2%)	146(98%)
Did you follow Precautionary measures before getting infection after 1st dose?	65(86.7%)	10(13.3%)
Did you follow Precautionary measures before getting infection after 2nd dose?	145(97.3%)	4(2.7%)
Are you COVID 19 Positive before taking 1st dose of Vaccine?	67(25.6%)	195(74.4%)
Did you follow precautionary measures before Getting COVID 19 Positive?	65(77.3%)	19(22.7%)

Table 5: Distribution of study participants according to COVID 19 Questionnaire and Demographic Features.

COVID 19 Knowledge Questionnaire	Age	Gen der	SES	Educ ation	Occu pation	Resid ence
Protective immunity Against COVID 19 infection will be achieved after?	0.396	0.884	0.01	0.03	0.892	0.746
People Eligible for COVID 19 Vaccine	0.650	0.204	0.438	0.208	0.886	0.272
After how much duration after COVID 19 infection Can someone take ccine?	0.677	0.484	0.002	0.004	0.320	0.257
Do you know what Covid Vaccines made Available for free by Government?	0.423	0.862	0.11	0.574	0.938	0.838
Is COVID 19 Vaccine safe to take or not?	0.742	0.926	0.639	0.234	0.219	0.01
Do you Know government is providing vaccine at free of cost?	0.502	0.577	0.95	0.548	0.427	0.67

Can we take another Type COVID vaccine after first dose with some other Vaccine?	0.650	0.204	0.438	0.208	0.886	0.272
Vaccine prevents against onset of severe form of COVID 19?	0.439	0.956	0.04	0.007	0.941	0.369
Can we get COVID 19 Infection even after taking Vaccine?	0.706	0.277	0.387	0.01	0.692	0.324
More benefit of getting COVID 19 vaccine over its Risk?	0.465	0.939	0.171	0.538	0.896	0.253
Are you aware of nearest government facility providing COVID 19 Vaccine?	0.167	0.960	0.264	0.114	0.841	0.656
COVID 19 Attitude Questionnaire						
After Getting COVID 19 Vaccine, I don't need to practice precautionary measures?	0.518	0.720	0.002	0.009	0.01	0.626
When my turn comes for Vaccination, I will be taking COVID 19 Vaccine?	0.247	0.958	0.932	0.239	0.998	0.578
I will not take vaccine; I prefer natural immunity by having disease/ sub clinical infection?	0.0001	0.02	0.0001	0.897	0.517	0.001
Taking COVID 19 Vaccine is a Societal responsibility?	0.004	0.835	0.911	0.854	0.526	0.616
Availability of COVID 19 Vaccine free of Cost is reason for me taking Vaccine?	0.780	0.908	0.840	0.536	0.996	0.382
COVID 19 Practices Questionnaire						
Have you taken COVID Vaccine either partial or complete?	0.126	0.340	0.842	0.915	0.17	0.09
If taken how many doses have you taken?	0.552	0.648	0.663	0.0001	0.833	0.37
How did you take your Vaccine?	0.126	0.34	0.842	0.915	0.17	0.09
If not, are you going to take COVID 19 Vaccine?	0.01	0.549	0.537	0.521	0.675	0.204
Did you take COVID 19 Vaccine at government facility or private facility?	0.134	0.515	0.271	0.992	0.02	0.252
Did you get paid vaccine or free vaccine?	0.134	0.515	0.271	0.990	0.027	0.253

Are you Following precautionary measures like wearing mask, social distancing and hand sanitation against COVID 19?	0.464	0.515	0.271	0.992	0.024	0.253
I will recommend my family and friends to get Vaccinated against COVID 19?	0.146	0.05	0.971	0.954	0.299	0.438
I will also advice my fellow colleagues and neighbours to follow precautionary measures?	0.109	0.302	0.791	0.962	0.362	0.421

P value <0.05, Statistically Significant

Table 6: Frequency Distribution of study participants according to Demographic characteristics

Demographic characteristics		Frequency	Percentage
Age	21-30	15	5.0
	31-40	45	15.0
	41-50	75	25.0
	51-60	100	33.3
	>60	65	21.7
Gender	Male	176	58.7
	Female	124	41.3
Residence	Urban	132	44.0
	Rural	168	56.0
Education	Illiterate	26	8.7
	Primary School	80	26.7
	Middle school	93	31.0
Occupation	High School	59	19.7
	intermediate	27	9.0
	Graduate	15	5.0
	Unemployed	13	4.3
	Unskilled worker	91	30.3
	Semi-Skilled worker	130	43.3
	Skilled worker	46	15.3
Socioeconomic Classification	Clerical/Shop owner	13	4.3
	Semi professional	7	2.3
	Upper	20	6.7
	Upper middle	20	6.7
	Middle	30	10.0
	Lower Middle	120	40.0
	Lower	110	36.7

REFERENCES:

