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DETERMINANTS OF COVID-19 VACCINE ACCEPTANCE AMONG THE GENERAL ADULT POPULATION IN CHENNAI – A CROSS SECTIONAL SURVEY

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ABSTRACT
Background: Coronavirus outbreak was a highly unpredicted global burden that caused millions of deaths across the world. Vaccination against the infection declines the morbidity and mortality rates. This study objective aims to determine the reasons for the vaccine acceptance.
Methods: A cross sectional study was conducted through an online survey among the people living in chennai, Tamilnadu. An E-survey Google forms are circulated through the social platforms and email. Excluding the non-response all the data gained was descriptively analyzed.
Results: Out of total (n =376 ≥ 18 years) participants majority of them showed High acceptance and got already vaccinated whereas some revealed the fear of vaccine safety and risk effects. Vaccine hesitancy is seen in terms of lack of trust and proper awareness, myths about adverse effects. In addition our findings positively convey the knowledge of effective preventive measures for infection and proper following of government guidelines.
Conclusion: The study outcomes even though shows willingness of the people in receiving the vaccine at some point still a notable interruption is seen. Prioritization should be given to those critical areas to influence the public perception about vaccine benefits because now vaccination is the only essential measure to suppress the healthcare pressure which halts the covid 19 infection.

KEYWORDS : Vaccine acceptance, Covid 19 vaccine, preventive measures

INTRODUCTION:

Covid 19 pandemic is a serious infectious disease caused by SARS CoV2. The infected people will experience mild to moderate respiratory illness and in some cases lead to serious condition which requires medical attention(*Coronavirus*, n.d.). To reduce the viral transmission the nations around the world made control measures such as social distancing, lockdown, wearing mask and getting sanitized. These significant measures reduced the epidemic curve, at time being but a permanent remedy is much needed for the world to put an end to this viral transmission (Alqudeimat et al., 2021) .In India the first phase of covid vaccination was started on 16th of January 2021 for the frontline and healthcare works, people above 60 years of age and between 45 to 60 age associated with comorbidities, and later it was recommended to every adults for free of cost (Noronha et al., 2021). Covaxin was India's earliest covid 19 inactivated vaccine developed as an effective neutralizing agent for the viral pathogens. In addition to that ICMR and NIV also approved Covishield and Sputnik V as a suggested vaccine available in India (Sharun & Dhama, 2021). Currently for the age of 2 to 18 Covaxin it was recommended as emergency use, the second most populous country to include children into the vaccination drive (*India Recommends Homegrown COVID-19 Vaccine for Kids Aged 2 and above | Reuters*, n.d.). It was positively estimated that most of the countries will probably take 6 to 24 months to vaccinate their citizens but in between emergence of new viral strains and symptoms became a slight drawback in constant supply of vaccine and containment of the pandemic (Chen et al., 2021). In Spite of all precautionary measures to slow down the pandemic, most of the citizens across the world suffer from physical, mental and economic distress. Hence, a safe and effective vaccine development is a viable choice for putting an end to the current pandemic (Borriello et al., 2021). The study objective aims to determine the reason for the uptake of pandemic vaccination and attitude on getting a new vaccine.

METHODOLOGY:

Study Design and Setting:

A cross-sectional online survey was conducted using the Google Form. The e-survey form was shared through social media such as Facebook, WhatsApp, and Instagram groups during the period of 1st August to 15th October 2021. The sampling goal was to represent the general adult population of Chennai. Participants were enrolled if they are living in chennai, above 18 years and willing to participate.

Study Sample:

The study sample size is 384, taking the population size of Tamilnadu as 78.8 million at the time of study, with 95% confidence interval and 50% prevalence. The sample size was calculated using the formula $N=Z^2P\ (1-P)/e^2$. After adjusting the 10% attrition rate for non-response, the total samples targeted was 400. The survey was stopped after receiving 400+ completed questionnaires.

