

COVID-19 Vaccination Acceptance and Its Associated Factors Among Population of Jharkhand

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Abstract- Covid-19 infection is caused by severe acute respiratory syndrome coronavirus 2 and it has infected more than 20 crore people in over 150 countries and approx 44.8 lakh deaths around the globe. Currently there is no curative treatment for covid-19 infection hence safe and prudent prophylactic vaccine can curtail devastating scenario. Mass Vaccination can produce herd effect however to achieve such herd immunity a sufficient proportion of the population is required to be vaccinated. This study was done to analyze COVID-19 Vaccination Acceptance and Its Associated Factors Among Population of Jharkhand.

A total of 401 individuals completed the self administered digitally framed questionnaire that was distributed through online social networking platforms during 15 days period (1st to 15th August 2021). The acceptance rate of the COVID-19 vaccine in jharkhand was 73%. 13.1% individuals participated in the online survey were from Deoghar, 11.08% from Ranchi, 5.54% from Godda, 4.79% from Gumla, 4.54% from Chatra, 4.53% from Dumka, Palamu and Ramgarh each district. Contribution from rest of the districts were 47.36%. Most of the participants were male (66%). 66% participants were aware all the symptoms of Covid-19 infection. 77.5% participants were correctly knowing how to prevent covid-19 infection. 70.5% participants were unaware that patients with chronic diseases like diabetes, hypertension, heart disease, kidney disease take the covid-19 vaccine. Out of 108 participants who answered no or maybe later further asked about their possible cause of denial. 35 participants said that It's not safe as it can cause long term side effects. 6 participants answered that their immunity is good, so they don't need it. Whereas 36 participants considered that vaccines don't give protection against covid infection and 12 participants thought that as they have already been infected by covid, so don't need vaccination. 147 (36.65%) entrants responded that they would not take vaccine if they have to pay for it.

Lack of this information like side effects, effectiveness can have negative impact on vaccine acceptance. These informations can be spread in the form of caller tunes in local language so that most of the people come to know about it. government and pertinent agencies involved in vaccination should focus on highlighting the fact that patients with chronic diseases like diabetes, hypertension, heart disease, kidney disease can take the covid-19 vaccine. Free provision of vaccines can further increase the vaccine acceptance among people of Jharkhand.

Key words- Covid 19, Vaccination acceptance, Associated Factors, Jharkhand

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I. Introduction

The first outbreak of novel coronavirus 2 is considered to be started in Wuhan China in November 2019 however WHO announced this coronavirus disease as covid-19 as pandemic on March 11 2020 [1]. Covid-19 infection is caused by severe acute respiratory syndrome coronavirus 2 and it has infected more than 20 crore people in over 150 countries and approx 44.8 lakh deaths around the globe [2]. In India as of 1 August 2021 total 3.17 crore has been infected by this virus which tolls about 4.25 lakh deaths. In Jharkhand Total 3.47 lakhs cases has been reported and accounted more than 5000 deaths [3]. this pandemic continues to threaten the health care system with disastrous effect on economy education and social aspects around the globe [4].

Currently there is no curative treatment for covid-19 infection hence safe and prudent prophylactic vaccine can curtail devastating scenario. To date several vaccines has been developed for regular prophylaxis and few has been approved for emergency uses. vaccines has given us a Ray of hope for preventing the spread of covid-19 infection. Various countries and governments worldwide are spending humongous amount of money to immunize the population of their countries. In India the government has announced to provide free vaccination for all.

As we know vaccination program can lead to herd immunity without requiring considerable proportion of the community to be infected by this virus, however to achieve such herd immunity a sufficient proportion of

the population is required to be vaccinated[5,6]. On the other hand immunization programs are only successful when there is a high acceptance rate the vaccines.

A few studies has been done to explore the acceptance rate and associated determinants of the covid-19 vaccine. These Include socio-demographic characteristics general vaccination attitude, risk perception of the disease, perception of the vaccine safety and efficacy etc.

One Study conducted among Health Care workers in India showed high acceptance of the vaccine [7] however another study conducted in west Bengal showed only average acceptance of the covid-19 vaccine in general population[8].

