



Public Awareness about Covid-19 Vaccination among Peoples of TamilNadu

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ABSTRACT

Purpose: Vaccines are effective interventions that can reduce the high burden of diseases globally. However, public vaccines hesitancy is a pressing problem for public health authorities. With the availability of COVID-19 vaccines, little information is available on the public acceptability and attitudes towards the COVID-19 vaccines in India. This study aimed to investigate the acceptability of COVID-19 vaccines and its predictions in attitudes towards these vaccines (Covaxin, Covishield and Sputnik) among public in India.

Materials and Methods: An online cross-sectional, and self-administered questionnaire was instrumentalized to survey adult participants from few districts in and around TamilNadu on the acceptability of COVID-19 vaccines. The parametric (independent sample t-test,) and non-parametric test (Chi-square test) is used to find the significance difference between the three types of vaccines and also the effective vaccine among peoples perspective of COVID-19 vaccines acceptability. A total of 217 participants completed the survey.

Findings: The public acceptability of COVID-19 vaccines was fairly good among female participants than that of the male participants and those who took Covishield vaccines considered best comparing to other vaccines in India. Similarly, participants believed that vaccines are generally safe. Among the participants, College students and employed participants accepted the COVID-19 vaccines completely and few participants are not still aware of importance of COVID-19 vaccination, they were less likely to have acceptance towards the vaccines. The most trusted sources of information on COVID-19 vaccines were healthcare providers. **Conclusion:** Systematic interventions are required by public health authorities to reduce the levels of vaccines hesitancy and improve their acceptance especially in the pandemic situation. These results predict and specify clearly that the vaccines have high rate of acceptability among the public and is an alarming to India health authorities for the readiness. These interventions should take them form of reviving the trust in national health authorities and bring out a structure for the awareness.

KEY WORDS: WHO, FDA, Vaccines, Vaccination, t-test, Chi-square test.

INTRODUCTION

Corona virus which is commonly called as Covid-19(SARS-Cov-2)is an infectious disease recently discovered illness caused by severe acute respiratory syndrome. This is a new virus especially among the human and it spread ratio was very fast. The COVID-19 was first identified December 2019 in Wuhan City of China. But now, this virus has spread to almost all countries of the Globe. In March 2020, the World Health Organization (WHO) declared the Covid-19 outbreak as a pandemic. While progress is being made in the development and production of vaccine against COVID-19, countries must simultaneously advance in planning to introduce this new vaccine and identify key components to strengthen as preparation for vaccination against this pandemic. Gained experience in the region of the America with vaccination against the H1N1 influenza pandemic in 2009, annual vaccination against seasonal influenza, vaccination campaign against measles and rubella, polio and yellow fever, among others, should be used to develop national COVID-19 vaccination plans.

Among the main challenges expected for COVID-19 vaccination are timely, equitable, and sufficient access to vaccine, technical and logistical aspects, such as the development of vaccines with new technologies, definition of priority groups, number of doses to administer for adequate protection, as well as vaccine safety and effectiveness. Additionally, other programmatic challenges can be evident related to cold chain needs and creating demand for vaccination, among others. However, with the information currently available and with the assumption that vaccines will be available in the countries of the region starting 2011, it is important to start preparing the infrastructure and key components to introduce the vaccine in all countries, prioritizing components in which progress can be made.

CORONAVIRUS EVOLUTION

Scientists first identified a human Coronavirus in 1965. It caused a common cold. Later that decade, researchers found a group of similar human and animal viruses and named them after their crown-like appearance. Severe Coronavirus can infect humans. The one that causes SARS emerged in southern china in 2002 and quickly spread to 28 other countries. More than 8,000 people were infected by July 2003, and 774 died. A small outbreak in 2004 involved only four more cases. This coronavirus causes fever, headache, and respiratory problems such as cough and shortness of breath. MERS started in Saudi Arabia in 2012. Almost all of the nearly 2,500 cases have been in people who live in or travel to the Middle East. This coronavirus is less contagious than its SARS cousin but more deadly, killing 858 people. It has the same respiratory symptoms but can also cause kidney failure. Unlike the previous five known human coronaviruses, SARS CoV-2 would set off a pandemic, causing with millions of cases and deaths worldwide. No Country on this planet has been spared from the effects of the pandemic and hence WHO announced and recommended for the complete lockdown to all the countries of the continents in the world.

