



SCHOOL OF PUBLIC HEALTH

MAGNITUDE OF COVID-19 VACCINE ACCEPTANCE AND ITS ASSOCIATED FACTORS AMONG RESIDENTS OF AKAKI DISTRICTS, OROMIA, ETHIOPIA, 2022.

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Addis Ababa, Ethiopia

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List of acronyms

5G.....	5 th Generation
ACT.....	Access to COVID-19 Tools
CDC.....	Centers of Disease Control
CHIS.....	Community Health Information System
HCW.....	Health Care Worker
HEW.....	Health Extension Worker
HIV.....	Human Immunodeficiency Virus
IRB.....	Institutional Review Board
MERS.....	Middle East Respiratory Syndrome
mRNA.....	Messenger Ribonucleic Acid
OSZSF.....	Oromia Special Zone surrounding Finfinne
SARS.....	Severe Acute Respiratory Syndrome
TB.....	Tuberculosis
UNICEF.....	United Nation children’s emergency fund
WHO	World Health Organization
WorHO.....	Woreda Health Office

Abstract

Introduction: Coronavirus disease (COVID-19) pandemic is a major threat to public health and has had a significant impact on all aspects of life. An effective vaccine is the most expected resolution. This study was aim to assess the magnitude of COVID-19 vaccination acceptance and its associated factors in the residents of Akaki district, Oromia, Ethiopia

Methods: Community-based cross-sectional study design was conducted among 606 study participants of residents of Akaki district, Oromia special zone surrounding Finfinne, Oromia regional state from the end of May 2022 up to August 2022. A multistage sampling technique was used to recruit study participants. Nine health extension workers and supervised by two BSc holders of health workers using a pre-tested structured face to face interview administered questionnaires. Variables with p-value less than or equal to 0.25 during simple logistic analysis was entered into multivariable logistic regression model to control for all possible confounder and identify factors associated with outcome variable. Odds ratio along with 95% confidence interval was estimated to measure the strength of the association between the independent variables and outcome variables. P-value less than or equal to 0.05 was considered to indicate statistically significant association.

Results: Of 606 participants 470 (77.6%) of them accepted COVID-19 vaccine if available. Age of above 50 3.126 (AOR 3.126; 95% CI 1.449-6.744), those had any previous history of taking any type vaccine 2.056 (AOR 2.056;95% CI 1.191-3.550) and those who had used broadcast media 1.953(AOR 1.953;95% CI 1.131-3.371) were significantly associated with the acceptance of COVID-19 vaccine.

Conclusion

In this study, the acceptance of COVID-19 vaccine was 77.6% and it is significantly associated with Age, sex, use of mass media, previous history of taking any vaccine. Thus, health education and awareness creation on COVID-19 vaccine from government source were crucial to increase COVID-19 vaccine acceptance.

Keyword: COVID-19, vaccine, Acceptance, Akaki, Oromia, Ethiopia.

1. Introduction

1.1 Background

The challenges introduced by the novel coronavirus pandemic since late 2019 to date are one of the worst health challenges recorded after the 1918-1920 flu pandemic that affirmed over 100 million lives globally(5). COVID-19 is an infectious disease that primarily affects the respiratory system with the range of mild symptoms rhinorrhea to the severe symptom of severe respiratory distress syndrome this virus is generally more fatal for the elder and those with a history of comorbidities, such as hypertension, obesity, diabetes and kidney disease (6). A systematic review of 53,000 hospitalized patients showed that 20.2% of COVID-19 cases were developed severe disease with a mortality rate of ~3.1%(7).

The spread of the COVID-19 is now persistent in almost all the countries of the world including Ethiopia, causing serious public health, social and economic upheaval(5). In addition to the significant health impact of the COVID-19, it has a significant economic burden that cannot be underestimated due to this there is a substantial reduction in workforces and an increase in unemployment globally. These burdens influence pharmaceutical companies to develop vaccines urgently(1,8).

World health organization (WHO) announced COVID-19 an international public health emergency on February 11, 2020, within a year COVID-19 vaccines were produced this is the shortest time in vaccines history in its remarkable determination in vaccine research, development, and manufacturing(1,2,9). In December 2020, several vaccines were authorized to prevent COVID-19 infection(1,8).

In the midst of the pandemic crisis the development of the COVID-19 vaccines was a ray of hope, however, having access to vaccine programs is one thing but successful implementation of mass vaccination is another. Issues like mass production, global distribution, and cost could make COVID-19 vaccination difficult(1). The vaccines pillar of the world health organization's access to COVID-19 Tools (ACT) accelerator, the COVAX facility tries to ensure a more equitable

distribution of COVID-19 vaccine independent of income levels(9). Vaccine acceptance indicates the general public's overall understanding of the disease risk, vaccine attitudes, and demand, they are important for vaccination coverage rates, especially for newly emerging infectious diseases(1).

Worldwide, over 160 candidate COVID-19 vaccines are under development, with over 93 currently in clinical trials (42 in phase I, 30 in phase II, and 21 in phase III) as of March 2021. On December 11th, 2020 the first approved COVID-19 mRNA based vaccine, named Comirnaty (Pfizer and BioNTech) following it for emergency use authorization in the USA, a total of 6 vaccines have been authorized for early and limited use, and 6 have been approved for full use, as of March 2020(10).

The Healthcare system of Africa is not well-equipped to tackle this pandemic. While African countries are with limited health infrastructure this put the continent at a higher risk of disease spread and training, their inability to promptly obtain the vaccine further increases the risk of disease spread. It is not only issues of most of the vaccine supplies were ordered by many developed countries, but vaccine-related costs and transfer issues also further delay vaccination procedures for African people as of late 2021 and early 2022(6).

In Ethiopia the pandemic also seriously affects the communities because of the poor public health system, keep backed health sector, and an insufficient number of specialized hospitals, and there is little capacity for tracing, testing, confirmation, isolation, and treatment of those infected(11). The COVAX facility assigned 7,620,000 doses of COVID-19 vaccine for Ethiopia of which about 2,184,000 doses were already received, 5.4 million doses of the COVID-19 vaccines are expected to reach Ethiopia by May 2021 under the current global distribution plan. As the ministry of health aims, 20% of the population in Ethiopia is planned to be vaccinated by the end of 2021(2).

Understanding the community's COVID-19 vaccine acceptance, as well as the major factor affecting their acceptance of the vaccination, would contribute to the development and implementation of an efficient COVID-19 vaccination promotion strategy, as well as the current alarming increase in infection. The objective of this study was to assess the magnitude of the acceptance of the COVID-19 vaccine and its associated factor among residents of Akaki districts, Oromia region, Ethiopia.

1.2 Statement of the problem

The COVID-19 pandemic has affected 223 countries across the world (globe) and a total of 174,539,625 confirmed cases and 3,756,185 deaths were reported on June 9, 2021(12). The COVID-19 pandemic continues to cause a large amount of social and economic impacts and stress on the health care system of all countries in the world (13).

Vaccine hesitancy and resistance are the major issues around the world, the world health organization (WHO) list them among the top ten health threat for 2019(1,2,8,9,12). A global survey of potential COVID-19 vaccine utilization reflects that 48% of their study population were confused about COVID-19 vaccinations and remained uncertain about whether they would have the vaccination. similarly, a Chinese study found that 54 % of their participants said that they were planning to have the vaccination. These relatively indicate low proportions of people willing to have vaccines which are potentially worrying(14).

Vaccines with high effectiveness should have got a strong preference from people and vaccines with low effectiveness could affect people's willingness to be vaccinated. Due to its newness and realized lack of testing individuals will perceive a pandemic vaccine as less safe(7).

Vaccine fearfulness has been linked to religious values, personal beliefs, and safety issues based on widespread misconceptions such as the connection between vaccines and autism, brain injury, and the disorder according to the various report(1). Maintaining confidence in vaccination depends on the interaction between patients and providers. The health care professionals' attitude and utilization of vaccination is a major factor that is consistently associated with the patient acceptance of vaccination and adherence to the vaccination schedule, and reduced hesitation(15).

On March 13, 2020, the first confirmed case of COVID-19 was reported in Ethiopia, and up to June 9, 2021, a total of 373,398 confirmed cases of COVID-19 and 4226 death were reported(12).

Therefore, even if the research was done in this area but the study was done online in a different area, this included only those who have access to use the internet and those who have information and are also limited to urban areas. So, this study was fill the gap. In addition to this, the world is in the era of the COVID-19 pandemic to halt this pandemic the WHO recommended different

measures among them vaccination is one. Despite this many people were not willing to uptake the COVID-19 vaccine, so this study will assess the factor behind it and give recommendation on it.

1.3 Significance of the study

Effective vaccines are currently developed and distributed to different countries but effective therapeutic/curative drugs are not formulated. Besides, there is resistance on the acceptance of COVID-19 vaccine. So, working on the community regarding vaccine acceptance have a significant role in controlling the pandemic by identifying the main cause of it. The finding that gain from this study highlight the magnitude of COVID-19 vaccine acceptance and its associated factor among residents of Akaki districts may be used as an inputs for Akaki WorHO, OSZSF Zonal health office planner to minimize the factors affect the COVID-19 vaccine acceptance. Additionally, the finding from this study will be used for priority setting and for designing effective program by Akaki woreda health office and it will be also used as a base for those who are interested in carrying out further studies.

2. Literature review

The COVID-19 pandemic caused by mRNA virus that belongs to the family of Corona (Latin Crown, from the structure of the virus under electron microscope) virus is a challenge for both developed and underdeveloped nations. Since the end of December 2019, the new Corona virus was identified as the cause of acute respiratory disease in humans. Later labeled as SARS-COV2 by the world health organization is a different strain of CORONA virus from SARS and MERS Corona virus. Not only due to their genetic make-up but also, they are different in clinical presentation, case fatality, and the rate of spread across the globe. The disease caused by this virus was known as COVID-19 (16). The outbreak was first started in Wuhan, Hubei state of the chain, and was first reported by the world health organization (WHO) on the 31st December 2019 and declared as public health emergency of international concern on 30th January 2020 after the cases had started to be seen outside chain in less than two-month period and on march 2020 as global pandemic(13).