- Bhartiya S, Kumar N, Singh T, Murugan S, Rajavel S, Wadhwani M. Knowledge, attitude and practice towards COVID-19 vaccination acceptance in West India. *Int J Community Med Public Health* 2021;8:xxx-xx.
- WHO Health Emergency Dashboard. WHO COVID 19 Dashboard. 2022.
- Conlon A, Ms CA, Washer L, Eagle KA, Bowman MAH. Impact of the influenza vaccine on COVID-19 infection rates and severity [Internet] *AJIC Am J Infect Control* 2021. <https://doi.org/10.1016/j.ajic.2021.02.012>.
- Dong E, Du H, Gardner L. An interactive web-based dashboard to track COVID-19 in real time [Internet]. In: *The Lancet Infectious Diseases*. vol. 20. Lancet Publishing Group; 2020 [cited 2021 Mar 2]. p. 533e4, <https://www.who.int/china/news/>.
- Li T, Zhang T, Gu Y, Li S, Xia N. Current progress and challenges in the design and development of a successful COVID-19 vaccine [Internet] *Fundam Res* 2021. <https://doi.org/10.1016/j.fmre.2021.01.011.0e56>.
- Deng S-Q, Peng H-J. Characteristics of and public health responses to the coronavirus disease 2019 outbreak in China [Internet] *J Clin Med* 2020 Feb20;9(2):575.
- Saiful Islam M, Siddique AB, Akter R, Tasnim R, Safaet M, Sujana H, et al. Knowledge, attitudes and perceptions towards COVID-19 vaccinations: a cross-sectional community survey in Bangladesh [Internet] *medRxiv* 2021 Feb 19. <https://doi.org/10.1101/2021.02.16.21251802>.
- Karlsson LC, Soveri A, Lewandowsky S, Karlsson L, Karlsson H, Nolfi S, et al. Fearing the disease or the vaccine: the case of COVID-19. *Pers Individ Differ* 2021 Apr 1; 172:110590.
- Kourlaba G, Kourkouni E, Maistrelli S, Tsopele CG, Molocha NM, Triantafyllou C et al. Willingness of Greek general population to get a COVID-19 vaccine. *Glob Health Res Policy* 2021;6(1). 1-0.
- Seale H, Heywood AE, Leask J, Sheel M, Durrheim DN, Bolsiewicz K, et al.

- Examining Australian public perceptions and behaviors towards a future COVID-19 vaccine. *BMC Infect Dis* 2021;21(1):1e9.
11. Thorneloe R, Wilcockson H, Lamb M, Jordan CH, Arden M. Willingness to receive a COVID-19 vaccine among adults at high-risk of COVID-19: a UKwide survey. 2020.
 12. Peretti-Watel P, Seror V, Cortaredona S, Launay O, Raude J, Verger P, Fressard L, Beck F, Legleye S, l'Haridon O, Leger D. A future vaccination campaign against COVID-19 at risk of vaccine hesitancy and politicisation. *Lancet Infect Dis* 2020;20(7):769e70.
 13. Machida M, Nakamura I, Kojima T, Saito R, Nakaya T, Hanibuchi T, et al. Acceptance of a COVID-19 vaccine in Japan during the COVID-19 pandemic. *Vaccines* 2021;9(3):210.
 14. Lin Y, Hu Z, Zhao Q, Alias H, Danaee M, Wong LP. Understanding COVID 19 vaccine demand and hesitancy: a nationwide online survey in China. *PLoS Neglected Trop Dis* 2020;14(12):e0008961.
 15. Dowdy D, D'Souza G. What is Herd Immunity and How Can We Achieve It With COVID-19? - COVID-19 - Johns Hopkins Bloomberg School of Public Health. John Hopkins Public Health. 2021.
 16. Fisher KA, Bloomstone SJ, Walder J, Crawford S, Fouayzi H, Mazor KM. Attitudes Toward a Potential SARS-CoV-2 Vaccine: A Survey of U.S. Adults. *Ann Intern Med*. 2020;173(12):964-73.
 17. Seale H, Heywood AE, Leask J, Sheel M, Durrheim DN, Bolsewicz K, et al. Examining Australian public perceptions and behaviors towards a future COVID-19 vaccine. *BMC Infect Dis*. 2021;21:120.
 18. Verger P, Dubé E. Restoring confidence in vaccines in the COVID-19 era. *Expert Rev Vaccines*. 2020;19(11):991–3.
 19. Gupta M, Goyal R, Aggarwal S, Singh M, Gupta VK, Garg N. Demographic and KAP determinants of COVID-19 vaccine hesitancy and vaccine refusal: a cross-sectional study in Indian population. *Int J Community Med Public Health* 2021;8:4776-85.
 20. Kumari A, Ranjan P, Chopra S, Kaur D, Kaur T. Knowledge, barriers and facilitators regarding COVID-19 vaccine and vaccination programme among the general population: A crosssectional survey from one thousand two hundred and forty-nine participants. *Diabetes Metab Syndr Clin Res Rev*. 2021;15(3):987–92.