SYMPTOMS

The most common symptoms of corona virus are fever, cough and shortness of breath. Some patients may have aches and pains, nasal congestion, runny nose and sore throat. Most people recover from the disease without needing special treatment. Older people and those with underlying medical problems like high blood pressure, heart, problems or diabetes are more likely to develop serious illness.

COVID-19 SPREAD

This disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID- 19 coughs or exhales. People can also be infected by touching a contaminated surface and then their eyes, mouth or nose. In 2020, the countries with the pandemic fully underway, world governments raced to discover vaccines as countermeasures. Vaccines are not the only countermeasures used against the COVID-19 pandemic and following are the some of the mandated measures for the prevention of the transmissions of the virus.

PREVENTION OF COVID-19

- Wash hands regularly and carefully with soap or sanitizer.
- Maintain a safe distance from anyone who is coughing or sneezing.
- Wear a mask that covers your nose and mouth to help protect yourself and others.
- Get a covid-19 vaccine when it is available to you.
- Stay home as much as possible & Monitor health daily with immunity food.

VACCINE AND VACCINATION

All COVID-19 vaccines being developed aim to produce immunity to the SARS-CoV-2 virus by stimulating an immune response to an antigen, usually the characteristics spike protein found on the surface of the virus. Some traditional vaccines achieve this by modifying the virus to weaken or disable it. So that when introduced to the body an immune response can be generated to the antigen without the virus causing disease. When the immune system comes into contact with the weakened virus, its defences, such as antibodies and T cells, attack the virus, or infected cells. In the process the specialised memory cells take note of the specific antigen and prime the immune system to produce cells and antibodies that will quickly target these proteins. So, the next time that person is exposed to the same virus, the immune system is ready to fight it off.

Food and Drug Administration (FDA) is committed and issuing the timely guidance to support response efforts to this pandemic and assist sponsors in the clinical development and licensure of vaccines for the prevention of Covid-19. In August 2020, the Russian government announced its fast tracked vaccine named *Sputnik V*, and in between April and July 2020, Chinese biotech company launched inactivated virus vaccine named *Coronavac*. In mean time, the companies Moderna and Pfizer-BioNTech of United States invented two novel vaccines. As of April 15 2022, the tracking tool shows 19 vaccines authorized for

emergency use and 12 is given full approval for use. The following table gives the list of approved vaccines for use in India.

VACCINES APPROVED FOR USE IN INDIA:

S.NO	NAME OF THE VACCINE
1.	ZYDUS CADILA ZYCOV-D
2.	MODERNA SPIKEVAX
3.	GAMALEYA SPUTNIK LIGHT
4.	GAMALEYA SPUTNIK V
5.	JANSSEN(JOHNSON&JOHNSON) Ad26.CO2.S
6.	OXFORD/ASTRAZENECA VAXZEVRIA
7.	SERUM INSTITUTE OF INDIA COVISHIELD (OXFORD/ASTRAZENECA formulation).
8.	BHARAT BIOTECH COVAXIN
9.	SERUM INSTITUTE OF INDIA COVOVAX(NOVOVAX formulation)
10.	BIOLOGICAL E LIMITED CORBEVAX

REVIEW OF LITERATURE

In this section, the literature of the study is reviewed and briefs about the same. A report on COVID-19 vaccines and the impact of the variants on the Efficacy of the vaccines: *The Coronavirus pandemic has caused negative effects across the globe; mortality and morbidity being main impact.* This study tells about the immune response; Transmissibility, genomic surveillance; vaccine efficacy; EPIDEMIOLOGY; diagnosis and Treatment. This seemed under control when various vaccines such as MODERNA, Pfizer, and ASTRAZENECA. Among many others were developed to protect people from the disease. These variants showed a high percentage of efficacies and also have a coordinated studying and evaluating the SARS-CoV-2 variants and their impact on the success of vaccines. The methodology is fatality of Risk rate, efficacy analysis after first Dose. The world is struggling to rise again after being hit by one of the most tragic pandemics ever witnessed. This seemed under control when various vaccines such as Moderna, Pfizer, AstraZeneca among many others, were developed to protect people from the disease. These vaccines showed a higher percentage of efficacy.