Every country has been affected by COVID-19, with nearly a quarter of a billion cases and almost 5 million deaths reported globally at the end of September 2021, despite the surprising speed with which highly effective and safe vaccines has been developed, new waves of disease are still pushing health systems to the breaking points, increasingly transmissible variants are emerging, and international monetary fund estimates that global economic losses could exceed US\$5.3 trillion by 2026 if COVID-19 becomes endemic(17).

Although over 6 billion doses of the COVID-19 vaccine have already been given, and now global production of vaccines is reaching 1.5 billion doses per month but still the world is not positioned to end the pandemic. There has been an enormous decline in serious disease, hospitalization, and death in areas where high vaccine coverage but, globally vaccine access is highly inequitable with coverage ranging from 1% to over 70% depending largely on the country's wealth. therefore SARS-COV2 variants continue to emerge, causing a surge of disease, slowing or even reversing the reopening of societies and economies(17).

February 2022 total case 11,015,013 and total death 243,875 in Africa and the continent were administered 392 million doses from the 603.7 million doses of supply (64.93 of supply were

administered) among this 11.69 % were complete vaccinated and 16.87 partially vaccinated (17). However, the continent home to 17% of the world population, shares a relatively smaller fraction of this global toll, the impact of COVID-19 has been devastating. Africa suffers a disproportionate burden of infectious disease in the face of chronic shortage in its healthcare workforce: any distribution to the essential health service, any healthcare worker infected, magnifies the impact of the pandemic. Due to COVID-19 related movement restriction health services for HIV, Tuberculosis, and Malaria on the continent have been severely hit by COVID-19 as access has been restricted. According to a survey by global fund HIV testing has fallen by 41% on average, TB referral and screening by 28%-29%, and half of the health facilities have recorded COVID-19 infections among HCWs. According to the United Nations Children's Emergency Fund (UNICEF), interruptions in immunization campaigns will leave 80 million children under the age of one unvaccinated or under-vaccinated(18).

African centers for disease control and prevention (Africa CDC) were surveyed to investigate public knowledge and perception of both the COVID-19 pandemic itself and the COVID-19 vaccine among adults in 15 African countries. This survey revealed that 76% of South African respondents were said that they would take a new COVID-19 vaccine if it were publicly available. 81% of respondents were agreed ('strongly agree' or 'tend to agree) that the COVID-19 vaccine is important, 73% of them agreed that the COVID-19 vaccine is effective and 70 of respondents agreed that the COVID-19 vaccine is safe and also half of the respondents believed that the coronavirus is linked to 5G (49%) and 27% believed that COVID-19 is man-made (19).

The utilization of the new COVID-19 vaccine was found to be affected by age, employment status, urbanity, and geographical location. Respondent older than 35 years were more willing to take a new vaccine than respondents younger 35 years (78% versus 73%) and in comparison, of students with people who were employed the employed were more likely to think the new vaccine would be safe (72% versus 61%). Those who live in cities were more willing to take new vaccines compared with those who live in the villages (79% versus 69%). Men were more unbelieving about the safety of the COVID-19 vaccine (66%), compared to (74%) of women who think the COVID-19 vaccine is safe. The confidence of the respondents on both the general vaccine and COVID-19 vaccine were relatively similar, for example, 24% of the respondents think vaccines, in general,

are unsafe and a similar proportion 26% say the same about the COVID-19 vaccine. Similarly, 80% of respondents agreed that vaccines, in general, have important and a similar proportion 81% of respondents agreed that the COVID-19 vaccine is important (19).

The majority of the participants revealed that their motivation to take the COVID-19 vaccine depended on the availability of sufficient reliable information on the vaccine safety and effectiveness (63.2%). Conversely, factors such as 'the vaccine have been taken by many of the population (24.7%)', 'the vaccine was recommended by a trusted doctor' (19.9%) and a mandatory vaccination required at work place' (12.7%) were not reported as impacting their decision(10).

2.1 Perception of the COVID-19 pandemic and vaccination concerns

Regarding the vaccine trust and safety, approximately a third of study participants either agreed (2779,18.4%) or strongly agreed (3485,23.1%) that receiving safe and trusted vaccine was possible, and also on the other hand most (10,803,71.6%) believed there would be difficulties inequitable and proper vaccine distribution. Interestingly, almost a third of the participants either agreed (2452,16.3%) strongly agreed (3127,20.7%) with concerns about serious vaccine complications(6).

In a study done in Bangladesh just over half (52%) of the participants thought everyone should be vaccinated. This perception was significantly higher among females versus males (56.95 vs 47.9%). Around 95% of the participants responded that the vaccine should be administered free of charge. In addition, most participants believed that the newly discovered COVID-19 vaccine may have a side effect (89%). over have of the participants (56%) responded that if everyone in the society maintains the preventive measures, the COVID-19 pandemic can be eradicated without vaccination and about a third (35%) responded that they would not purchase the vaccine at their own expense if it was not provided by free of charge by the government(14).

2.2 Knowledge, attitude, and acceptance regarding the COVID-19 vaccine

The respondents notice vaccines as essential for children's health and 12,970 (86%) trusted that vaccination could reduce morbidity and mortality. Furthermore, 14,205(94.2%) consider that finding an effective vaccine was possible and would reduce the vaccine COVID-19 vaccine

burden. However, only 14.9% trusted that vaccination benefits outweighed the risks(6). On vaccine acceptance and efficacy,79.6% reported willingness to take the vaccine with an efficacy of 90% or more 60.6% with an efficacy of 70% or more, and only 41.2 % with an efficacy of 50%. however, most of them 95.9% reported that they would encourage their parents to vaccinate. This study stated that there was no statistical association between acceptance of COVID-19 vaccine and gender, monthly income, having financial difficulty, having a fixed income, and being previously infected with COVID-19.(6)

In Bangladesh only about a quarter (26%) of the study participants regarding the current COVID-19 vaccine as safe, almost about 60% would have the vaccine without hesitation and two-thirds would encourage family or friends to have the vaccination(14).

More than half of participants (52%) responded that they thought vaccines could protect them from contracting COVID-19, and 42% believed that individuals could not contract COVID-19 after taking the vaccine in Oman. Regarding the technical issues related to the COVID-19 vaccine, 45% of participants knew that the vaccine would be given in two doses. Additionally, 29 % of them thought that the vaccine could not be given to the individual who had symptoms of the diseases at the time of vaccination and 44% of them believed that the vaccine could be given to the person with a history of contracting COVID-19, around a quarter of the participants (26%) knew about the side effect of the vaccine and 17% of the participants thought the vaccine would be safe but with some side effects(20).

About seventy-three percent of the participants responded that they had been aware of the development of the COVID-19 vaccine. Nearly 70.5% of the study participants responded the overdose of the COVID-19 vaccine would become dangerous for humans. Additionally, nearly one-fourth (22%) of the participants had agreed that the newly discovered COVID-19 vaccine was safe. Almost one-fourth (25.6%) of the participants had agreed that the COVID-19 vaccine was essential for them and 23% of the participant had believed that the COVID-19 vaccine developed in Europe and America was safer than those made in other countries. 11.4% of the respondents had agreed to encourage family/friends to get vaccinated(21).

Less than half (45.5%) of the participants in the survey done in Ethiopia responded that they would

accept the COVID-19 vaccine if the vaccine was available, more than half (54.5%) of the participants said they would not accept. the reason that made them unwilling to accept the vaccine were concerned about the insufficient data about the vaccine (59.27%) and fear of the adverse effects of the vaccine (21.2%)(1).

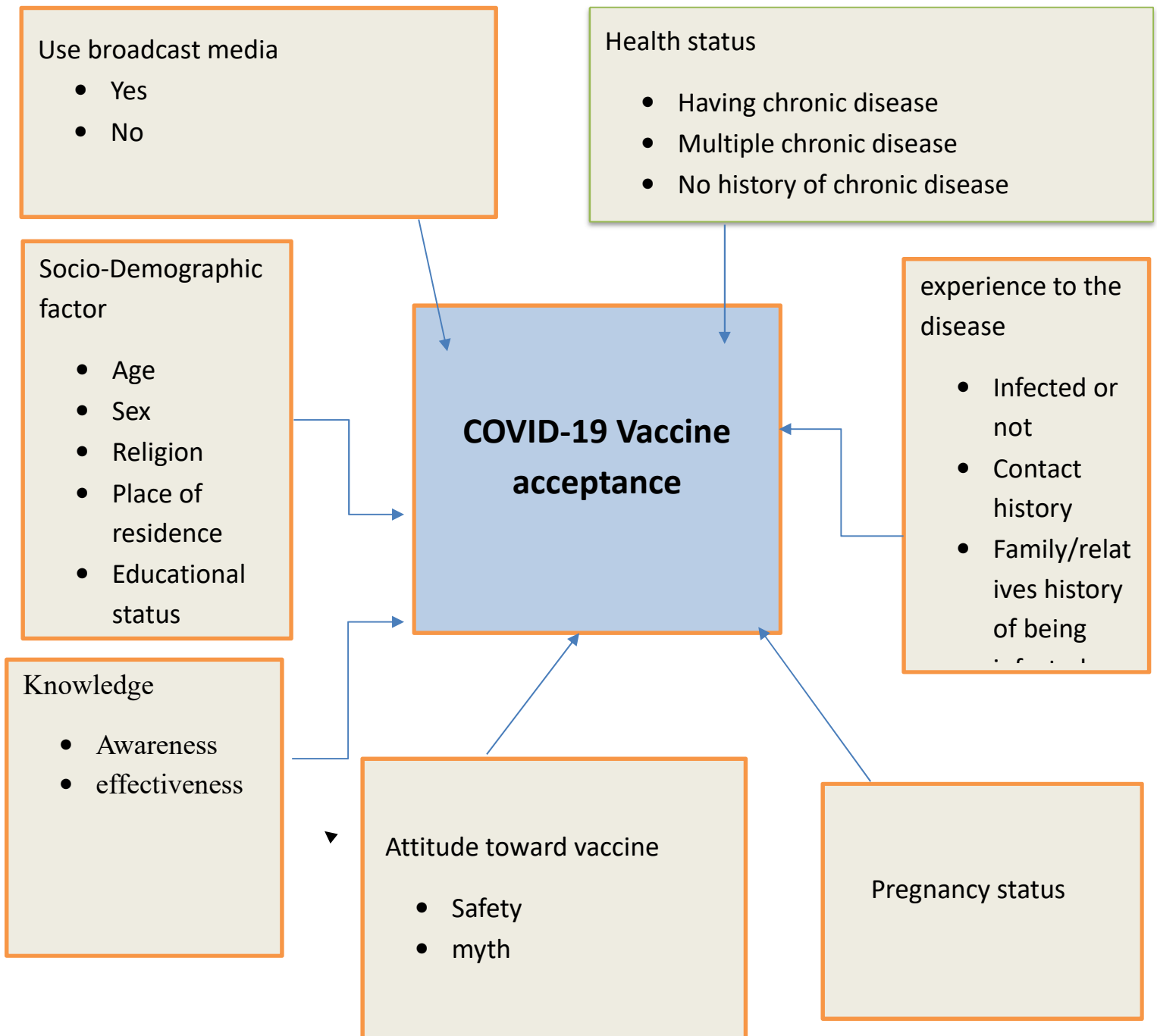
2.3 Factor associated with acceptance of COVID-19 vaccine among the public

