



## **Knowledge, and Awareness of Covid Vaccines among Senior Citizens in Chennai**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author EIV managed the literature searches. Author SP prepared the first draft of the manuscript, statistical interpretation. Authors GS and LP read and approved the final manuscript.*

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### **ABSTRACT**

**Introduction:** The COVID-19 pandemic is caused by SARS-CoV-2. It first originated from Wuhan, China. It has caused many effects on each and every part of people all over the world. So many pharmaceutical companies have tried to find vaccines against. India found one of its kinds, named Covaxin and Covishield. The awareness of vaccines is needed to people of all age groups. This study is aimed to create awareness and knowledge about COVID-19 vaccines among senior citizens.

**Materials and Methods:** Online based, cross-sectional survey was conducted for a period of one week among 136 senior citizens aged between 55-100 years. The survey questions were created using Google forms and sent via whatsapp and email to their family members to translate them. The survey consists of 13 questions in which two were demographic details and the rest were questionnaires. Statistical analysis was done using SPSS software. Chi-square test was done to analyze the correlations p value less than 0.05 was considered significant.

**Results:** 136 senior citizens responded to the survey. The majority of the populations were females (62.5%) within the age group 60-70 years in Chennai. Out of 136, 91.8% were aware of covid pandemic, 81.6% were aware covid vaccine, 74.2% think vaccine is necessary for corona, 69.1% weren't aware of types of vaccine available for coronavirus in India, 73.5% answered it's an

important tool to stop pandemic and 66.1% were willing to get vaccinated. 60-80 showed better awareness about the benefits of vaccines when compared to other age groups (p value 0.028)  
**Conclusion:** The survey showed the senior citizens of Chennai were more aware (81.6%) about Covid vaccine and Covid-pandemic. Females (62.5%) had better awareness when compared to males (37.5%).

*Keywords: Knowledge; attitude; awareness; covid vaccine; Chennai; innovative technology; senior citizens.*

## 1. INTRODUCTION

The Covid-19 pandemic is a worldwide fall caused by SARS-CoV-2 (Severe acute respiratory syndrome coronavirus-2). The first case of corona was reported in Wuhan, China, with clusters of acute respiratory illness on December of 2019. This spread to over 198 countries within a month [1]. The first case of corona in India was reported on 27th January 2020 in Kerala. Currently India is reported with the highest COVID 19 positive cases in Asian continent with over 10M tested positive and 156K deaths. However with 10.7M recovered cases, India showed a great resistance against novel coronavirus, but it is still a threat to weak or vulnerable peoples (senior citizens and children below age 10 years) [2,3].

On 19th march, 2020 the government of India has ordered the closing of all public socializing places like theatres, parks, restaurants, schools, colleges and even temples, by implementing section 144 all over India [4]. Only essential goods like medicine, food, and the communication sector were allowed to remain open. This lockdown lasted over several months of 2020 [5].

The last four months of 2020 (i.e., from August) top biomedical and pharmaceutical companies in every part of the world tried to invent a vaccine against novel coronavirus. The vaccines are serum which has a specific disease causing pathogens in a inactivated form that activate the immune response against this pathogen to build natural immunity. So when the body gets a contact with this pathogen after vaccination, the white blood cell in the blood destroys it and saves us from its effects [6]. Vaccines are the most effective and cost-efficient public health interventions ever developed which can save millions of lives every year.

Several companies all over the world have found several types of vaccine against coronavirus. Even India tried and found its kind; they are

called Covaxin and Covishield. Covaxin is developed using Whole- Virion Inactivated Vero Cell (uses killed coronavirus) technology and Covishield is developed using Non-Replicating Viral Vector (uses inactivated coronavirus) technology [7,8]. These were under certification and testing by ICMR (Indian Council of Medical Research), which was started supplying on 12th January 2021. Many people are sceptical about vaccination safety, which will be a key barrier for health care providers, community leaders, politicians and governments to overcome in order to promote vaccine uptake.

