

Original Research Article

Acceptance and knowledge of COVID-19 vaccine in southern Kerala during first vaccination drive

Christin V. Raju*, Hannah Joseph, Layana Roy, Seara M. Mathew,
Jayakumar K. S., Roshiny Thankam James

Department of Pharmacy Practice, Nazareth College of Pharmacy, Othara P. O., Thiruvalla, Kerala, India

Received: 18 June 2022

Accepted: 12 July 2022

*Correspondence:

Dr. Christin V. Raju,

E-mail: christinvraju@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Coronavirus disease 2019 (COVID-19) pandemic has affected most the countries causing a devastating influence on world health and economics since its appearance. The accelerated development of the COVID-19 vaccine has become vital, and early data suggests that it is both, safe and efficacious. However, the acceptance of the COVID-19 vaccine depends on several socio-demographic characteristics as well as people's knowledge and misconceptions.

Methods: The objective of this study was to assess the knowledge and acceptance of the COVID-19 vaccine in the southern districts of Kerala during the first vaccination drive. This is a cross-sectional study conducted by analyzing the data collected through a self-administered questionnaire that was shared online and directly across southern Kerala from January 2021 to June 2021. The survey questionnaire consisted of demographic characteristics of the respondents and queries pertaining to knowledge and acceptance of the COVID-19 vaccine.

Results: The results of the study showed that the respondents showed a good level of knowledge and acceptance. This study highlights that 83.6% of the participants in South Kerala have demonstrated their willingness to receive the COVID-19 vaccine.

Conclusions: Findings from this study could help governments, public health agencies, and awareness-raising organizations to address immunization hesitation and improve uptake of COVID-19 vaccines.

Keywords: COVID-19 vaccine, Knowledge, Acceptance, Kerala

INTRODUCTION

Coronavirus disease 2019 (COVID-19) caused a health and economic crisis across the globe since its appearance. It is caused by a virus named severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2).¹ COVID-19 was declared an international pandemic by WHO on March 11, 2020.^{3,4} Countries all over the world have established various control measures like non-pharmaceutical interventions to limit the spread of SARS-CoV-2 infection and improve its health impacts. Although such measures have helped to retard the spread, COVID-19 has reappeared as societies and economies have reopened.^{2,3} As a result, the development of SARS-CoV-2 vaccination

is the handiest manner to stop the pandemic. To put a cease to this pandemic huge effort had been performed across the world to produce a variety of vaccines.² COVID-19 vaccination has the ability to supply herd immunity in populations, decreasing disease incidence, preventing transmission, and lessening the disease's social and monetary toll.⁴

A COVID-19 vaccine draws up the immune system so that in case of exposure to the virus it can respond and avert or reduce the severity of infection. Various types of probable COVID-19 vaccines include inactivated vaccines, genetic vaccines, viral vector vaccines, attenuated vaccines, and protein vaccines.

In India, the COVID-19 vaccination commenced on 16 Jan 2021. Healthcare and frontline workers had been vaccinated in the initial stages with either COVISHIELD or COVAXIN vaccine approved by CDSCO in India by emergency use authorization. The vaccination program against COVID-19 seems hopeful in providing defense against the virus.⁵ Despite the availability and efficacy of the vaccines, their acceptance rate is also important in stopping the unfolding of COVID-19 in the future, as it needs to attain certain levels to create herd immunity among the public.⁶ Factors that affect the attitude towards acceptance of vaccination include insensibility, convenience, and confidence. Insensibility means low insight of the disease risk; hence, vaccination was considered unnecessary. Confidence refers to the trust in vaccination effectiveness, and safety. Convenience denotes the affordability, availability, and transportation of vaccines in a comfortable circumstance.⁷

A few studies have been performed worldwide to perceive the factors associated with COVID-19 vaccine acceptance in the initial phases among the general population. The embracing of the COVID-19 vaccine remains uncertain by both, healthcare experts and the public at large.⁸ In addition, a strong anti-vaccine movement, with multiple pseudo-scientific conspiracy theories has flooded the media reports. Therefore, it is obligatory to apprehend the population's COVID-19 vaccination acceptance and knowledge. Those skills are equal to health literacy competencies, which enclose human beings' understanding, motivation, and potential to find, absorb and use health statistics, which is vital in the event of an epidemic.⁹

METHODS

This is a cross sectional study that was carried out in the southern districts of Kerala. The study duration was Six months (January 2021 to June 2021). The sample size was calculated and found to be 525. People who fulfilled the inclusion and exclusion criteria (525 participants) were selected for the study after getting approval from Institutional Review Board of Nazareth College of Pharmacy.