A study done in Oman shows that male participants were more willing to take the COVID-19 vaccine compared to females and individuals with a history of chronic disease were more willing to take the COVID-19 vaccine in comparison with healthy individuals especially participants with diabetes mellitus. On the other hand, pregnant women were less willing to take the vaccine. Additionally, the participants who believed the vaccine to be safe with the same side effects were more inclined to take the vaccine than others and those who have post-secondary and higher educational levels were less willing to take the vaccine when compared with illiterate individuals(20).

Individuals who attended secondary education and above were nearly three times more likely to accept the COVID-19 vaccine when compared to those who did not attend secondary school and above. Having chronic disease would raise the acceptance of the COVID-19 vaccine of the adult population by almost three times compared to the adult population with no history of any chronic disease(21).

Conceptual frame work

Figure 3. Schematic presentation of sampling procedure of magnitude of COVID -19 vaccine acceptance and its associated factors among residents of Akaki district(1–4).



3.Objectives

3.1. General Objectives

- To assess the magnitude of COVID -19 vaccine acceptance and its associated factors among residents of Akaki districts, Oromia region, Ethiopia, from the end of May-August 2022.

3.2 Specific Objectives

- To assess the magnitude of the acceptance of the COVID-19 vaccine among residents of Akaki districts, Oromia region, Ethiopia, from the end of May-August 2022.
- To identify the factors associated with COVID-19 Vaccine acceptance among Akaki districts residents, Oromia Region, Ethiopia, from the end of May-August 2022.

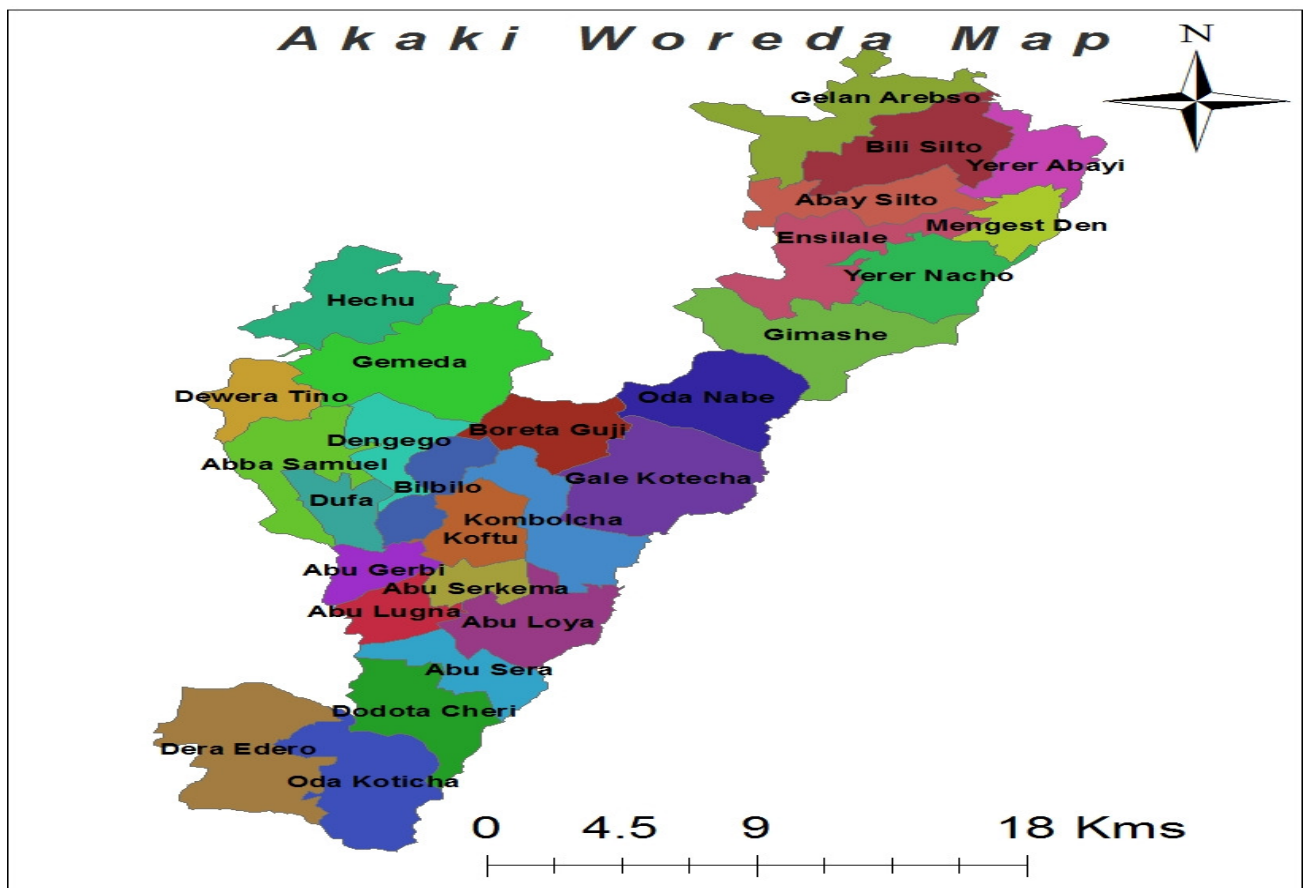
4. Methods and Materials

4.1 Study period and Study area

The study was conducted from the End of May 2022 up to August 2022 in Akaki District which is found in Oromia Special Zone surrounding Finfinne, Oromia Regional State, Ethiopia. Akaki District is located to the east, 37 Kilometer away from the capital city of Ethiopia, Finfinnee.

The Woreda is bounded by Adea Woreda in East, Sebeta Hawas in West, Barek Woreda in South, and Sodo Dachi Woreda in North. Dukem is the capital city of the district. According to data from Woreda Health Office, the district has a population of 89,840 people and 18717 households. The district has 28 Rural Kebeles, and has four health centers, 28 health posts, and three private primary clinics in terms of health facilities.

Figure 2. Akaki district map, GPS 2021



4.2 Study Design

The community-based cross-sectional study design was conducted among residents of Akaki district Oromia Special zone surrounding Finfinne special Zone, Oromia from the end of May-August 2022.

4.3 Source population

All residents of Akaki district, Oromia special zone surrounding finfinne, Oromia Regional State, Ethiopia.

4.4 Study population

All individuals who lived in Akaki districts, Oromia Special zone surrounding Finfinne, Ethiopia those who were satisfying inclusion criteria.

4.4.1 Inclusion criteria

Individuals aged greater than 18 years in the selected kebeles was included in the study.

4.4.2 Exclusion criteria

Individuals who were unable to talk and hear.

Those who was seriously ill during data collection was not cooperated due to pain and

Those who have a mental problem was excluded from the study.

4.5 Sample size determination and sampling procedure

4.5.1 Sample size determination

With the following consideration in mind, the sample size is calculated using the single population proportion formula with a marginal error of 0.05, a confidence interval of 95 % a p-value of 0.5 and 62.6 % of the population intention to accept COVID-19 vaccine from similar study was done in Gurage Zone (22). Assume a 10% of non-respondent rate for this study.