This study Sought to Assess the acceptance of the covid-19 vaccine among the general population of Jharkhand. Understanding the viewpoint of population is expository for the government and pertinent agencies involved in vaccination so that they can formulate the best approach to implement the covid-19 vaccination programme.

II. Methodology

This was a cross-sectional study , which was conducted from 1st to 15th August 2021 and it was online population-based survey. The minimum sample size was calculated with the help of OpenEpi Version 3[9]. In 2021 august, the estimated population of adults aged 18 years and above was around 24 million in Jharkhand[10]. A minimum of 385 participants were required at a margin of error of 5%, and 95% confidence interval . A bilingual, semistructured questionnaire was prepared in English and hindi, and then it was set up in the Google Form. The access link was then shared via online platforms like Email, Facebook, WhatsApp other other social platforms. The sharing was soared by family members, friends, colleagues, and other known persons. The inclusion criteria for respondents' eligibility included those who were more than 18 years old, gave consent and who can understand Hindi or English language.

The questionnaire consists of five sections: section A for consent, Section B for demographic profile, section C for Health status of participants, Section D on the basic knowledge of covid-19 and COVID-19 vaccine, Section E for the participants attitude and acceptance for covid-19 vaccination. Sociodemographic characteristics included name ,age in years, gender, ethnicity, marital status, education level, monthly income and current residency district of Jharkhand.

Medical illnesses questionnaire included status of chronic disease like diabetes, hypertension, respiratory disease, renal disease, heart disease and cancer.

Participants basic knowledge about covid-19 infection was checked by asking symptoms, mode of transmission and possible preventive measures for covid-19 infection.

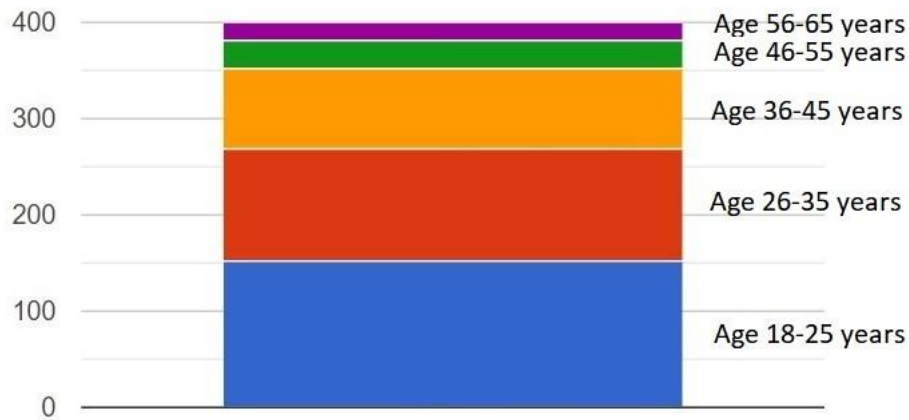
Questionnaire to check participants attitude and vaccine acceptance included covid -19 infection status, source of vaccine information, willingness for vaccination, safety concern and willingness to pay for vaccine .

Total 401 responses were collected and All data were entered into the Microsoft Excel spreadsheet and then put into the Statistical Package for the Social Sciences (SPSS) version 23 software for final analysis. The sociodemographic data collected from the respondents were presented using descriptive statistics like mean, range, frequencies and percentage (%).

