

Knowledge, Attitude, and Practice regarding COVID-19 and Its Vaccine in Rural Field Practice Area

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ABSTRACT

Background: The coronavirus disease 2019 (COVID-19) pandemic has affected more than 200 countries, causing loss of life and livelihood. The knowledge, attitude, and practice (KAP) of the community will influence the dynamics of pandemic behavior. There is a necessity to understand the public's awareness of COVID-19 at this critical moment to facilitate the outbreak management of COVID-19 in field practice areas. The acceptability of the newly launched vaccine is yet another parameter to be considered, since the vaccine coverage rate among the population is essential for a successful immunization program. The acceptance of the COVID-19 vaccine depends on various sociodemographic characteristics, as well as the beliefs and barriers that may prove to be hurdles during the immunization program.

Materials and methods: The present study was a cross-sectional study; the data were collected in the rural field practice area of the tertiary care hospital. The questionnaires related to demographic details and information related to KAP of COVID-19 infection and vaccine were collected in Google Forms by the interview technique.

Results: In our study, 94% of them were aware of and had heard of COVID-19 infection from the media, friends, and healthcare workers. 80% of them have heard about the COVID-19 vaccine from friends and family (99%), healthcare workers and the media (77%).

Conclusion: The findings of the present study conclude that overall, people are aware of COVID-19 infection with regard to its symptoms, route of transmission, and preventive methods. Similarly, the vaccine and its side effects in rural areas.

Keywords: Attitude, COVID-19 vaccine, COVID-19, Knowledge, Practice.

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INTRODUCTION

Coronavirus disease (COVID-19) pandemic has affected more than 200 countries, causing loss of life and livelihood.¹ In the beginning, the number of cases was less because of the strict implementation of lockdown by the Government of India.

The low literacy level establishes India as a fertile ground for COVID-19 propagation.² India's response to the COVID-19 pandemic is one of the most stringent in the world, and it scored a perfect 100 on the "Oxford COVID-19 Government Response Tracker (OxCGRT)" which compares various governments' responses to the coronavirus outbreak worldwide.³

The knowledge, attitude, and practice (KAP) of the community will influence the dynamics of pandemic behavior. There is a necessity to understand the public's awareness of COVID-19 at this critical moment to facilitate the outbreak management of COVID-19 in field practice areas.

The acceptability of the newly launched vaccine is yet another parameter to be considered, since the vaccine coverage rate among the population is essential for a successful immunization program. The acceptance of the COVID-19 vaccine depends on various sociodemographic characteristics, as well as the beliefs and barriers that may prove to be hurdles during the immunization program.

The COVID-19 pandemic has reshaped global health paradigms, highlighting the critical interplay between knowledge, attitudes, and practices in mitigating the virus's spread. Understanding how individuals perceive and respond to health information is vital in shaping effective public health strategies. Knowledge about COVID-19 transmission, symptoms, and preventive measures directly influences people's attitudes toward the disease and their willingness to adopt protective

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behaviors. Vaccination has emerged as a key tool in combating the pandemic, yet its uptake is significantly influenced by individuals' understanding of vaccine safety and efficacy. This relationship underscores the importance of fostering informed communities through targeted education and outreach, ultimately enhancing public compliance with health recommendations and improving overall community health outcomes.

Current statistics indicate that while a substantial percentage of populations in many regions have received primary vaccination series, booster shot rates remain inconsistent, particularly in vulnerable communities.

The availability of a safe and effective vaccine for COVID-19 is well-recognized as an additional tool to contribute to the control of the pandemic.^{3,4} Therefore, the present study was undertaken to study the KAP regarding COVID-19 infection and its vaccine in the rural field practice area of a tertiary care hospital.