$$n = z^2 pq / d^2 \quad \text{here, } n = \text{sample size}$$

$$z = 1.96 \text{ (with confidence interval of 95\%)}$$

$$p = \text{prevalence estimate (62\%)} \quad q = (1-p)$$

d=sampling error (0.05)

$$n=z^2pq/d^2$$

$$n=1.96^2(0.62*0.38)/0.05^2$$

$$n=3.8416(0.24)/0.0025$$

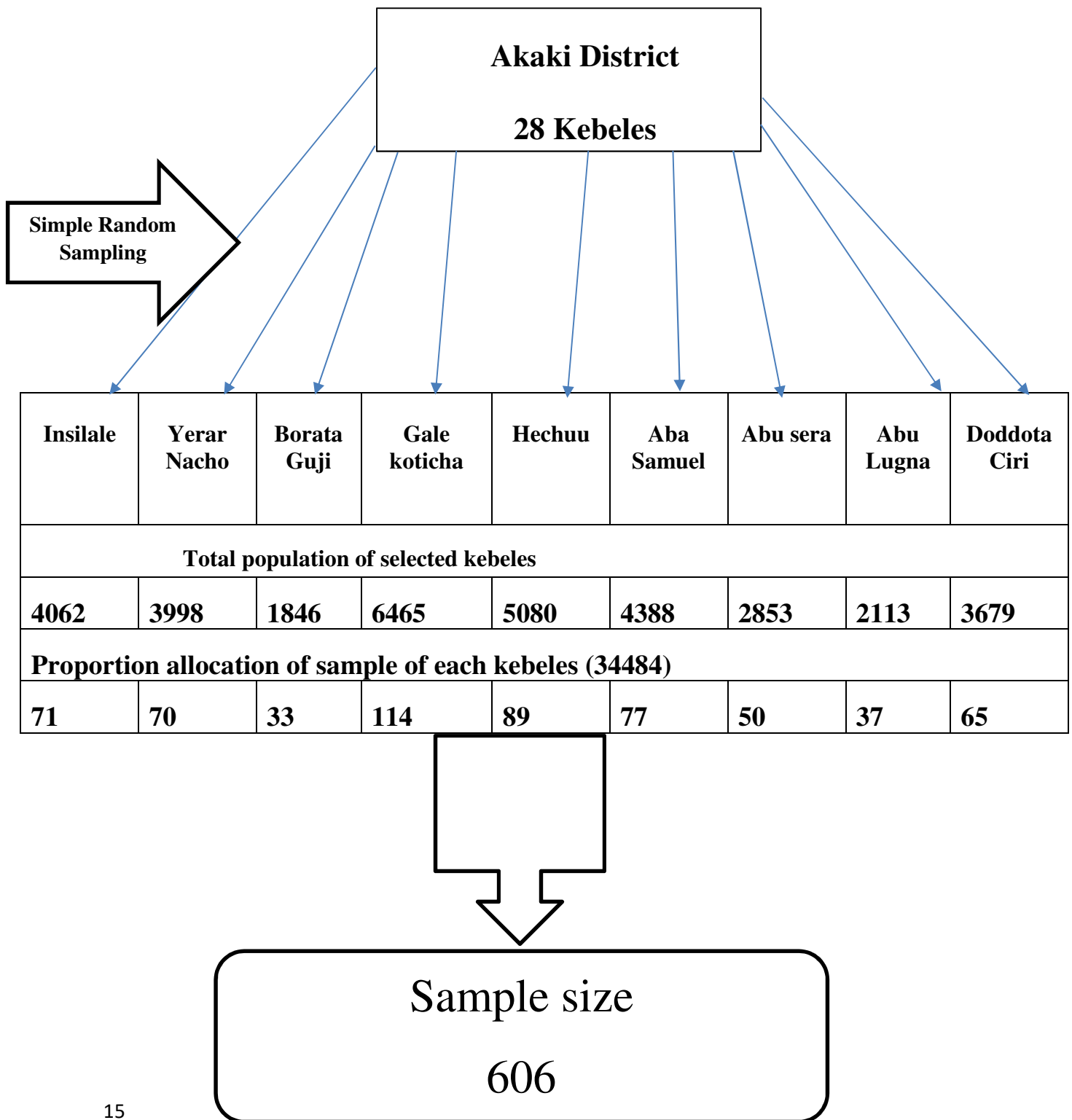
$$n=368.8 \sim 367$$

by adding a 10% non-respondent rate, the sample size becomes $403.7 = 404$ including 1.5 design effect, the minimum sample size for this study is 606, the participant's household will be accessed by using the systematic random sampling technique.

4.5.2 sampling procedure

The study participants were recruited using a multi-stage sampling technique. Nine kebeles were selected from a total of 28 kebeles in Akaki districts by using a simple random sampling technique by a lottery method, then proportional allocations were employed to obtain the sample size of the selected kebeles. A systematic sampling procedure was used to select household from selected nine kebeles, the first household was selected using simple random sampling methods and then the others were selected at regular intervals until the required sample size was reached. The list of the household was identified by using existing house number in community health information system (CHIS) folder in health post. If there was more than one individual in the household who fulfills the inclusion criteria, one respondent was selected by using a simple random sampling technique.

Figure 3. Schematic presentation of sampling procedure of magnitude of COVID -19 vaccine acceptance and its associated factors among residents of Akaki district.



4.6 Variables

4.6.1 Dependent variable

- COVID-19 vaccine acceptance (Yes/No)?

4.6.2 Independent variable

- Sociodemographic factors such as age, gender, religion, educational attainment, marital status, and place of residence.
- COVID-19 experience
- Health status
- Pregnancy status
- Knowledge about COVID-19 vaccine
- Attitude toward COVID-19 vaccine

4.7 Operational definitions

4.7.1 COVID-19

Coronavirus disease 2019 is an infectious disease caused by a newly discovered coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-COV2). It was initially reported from Wuhan, China in December 2019 (23).

4.7.2 Knowledge of respondents towards COVID-19 vaccine

Comprehensive knowledge of COVID-19 vaccine Was computed from summing up all relevant five knowledge related “Yes” and “No” questions, respondents were asked “Does COVID-19 vaccination increase allergic reactions”; respondents who respond “yes” was score 1 and “No” response was earn zero scores. The correct answer for each item was scored “1” and the incorrect answer was scored “0.” The same pattern of questioning and scoring was made for the rest of the four knowledge-related items. Accordingly, respondents who scored greater than or Equal to the mean value of the knowledge assessment questions were thought as having good knowledge, and respondents who answered less than the mean value of the knowledge assessment questions were thought as having poor knowledge.

4.7.3 Attitude of respondents towards COVID-19 vaccine.

Attitude of COVID-19 vaccine was computed from summing up all relevant six attitude related 'Agree, "Undecided and disagree" questions, respondents was asked "Does the newly discovered COVID-19 vaccine is safe"; respondents who respond "agree" was score 1 and "Undecided and disagree" response was earn zero scores. The correct answer for each item was scored "1" and the incorrect answer was scored "0." The same pattern of questioning and scoring was made for the rest of the Five attitude-related items. Accordingly, respondents who scored greater than or equal to the mean value of the attitude-related questions were thought of as having a positive attitude, and respondents who answered less than the mean value of the attitude assessment questions were thought as having a negative attitude.

4.7.4 Intention of Respondents Towards COVID-19 Vaccine acceptance

COVID-19 vaccine acceptance was measured using "Yes "and "No" questions, respondents was asked "Did You have an intention to accept COVID-19 vaccine if it is available in the future"; respondents who respond "yes "was score 1 and "No" response was earn zero scores. Accordingly, respondents who scored 1 was thought of as having the intention to accept the COVID-19 vaccine, and respondents who scored 0 was thought of as having no intention to accept the COVID-19 vaccine.

4.7.5 COVID-19 experience

It includes contact with a COVID-19 patient, a member of the household who has been diagnosed with COVID-19, friends who have been diagnosed with COVID-19, relatives who have been diagnosed with COVID-19, have you been vaccinated for COVID-19, heard about COVID-19 vaccine, and any symptom related to the vaccine after the first dose.

4.8 Data collection procedures

Data regarding the socio-demographic characteristics of the participants and sources of information towards the COVID-19 vaccine, knowledge about the COVID-19 vaccine, attitude towards COVID-19 vaccine, socio-political factors, and acceptance of COVID-19 vaccine was collected through face to faced interviews using a structured question was adopted from different

works of literatures. The data was collected from the end of May to July 21, 2022, by nine Health extension workers and was strictly followed by two BSc holders' health workers who managed the overall data collection process. All responses to closed ended questions were written down manually by the interviewers.

4.9 Data quality control measures

To assure the quality of the data, the tool was first prepared in English and then translated to the language that was widely used by the community Afan Oromo by language experts and retranslated back to the English version to ensure consistency. Data collectors and supervisors were received a two-day intensive training on data collection methods, the research aim, data collection techniques, and the template for Data abstraction. The pre-test was conducted among 5% of the sample size to ensure the validation of the tool in one kebele of the districts which is not selected for actual data collection. Hence, the amendment such as wording, changing terms, rephrasing for better understanding, deleting, and adding some information for clarity was done based on the feedback of the pre-test before the commencement of the final data collection. In addition, the principal investigator and supervisors were performed frequent reviews of the data collected for accuracy, quality, and completeness, and any necessary changes was made on the spot. Before starting the analysis, Data cleaning and frequency was made on SPSS to check for consistency.

4.10 Data processing and analysis

Data was first coded, cleaned and recoded, and entered into epi Info software. The entered data file was compiled and exported to SPSS version 26.0 statistical software for analysis. descriptive statistics using a table of frequency distribution was used to summarize the result such as socio-demographic characteristics, knowledge/attitude, health status, and COVID-19 experience in relation to the outcome variables. Then data was presented using the graphs, tables, frequencies and Percentages. Finally, a bi-variable logistic regression analysis was done to see the association between outcome variables and each independent variable. Variables with p-value less than or equal to 0.25 during bi-variable analysis was entered into multivariable logistic regression model to control for all possible confounder and identify factors associated with outcome variable. Odds ratio along with 95% confidence interval was estimated to measure the strength of the association

between the independent variables and outcome variables. level of statistical significance declared at p value less than or equal to 0.05.

4.11 Ethical consideration

Before the start of the data collection process ethical clearance and approval for the study was obtained from the IRB of the St. Paul's hospital millennium medical college and the permission to conduct the study Was also obtained from the Akaki woreda health office. Before starting the data collection, the aim of the study was explained to the respondents. Verbal informed consent was obtained from participants who could not read and write, and the verbally informed consent process was approved by the ethical review committee of St. Paul's hospital millennium medical college, while written informed consent was obtained from participants who Can read and write. The confidentiality of the study participants was ensured by avoiding an identifier like a name. Participation in the study was based on volunteer decisions. Privacy was keep by taking the data anonymously, and also the participants have the right to be excluded from the study if they do not want to participate. The Participants also was told as he/she has the right to withdraw from the study at any stage. The data collection was conducted by applying the WHO-recommended COVID-19 prevention measures such as Wearing face masks, keeping social distance, and using alcohol-based hand sanitizer.

4.12 Dissemination of results

This study will be submitted to the St. Paul's hospital millennium medical college as it is primarily required for academic purposes and also the study will be disseminated to the Akaki woreda health office to aware the health office on the acceptance of COVID-19 vaccine among residents and also it will be disseminated by using different seminar. Finally, the study will be published that it may serve for policymaker and decision-maker to understand COVID-19 vaccine acceptance and its associated factor and then act on it accordingly.