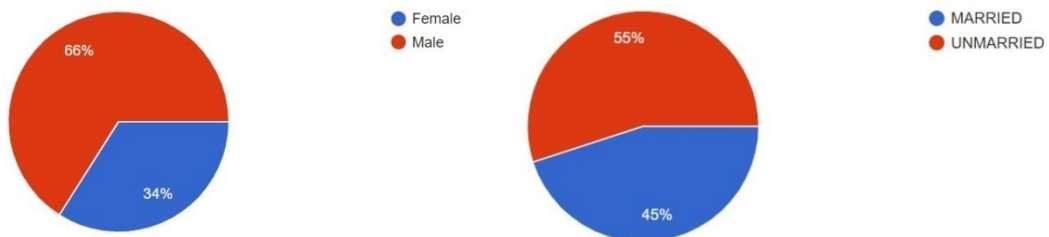
III. Results

1. Socio-demographic characteristics

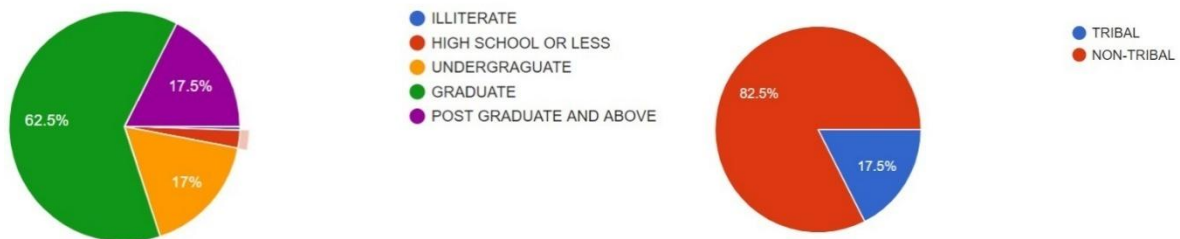
A total of 401 individuals completed the self-administered digitally framed questionnaire that was distributed through online social networking platforms during 15 days period (1st to 15th August 2021). The participants from age group 18-25 years contributed the maximum (37.9%), while individuals of age group of 56-65 years contributed the least (5%) in the study .



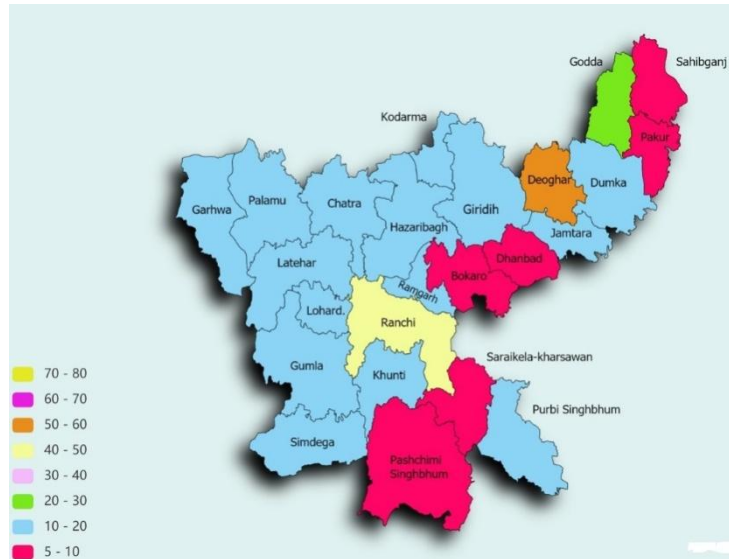
In this study, majority of the study populations were males 265(66%).



In the study ,55% were married and82.5% belonged to non tribal population while80%participantsengaged in the study had graduation or higher education (Figure).

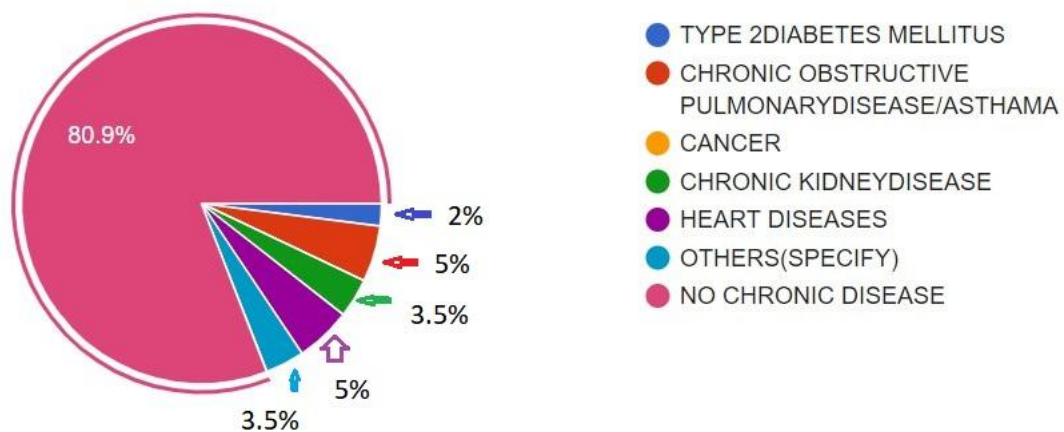


13.1% individuals participated in the onlinesurvey were from Deoghar,11.08% from Ranchi,5.54% from Godda,4.79% from Gumla,4.54% from Chatra,4.53% from Dumka, Palamu and Ramgarh each district.Contribution from rest of the districts were 47.36% cumulatively.



