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# Willingness to Receive Covid19 Vaccine and Associated Factors Among individuals Living in Bahir Dar City Northwest Ethiopia, 2022

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**BAHIR DAR UNIVERSITY COLLEGE OF MEDICINE AND  
HEALTH SCIENCES, SCHOOL OF PUBLIC HEALTH**

**DEPARTMENT OF HEALTH SYSTEM MANAGEMENT  
AND HEALTH ECONOMICS**

**WILLINGNESS TO RECEIVE COVID19 VACCINE AND  
ASSOCIATED FACTORS AMONG INDIVIDUALS LIVING IN  
BAHIR DAR CITY NORTHWEST ETHIOPIA, 2022**

BY: - ESHETU ANLEY (BSc)

A THESIS SUBMITTED TO **DEPARTMENT OF HEALTH SYSTEM  
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HEALTH SCIENCES, SCHOOL OF PUBLIC HEALTH

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HEALTH ECONOMICS

Title of the research	Willingness to Receive Covid19 Vaccine and Associated Factors Among Individuals Living in Bahir Dar City Northwest Ethiopia, 2022
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Study period	January 15-30/2022
Study area	Bahir Dar City, Northwest, Ethiopia.

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## ABSTRACT

**Background:** High levels of vaccination coverage in populations will be required even with vaccines that have high levels of effectiveness to prevent and stop outbreaks of corona virus. Reports from the government of Ethiopia indicate there is a slow uptake of the COVID-19 vaccine in the country, with only 18.2% of the populations were vaccinated on March 2022. Currently, it is unclear how many proportion of the population would decide to get vaccinated when a vaccine becomes available. Therefore, to better understand and inform the public health authorities, the current study required to assess the willingness to receive COVID-19 vaccine and associated factors among individuals living in Bahir dar city, Ethiopia.

**Objective:** To assess the willingness to receive COVID19 vaccine and associated factors among individuals living in Bahir dar city Northwest, Ethiopia.

**Methods:** A community-based cross-sectional study was applied among 392 individuals in Bahir dar city from January 15- 30, 2022. A multi stage systematic sampling technique and interviewer-administered structured questionnaires were applied to collect the data. Data were entered in Epi data version 3.1 and transported to Statistical Package for Social Science version 23 for analysis. Logistic regression model was used to identify factors associated with willingness to receive COVID19 vaccine. Adjusted odds ratio with 95% CI and P-value less than 0.05 were used for measure of association and its significance respectively.

**Results:** In this study, 60.2% of study participants demonstrated willingness to receive vaccination against COVID-19 once a vaccine is available. Working on health facility (AOR: 4.3, 95% CI: 1.4-13.0), chronic diseases (AOR: 4.8, 95% CI: 2.6–9.0), COVID19 experience (AOR: 2.0, 95% CI: 1.1– 3.7), family members infected with COVID19 (AOR: 2.9, 95% CI: 1.5–5.4), good knowledge (AOR: 2.0, 95%CI: 1.2- 3.7), Positive attitudes (AOR: 8.7, 95% CI: 4.5–16.9) were significantly associated with willingness to receive COVID-19 vaccine once a vaccine is available.

**Conclusion and recommendation:** A significant proportion of individuals in the general population were unwilling to receive a COVID-19 Vaccine. Hence, public health strategies are needed to address the wide misinformation surrounding COVID-19 vaccines.