MATERIALS AND METHODS

The present study was a cross-sectional study. After obtaining institutional ethical clearance from the ethical committee, the study's purpose was explained to the participants prior to administering the questionnaire, and informed consent was obtained. The data were collected using a prevalidated semistructured questionnaire in the rural field practice area of the tertiary care hospital of Shri BM Patil Medical College and Research Center, Vijayapura, in the months of June and July 2021. The questionnaires related to demographic details and information related to KAP of COVID-19 infection and its vaccine were collected in a Google Forms by the interview technique. Areas were selected by lottery method using simple random sampling; a house-to-house survey was done to get the desired sample size.

Sampling Method

With an anticipated proportion of knowledge regarding mask-wearing in COVID, 73%,⁵ the study would require a sample size of 480 population with a 95% level of confidence and 4% absolute precision.

The formula used $n = Z^2 \times P \times Q/d^2$

Statistical analysis was done using SPSS version 20. Descriptive statistics were used to present the participants' demographics, and the chi-square test was used to assess the association among the participants' demographics based on KAP.

The inclusion criteria: subjects above the age of 45 years and voluntary participation.

RESULTS

A total of 500 respondents have participated in our study, among them 56% of them were males and 44% were females. The majority of them belong to the age group of 45–54 years, followed by 55–64 years. 70% of them belong to the Hindu religion, and 10% are from tribal areas. 94% of them were married, and more than 50% were illiterate and daily wage workers respectively (Fig. 1).

In our study, 94% of them were aware and had heard of COVID-19 infection from the media, friends, and healthcare workers. More than 70% of them were aware of the symptoms of COVID, such as sore throat, cough, cold, fever, myalgia, breathlessness, and diarrhea. Multiple answers were given by them. A few of them have mentioned the loss of smell and taste.

More than 50% of them have knowledge regarding the transmission of disease; multiple answers were given by the participants, such as aerosol route, infected person, fomites, and mother to child. For protective measures, all of them have knowledge of using masks, maintaining social distance, and hand washing.

The present study shows that only 42% of them were aware of the knowledge of quarantine, such as who requires quarantine. Multiple answers were given by the respondents, such as international and domestic travelers, COVID patients, and those with mild symptoms. Exposed to COVID-19 infection. 33% of them have told the period of quarantine is 14 days, followed by 21 days (5%) and 7 days (4%) (Table 1).

Among the total respondents, 19% of them were tested for COVID-19, and they were diagnosed with by RT-PCR (75%), CT scan (12%), and others by multiple methods. Only 47% of them were diagnosed with COVID-19; among the diagnosed, 75% of them were admitted to the hospital and 25% of them were in home isolation (Table 2).

In our study, 80% of them have heard about the COVID vaccine from friends and family (99%), healthcare workers and the media (77%). 68% of them are also aware of the dose of the vaccine. Among

Table 1: Participants' knowledge regarding COVID-19 infection

Components		
Heard about COVID-19		
Yes	472	94.4
No	28	5.6
If yes, source of information*	49	9.8
Friends/family	55	11.0
Healthcare worker	40	8.0
Healthcare worker, friends/family	104	20.8
Media	40	8.0
Media, friends/family	75	15.0
Media, healthcare worker	109	21.8
Media, healthcare worker, friends/family		
Knowledge about symptoms		
Yes	364	72.8
No	136	27.2
List of symptoms*		
Fever	48	9.6
Fever, dry cough	86	17.2
Fever, dry cough, tiredness/ weakness	31	6.2
Fever, dry cough, sore throat	18	3.6
Fever, dry cough, tiredness/ weakness, sore throat	29	5.8
Fever, dry cough, tiredness/ weakness, sore throat, loss of smell and taste	8	1.6
Transmission of disease		
Yes	274	56.4
No	226	43.6
Route of transmission*		
Transmission via aerosols	125	25.0
Transmission via aerosols, fomites	45	16.4
Objects used by an infected person	70	5.0
Preventive method		
Wearing a face mask	160	32.0
Wearing a face mask, maintaining social distance	295	59.0
Avoid touching face/mouth/eyes/nose	5	1.0
Maintaining social distance	11	2.2
Proper hand washing	20	4.0
Heard about quarantine		
Yes	211	42.2
Do not know	289	57.8
Who requires quarantine*		
Exposed to COVID-19 patients	75	15.0
International travelers, domestic travelers, people with mild symptoms	23	4.6
Period of quarantine*		
14 days	166	33.2
21 days	23	4.6
7 days	25	5.0
Do not know	286	57.2
Total	500	