2. Health Status of Participants

80.9% (322) participants reported no chronic disease, 5% were suffering from chronic obstructive pulmonary disease/asthma and Chronic Heart disease. 7% were suffering from chronic kidney disease and hypertension cumulatively.



3. Participants basic knowledge about covid-19 infection

3a. do you know what are the symptoms of covid-19?

Symptoms of Covid-19	Responses
Fever, headache, cough, diarrhoea, loss of smell and taste senses, bodyache, asymptomatic (no symptoms)	66% participants were aware that any of these can be symptoms of Covid-19 infection
Fever only	26.5% considered fever solely as symptom of Covid-19 infection
I don't know	6.5% participants responded that they don't know symptoms of Covid-19 infection

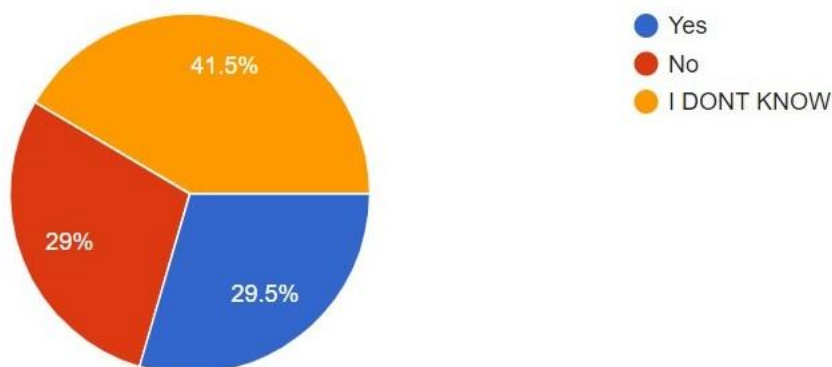
3b. how is covid-19 transmitted?

Mode of transmission	Response by Participants
drinking uncleaned water	12(3%)
eating meat products	16(4%)
inhalation of respiratory droplets of infected person	245(61%)
I dont know	128(32%)

3c. What procedure do you think that may prevent covid-19 infection?

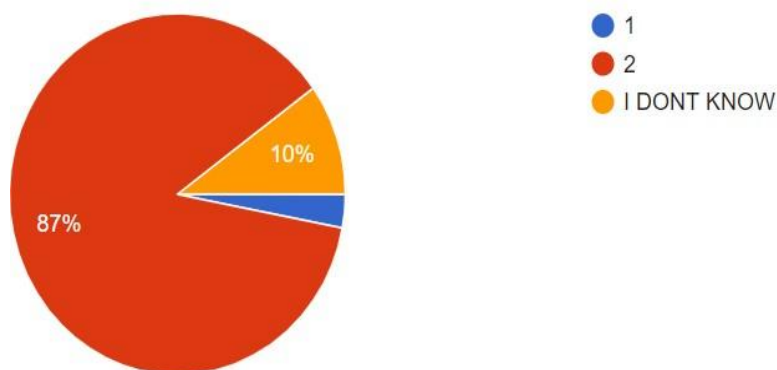
Preventive Measure	Responses
i don't know	14(3.5%)
wearing face masks only	67(16.5%)
wearing face masks,washing hands with regular soap ,social distancing , avoid touching face/mouth/nose/eyes	310(77.5%)

3d.Can patients with chronic diseases like diabetes,hypertension,heartdisease,kidney disease take the covid-19 vaccine?



Only 29.5%(119) participants were aware that patients with chronic diseases like diabetes,hypertension,heartdisease,kidney disease take the covid-19 vaccine.

3e.Currently two covid 19 vaccines(covishield and covaxin)are available broadly,how many doses are required for best protective immunity?