**Keywords:** COVID-19, vaccine, willingness, Bahir dar, Ethiopia

## **ABBREVIATIONS and ACRONYMS:**

AOR ----- ADJUSTED ODDS RATIO

CI ----- CONFIDENCE INTERVAL

COVID-19 ----- CORONA VIRUS DISEASE 2019

HCW -----HEALTH CARE WORKER

SARS-COV-2 ----- SEVER- ACUTE RESPIRATORY SYNDROME -CORONAVIRUS-2

WHO ----- WORLD HEALTH ORGANIZATION

VPD ----- VACCINE PREVENTABLE DISEASE

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# 1. INTRODUCTION

## 1.1 Background;

The Corona virus disease 2019 (COVID-19) pandemic was caused by severe acute respiratory syndrome -Coronavirus-2 (SARS-CoV-2). The first case of COVID19 was discovered in Wuhan city, Hubei province of China with unexplained pneumonia on December 12, 2019(1). COVID-19 was declared a pandemic by the World health organization on March 2020(1). The first case in Africa was detected on February 2020 in Egypt and on 4 March 2020 detected in Ethiopia. The most common symptoms of COVID-19 are fever, dry cough and tiredness(2).The virus is transmitted through large droplets generated during coughing or sneezing of symptomatic and asymptomatic patients (3). Frequent hand washing with soap and water, using alcohol based hand rub or sanitizer, avoidance of hand shaking/public gathering and use of face mask are crucial to halt the spread of COVID-19(3).

Moreover, Vaccination is one of the most effective interventions to prevent life threatening communicable diseases(4). Vaccination programs have contributed to decline in mortality and morbidity of various infectious diseases (4). High vaccination coverage protects the overall community, or herd immunity, by slowing transmission of vaccine preventable diseases (VPD) indirectly, in addition to direct protection of vaccinated individuals(5).

For that reason, several vaccine candidates are currently under different stages of development and some may be available before the end of 2020(6, 7). COVID-19 vaccination has now begun in several countries around the world (5); Ethiopia also started administering COVID-19 vaccine on March 2021. Globally nations continue to distribute COVID-19 vaccinations to eligible individuals but some health officials argue that due to shortage of vaccine the distribution of vaccine should be based on needs (8). Vaccines have been a key strategy for improving health outcomes and life expectancy by controlling and preventing infectious diseases such as smallpox, polio, and plague(9).

## 1.2 Statement of the Problem;

To the date of writing, more than 135 million people being infected and 3.0 million deaths reported on April worldwide and over 3.17 million confirmed cases with over 80,000 deaths reported in Africa (10). Unfortunately, Ethiopia is one of the three African countries with the highest case burden of COVID-19. The pandemic poses a serious threat to global public health, socio-economic stability, food security, trade and industry with the impact felt in high and low-income countries alike(11, 12).

Thus, to slow the spread of SARS-CoV-2 infection and mitigate its health effects, nations around the world have implemented different control measures, such as social distancing, partial and comprehensive lockdowns, closing schools and businesses, and/or wearing face masks in public. Although such measures have helped in flattening the epidemic curve, the reappearance of COVID-19 has been reported as societies and economies reopened (13). The long-term success of the public health response to the COVID-19 pandemic will depend on acquired immunity in a sufficient proportion of the population, which is estimated to be 67% for COVID-19(14). So Vaccines have been a key strategy for improving health outcomes and life expectancy by controlling and preventing COVID19 infection(15).

While vaccination is widely recognized as an effective way to reduce or eliminate the burden of infectious diseases by health authorities and the medical community(16), its effectiveness also depends on the individual willingness to be vaccinated. This willingness could be negatively affected by doubts and worries that exist in the population about the safety, efficacy, effectiveness, appropriateness, benefit, risky, and misinformation or misperceptions about a vaccine(17-19). Sociodemographic factors, Socioeconomic status, and knowledge about COVID-19 vaccine of the population affects the willingness to be vaccinated COVID19 (20-22).

The government of Ethiopia aimed to vaccinate 20% of the population by the end of 2021 <https://www.africanews.com/2021/03/14/ethiopia-launches-covid-vaccinations-in-addis-ababa//>.

However, reports from the government of Ethiopia indicate there are slow uptakes of the COVID-19 vaccine with only 18.2% of the populations were vaccinated on March 2022 <https://www.afro.who.int/countries/ethiopia/news/more-21-million-people-have-received-least-one-dose-vaccine-ethiopia-marks-one-year-covid-19>. Currently, it is unclear how many proportion of the population would decide to get vaccinated when a vaccine becomes available.