5.Result

5.1 Socio-demographic characteristics

There were a total of 606 who participated in this study with 100% respondent rate. The majority of study participant were females 59.2% (359) and 41.9% (254) participants were between the age of 18-29 years. The mean age of the participants was 36 (SD $\pm$ 13.8 years) with range of 18 to 80 years. The dominant religion of the study participants was orthodox 75.4% (457) and 67.3% (408) of the study participants were married. About 44.6% (270) of the participants had no formal education and 64.5% (391) were farmer. Higher number of study participants have history of any vaccine taking in their life 70.1% (425) and 68.2% (413) of them use broadcast media as source of information.

Table 1. socio-demographic characteristics of respondents in Akaki district, Oromia, Ethiopia,2022 (N=606)

Variables	Frequency	Percentage (%)
Age (years)		
18-29	254	41.9
30-49	240	39.6
>50	112	18.5
Sex		
Female	359	59.2
Male	247	40.8
Religion		
Orthodox	457	75.4
Protestant	99	16.3
Islam	11	1.8
Waqeffata	39	6.4
Marital status		
Unmarried	158	26.1
Married	408	67.3
Divorced	18	3
Widowed	22	3.6
Educational status		
Secondary and above	102	16.8
Primary education	234	38.6
No formal education	270	44.6
Occupational status		
Farmer	391	64.5
Merchant	28	4.6
Student	90	1.9
Housewife	97	16

Any chronic illness

Yes	58	9.6
No	548	90.4
Use of broadcast media		
Yes	413	68.2
No	193	31.8
Previous history of taking any vaccine		
Yes	425	70.1
No	181	29.9

5.2 Knowledge of respondents regarding COVID-19 vaccine

The majority of the participants 90.9% (551) had heard of COVID-19 pandemic and also majority of them 81.7% (495) know about the development of the vaccine. Most of the participants 74.8% (453) didn't thought that COVID-19 vaccine was effective, and 64.9% (393) believed that taking COVID-19 vaccine overdose didn't dangerous. Additionally, 37.5% (145) of them thought that taking COVID-19 vaccine increase allergic reaction. About 60.9% (369) of the participants had good comprehensive knowledge about the COVID-19 vaccine.

Table 2. Knowledge of respondents regarding COVID-19 vaccine in Akaki district, Oromia, Ethiopia, 2022 (N=606)

Items	Categories	Frequency	Percentage(%)
Do you hear about the pandemic of COVID-19	Yes	551	90.9
	NO	25	4.1
	I don't know	30	5
Do you know about the COVID-19 vaccine development?	Yes	495	81.7
	No	109	18
	I don't know	2	0.3
Do you know about the effectiveness of the COVID-19 vaccine?	Yes	109	18
	NO	453	74.8
	I don't know	44	7.3
Is it dangerous to use an overdose of COVID-19 vaccines?	Yes	154	25.4
	NO	393	64.9
	I don't know	59	9.7
Does COVID-19 vaccination increase allergic reaction?	Yes	145	37.5
	NO	227	38.6
	I don't know	234	23.9
Knowledge status	Good	369	60.9
	Poor	237	39.1

5.3 Attitude of respondents toward COVID-19 vaccine

Majority of the respondents 64.2% (389) of them believed that the newly discovered COVID-19 vaccine was safe and 23.8% (144) were not. Also, 85.5% (518) of the study participants were thought that COVID-19 vaccine was essential for us and 1.7% (10) were not. Majority of the study participants 79.5% (482) were encouraging their family/friends/relatives to get vaccine and 9.1% (55) were not. About, 45.2% (274) of the study participants believed that there is a possibility to reduce the incidence of COVID-19 without vaccination and 28.1% (170) of them were not. Additionally, majority of the respondents 67.3% (408) were consider COVID-19 vaccine distribution was fair, but 8.6% (52) of them were not. Almost more than half 54.1% (328) of the respondents had a positive attitude toward newly developed COVID-19 vaccine.

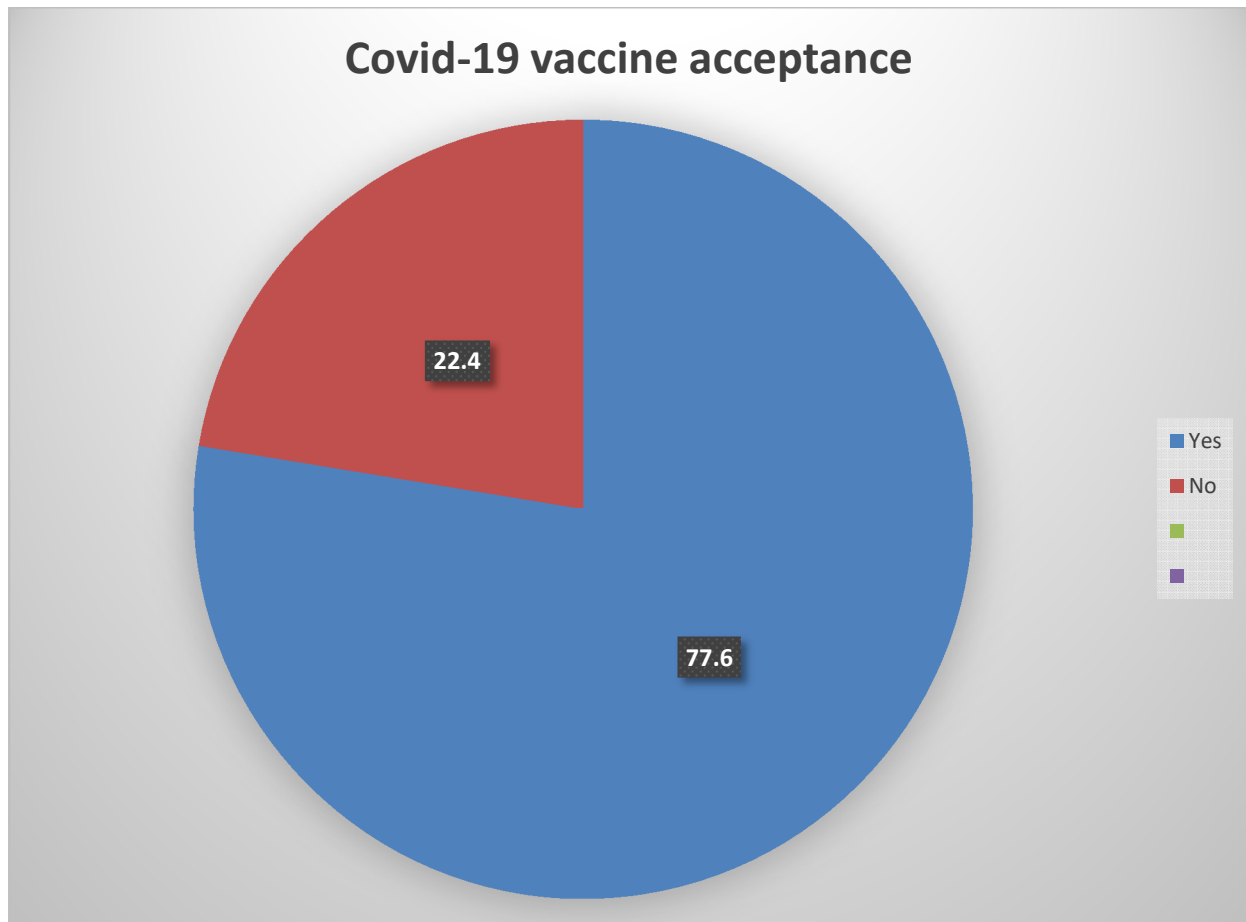
Table 3. Attitude of respondents toward COVID-19 vaccine in Akaki district, Oromia, Ethiopia, 2022 (N=606)

Items	Categories	Frequency	Percentage(%)
Does the newly discovered COVID-19 vaccine is safe?	Agree	389	64.2
	Neutral	73	12
	Disagree	144	23.8
Does the COVID-19 vaccine is essential for us?	Agree	518	85.5
	Neutral	78	12.9
	Disagree	10	1.7
May you encourage your family/ friends/relatives to get vaccinated?	Agree	482	79.5
	Neutral	69	11.4
	Disagree	55	9.1
Is it not possible to reduce the incidence of COVID-19 without vaccination?	Agree	170	28.1
	Neutral	162	26.7
	Disagree	274	45.2
The COVID-19 vaccine should be distributed fairly to all of us?	Agree	408	67.3
	Neutral	176	24.1
	Disagree	52	8.6
Attitude toward COVID-19 Vaccine	Negative	278	45.9
	Positive	328	54.1

5.4 COVID-19 Vaccine acceptance

Out of 606 respondents who took part in the study, more than three fourth (77.6) said they would accept COVID-19 vaccine if available, and around 22.4% were said they would not accept.