The vaccination in India was the largest inoculation effort taken in the world. India has vaccinated more than 20 million people and aims to cover 300 million by the end of July [9]. So far the prior people- healthcare workers, people between 45-60 years were vaccinated followed by the general public. India has also supplied vaccines to other countries, with tens of thousands of free doses in what is being widely described as "vaccine diplomacy" [10]. India makes over 60% of the world's overall vaccine [11].

Both the vaccines need to be taken as two doses, but the time interval is different (Covaxin after 4 weeks and Covishield after 12 weeks). Some socialists consider vaccines to be the 21st century's greatest invention and many historical moments where it saved the entire human race. Vaccines for polio, malaria, hepatitis-B, measles, mumps, rabies, etc. [12].

The fear of getting the COVID-19 vaccine is still a problem all across the world. The lack of scientific testing for the vaccine, fear of vaccination adverse effects, and allegations of active viruses in vaccines are all major hurdles to the COVID-19 vaccine.

Even with these improved technologies, people still fear and hesitate to get vaccinated for them as well as for their child [13]. The reason may vary from age to age, gender to gender, place to

place. Even developed countries like the USA, Europe, Australia, etc refuse to get vaccinated [14]. They fear that getting vaccinated, might cause the specific disease and side effects like paralysis, reduced immune response, fevers, constipation, vomit, etc. which is true from their point of view but this might cause a great problem to weak people around them [14,15].

COVID-19 poses a greater risk of severe illness among elderly people. This is why the Centers for Disease Control and Prevention (CDC) recommend that persons 65 and older get the COVID-19 vaccine. Getting vaccinated against COVID-19 is a vital step in preventing infection. Hence the study was conducted to assess the awareness of COVID 19 Vaccine and senior citizen who are at higher risk of infection and serious illness and also to educate the need for vaccination among senior citizen.

This refusal of vaccination may be due to lack of awareness and knowledge about vaccines, that they might have heard from any rumors from social media, neighbors, colleagues, etc. [16]. Our team has extensive knowledge and research experience that has translated into high quality publications [17–36]. The experiences from our previous studies on COVID-19 have led us to focus on the current topic [37–39]. The main aim of the study is to create awareness about COVID-19 vaccine among senior citizens and to stop the pandemic.

## 2. MATERIALS AND METHODS

This study was online based; a cross-sectional survey was conducted for a period of one week among 136 senior citizens aged between 55-100 years. The survey questions were created using Google forms and sent via whatsapp and email to their family members to translate them. The survey consists of 13 questions in which two were demographic details and the rest were questionnaires. The study has used SPSS (statistical package of social science) Version 23 IBM to process and analyze the data collected from the survey. The survey was summarized using a chi-square test in the form of logistic regression analysis.

The questionnaire comprised a series of questions including the demographic details like age and gender of the participants. The other questions include awareness of covid pandemic and vaccines and its benefits, types, its supply and willingness to get vaccinated, whether it is a safer way to build protection against coronavirus,

is vaccine necessary and had any side effects of the vaccine previously.

All statistical analysis was performed using SPSS (statistical package of social science) Version 23 IBM. The information was tabulated and extracted from Google in a form of EXCEL sheet. The data's were verified for completeness and entered manually in SPSS software. The information was analyzed by comparing demographic details with questionnaires using the chi-square test or fisher's exact test in the form of binary logistic regression designed models. P value less than 0.05 is considered significant.

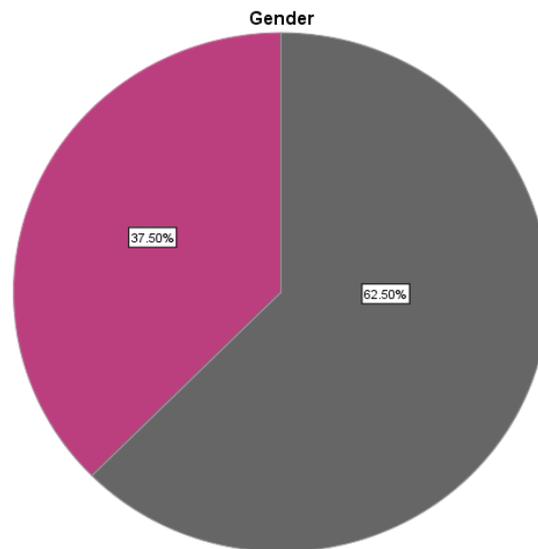
## 3. RESULTS

The study had 136 participants aged between 55-100 years. So the study was conducted online-based to avoid the spread of coronavirus and its effect on weak people through aerosols and inanimate objects via contact or touch. These weak people tend to be non-resistant against the disease causing microbes that make them vulnerable to diseases.