The inclusion criteria include people above age 18 and exclusion criteria include people below age 18 and pregnant and lactating women. Data was collected using a predesigned structured questionnaire which has been validated. Participants were asked to fill out a prepared Google form.

The questionnaire was designed to assess knowledge and acceptance of the COVID-19 vaccine. The data was entered in Microsoft excel-2010 version and results were presented in tabular and graphical form as frequency and percentage.

RESULTS

Demographics

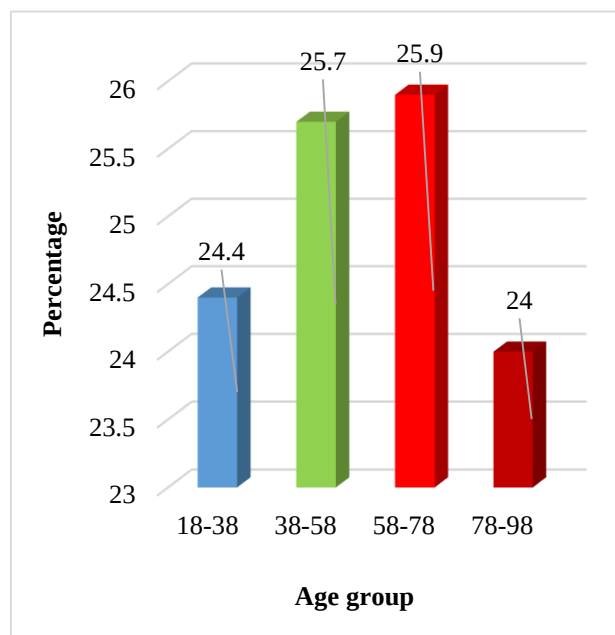


Figure 1: Distribution of age group.

From the above graph, the age category 18-38 comprises 24.4% of total responders while 25.7% of responders belong to the age category 38-58. Another 25.9% of responders belong to the age group 58-78 and the rest 24% belong to 78-98.

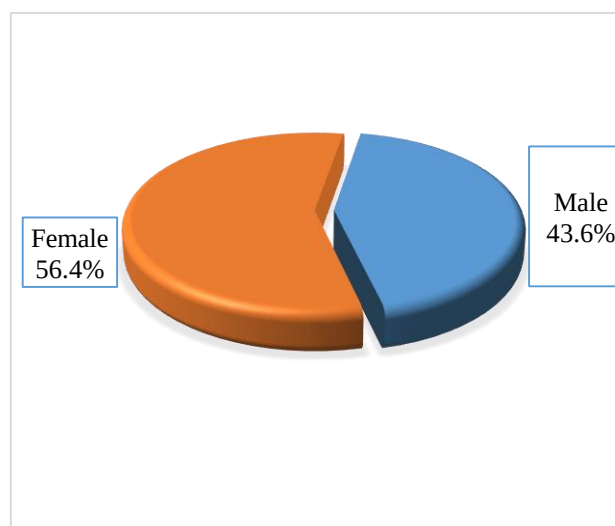


Figure 2: Distribution of gender.

The above graph reveals that out of 525 subjects, 229 which comprises of 43.6% of total responders are males and 296 (56.4%) responders are females.

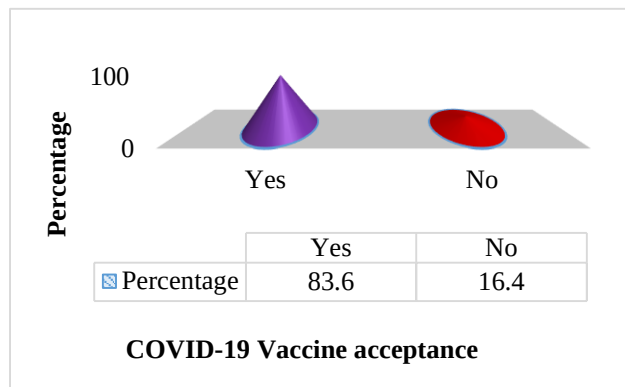
Assessment of acceptance of the COVID-19 vaccine

Figure 3: Distribution of COVID-19 vaccine acceptance among the study population.

Among the study population, 83.6 % (439) were willing to take vaccine, while 16.4 % (86) were not.

Assessment of knowledge about COVID-19 vaccine

Table 1: Distribution of knowledge assessment on COVID-19 vaccine available in India.