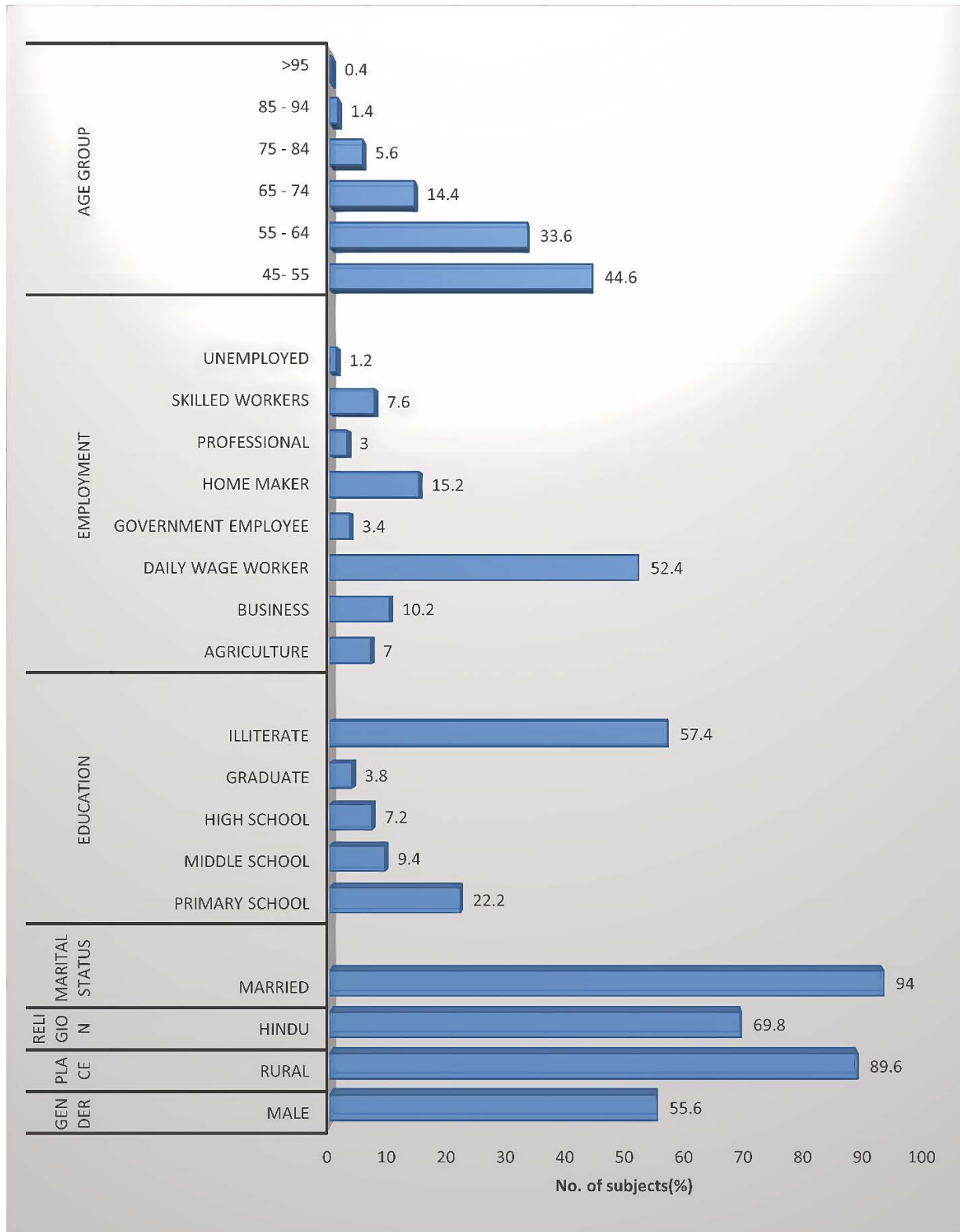


Fig. 1: Sociodemographic profile of respondents

them, 64% of them said two doses are required, and only 4% said only one dose. More than 50% of them have knowledge regarding the gap between the two doses. The majority said it is 84 days (23%), followed by 12 weeks. (16%) and others said it was 8 weeks and 4 weeks (6% and 8%), respectively.