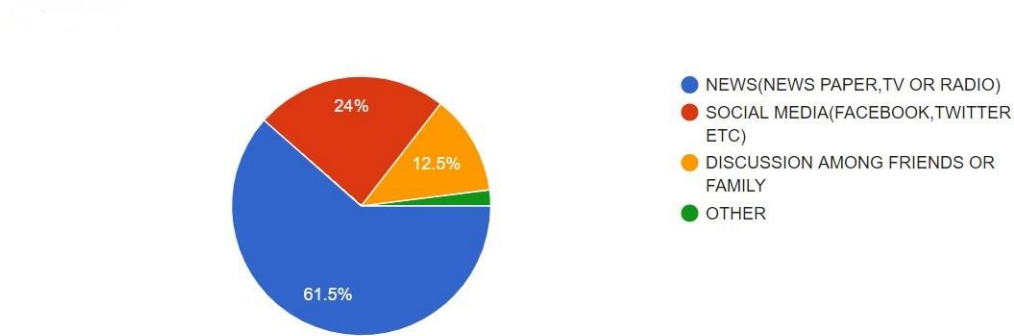


87%(348) participants were aware of the fact that two doses of covishield and covaxin are required for best protection against Covid-19 infection.

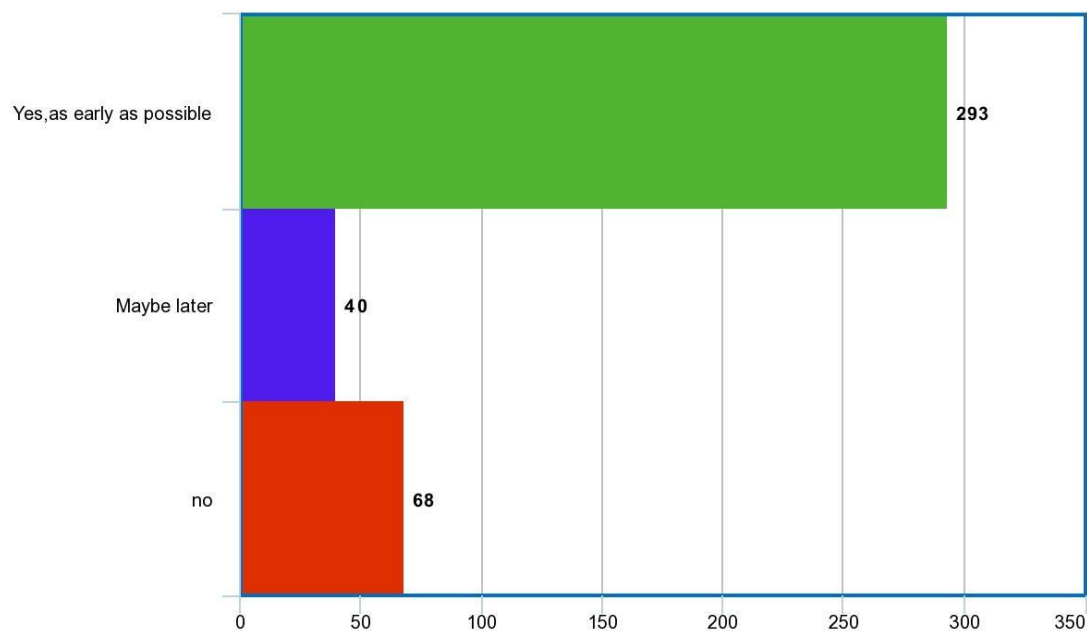
4.Participants' attitude and acceptance towards Covid-19 vaccine

81(20%) participants accepted that they have been infected by covid infection.160 participants said that they might had covid infection as they had some symptoms but not tested for it.71.5% entrants accepted that someone from their close relative had covid-19 infection.

HOW DID YOU COME TO KNOW ABOUT COVID-19 VACCINES?