S. no.	Response	Frequency	Percentage
1.	Yes	426	81.1
2.	No	99	18.9
	Total	525	100

According to the table above, 81.1% of population (426) was aware about the Covid-19 vaccines that are available in India. While, the rest 18.9% of population (99) was unaware of it.

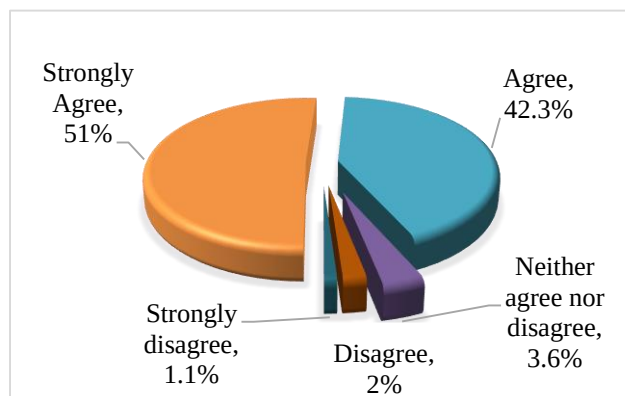


Figure 4: Distribution of response on essentiality of COVID-19 vaccine awareness campaigns.

According to the study, 51% (268) of the study population strongly agree, and 42.3% (222) agree to the fact that it is essential to conduct an awareness campaign among the population about the various aspects of the COVID-19 vaccine. While 3.6% of the population (19) neither agree nor disagree, 2% (10) disagree and 1.1% (6)

strongly disagrees regarding the need for the awareness campaign.

Table 2: Distribution of attitude towards use of hygiene measures after COVID-19 vaccine administration.

S. no.	Response	Frequency	Percentage
1.	Yes	443	84.4
2.	No	82	15.6
	Total	525	100

The above table illustrates that out of 525 respondents 443 participants (84.4%) responded affirmatively towards the use of hygiene measures after the COVID-19 vaccine administration whereas 82 respondents (15.6%) show disagreement.

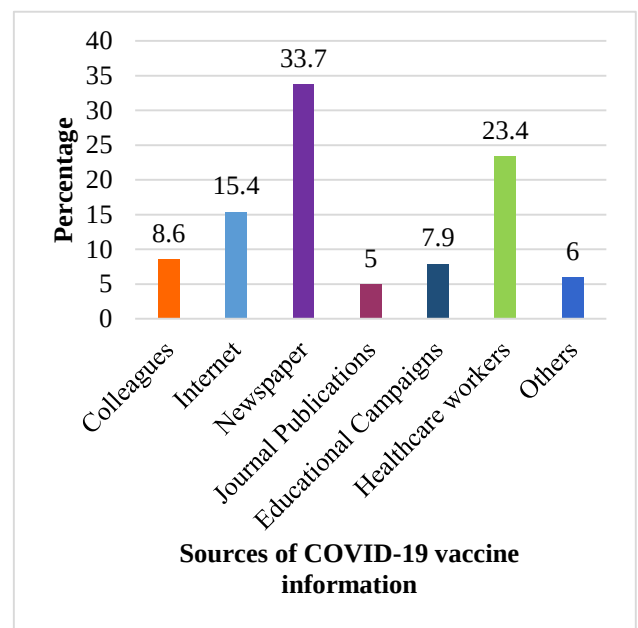


Figure 5: Distribution of reliance on various information sources about COVID-19 vaccine.

According to the graph, the sources to receive information regarding the COVID-19 vaccine were studied using a single question having multiple responses. Among the total participants, the majority of the participants 337 (33.7%) relied on newspapers for COVID-19 vaccine information. While 23.4% of respondents (234) trusted the information provided by the healthcare workers. Other sources of information that counted include colleagues 86 (8.6%), internet 154 (15.4%), journal publication 50 (5%), and educational campaigns 79 (7.9%). However, 60 responders (6%) depend upon other sources of information.

The graph illustrates that out of 525 participants, 248 participants (47.2%) responded positively and 62 participants (11.8%) responded negatively. While 215 individuals (41%) showed an impartial response.