Questionnaire Development:

The survey tool was a self-administered questionnaire constructed based on the review of previous literature, after a broad search the important variables were selected representing the factors responsible for the acceptance and hesitancy of covid vaccines.

Ethical Consideration:

Ethical Approval was obtained from the Institutional Ethics Committee of The Tamilnadu Dr MGR Medical University, Chennai, Tamilnadu referring the project number (ECM GR 0309160)

Data collection & Analysis plan:

The objective of the study and vernacular consent was given at the beginning of the question tool where the participants after giving consent were included in the survey. All the data obtained are descriptively analyzed using Microsoft Excel

2010. Confidentiality was ensured to the participants throughout the study period.

RESULTS:
Nearly 403 Google forms were received during the time period estimated for achieving the targeted samples. About 27 incomplete forms were dropped accounting on non- response and remaining 376 response forms were taken as the data for analysis.

Distribution of Demographic characteristics of the participants
Out of 376 participants, 203 were males and 173 were females, most participants 74% of those were between the age group 18 to 29 and 72% were married. Almost two-third of them are well educated in which 42% are Graduates and 32% post-graduates following that Higher secondary 12%, Secondary 10%, and 2% are Diploma and Primary schooling each. Major participants were students and people working in private jobs. About half of those monthly incomes are below 20000 which is the basic earning for survival in India. (Table 1)

Table 1: BASIC DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS		(N= 376)
		N (%)
Gender	Male	203 (54)
	Female	173 (46)
Age group	Under 18	0 (0)
	18-29	278 (74)
	30-49	68 (18)
	50-69	30 (8)
	Above 70	0 (0)
Marital status	Unmarried	270 (72)
	Married	106 (28)
	Separated/ Divorced	0
	Widowed	0
Educational Qualification	No Schooling	0
	Primary	8 (2)
	Secondary	37 (10)
	Higher secondary	45 (12)
	Diploma	7 (2)
	Graduate	159 (42)
	Post Graduate	120 (32)
Occupation	Student	128 (34)
	Housewife/ Homemaker	15 (4)
	Information technology	37 (10)
	Government job	8 (2)
	Private job	90 (24)
	Self employed	83 (22)
	Businessman	15 (4)
Income status	No income	90 (24)
	Below 10000	68 (18)
	11000-20000	90 (24)
	21000-30000	60 (16)
	31000-40000	23 (6)
	Above 40000	45 (12)

### *Determinants for the acceptance of covid 19 vaccine*
(Table 2) Predominant participants are aware about covid 19 infection. Fifty percent of the responses revealed that they think vaccines can increase their immune system against the life threatening infectious disease whereas the other half partially believes the benefits of vaccines. People's optimistic view on other remedies is also seen in our study finding suggesting various optional folklore medicines for the treatment of the infection. Some of the people had no trust in taking vaccination but simultaneously they think it is important to get a vaccine as the government suggests.

Our study took place at the post phase of the second wave where nearly two-third of the participants was vaccinated. Covisheild was highly injected to the larger number of the participants. It was seen that people have awareness regarding wearing masks and getting hand sanitizer even at post vaccination and take necessary steps to safeguard themselves from recurring infection.

Table 2: FACTORS RESPONSIBLE FOR THE ACCEPTANCE OF COVID-19 VACCINE		(N=376)
Variables		N (%)
Heard of covid-19 vaccine	Yes	368 (98)
	No	8 (2)
Do you think vaccine can enhance immune system	Yes	188 (50)
	No	23 (6)
	Maybe	165 (44)
Previous history of vaccination for any other disease	Yes	150 (40)
	No	165 (44)
	Don't know	60 (16)
Belief in other remedies than taking vaccine	Yes	128 (34)
	No	120 (32)
	Don't know	128 (34)
Trust in taking vaccination against covid-19 disease	Yes	248 (66)
	No	83 (22)
	Don't know	45 (12)
It is not important to take vaccine compulsory	Strongly disagree	90 (24)
	Disagree	197 (46)
	Neutral	68 (18)
	Agree	38 (10)
	Strongly Agree	8 (2)
Vaccinated against covid-19 disease	Yes	278 (74)
	No	135 (36)
Which vaccine do you got	Covaxin	53 (14)
	Covisheild	188 (50)
	Sputnik V	0
	None of the above	135 (36)
Post vaccination precaution	Highly important	263 (70)
	It is not necessary	8 (2)
	I am not sure about it	105 (28)
Necessary to wear mask and get sanitized even after vaccination	Yes	353 (94)
	No	23 (6)