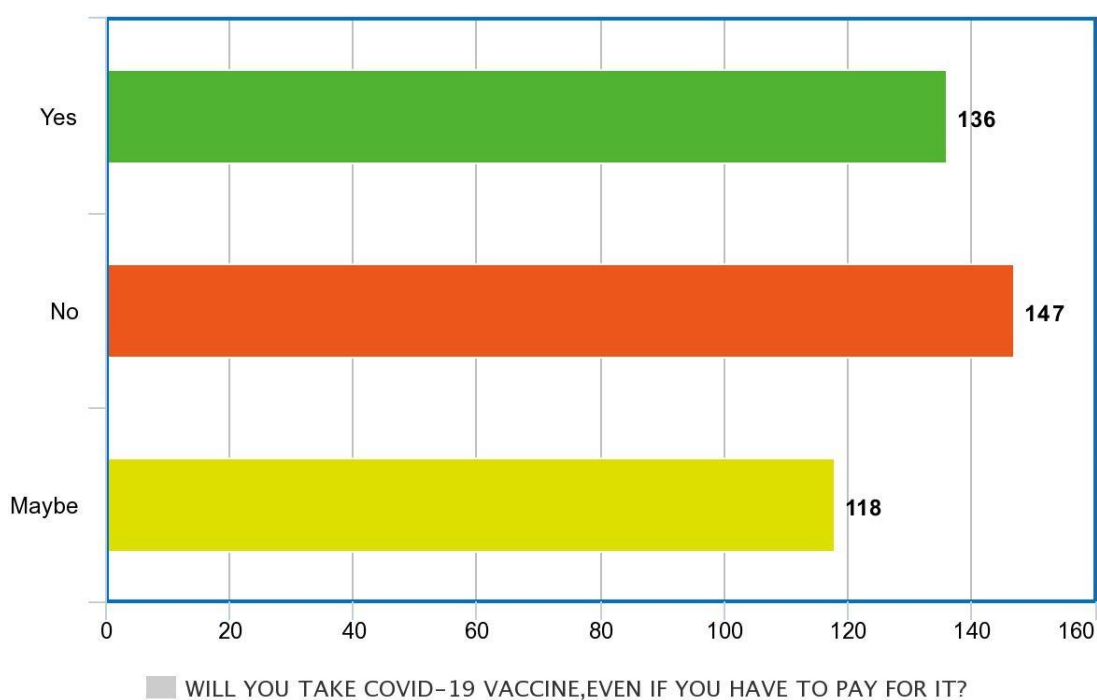
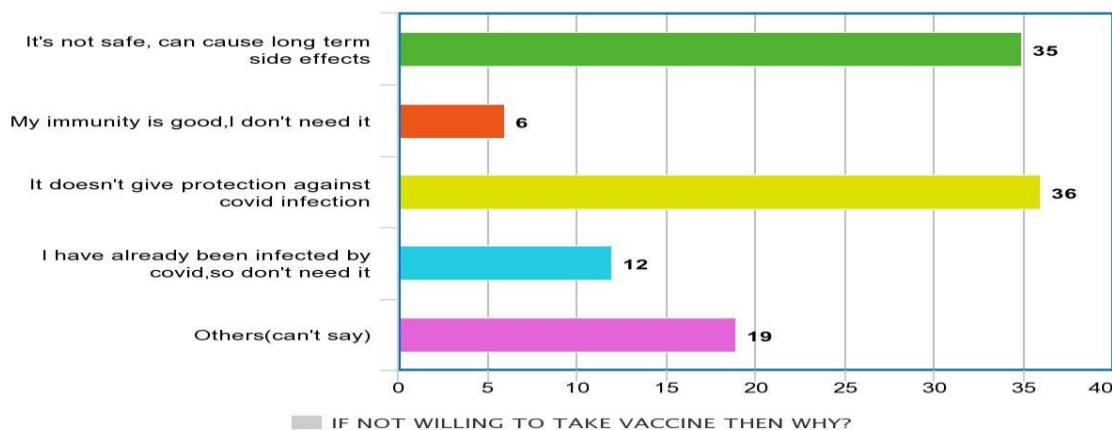


61.5%(247) participants stated that they get informations about covid -19 vaccines from news(news paper,tv,radio etc).social media (24%) and discussion among friends and family(12.5%) contributed significantly.



AS VACCINES ARE AVAILABLE FOR COVID-19, ARE YOU WILLING TO TAKE IT?