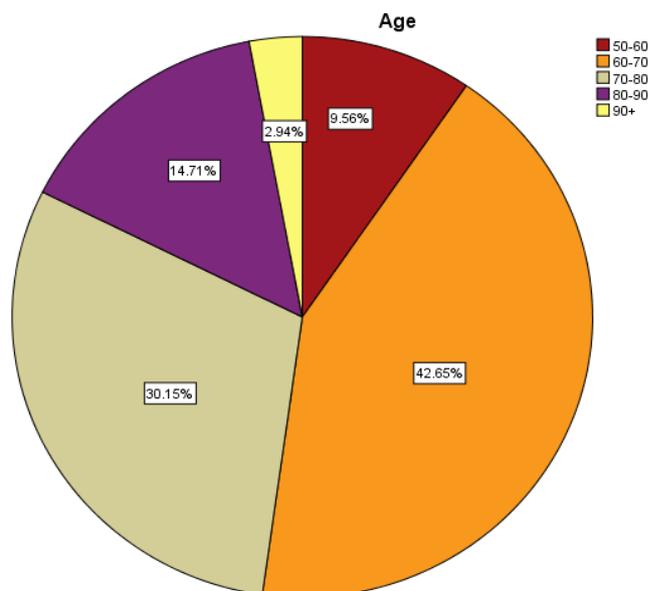
Out of 136 responders 62.5% were females and 37.5% were male (Fig. 1). Among them 42.6% were aged between 60-70, 30.1% were between 70-80, 14.7% were between 80-90, 9.7% were between 55-60 and 2.9% were above 90 (Fig. 2). The awareness of Covid pandemic is there for 91.2% of senior citizens (Fig. 3). Among them 81.6% had awareness about Covid vaccines. But 18.3% were not aware about COVID-19 vaccines. 79.4% of senior citizens were aware that vaccines have started supplying. Around 74.2% of participants think vaccines are necessary for coronavirus as it is a major threat to vulnerable sector peoples like them. When asked whether vaccines can stop global COVID-19 pandemic 73.5% responded yes. And 73.5% thought vaccines will improve their immune system against coronavirus. But only 53.6% had awareness about the benefits of vaccines and only 30.8% were aware of the types of COVID-19 vaccines available in India. Therefore around 66.1% of senior citizens were willing to get vaccinated. But vaccine hesitancy is caused because of side effects they had from previous vaccination, around 33.1% responded they had side effects of vaccines previously. From all this knowledge they gained from the survey 67.6% of senior citizens were willing to recommend vaccines to their family members to make them and their family safe from coronavirus.

The females had better awareness when compared to male about COVID-19 vaccines (p value 0.142). The females think about COVID-19 vaccines providing protection against coronavirus when compared to male (p value 0.027) (Fig. 4). Awareness of the benefit of vaccines is more among females (p value 0.824) (Fig. 5). Age

group between 60-80 yrs had more awareness of covid vaccines (p value 0.001). 60-80 age group peoples think vaccines could provide protection against coronavirus (p value 0.001). 60-80 showed better awareness about the benefits of vaccines when compared to other age groups (p value 0.028).



**Fig. 1.** This pie chart represents the percentage distribution of gender of participants. 62.5% of respondents were female (grey) and 37.5% were male (pink)



**Fig. 2.** Pie chart represents percentage distribution of age group. 9.56% of respondents aged between 50-60 years (maroon), 42.65% were aged between 60-70 years (orange), 30.15% were aged between 70-80 years (sandal colour), 14.71% were aged between 80-90 years (purple) and 2.94% were aged 90 years and above (yellow)