Factors responsible for the hesitancy of getting vaccination against covid 19 infection

Figure 1 Participants concern about getting vaccination agasint covid-19 disease
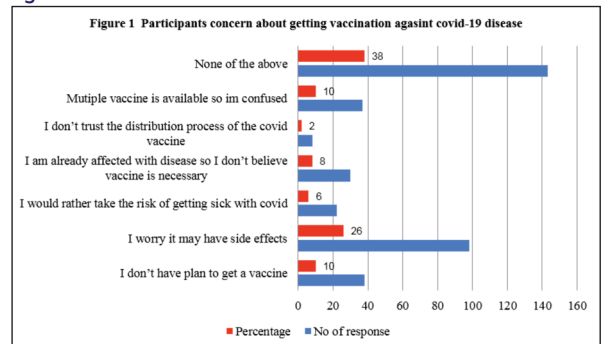
From the Figure 1 it shows the reasons for the anxiety or hesitancy in order to take vaccine 26% of them said that they worry whether it may have any side effects in order to that 10% of those have no plan to get vaccine, surprisingly we had outcome on the reason such as they are willing to get further infection rather than getting vaccination and few believes that once infected patient won't get recurrent infection. Some responses show the confusion of getting which vaccine since multiple vaccines are available at time. On all of the above, the majority doesn't give any particular reasons which can be considered as they do not hesitate to take vaccination.

DISCUSSION:
The major hurdle for the covid 19 vaccination is the improper awareness in the community. False information and belief may change the public perception and acceptance toward the achieving goal. In regard to covid 19 infection, the effects of the disease became highly mortal, and in a short span it set off

to be a global burden threatening every life of an individual. Survival from the infection becomes highly impossible for abundant middle aged and elderly people. Numerous patients across the world are severely infected and the mortality rate is high (Surapaneni et al., 2021). At the time of study about 690 million were single dose vaccinated which is Fifty percent of the total population of India and 20 percent of them were fully vaccinated (*MoHFW | Home*, n.d.). In Tamilnadu nearly 6.5 Crore people were vaccinated with a single dose which is one third of the total population (*COVID 19 Vaccination*, n.d.). Vaccine safety was one of the barriers against the aiming goal of acquiring immunity to the infection and perception of the public towards the newly developed vaccine. In our study, the participants are willing to accept the vaccine blindly since the government suggests it as mandatory. Mostly they lack trust and assurance of post vaccination health which makes no significant decision making for immediate vaccination. The good knowledge about new covid 19 vaccines, their safety and awareness against the spreading myths and rumors may speed the vaccination phase (Mahmud et al., 2021). Vaccine acceptance differs from place, person, time and social conduct of the society. Health promotion and social components can be additional inputs for the vaccination drive. A study in West Bengal shows that there is a misconception and educational gaps seen in the community against taking up the vaccine (Gautam et al., n.d.). The vaccine hesitancy study in Odisha, India, shows that there is a good acceptance of the covid vaccine is seen in the community but says still further awareness is to be created for the complete eradication of the disease (Panda et al., 2021).

CONCLUSION:

To conclude, this study outcome shows that acceptance of covid 19 vaccine is seen as equitable among the people who are more likely to agree to mandatory government guidelines. Although most of them are willing to take vaccines, a significant variation is seen in every group as they do not completely trust the vaccine for its safety and risk effects. Some think that a higher immunity can be gained after infection rather than taking a vaccine. This study also provides the factors for which the vaccine hesitancy prevails and the key areas where the healthcare providers should work more to move further forward.

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