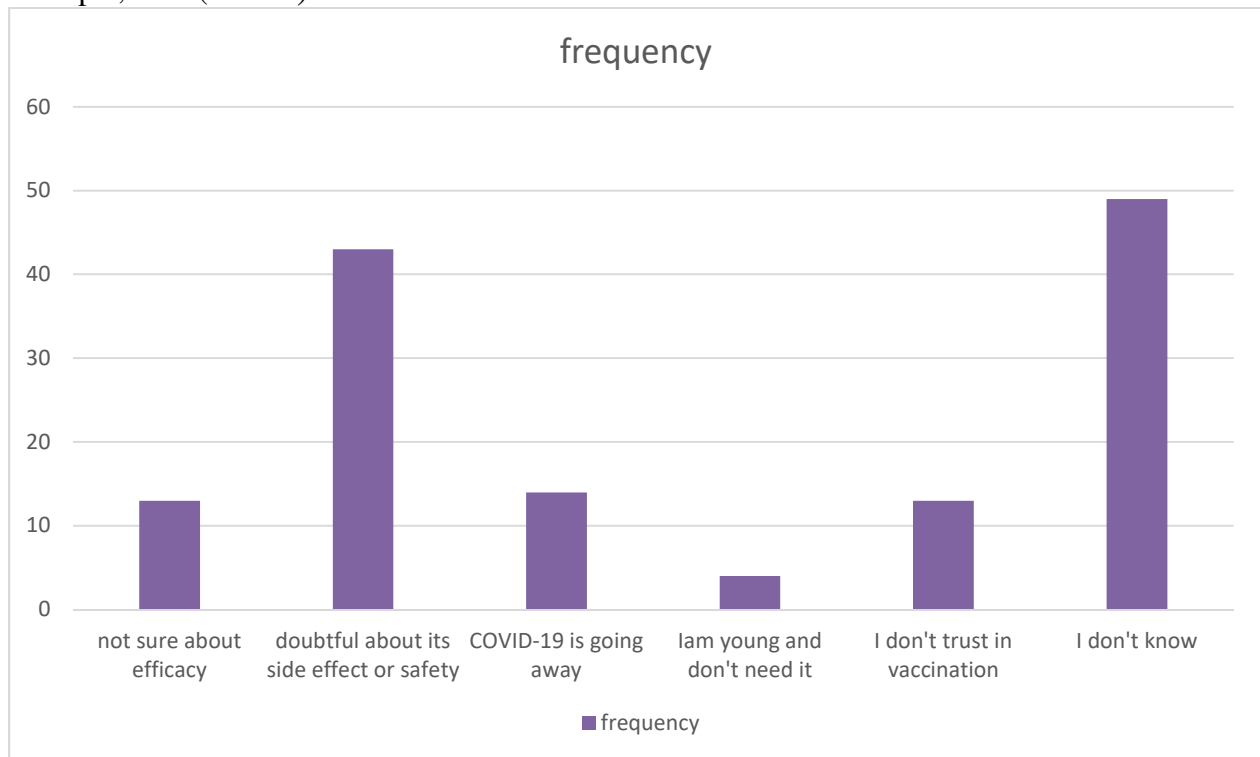
Figure 4. COVID-19 vaccine acceptance in Akaki district, Oromia, Ethiopia, 2022 (N=606)



Reason of respondent for not taking COVID-19 vaccine

Of the 136 participants who were unwilling to accept the COVID-19 vaccine, 49 (36.02%) were not mentioned any reason and 43 (31.6%) of them were concerned about the side effects and safety of the vaccine and also, 14 (10.29%) of them thought COVID-19 was going away.

Figure 5. Reason of respondent for not taking COVID-19 vaccine in Akaki district, Oromia, Ethiopia, 2022 (N=606)



5.5 Factors associated with the acceptance of COVID-19 vaccine

Variables including age, sex, previous history of taking any vaccine, occupational status, use of broadcast media as a source of information, do you hear about vaccine that is going to be inoculated, knowledge toward COVID-19 vaccine and attitude toward COVID-19 vaccine have a $p\text{-value} \leq 0.25$ on simple logistic regression; thereby further analyzed on multiple logistic regression.

Age, Previous history of taking any vaccine, use of broadcast media as source of information, do you hear about vaccine that is going to be inoculated and attitude of participant toward COVID-

19 vaccines were all found to be significantly associated with acceptance of the COVID-19 vaccine in a multivariable logistic regression.

The study participants with the age of 18-29 year were 2.712 (AOR 2.712; 95%CI 1.337-5.501) times more likely to accept COVID-19 vaccine than within the age above 50 years. Another factor linked to COVID-19 vaccine acceptance was previous history of taking any type of vaccine. The odds of vaccine acceptance for those had any previous history of taking any type vaccine was 1.883 (AOR 1.883 95%CI 1.164-3.047) than those who had no having history of taking any type vaccine. Those who had used broadcast media as source of information were 2.114 (AOR 2.114;95%CI 1.304-3.429) times more likely to accept COVID-19 vaccine than those who had not used broadcast media.

The odds of COVID-19 vaccine acceptance for those heard about its inoculation was 6.39 (AOR 6.39; 95%CI 2.842-14.368) more likely than those who were not heard about its vaccination. Respondents those who have positive attitude toward COVID-19 Vaccine acceptance were 3.609 (AOR 3.609 95% CI 2.268-5.742) times more likely to accept COVID-19 vaccine than those who have Negative attitude toward COVID-19 vaccine acceptance.

Table 5. factor associated with the acceptance of COVID-19 vaccine in Akaki district residents, Oromia, Ethiopia 2022 (N=606)

variables/charecteristics		Will you take COVID-19 Vaccine		COR(95%CI)	AOR(95%CI)	P-value
		Yes %	No %			
age category	18-29	183(30.2%)	71(11.7%)	0.595 (0.344-1.029)	2.712(1.337-5.501)	0.006*
	30-49	196(32%)	44(7.3%)	1.028(0.578-1.829)	1.243(0.646-2.395)	0.515
	above 50	91(15%)	21(3.47%)	1.433	1	1
Sex	female	271(44.72%)	88(14.5%)	0.743(0.5-1.104)	0.996(0.603-1.644)	0.986
	male	199(32.84%)	48(7.9%)	4.146	1	1
previous history of taking any vaccine	yes	351(57.92%)	74(12.2%)	0.405(0.272-0.601)	1.883(1.164-3.047)	0.010*
	no	119(19.64%)	62(10.23%)	4.743	1	1
occupational status	farmer	310(51.16%)	81(13.4%)	1.553(0.939-2.567)	0.687(0.371-1.271)	0.232
	marchent	24(3.96%)	4(0.66%)	2.435(0.774-7.659)	0.286(0.079-1.031)	0.056
	student	67(11.05%)	23(3.8%)	1.182(0.620-2.255)	0.770(0.344-1.724)	0.525
	housewife	69(11.4%)	28(4.62%)	2.464	1	1
use of broadcast media	yes	339(55.94%)	74(12.21%)	0.461(0.311-0.683)	2.114(1.304-3.429)	0.002*
	no	131(21.62%)	62(10.23%)	4.581	1	1
Do you hear about vaccine that is going to be inoculated	yes	459(75.74%)	109(17.99%)	0.097(0.047-0.0201)	6.39(2.842-14.368)	0.000*
	no	11(1.82%)	27(4.5%)	4.211	1	1
Status of knowledge	Good	298(49.18%)	71(11.72%)	0.241 (0.158-0.366)	1.041(0.66-1.644)	0.862
	poor	172(28.4%)	65(10.73%)	1	1	1
Status of attitude	positive	180(29.7%)	98(16.17%)	0.63(0.429-0.924)	3.609(2.268-5.742)	0.000*
	negative	290(47.86%)	38(6.27%)	1	1	1

6 Discussion

Availability and efficacy of the COVID-19 vaccine are vital to successfully control the pandemic. To overcome Vaccine refusal due to hesitation and delays the policymakers and health authority must have ensure vaccine acceptance and trust on its uptake from community. Vaccine refusal could lead to devastating effect on in public health and hinder the healthcare system's ability to accommodate the challenges of the pandemic.

A large number of the candidates of COVID-19 vaccine were developed, and bright results was found with several clinical trials, leading to the approval of some vaccines for use in different countries (12). Even though our country has multiple vaccination service, the novelty of the COVID-19 vaccination raises many concerns about vaccine acceptance.

This study provided an overview of acceptance and its associated factor of COVID-19 vaccine. The result of this study reveals that, 77.6% (470) of study participants willing to accept COVID-19 vaccine if available and less than one quarter 22.4% (136) indicated non acceptance of COVID-19 vaccine if available. This mean the finding is lower than the finding reported in Australia 89.88% (24) and three researches looked at public acceptance in china 83.3-91.3% (1) . The acceptability of COVID-19 vaccine was higher in this study than in other countries with 57.7% in Greek (24), COVID-19 vaccine acceptance and its associated factor in Sodo town, Ethiopia 45.5% (1), knowledge, attitude and practice toward the COVID-19 vaccine in Oman 57% (26) , The result of this study in line with a study done in France 75% (27), understanding of COVID-19 vaccine knowledge ,attitude and acceptance and determinants of COVID-19 vaccine acceptance among adult population in Ethiopia 62.6% in Ethiopia 61% (28) , assessing attitude toward COVID-19 vaccination South Korea 72.6%(27), and study done in UK (67-74%) (30). This difference can be explained by difference in the respondents socio-demographic characteristics and material and methods used, availability and accessibility of infrastructure.

According to the result of this study the participants with age 18-29 year were more likely than age above 50 year to accept COVID-19 vaccine if it was available according to the other observational studies (7,21,26).

Previous history of taking any vaccine was also a significant factor in COVID-19 vaccine acceptance. When compared Participants with had previous history of taking any vaccine were more likely to accept vaccine than who had no previous history of taking any vaccine. One possible reason is that participants who had previous history of taking any vaccine have gained more experience and knowledge about the benefit of the vaccination; that helps the participants accept the vaccine to protect them from COVID-19. Respondents who had used broad cast media were more likely accept the COVID-19 vaccine than who did not used it. This is due to that most of the time, the COVID-19 vaccine was promoted by media thus those use media were more informed about the vaccine this lead them to have better willing to accept the vaccine.

The participants those heard about the COVID-19 vaccine inoculation were more likely to accept COVID-19 vaccine than those not heard. This imply that when the information was disseminated appropriately to the community they were more informed and have the prone to accept vaccine.

The finding of this study showed that the participants were not willing to accept COVID-19 vaccine due to the main reason; about 31.61% of the participant those not willing to accept were doubtful about its side effect and safety this result consistent with those of other study (1) (18) (26) (31) (32) and also undecided their reason. This was happened due to they were under informed about it as the study indicated around 31.8% of them didn't use broadcast media.

The limitation of this study was its design cross-sectional study so it portrays the picture of the community response at the point of the study. This may make difficulty to draw long term conclusion. The result of this study solely based on the quantitative techniques, with no other tools such as focus group discussion and in-depth interview being no used to support the findings and also data collector was Health extension worker this have conflict of interest.