293(73%) participants were willing to take the vaccine as early as possible,40 (10%) participants said they are not sure right now but can take it later.68 (17%) participants were not willing to be vaccinated.Out of 108 participants who answered no or maybe later further asked about their possible cause of denial. 35 participants said that It's not safeas it can cause long term side effects.6 participants answered thattheir immunity is good,so they don't need it.Whereas 36 participants considered that vaccines don't give protection against covid infection and 12 participants thought that as they have already been infected by covid,so don't need vaccination.19 people did not give any reasons for unwillingness for taking vaccine.



136(33.9%) of the respondents concurred to get vaccinated even if they have to pay for it while 147(36.65%) responded that they would not take vaccine if they have to pay for it.

IV. Discussion

Vaccination against covid-19 has been recognised as a game changer to reduce and banish the burden of covid-19. However, a sufficient proportion of the population is required to be vaccinated to achieve herd immunity and that depends on the vaccination acceptance among the population. This was an online questionnaire based study which was self-administered and responses were received across the population of Jharkhand. In this study, out of 401 respondents, the acceptance rate of the COVID-19 vaccine in Jharkhand was 73%. This acceptance rate is slightly lower than the study conducted among the general population of India by Sharun Khan et al [11] which was 86.3% and higher than the study conducted by Richa Bhargwa et al [12] which showed 59.34% acceptance. In this study, 66% respondents were aware of the symptoms of COVID-19 infection and 61% were correctly knowing about the mode of transmission. 77.5% respondents were aware of the preventive measures to prevent the COVID-19 infection. 70.5% participants were unaware about the fact that patients with chronic diseases like diabetes, hypertension, heart disease, kidney disease can take the COVID-19 vaccine or not. Lack of this information can have a negative impact on vaccine acceptance. Government and pertinent agencies involved in vaccination should focus on highlighting the fact that patients with these chronic diseases can take the COVID-19 vaccine. These informations can be spread in the form of caller tunes in local language so that most of the

people come to know about it. 20% of the participants responded that they have been infected by covid 19 and 71.5% respondents said that someone close to them have been infected with covid-19. 80% of the respondents who were not infected with covid 19 but their close ones were infected with were willing to take vaccine as soon as possible. This percentage is higher than generalized acceptance of the vaccine which may be due to anxiety and health-related fears associated with covid-19 infection. This finding is corresponding to the study done by Antonia Bendau et al [13]. News (news paper, tv or radio) and social media (facebook, twitter etc) were main sources of information about covid 19 vaccines. Concern about long term side effects and doubtful efficacy of the vaccines were major factors that negatively impacted on the vaccine acceptance. This finding is similar to other studies done in India about vaccine acceptance impacting factors [11, 14]. Addressing these points can further increase the vaccine acceptance. In addition to that, a major part (36.5%) of the respondents were not ready to get vaccinated if the vaccine is not provided free of cost which is quite understandable as Jharkhand is a poor state and covid has harshly impacted on the economic conditions among majority of the population of Jharkhand [15].

This study has got several limitations. Firstly, the study population was majorly (around 80%) concentrated among highly educated population (graduation and above), and more than two-thirds of the respondents belonged to the age category that spanned from 18-35 years. Another limitation of study was that responses were collected online using digital tools which are not much popular among senior citizens. This can be a significant reason for lesser participation from older age groups.

V. Conclusion

The acceptance rate of the COVID-19 vaccine among the general population of Jharkhand was 73%. The leading causes for non-willingness for vaccination against covid 19 included fear of long term side effects, concerns about the efficacy and lack of proper information. The speedy evolution of COVID-19 vaccines might have contributed to the emergence of concerns like long term side effects and doubtful effectiveness among the general population. So the level of vaccine acceptance can be increased within the population if studies related to the safety and effectiveness of available vaccines are advertised properly. Use of mass media to create awareness and provide vaccine related information to general population as well targeted population like pregnant women, patients with chronic diseases can further add to the vaccine acceptance. However, more studies are required preferably in a larger population to get the actual perceptions on the acceptance for vaccine. This will help the government and pertinent agencies involved in vaccination so that they can formulate best strategies to implement the covid-19 vaccination programme efficiently.

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