Fifty percent of them were aware of vaccine side effects. Multiple answers were given by the respondents, such as fever, body ache, and swelling at the injection site. More than 60% of them said the vaccine is safe and essential. They told that the vaccine will reduce the spread of the disease and protect

Table 2: Participant attitude and practice toward COVID-19 infection

Components	Number	Percentage
Suffered from any of the COVID-19 symptoms		
Yes	86	17.2
No	414	82.8
Tested for COVID-19		
Yes	95	19
No	405	81.0
If yes, method of diagnosis (<i>n</i> = 94)		
RT-PCR	71	75
CT scan	11	12
RT-PCR, CT-scan	12	13
Diagnosed as COVID-19 positive		
Yes	44	47
No	50	53
If yes, admitted in (<i>n</i> = 44)		
Hospital care	33	75
Home care	11	25

them against the COVID disease. Only a few of them said the government is giving it free of cost, so they have taken it (Table 3).

With regards to knowledge regarding vaccines for COVID-19 infected patients, 50% of them responded told they do not have any knowledge related to the administration of vaccines to COVID-19-infected patients. Only 37% said it can be given to COVID-19-infected patients after the post-COVID-19 period of 12–16 weeks. Regarding reducing the spread of COVID-19 infection without vaccination, their response was only 23%. Similarly, 60% of them do not know the protection of vaccines (Table 4).

In the present study, more than 50% of them were not aware of different types of vaccine availability and whether the first- and second-dose vaccines should be the same or different types of vaccines. Among the respondents, 60% of them have received the vaccine. 42% of them have taken Covishield, and the remaining 4% of them took Covaxin, and 14% of them do not know which vaccine they have taken. Only 2% of them have paid the fee in a private hospital. 46% of them received the first dose of the vaccine, and 54% of them have received two doses. Among the vaccinated, 66% of them have one or the other side effect after taking the first dose of the vaccine. The majority of them had a fever, myalgia, and pain at the site of injection. Only 34% of them had side effects after the second dose. 29% of them experienced the same side effects for both doses, and 5% said it was different for both doses.

We observed among the vaccinated respondents, 8% of them got infected with COVID-19 after taking a vaccine, 78% after the first dose, and 22% after the second dose; the exact duration after the vaccine is not aware of it. To prevent COVID-19, the majority of them practiced one or the other method of home remedies, such as drinking warm water and salt gargling. Steam inhalation, and Ayurveda drink (kadha) (Table 5).

Discussion

Understanding the knowledge, attitude, and practice of COVID-19 infection among people is a very important component to prevent

Table 3: Participants' knowledge regarding the COVID-19 vaccine

Heard about the COVID-19 vaccine	Number	Percentage
Yes	389	79.6
No	111	20.4
If yes, source of information*		
Anganwadi	10	0.2
Friends/family	32	6.4
Healthcare worker	77	15.4
Healthcare worker, friends/family	29	5.8
Media	78	15.6
Media, friends/family	21	4.2
Media, healthcare worker	56	11.2
Media, healthcare worker, friends/family	95	19.0
Aware of the dose of the vaccine		
Yes	340	68.0
No	160	32.0
If yes, how many doses		
One	18	3.6
Two	322	64.4
The gap between the two vaccines		
Yes	269	53.8
No	231	46.2
If yes, the gap between doses		
12 weeks	81	30
4 weeks	33	12
8 weeks	38	14
84 days	117	44
Aware of side effects		
Yes	256	52.8
No	244	47.2
If yes (multiple options)*		
Fever	53	10.6
Fever, body ache	74	14.8
Fever, body ache, swelling at the injection site	73	14.6
Body ache	22	4.4
Someone take vaccine, if they had COVID-19		
Yes	185	37.0
No	33	6.6
Do not know	282	56.4
If yes, when (<i>n</i> = 185)		
After 2 months (8–10 weeks)	17	9
After 3 months (12–16 weeks)	75	41
After 84 days	19	10
Do not know	74	40
Can you take the second dose of the vaccine with a different vaccine than the first dose?		
Yes	55	11.0
No	153	30.6
Do not know	292	58.4