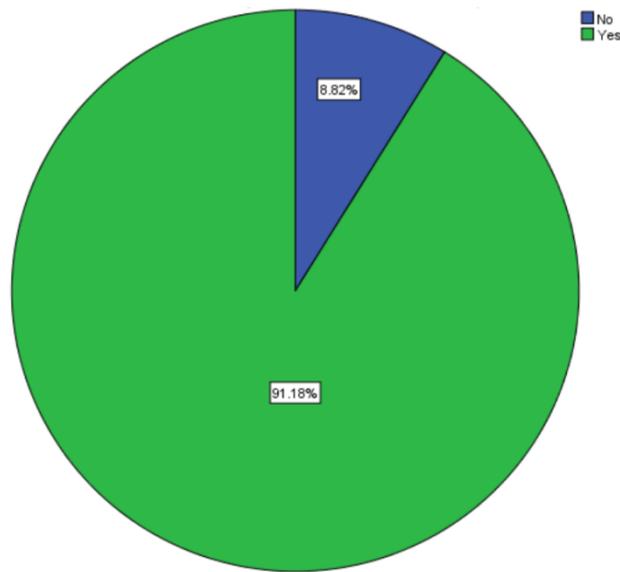


Fig. 3. This pie chart represents the percentage distribution of awareness of covid pandemic. 91.18% of respondents said yes (green) and 8.82% said no (blue)

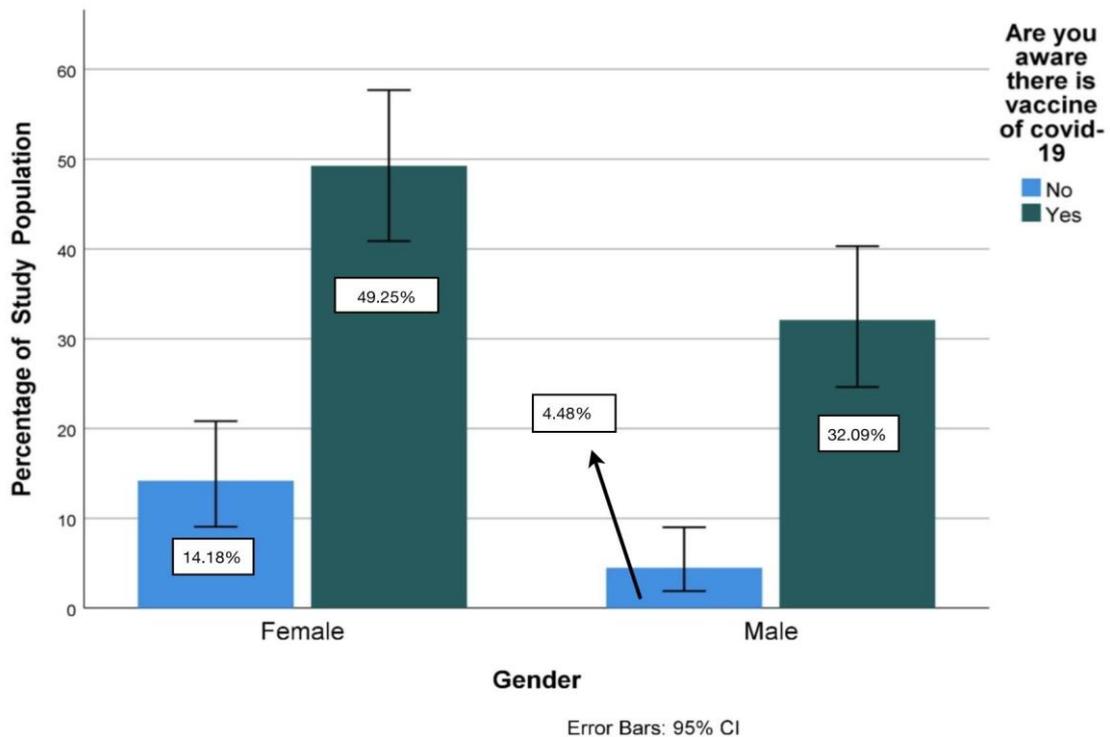
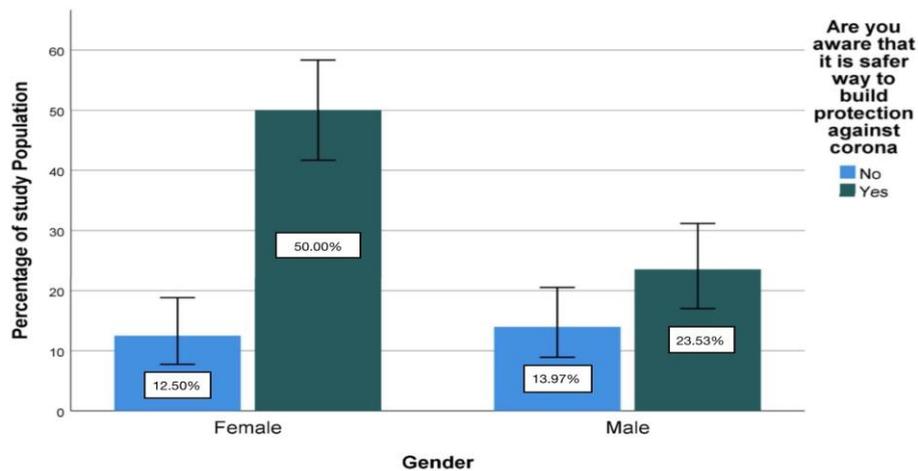