The article *Planning for a COVID-19 vaccination campaign: The role of social norms, Trust, knowledge, and vaccine attitudes*: gives some reflections and as COVID-19 is a new pandemic and the science behind it is evolving, many behavioural decisions are made with UNCERTAINTY, which elevates the prominence of normative influence. Based on these previous studies on the association between social norms and vaccination intentions, this study tests descriptive norms VS INJUNCTIVE norms. The data was weighted based on age, sex education and ethnicity, post-survey, to account for slight differences between the sample and the census estimate and also provides the descriptive statistics sample along with census estimate. Public health scholars predict that unless a substantial proportion of the population gets vaccinated against COVID-19, when available; community outbreaks of the disease are likely to continue, limiting our

ability to return to “normal”. It shows that injective norms, trust, competence are important correlates of intentions to vaccine against COVID-19.

In a similar way the study *Acceptance and attitude toward COVID-19 Vaccines: A Cross – Sectional study from Jordan*: gives Socio demographic characteristics medical history, acceptance of COVID-19 Vaccines and attitude towards COVID-19. These section consist of whether they accept to receive vaccines when they are approved and besides, participants were asked about their concerns during the COVID-19 pandemic. Stating that vaccines are safe concerned that there is a conspiracy behind COVID-19 pandemic, not having any trust in any source of information on vaccines, and willingness to pay for COVID-19 Vaccines. It was screened using UNIVARIABLE analysis and variables with $p < 0.05$ were considered in both multinomial and binary logistic regression.

OBJECTIVES

- To identify the efficacy rate of effective vaccine between COVISHIELD, COVAXIN AND SPUTNIK.
- To study about the satisfaction level on vaccines among people.
- To find the vaccinated people between male and female.
- Analysing the people perspective about covid-19 vaccination.

RESEARCH DESIGN

SOURCE OF DATA

Data used in the study is primary in nature and the data was collected by questionnaire method through online mode due to Pandemic. This survey contains the questions related to vaccination details from respondents like College students, working employees, household Women.

SAMPLE SIZE (n) & SAMPLING METHOD

The sampling method Convenient and Purposive Sampling is used to conduct the survey based on COVID-19 vaccination in districts like Coimbatore, Salem and Karur. Overall (217) people had participated and posted their responses of the questionnaire which was analysed using Statistical Software (SPSS-20).

STATISTICAL ANALYSIS

The analysis was performed using *frequency tables, charts, descriptive statistics, independent sample t-test and Chi-square test*. At first, potential predictors for COVID-19 vaccines were screened using Chi-square test between gender and vaccine types. The independent sample t-test is used to determine the significance difference between age and affected by corona virus or not.

RESULTS:

The Socio-demographic characteristics of the respondents are studied and shown in the Table1. Among the 217 respondents the majority of them belong to the age category of 25-35 years and also the majority of the respondents are the females (142-65%). Government initiated various Vaccination centres to get vaccinated such as public health centres, schools, colleges, government hospitals and private hospitals, in that majority of the respondents (97) preferred government hospital to take up the vaccine. Among the three types of vaccines Covishield, Covaxin and Sptunik, most of the respondents taken only Covishield and the same is replicated in the gender wise(Male-44 and Female-104-Table 2). In this study 95% of the respondents has taken Dose 1, 88% has taken Dose 2 and only very few respondents has taken Booster Dosage.