Therefore, this study assessed the willingness to receive a COVID-19 vaccine and associated factors among individuals living in Bahir dar, Ethiopia.

### **1.3 Significance of the study**

This study is essential for the government and public health authorities to adequately address the misconceptions on COVID-19 vaccination. This can have large consequences for the success a vaccination program with potentially large health and economic consequences. At the same time, it is also important for the government and health authorities to plane strategies for increasing acceptability of COVID-19 vaccination in the general population. The government or health authorities will also used as baseline information to avail or allocate the appropriate amount of COVID-19 vaccine for Ethiopian population.

#### **Research Questions:**

1. What is the level of willingness to receive COVID- 19 vaccine in Ethiopia?
2. What are the factors associated with the willingness to receive COVID-19 vaccine?

## 2. LITRETURE REIEW

### 2.1 Proportion of willingness to receive a COVID-19 vaccine:

Vaccination is considered one of the most outstanding public health interventions in the 21st century. However, its acceptance is varied due to different factors. A systematic review and a meta-analysis of 194 member states of the World Health Organization study showed that, 68.4% of the global population is willing to receive covid-19 vaccine(23). According to this data approximately 3.7 billion adult populations willing to be vaccinated COVID-19(23). Other study in United States reported that about 80% of the general population were received COVID-19 vaccine (24).

Different study reports showed that willingness to receive COVID19 vaccine in different European countries was from 60–80% (25). The willingness to receive COVID19 vaccine in different Asian countries were showed as follow; in Japan 67.7% (26), in Chine 60.4% (27), in Iran 74.2% (28), in Saudi Arabia 64.7% (29) and in Jordan 36.8% (30) of the participants were willing to get vaccinated against COVID-19 if a vaccine was available. Another cross sectional study was conducted in Kuwait showed that 53.1% of the participants were willing to accept a COVID-19 vaccine once available(15).

The willingness to receive COVID19 vaccine in African countries varies from country to country. A study conducted in Democratic Republic Congo, 55.9% the population were willing to receive a COVID19 vaccine(31), in Nigerian 50.2% the population were willing to be vaccinated COVID19 (32) and 70.6% of Libya population were accepted COVID19 vaccine(33). Another study reported in East African among Somalia population, the proportion of respondents willing to received COVID-19 vaccine was 76.8%(34). A community-based cross-sectional Studies conducted in Ethiopia, the proportion of respondents willing to receive a COVID-19 vaccine were 46.1% (35), 62.6%(36).

## **2.2 Associated factors willingness to receive a COVID-19 vaccine:**

Most significance associated factors observed in different studies conducted in different countries were as follow:

### **2.2.1 Socio-demographic factors:**

The most significance socio demographic factors observed in a study conducted in various Asian countries were: male gender and rural residence (26), middle age, universities and colleges education (27), being married (29) were facilitative factors that increase their willingness to be vaccinated COVID19 vaccine. On the other hand old age, female sex and working in the healthcare field (28), employed participants (37), single marital status (30) were associated with lower vaccination intent.

Study conducted in different African countries to assess the willingness to receive a COVID19 vaccine and its associated factors in 2020 were: older age (AOR: 1.66) and Muslim religious (AOR: 1.57) (32), belonging to high-income category (AOR: 2.91) (31) were increased acceptability of a COVID19 vaccine. However females gender (AOR: 0.77) and self-employed respondents (AOR: 0.68) (32), healthcare worker (AOR: 0.46) (31) were inversely associated with acceptability of a COVID19 vaccine.

Studies were conducted in Ethiopia indicates: Adult age ( $\geq 46$  years) (AOR: 2.4), being female (AOR: 1.85), young aged ( $< 25$  years) (AOR: 5.1), participants working on non-health-related job (AOR: 4.1), educational status of university (AOR: 4.9) were positively associated and private sector worker (AOR: 0.45), Muslim religious (AOR: 0.30) were negatively associated with willingness to receive COVID-19 vaccine (36), (38).