disease, and the acceptance of vaccines was also a challenging issue when the Government of India implemented a free supply of vaccines throughout the country.

Table 4: Participants' attitudes toward the COVID-19 vaccine

Is the COVID-19 vaccine safe?		
Yes	308	61.6
No	192	38.4
Is the COVID-19 vaccine essential?		
Yes	341	68.2
No	159	31.8
Will you take the COVID-19 vaccine if it is available?		
Yes	406	81.2
No	94	18.8
Why do we have to take the vaccine*		
Protection against disease	87	17.4
The government is giving free	42	8.4
Reduce the severity	20	4.0
Reduce the spread	70	14.0
Develop immunity	6	1.2
Reduce the spread, reduce the severity	27	5.4
Reduce the spread, reduce the severity, protection against disease	22	4.4
Reduce the spread, reduce the severity, protect against disease, and develop immunity	27	5.4
Is it possible to reduce COVID-19 without vaccination?		
Yes	116	23.2
No	110	22.0
Do not know	274	54.8
Vaccines provide long-term protection		
Yes	164	32.8
No	33	6.6
Do not know	303	60.6
Follow protective measures after taking vaccinations		
Yes	385	77.0
No	115	23.0
COVID-19 infection can be eradicated without vaccination		
Yes	157	31.4
No	106	21.2
Do not know	237	47.4
The vaccine should be administered free of charge		
Yes	443	88.6
No	57	11.4

The present study observed that 94% of them had knowledge about COVID-19 infection, a similar study conducted by Kartheek et al.⁶ found a response rate was 74% for respondents' knowledge regarding COVID-19, which is lesser than our study. This could be due to differences in the age group of the study population. The majority of the Indian population demonstrated good knowledge, positive attitude, and good practice regarding the COVID-19 pandemic.⁷

Singh et al. found a notable difference in educational variables related to causes/symptoms, transmission, prevention, treatment/

Table 5: Participants' response toward vaccine practice

<i>Components</i>		
Have you taken the COVID-19 vaccine?		
Yes	299	59.8
No	201	40.2
If no, reasons* (n = 201)		
Fear of side effects	129	64.1
Nonavailability	59	29.3
Long queue (waiting period)	13	6.4
If yes, how many doses of vaccine (n = 299)		
One	137	46
Two	162	54
Any side effects after taking the first dose (n = 137)		
Yes	91	66
No	46	34
If, yes* (n = 91)		
Fever	46	51
Fever, myalgia	39	43
Fever, myalgia, swelling at the injection site, and pain at the site	16	17
Sleep disturbance	5	5
Myalgia	13	14
Side effects after taking the second dose (n = 162)		
Yes	55	34
No	107	64
If yes* (n = 55)		
Fever	19	34
Fever, myalgia	20	36
Fever, myalgia, swelling at injection sites, pain at the site of injection	10	18
Pain at the site of injection	5	9
Sleep disturbance	2	3.7
Swelling at injection sites	3	5.4
Same side effects after both doses (n = 162)		
Same	47	29
Different	8	5
Where did you take the vaccine (n = 299)		
Government	293	61.0
Private	6	1.2
Type of vaccine (n = 299)		
Covaxin	29	5.8
Covishield	210	42.4
Do not know	60	14.0
Follow protective measures after taking the COVID-19 vaccination		
Yes	294	58.8
No	5	
Infected with COVID-19 infection after vaccination (n = 299)		
Yes	23	08
No	276	92
If yes (n = 23)		
After the first dose	18	78
After the second dose	5	22
How many weeks after the first dose did you get infected (n = 18)		
1–3 weeks	10	55
4–6 weeks	5	28
7–9 weeks	3	17
Infected after the second dose (n = 5)		
1–3 weeks	2	40
4–6 weeks	2	40
7–9 weeks	1	20

care-seeking, specific knowledge, and overall knowledge scores. Additionally, significant differences were observed in prevention across gender and occupation categories.⁸