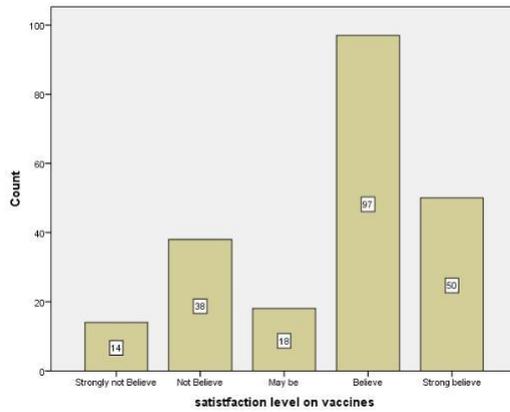
Table: 1 Socio-Demographic Characteristics of Respondents (n=217)

Characteristic	Frequency	Percentage (%)
Gender		
Male	75	35
Female	142	65
Age in years		
< 25 years	37	17
25-35 years	86	40
35-45 years	66	30
45-55 years	18	8
>55 years	8	5
Marital Status		
Yes	73	35
No	144	66
COVID Affected		
Yes	33	15
No	184	85
Vaccine Types		
COVISHIELD	148	68
COVAXIN	54	25
SPUTNIK	15	7
Vaccination		
Dose I	201	95
Dose II	191	88

Table: 2 Cross Tabulation between Gender and Vaccine Type

GENDER	TYPE OF VACCINE			TOTAL
	COVISHIELD	COVAXIN	SPUTNIK	
MALE	44	25	6	75
FEMALE	104	29	9	142
TOTAL	148	54	15	217

In this study, major respondents (97) believe that Vaccination helps to prevent them from Covid-19 Virus and another (50) respondents had strong belief in taking up the vaccination. Over all 147 respondents had the belief that Vaccination protects them from Corona Virus.



Chi-square test is used to test the significance between gender and vaccine type preference. Table 3 shows that gives very low degree of positive correlation (0.10) and there is no significance between the age and vaccine type where $0.084 > 0.05$.

Table: 3 Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.708 ^a	5	.084
Likelihood Ratio	11.107	5	.049
Linear-by-Linear Association	1.180	1	.277
N of Valid Cases	217		

The independent sample t-test is used to determine the significance difference between i) age and affected by corona virus or not ii) age and gender. Accordingly the significance value for age and affected by corona virus is 0.755 (Table 5) and for age and affected corona virus is 0.072. Both the significant value is greater than „p“ value 0.05. The result indicates that there Virus has no significance among the gender, age and vaccine type.

Table: 4- Group Statistics for affected by COVID

Affected by COVID	N	Mean	Std. Deviation	Std. Error Mean
No	184	25.27	10.514	0.755
Yes	33	25.88	8.961	1.560

Table: 5 Test of significance between Age and COVID affected

Age	Levene's Test for Equality of Variances	t-test for Equality of Means							
	F	Sig.	T	df	Sig.(2 tailed)	Mean difference	Std. Error Difference	95% Confidence Interval of the Difference	
Equal variances assumed	0.33	0.857	-.312	215	.755	-.607	1.947	-4.444	3.230
Equal variances not assumed			-.349	49.227	.729	-.607	1.742	-4.107	2.893

INTERPRETATION

From the independent sample t-test can infer that the calculated value (0.755) is greater than (0.05). Here it shows that there is no significance between age and affected by corona virus, it's all about the metabolic condition and immunity of the patients gets affected by corona or not.

CONCLUSION

In this paper a survey with 217 participants has taken and interpreted that the majority of the respondents were in the age group between 25-35 years. Acceptance of covid-19 vaccine in districts like Coimbatore, KARUR, and SALEM is influenced by the effectiveness and type of the vaccine. Also the belief among the respondents is high that vaccine rescues individual from Corona Virus infection. Acceptance is relatively high when the vaccine with very high effectiveness, but it reduced to only 38% and 97% have them believed that vaccine have high Efficiency level to immunize the system and help to recover from COVID-19. Also based on the metabolic conditions of each individual the immune system varies according to the living conditions and environment. Hence government has taken necessary measures to overcome the pandemic by injecting Booster dose and effective for the future generations.

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