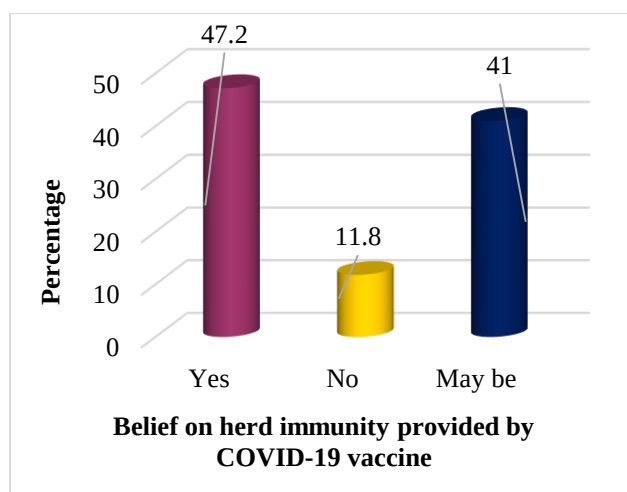


Figure 6: Distribution of responses of belief in “concept of herd immunity” provided by COVID-19 vaccine.

DISCUSSION

Since the beginning of 2020, the world has witnessed a catastrophe in the form of COVID-19. The world population has been waiting eagerly for more than a year for a possible vaccine to contain the pandemic. The key strategy to prevent the further progression and worsening of the scenario is an efficient vaccination programme. Vaccination against COVID-19 has emerged as a game changer as the world strikes back with all its might to combat a serious health crisis. The study aims to assess public knowledge and acceptance of the COVID-19 vaccine. The main emergency use vaccines approved in India are Covishield and Covaxin during the initial phase of the vaccination campaign.

Regarding total vaccine acceptance among the study population the total acceptance of COVID -19 vaccine during the first phase of the vaccination drive was found to be 83.6%. Among the 525 participants, 86 (16.4%) were not willing to take the vaccine. According to a cross-sectional study among the general public of south India reported an acceptance rate of 69% among its population.⁸ Another study reported 77% acceptance in Chhattisgarh, 76% each in Odisha, Uttarakhand, Madhya Pradesh, Jharkhand, 75% each in Bihar and Uttar Pradesh, 74% each in Himachal Pradesh and Rajasthan, 72% in Maharashtra, 70% each in Delhi, Assam, Telengana. 69% in Manipur, 68% each in Karnataka and Gujarat, 67% in Andhra Pradesh, 66% and 63% respectively in Haryana and Jammu-Kashmir, 59% and 58% respectively in Punjab and Tamil Nadu.¹⁰ In general the data are supporting each other showing higher rates of acceptance in Kerala. It was also found that most of the states were showing a higher rate of acceptance above 50% in India.

Regarding the assessment of knowledge and perspective regarding the COVID-19 vaccine and the need for an awareness campaign as it can have a significant impact on

public confidence in vaccination, this study assessed the knowledge of the general public regarding the COVID-19 vaccination. Among the total participants, 81.1% of responders were aware of the type of COVID-19 vaccines available in India but 18.9% were unaware of it. Myths and misconceptions regarding COVID-19 vaccination have become a hurdle in public acceptance of the vaccine. So, it is important to recognize people's insights on the COVID-19 vaccination programme. Strategies to increase vaccine acceptance include the implementation of vaccination campaigns. This study collected public opinion on the need to conduct vaccination campaigns. The study found that about 51% of participants strongly suggested the need for vaccination campaigns, 42.3% agree with the essentiality of a campaign and 2% showed disagreement, while 3.6% showed an impartial response.

Regarding the continuation of use of hygiene measures after vaccination according to recent Chinese research, not practicing hand cleanliness and other health protective activities caused COVID-19 outbreak.¹¹ It's also a frequent misconception that once you have been vaccinated, you don't need to wear a mask. This study found that out of the 525 participants, 84.4% agreed to the use of hygiene measures after the administration of the COVID19 vaccine, while 15.6% opposed it. Regarding reliable sources of information during the COVID-19 pandemic outbreak, people learned about the disease from a variety of sources, including television, radio, newspapers, social media, friends, coworkers, scientists, governments, and so on. As such information has the potential to influence people's acceptance or rejection of the COVID19 vaccine, the dissemination of transparent and accurate information on the vaccine's safety and effectiveness is crucial to earning the trust of the public, especially the undecided and skeptical. This study found that 34% of participants relied on newspapers for vaccine information and 23.4%, 15.4%, 8.6%, 7.9%, and 5% relied on healthcare workers, the internet, colleagues, educational campaigns, and journal publications respectively. However, 6% depend on other sources for vaccine related information. On contrary, a study conducted by Baig et al found that participants mostly relied on social media for vaccine related information, followed by newspapers, television, and others.¹² However learning which resources people trust the most to receive information on COVID-19 vaccines is crucial for the success of future national vaccination campaigns.