### **2.2.2 Presence of chronic disease and COVID19 experiences:**

The most significance associated factors observed in a study conducted in various Asian countries were: chronic diseases were facilitative factors that increase their willingness to be vaccinated COVID19 vaccine (26), (39). Other study in Libya, indicates that having a family member or friend infected with COVID-19 (AOR: 1.09) were positively associated with the likelihood of COVID19 vaccine acceptance. While having a friend or family member who died due to COVID-19 was negatively associated with it (AOR: 0.89) (33). A study conducted in south Ethiopia; participants having chronic diseases (AOR: 2.89) and having a close

relative/friend ever infected by COVID- 19 (AOR: 2.60) were associated with an increased willingness to be COVID19 vaccinated(35). Another study was conducted in Ethiopia, showed that: participants having a chronic disease (AOR: 3.14) was significantly associated with COVID-19 vaccine acceptance(36).

### **2.2.3 Knowledge towards COVID-19 vaccine:**

A cross sectional study was conducted in Ho Chi Minh City, Vietnam reported that respondents with good knowledge of COVID19 vaccine (AOR 1.2) were significantly associated with willingness to receive COVID19 vaccine (40). A study conducted in Jordan showed that; good knowledge (AOR: 1.5) was significant factors associated with willingness to receive COVID19 vaccine(30). A study was conducted in Gurage zone, Ethiopia showed that: participants having good knowledge about COVID-19 vaccine (AOR: 2.59, 95% CI: 1.67–4.02) was significantly associated with COVID-19 vaccine acceptance(36).

### **2.2.4 Attitude towards COVID-19 vaccine:**

Study conducted in Iranian population findings showed that most of the participants had positive attitude regarding the COVID-19 vaccination. Such as perceived benefits of COVID-19 vaccination (AOR: 2.9) was significantly associated with willingness to receive COVID19 vaccine (28). Study in China indicates; perceived severity (AOR: 1.16), perceived benefits of the vaccine (AOR: 1.22) remained to be positively associated with vaccine acceptance; while perceived barriers/side effect (AOR: 0.80) and perceived risk (AOR: 0.77) maintained to be negatively associated with acceptance(41). Another study conducted in China showed that, the willingness to take a COVID-19 vaccine was significantly associated with trust in the effectiveness of the vaccine (AOR: 6.42) (27).

A study conducted in Japan, perceived effectiveness of the COVID-19 vaccine (AOR: 9.15), perceive risky acquiring infection (AOR: 1.31) and concerns to vaccine safety (AOR: 0.64) were significantly associated with willingness to receive COVID19 vaccine(42). Participants' those trust the vaccine (AOR: 3.05), and perceived risk of acquiring infection (AOR: 2.13) were likely to accept the COVID-19 vaccine than their counterparts(29). A study conducted in south Ethiopia; positive attitude towards the vaccine (AOR: 2.83) was significantly associated with willingness to receive COVID19 vaccine (35).