Fig. 4. The graph depicts the association between gender and awareness of covid vaccines. X-axis represents gender and Y-axis represents percentage of response. Green bar represents yes and blue bar is no. Females had better awareness than males. Chi square test was done. P value - 0.142 ( $p < 0.05$ ). Hence it is statistically not significant

In the study, demographic details were compared with questionnaires using a chi-square test in the form of logistic regression to analyze the

correlations. Pearson value less than 0.05 is considered significant.



**Fig. 5. The graph depicts the association between gender and awareness of covid vaccine providing protection against coronavirus. X-axis represents gender and Y-axis represents percentage of responses. Green bar represents yes and blue bar is no. Females had better awareness than males. Chi square test was done. P value - 0.027 (p<0.05). Hence it is considered statistically significant**

#### 4. DISCUSSION

Some socialist consider vaccines as one of the greatest public health inventions of the 21st century [40]. It has forced us to study more deeply about microorganisms and their genetic materials [41]. The knowledge of COVID 19 vaccines are well known among adolescence and middle aged peoples but it is lacking among senior citizens as they don't socialize enough because of their health issues. As a result this survey fulfilled that gap.

The results of our study were similar to other studies of [42–44] and studies done in the USA, Iran, China and Saudi Arabia. When it comes to awareness of COVID 19 pandemic 91.2% of senior citizens in India were aware that it agrees with the studies done previously (Iran- 90%, China- 90%, USA- 89% were aware of COVID 19 pandemic). 66.8% were willing to get vaccinated in India. And this finding is similar to study which showed that USA- 80%, China- 72.5% and Saudi Arabia- 64.7% were willing to get vaccinated [42]. But 81.6% of participants are aware of COVID-19 vaccine which opposes the result of Mannan KA, et al. [45]. But when asked whether the vaccine will protect them from coronavirus, 73.5% think it can, which is similar to Rahma et al. [46] who also stated that 85.6% were aware of the COVID-19 vaccine.

The respondents were well educated and from high economic status with good awareness and

knowledge about COVID-19 pandemic and vaccines. So the results can comprehend only with high socio economic people in Chennai. And since the study was done in a small sample size, future studies need to be done in a large sample size and people from all economic status. Also, due to COVID-19 pandemic and its fear of spreading through aerosols and inanimate objects, an online based survey was chosen, which can affect the accuracy and the result of the study. Hope the future studies done are free of these limitations and help socialist to analyse and take steps towards spreading awareness and knowledge about COVID-19 vaccine among elders to make themselves protective against corona.

#### 5. CONCLUSION

The study showed the senior citizens in Chennai had better awareness and knowledge of COVID-19 pandemic and vaccine. Female senior citizens (62.5%) had a better awareness when compared to males senior citizens (37.5%). Also the study might have educated about the importance of vaccines and its effects to stop the spread of COVID-19.

#### CONSENT AND ETHICAL APPROVAL

As per university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

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