7. Conclusion and Recommendation

7.1 conclusion

In this study, the acceptance of COVID-19 vaccine was 77.6%. Acceptance of COVID-19 vaccine was significantly associated with Age, sex, use of mass media, previous history of taking any vaccine.

7.2 Recommendation

Minister of health

To increase more public acceptance of COVID-19 vaccine the government should work with all stakeholders to create awareness about the efficacy and safety of the COVID-19 vaccine. health planners and policymaker should encourage COVID-19 vaccine uptake by providing trusted information about COVID-19 vaccine.

Woreda health office

Most of the participants didn't know or decided why they were unwilling to received COVID-19 vaccine this show us they were under informed about the vaccine so the district health office must have work hard on health education and create awareness on the COVID-19 and COVID-19 vaccine also.

For the scientific community

Further investigation should be done on vaccine acceptance and its associated factor

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11. Annex

11.1 COVID-19 Vaccine acceptance and its associated factor questionnaire

Consent

(Greetings). I would like to request you to take part in a small survey. The purpose of this study is to understand your attitude toward the COVID-19 vaccine(s) in the Akaki district. The survey includes questions regarding your knowledge and attitude towards COVID-19 and COVID-19 vaccines in Ethiopia. It also includes some socio-demographic questions. I hope this information will help the Ethiopian government and policymakers to make a better vaccination strategy to fight off the COVID-19 pandemic. You will not be asked any personal or sensitive questions. You will not be asked your name/identity. The survey may take 10minutes to complete. Please note that your participation in the survey is completely voluntary. You can reject it anytime during the survey.

Are you willing to participate in this survey?

A. Yes

B. No

If the answer is "NO", then shows "Thank you for your time" and ends the survey. Otherwise, the survey continues.

Section A	Demographic		
Serial No.	Question	Options	Remarks
1	(Eligibility Check) How old are you (in years)?	-----	If the answer is "1" then shows "Unfortunately you are not eligible to take part in this survey as you are under 18, please stop and submit it"
2	(Eligibility Check) Do you currently live in Akaki district?	Yes No	If the answer is "No" then shows "Unfortunately you are not eligible to take part in this survey as you are not

			residents, please stop and submit it”
3	How would you describe your gender?	Female Male Other(specify)	
4	Where do you live?	Urban (City corp, municipality) Rural	
5	What is your level of education?	Secondary and above primary no formal education	
6	What is your religion?	Orthodox protestant Islam waqeffata Other religion, please describe_____	
8	What is your marital status?	Unmarried Married Divorced Separated Widowed	
9	What is your occupational Status?	Farmer merchant Student Housewife/Retired/Unemployed/ Other)	
10	Did you take any vaccine previously including during your childhood?	Yes No	
11	Did you Use of broadcast media	Yes No	
12	Do you have Any chronic illness?	Yes No	

Section B	Knowledge about COVID-19 vaccine		
Serial No.	Question	Options	
1	Do you hear about the pandemic of COVID-19	Yes No Don't know	
2	Do you know about the Covid-19 vaccine development?	Yes No Don't know	
3	Do you know about the effectiveness of the COVID-19 vaccine?	Yes No Don't know	
4	Is it dangerous to use an overdose of COVID-17 vaccines?	Yes No Don't know	
5	Does COVID-19 vaccination increase allergic reaction?	Yes No Don't know	
6	Does vaccination increase autoimmune disease?		
	Attitude towards COVID-19 vaccine How much do you agree with the following statements		
13	Does the newly discovered Covid-19 vaccine is safe?	Agree Neutral Disagree	
14	Does the COVID-19 vaccine is essential for us	Agree Neutral Disagree	
15	COVID-19 vaccine developed in Europe and America are safer than those made in other world countries?	Agree Neutral Disagree	
16	May you encourage your family/friends/relatives to get vaccinated?	Agree Neutral Disagree	
27	Is it not possible to reduce the incidence of COVID-19 without vaccination?	Agree Neutral Disagree	
18	The COVID-19 vaccine should be distributed fairly to all of us?	Agree Neutral Disagree	

Section C	Vaccine acceptability		
Serial No.	Question	Options	
1	Have you heard of any vaccine that is going to be inoculated in Akaki district?	Yes No	
2	Ethiopian Govt. is going to inoculate the COVID-19 vaccine, will you take it?	Yes No	
3	Why are you doubtful about taking the vaccine? (Apply all that apply)	1.Not sure about its efficacy 2.Doubtful about its side effects or safety 3.COVID-19 is going away 4.I am young and don't need it 5.The vaccine is coming from India 6.I don't trust vaccination 7. I don't know	If Q2 is "NO", answer this question
4	When will you or your family members take the vaccine?	1.After 2-6 months if seems safe and effective 2.If COVID-19 becomes deadlier 3.I don't know	If Q2 is "Yes", answer this question
5	Considering the current scenarios, who do you think should receive the first shipment of the vaccine in Ethiopia?	Healthcare workers/professionals Elderly people (60+ years) People who have underlying diseases Politicians Other (specify)	

11.2 Informed Consent

I, Study participant & the undersigned, am told that the researcher is about to conduct study my area to assess the COVID-19 vaccine acceptance among residents of Akaki district. I am also informed that the result of the study will be used for academic purpose and it will be used by stakeholders. I have been told that the research will benefit the community in general including me, and that the research will not inflict any harm to me. I have been told that I have full right to have enough time to understand and then take part in the study on the basis of my interest and besides, I am briefed that I will answer questions for not more than 15 minutes. Moreover, I am notified that my participation in the study is entirely voluntarily, and that I can quit from the study any time I want. Likewise, I am explained that the information collected from me will not by any means be disclosed to any people other than those participating in the study unless obtained permission from me. Equally, I am told that I can ask them questions I found difficult.

Name of the interviewed respondent _____

Address_____ Date_____

Signature _____

Name of the interviewer _____ Sign_____

Name of the supervisor _____ Sign _____

11.3 FUULA WALIIGALTEE HIIKAA AFAAN OROMOO

Maqaan koo. -----

Ani raga qorannoo sassaabuufan dhufee isin bira jira. Kaayyoo goeroon qorannoo kanaa talaalli COVID-19 fudhachuu fi wantoota fudhannaa talaalli irratti dhiibbaa geessisaan qorachuudhaaf kan qophaa'eedha, Qorannoon kun kallattiidhaan hawaasa Aanaa Aqaaqii qorannoo kana keessatti akka hirmaatanif carraadhaan filataman irratti waan xiyyeeffatuuf isinis immoo namoota qorannoo kana keessatti hirmaatan keessaa nama tokkoodha. Kanaafuu fedhii keessaniin qorannoo kana keessatti hirmaachuudhaan deebii barbaachisaa akka naaf kennitaniif kabajaan isin gaafadhaa. Ani kanatti aansuudhaan gaaffilee murteessoo ta'an muraasan isin gaafadha. Isinis fedhii keessan irratti hundoofanii deebii naaf kennitu, yoo hin barbaaddan ta'es deebisuu dhiisuu dandeessu. Gaafannoon kun waliigalatti yoo baay'ate daqiiqaa 30 (soddoma) fudhata. Deebii isin naaf kennitan amanamummaadhaan akka dhiibbaa isinirraan gahuu hin dandeenyetti waan eegamuuf karaa kamiiniyyuu qaama biraaf hin saaxilamu. Cimsee kan ani isin beeksisuu barbaadu deebii isin gaafannoo kanaaf kennitan baayyee murteessaadha. Milkaa'ina qorannoo kanaa qofaaf osoo hin taane fuulduratti dhimma fudhannaa talaalli COVID-19 irratti karoorsuu fi hojiirra oolchuu fooyyessuudhaaf raga maddisiisuudhaaf fayyidaa guddaa qaba. Kanaafuu isin amma yaadakoo hubattanii jirtu jedhee waanan yaaduuf gaafannoo an isin gaafadhu kanaaf deebii naaf kennuudhaaf fedhii qabduu?

Eeyyee; ----Gaafannoo kee itti fufi

Lakkii; ---- Galateeffachuun xumuri

Maqaa Gaafataa: _____Guyyaa : _____

MALLATTOO _____

Maqaa To'ataa : _____ Guyyaa : _____

Mallattoo _____

WAADAA NAMNI QORANNOO KEESSATTI HIRMAATUUF SEENAMU

Ani armaan gaditti qorannoo kana keessatti hirmaachuuf kanan mallatteesse yammuu ta'u qorataan talaalli COVID-19 fudhachuu fi wantoota fudhannaa talaalli irratti dhiibbaa geessisaan adda baasuudhaaf kan geggeeffamu ta'uu natti himamee hubadheera. Bu'aan qorannoo kanaa dhimma barnootaaf akka oolu akkasumas qooda fudhattoonillee itti fayyadamuu akka danda'an natti himameera. Qorannoon kun ana dabalatee hawaasa koof akka fayyadu akkasumas qorannoo kanaan dhiibbaan narra gahu akka hin jirre natti himamee jira. Akkasumas yeroo bal'aa qabaadhee qorannoo kana keessatti hirmaachuuf fedhii korratti kan hundaa'e ta'uu fi hanga daqiiqaa 30 (soddomaa) kan natti fudhatu ta'uu naaf ibsameera. Hunda caalaa hirmaannaan ani qorannoo kana keessatti godhu guutummaan guutuutti fedhiikorratti kan hundaa'u ta'uu,yeroon hin barbaannetti keessa bahu akkan danda'u hubadheera.

Haaluma kanaan odeeffannoon ani kennu fedhii kootiin yoo ta'e malee karaa kamiinillee nama biraatti hin himamne naaf ibsameera. Gaaffiin barbaade gaafadhee hubachuufis mirga akkan qabu natti himamuu isaa hubachuu koo qorannoo kana keessatti hirmaachuudhaaf waadaa seeneera.

Maqaa Nama qorannoo keessatti hirmaatuu (Gaafatamaa) _____

Teessoo _____ Guyyaa _____ Mallattoo _____

Maqaa Gaafataa _____ Mallattoo _____

Maqaa To'ataa _____ Mallattoo _____

11.4 WARAQAA ODEEFFANNO

Nagaa jirtuu /Akkam bultan/Ooltan?