Our study found that 50% of them have knowledge regarding the transmission of disease. Christy et al.⁹ in their multicentric study found the overall KAP regarding COVID-19 disease was robust (above 80% in all categories) among the participants. This difference could be due to the low literacy level of our study participants.

In another study, Kartheek et al.⁶ observed that respondents had an accuracy for knowledge of around 75% and less than 50% of respondents had an 80% knowledge score. This shows that people were aware of COVID-19 disease with different levels of knowledge might be due to different setup of study areas.

We found good knowledge related to protective measures; all of them had knowledge regarding using masks, maintaining social distance, and hand washing. Christy et al.⁹ in their study observed that the majority (87.2%) of the participants were confident that COVID-19 can be controlled by adequate preventive measures. Several findings regarding the relationships among KAP offer important insights into how public health initiatives can enhance population health during emergencies, such as pandemics caused by emerging infectious diseases, by implementing targeted behavioral interventions.¹⁰ This shows that people might have gained awareness and knowledge about the disease and its transmission, via television, news, and media platforms, to protect themselves and their families.

More than 70% of them were also aware of the symptoms of COVID-19 infection, such as sore throat, cough, cold, fever, myalgia, breathlessness, and diarrhea. Multiple answers were given by them. Al-Hanawi et al.¹¹ found that the majority of the participants (98%) were aware of the clinical symptoms. Participants were aware of clinical symptoms, transmission, prevention, and control of the disease. This reflects that in rural communities, the people are also aware of the COVID-19-related symptoms.

In the present study, 80% of the study population is aware of the COVID-19 vaccine; other studies also observed an 80% of acceptance rate for the vaccine Bhartiya et al.¹² and Khan et al.¹³ 85% of the 351 subjects were planning to get the COVID-19 vaccine once it is available for use in the market. We collected our data when the vaccine was implemented, but in another study, it was not implemented. Similarly, a study in Bangladesh.¹⁴ found more positive attitudes toward the COVID-19 vaccine among the general population. This shows that people are aware and ready to take vaccines, and in the future, all of them might take vaccines.

Currently, the main vaccines available in India are the Oxford-AstraZeneca vaccine locally referred to as Covishield, Bharat Biotech-ICMR indigenous vaccine named Covaxin and the Russian Sputnik V vaccine, which is imported.¹⁵ According to the Centers for Disease Control and Prevention (CDC), a trusted source, and the World Health Organization (WHO),¹⁶ common side effects of a COVID-19 vaccine include fever, fatigue, headache, body aches, chills, nausea, pain at the site, and diarrhea. In our study, 60% of them had received a vaccine, and among them, 66% of them had one or the other side effects after taking the vaccine's first dose. 34% of them had side effects after the second dose. The majority of vaccinated subjects had fever, myalgia, and pain at the site of injection, as per the ICMR and WHO source, which are minor and preventable.

CONCLUSION AND RECOMMENDATIONS

The findings of the present study conclude that overall, rural community people are aware of COVID-19 infection with regard to its

symptoms, route of transmission, and preventive methods. Similarly, about the COVID-19 vaccine and its side effects in rural areas. But they do not have knowledge regarding when to take a vaccine if someone is suffering from COVID-19 infection. They are also not aware of the name of the vaccine that they have received or the gap between the two doses. Therefore, we recommend that the health authorities sensitize the community regarding the gap between the two vaccines and when to take the vaccine if someone gets infected with COVID-19, and the type of vaccine available by the Government of India.

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