CONCLUSION

This study highlights that 83.6% of the participants in southern Kerala demonstrated their willingness to receive the COVID-19 vaccine and the majority of the participants have proper knowledge about the vaccine in the first vaccination drive. This can be considered a positive sign in controlling the spread of the ongoing COVID-19 pandemic. While an efficient and safe COVID-19 vaccine is critical to controlling and ending

the pandemic, it is also critical to ensure the vaccine has widespread acceptance. The rapid development of the COVID-19 Vaccine might have contributed to the emergence of concerns among the general population that could affect the public acceptance of the vaccine. Therefore, this study also identified people's most trusted sources of information about COVID-19 vaccines that could help spread a multifaceted intervention to improve vaccine uptake. Moreover, we expect that the finding of this study could help the public health agencies, government, and awareness organizations tackle vaccine hesitancy and enhance acceptance of the COVID-19 vaccine.

ACKNOWLEDGEMENTS

Authors would like to acknowledge all of the participants involved in the study, college staffs and students of Nazareth College of Pharmacy, Thiruvalla for their supportive arrangement.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of Nazareth College of Pharmacy

REFERENCES

1. Khan S, Rahman CKF, Haritha CV, Jose B, Tiwari R. COVID-19 vaccine acceptance: beliefs and barriers associated with vaccination among general population in India. *J Experimental Biology Agricultural Sci.* 2020;8:210-18.
2. Elimat ET, Abu Alsameen MM, Almomani BA, Alsawaha NA, Alali FQ. Acceptance and attitude toward COVID-19 vaccines: A cross-sectional study from Jordan. *PLoS ONE.* 2021;16(4):1-15.
3. Alqudeimet Y, Alenezi D, Alhajri B, Alfouzan H, Almokhaizeem Z, Altamimi S. Acceptance of a COVID-19 vaccine and its related determinants among the general adult population in Kuwait. *Medical Principles Practice.* 2021;1-10.
4. Khuroo MS, Khuroo M, Khuroo MS, Sofi AA, Khuroo NS. COVID-19 vaccines: A race against time in the middle of death and devastation. *J Clin Experimental Hepatology.* 2020;10(6):610-21.
5. Kumari A, Rajan P, Chopra S, Kaur D, Kaur T, Upadhyay AD. Knowledge, barriers and facilitators regarding COVID-19 vaccine and vaccination programme among the general population: A cross-sectional survey from one thousand two hundred and forty-nine participants. *Diabetes and Metabolic Syndrome: Clin Res Reviews.* 2021;15:987-92.
6. Wang K, Wong EL, Ho K, Cheung AW, Yau PS, Dong D. Change of willingness to accept COVID-19 vaccine and reasons of vaccine hesitancy of working people at different waves of local epidemic in Hong Kong, China: Repeated cross-sectional surveys. *Vaccines.* 2021;9:62.
7. Rutten FLJ, Zhu X, Leppin A, Ridgeway JL, Swift M, Griffin JM. Evidence based strategies for clinical organizations to address COVID-19 vaccine hesitancy. *Mayo Clinic Proceedings.* 2021;96(3):699-707.
8. 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(3):1170-76.
9. Samantha S, Banerjee J, Kar SS, Ali KM, Giri B. Awareness, knowledge and acceptance of COVID-19 vaccine among the people of West Bengal. India: A Web-Based Survey. 2022;23(1):S46-S55.
10. Suresh A, Konwarth R, Singh AP. Public awareness and acceptance of COVID-19 vaccines: An online cross-sectional survey conducted in the first phase of vaccination drive in India. *Research Square;* 2021.
11. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS. Immediate psychological responses and associated factors during the initial stage of the COVID-19 epidemic among the general population in China. *Int J Environmental Res Public Health.* 2020;17:1-5.
12. Baig M, Jameel T, Alzahrani SH, Mirza AA, Gazza ZJ, Ahmad T, et al. Predictors of misconceptions, knowledge, attitudes, and practices of COVID-19 pandemic among a sample of Saudi population. *PloS one.* 2020;15(12):e0243526.

Cite this article as: Raju CV, Joseph H, Roy L, Mathew SM, Jayakumar KS, James RT. Acceptance and knowledge of COVID-19 vaccine in southern Kerala during first vaccination drive. *Int J Community Med Public Health* 2022;9:3242-6.