Nagaa kootti aansuudhaan ani maqaan koo _____jedhama. Qorannoon kun talaalli COVID-19 fudhachuu fi wantoota fudhannaa talaalli irratti dhiibbaa geessisaan qorachuuf hawaasa Aanaa Aqaaqii irraa odeeffannoon kan walitti qabamuudha.

Kanaafuu gaaffilee kiyyaaf iftoominaan deebii akka naaf kennitan kabajaan isin gaafadha. Amma isin namoota jiran keessaa deebii kana akka naaf kennitaniif filamtanii jirtu. Qorannoon kun yoo baayyate daqiiqaa 30 tti isinitti fudhachuu mala.

Mata dureen qorannichaa: “ Hamma fudhannaa talaalli COVID-19 fi wantoota fudhannaa talaalli irratti dhiibbaa geessisaan qorachuu kan jedhuudha,

Kaayyoo gooroon Qorannoo kanaa: Hamma fudhannaa talaalli COVID-19 fi wantoota fudhannaa talaalli irratti dhiibbaa geessisaan qorachuu fi adda baasuudha.

Faayidaan qorannoo kanaa: Kallattiidhaan waanti isiniif addatti bu’aa addaa kennu yoo jiraachuu baatus qorannoon kun haala hojiirra oolmaa talaalli COVID-19 adda baasuun qorachuuf fayyada. Bu’aan qoranno kanaa Kolleejjii Fayyaa Hospitaala Miliniyeemii Q/Paawuloos Muummee barumsa Saayinsii Fayyaa Hawaasaatiif kan gabaafamuudha.

Miidhaa qorannoo : Namni qorannoo kana keessatti hirmaatu karaa kamiinuu hin miidhamu

Mirga Nama Qorannoo kana keessatti hirmaatuu: Qoranno kana keessatti hirmaachuuf fedhii keessaniin itti fufuuf ykn immoo gidduutti kutuuf mirga guutuu qabdu. Gaaffilee hundaaf deebii kennuu ykn immoo yoo isinitti tolu baates gaaffilee hundaaf deebii kennuu diduudhaaf mirga qabdu.

Iccii eeguu : Odeeffannoon isin dabarsitan kamiyyuu icciitiidhaan qabama. Maqaa kessan barreessuun ykn eenyummaa keessan adda baasuun hin barbaachhisu.

Galatoomaa

Gaaffannoowwan

Afaan Oromootiin

GAAFANNOO QORANNOO HAMMA FUDHANNAA TALAALLI COVID-19 FI WANTOOTAA FUDHANNAA TALAALLI IRRATTI DHIIBBAA GEESSISAAN QORACHUU ADDA BAASUUF KAN QOPHAA'E HAWAASA AANAA AQAAQII KEESSA JIRANIIF QOPHAA'E DHA.

Kutaa 1: odeeffannoo waliigalaa hirmaattotaa

Odeeffannoo waliigalaa			
Kodii Gaffiiwwan ii	Gaaffiiwwan	Filannoo deebiif /KOODII/	Yaada
101	(gahuumsa) Umuriin keessan amma meeqa (waggaadhan)?	-----	Yoo deebiin lakk.1 ta'e, akka carraa ta'e Af-gaafii kanaaf umuriin keessan gahaa waan hin taaneef asuma irratti dhaabaa.
102	(gahuumsaa) Yeroo ammaa kanatti Aanaa Aqaaqii keessa jiraattu?	1.Eeyyee 2. lakkii	Yoo deebiin isaanii lakk.2 ta'e akka carraa ta'e Af-gaafii kanaaf sababa iddoo jireenyan gahaa waan hin taaneef asuma irratti dhaabaa
103	Saalaa nama odeeffannoo kennaa jiruu?	1.Dubara 2.Dhiira	
104	Eessa jiraacha jirtuu?	1.Magaala 2. Baaddiyaa	
105	Sadarkaan barnoota keessanii hagamii dha?	1.sadarkaa lammaffaa fi isaa ol 2.sadarkaa tokkoffaa 3.barnoota idilee hin qabaan	
42			

106	Amantaan keessan maalii dha?	1.Ortoodoksii 2.Protestaantii 3.Musliima 4.Waaqqefataa 5.kan birooo yoo ta'e ibsaa_____	
107	Haalli gaa'eela keessanii maal fakkaata?	1.hin fuune/hin heerumne 2.kan bulti dhaabe/dhaabde 3.kan bulti diigde/diige 4.sababa du'an kan gargara bahaan	
108	Hojjin ittin jiraacha jiran ?	1.qonnaan bula 2.Daldaala 3.Barataa 4.haadha manaa	
109	Kanaan dura talaalli kamiyyuu fudhattanii ni beektu kan yeroo ijoollummaas dabalatee?	1.Eeyyee 2.Lakki	
110	Odeeffannoo adda addaa argachuuf sab-qunamtiilee adda adda ani fayyadamtuu	1.Eeyyee 2.Lakki	
111	Dhukkuba beekamaa yeroo dheeraaf qoricha fudhattan ni qabduu?	1.Eeyyee 2.Lakki	

Kutaa 2	Beekumsa/Hubannoo Talaalli COVID-19 Irratti		
Kodii gaffiwwanii	Gaaffiwwan	Filannoo deebii	
112	Dhukkuba COVID-19 (koronaa) weerarri isaa akka adunyaatti ka'u dhageessee jirtaa?	1.Eeyyee 2.Lakki 3.Hin beeku	
113	Waa'ee talaalli COVID-19(koronaa) oomishamuu isaa ni beektaa?	1.Eeyyee 2.Lakki	
114	Talaallin COVID-19 (koronaa) bu'a qabeessa jettani ni yaadduu jechuun faayidaa qabaa?	1.Eeyyee 2.Lakki 3.Hin beeku	
43			

115	Talaalli COVID-19 (koronaa) yoo hanga barbaadamuun ol fudhatame miidhaa ni qabaataa?	1.Eeyyee 2.Lakki 3.Hin beeku	
116	Talaallin COVID-19f kennamu kun dallanuu qaamaa ni fidaa ykn ni dabalaa?	1.Eeyyee 2.Lakki 3.Hin beeku	
117	Does vaccination increase autoimmune disease?	Yes No Don't know	
	Ilaalchoota gama talaallii COVID-19 jiraa Yaadoota armaan gadii irratti kan waliigalaan		
118	Talaallin COVID-19 amma kennamaa jiru kun kan midhaa hin qaqqabsisnee dhaa? Ykn hin fidnee dha?	1.Eeyyee 2. 3.Lakki	
119	Talaallin COVID-19 kun jiraachuun isaa nuuf barbaachisaa dhaa?	1.Eeyyee 2. 3.Lakki	
120	Talaallin COVID-19 biyyoota Americaa fi Awuroopatti oomishamu kan biyyoota birootti oomishamu irra kan midhaa hin dhaqqabsisne dhaa?(filatamaa dha)?	1.Eeyyee 2. 3.Lakki	
121	Maatiin/firootan/hiriyoonna kee talaalli COVID-19 akka fudhataniif ni jajjabeessitaa?	1.Eeyyee 2. 3.Lakki	
122	Dhibee COVID-19(Korona) talaalli malee ittisuun /hir'suun hin danda'amuu?	1.Eeyyee 2. 3.Lakki	
123	Talaallin COID-19 kun haala haqa qabeessa ta'een hunda keenya wal-qixa ni raabsamaa?	1.Eeyyee 2. 3.Lakki	

Kutaa 3 Fudhannaa talaalli			
	Gaafannoo	Filannoo	
125	Talaalli COVID-19 yeroo ammaa Aanaa Aqaaqii keessatti kennamaa jiraachu isaa dhageessani jrtuu?	1.Eeyee 2.Lakki	
126	Biyyi keenya talaalli COVID-19 uummata talaalchisaa jirti, isiin ni fudhaattu?	1.Eeyee 2.Lakki	
127	Maaliif talaalli COVID-19 fudhachuu irratti Shakkii qabaatan?	1.bu'aa qabeessummaa isaa irratti shakkiin qaba 2.Midhaa talaallin fiduun sodaadhe 3.dhukkubni COVID-19 badeera 4.Ani nama guddaa waniin ta'eef na hinbarbaachisu 5.Talaallin kun biyya Hinddii irraa waan dhufeef 6.Talaalamuutti hin amanuu 7.hin beeku	If Q2 is "NO", answer this question
4	Yoom Ati fi Maatiin keessaan talaallii COVID-19 fudhachuuf yaadan?	1.Ji'a 2-6n booda yeroo talallin kun akka midhaa nama irraan hin geenye bareetti/beeketti 2.yoo dhukkubni COVID-19 nama irratti midhaa fidee/ajeessuu jalqabeetti 3.hin beeku	If Q2 is "Yes", answer this question
5	Considering the current scenarios, who do you think should receive the first shipment of the vaccine in Ethiopia?	Healthcare workers/professionals Elderly people (60+ years) People who have underlying diseases Politicians Other (specify)	

Yeroo keessan nuuf kennitanii deebii waan nuuf kennitaniif Galatoomaa! Deebiin nuuf kennitan xiinxala qorannoo kanaa qofaaf kan oolu ta'uu fi icciitiin deebii keessanii kan eegamu ta'uu Kabaja guddaadhaan isn=in hubachiifna.

Maqaa Nama Ragaa Sassaabuu /Gaafataa _____ Guyyaa_____ mallatto _____

Maqaa To'ataa _____ Guyyaa_____ mallattoo _____

12. Declaration

I, the undersigned, MPH student declare that this thesis is my original work in partial fulfillment of the requirement for the Master' of public health in Epidemiology.

Name: Mati Mengistu Etibusa

Signature: _____

Place of submission: ST Paul's Hospital millennium medical college.

Addis Ababa, Ethiopia

Date of Submission: _____

This thesis work has been submitted for examination with my/ our approval as university advisor(s).

Advisors

Name

Signature