## CONCEPTUAL FRAMEWORK

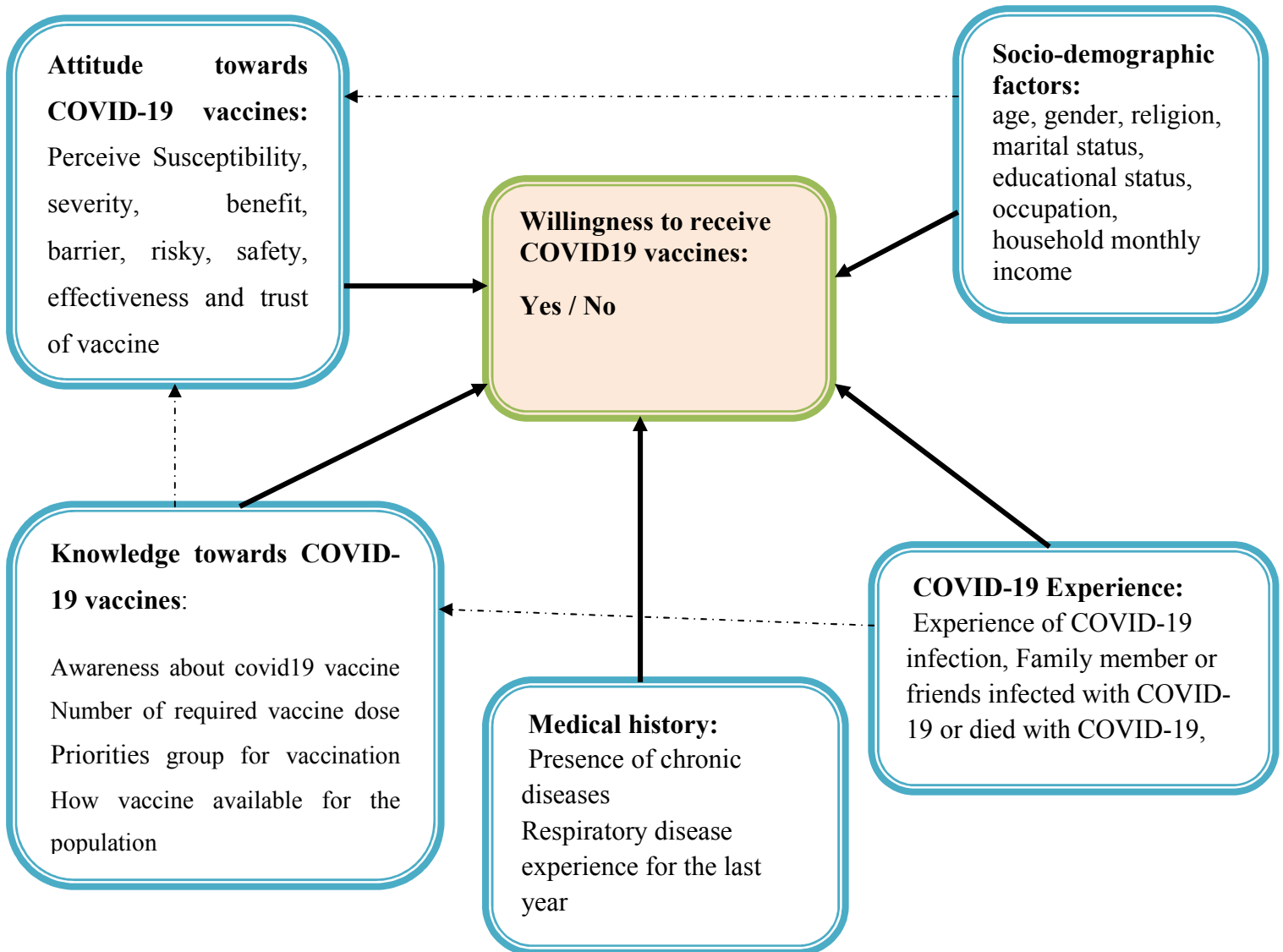


Figure 1: conceptual framework of willingness to receive COVID19 vaccine and factors associated with it among individuals living in Bahir dar city Northwest, Ethiopia.

### **3. OBJECTIVES**

#### **3.1 General Objective:**

- To assess the willingness to receive COVID19 vaccine and factors associated with it among individuals living in Bahir dar city Northwest, Ethiopia 2022.

#### **3.2 Specific Objectives:**

- To assess the willingness to receive COVID19 vaccine among individuals living in Bahir dar city Northwest, Ethiopia 2022.
- To identify factors associated with willingness to receive a COVID19 vaccine among individuals living in Bahir dar city Northwest, Ethiopia 2022.

## **4. METHODS AND MATERIALS**

### **4.1 Study area**

This study was conducted in Bahir Dar city, which is the capital city of Amhara Regional State and which is found at 565 km far from Addis Ababa, Northwest Ethiopia. According to Bahir dar administrative office the total population in the city is 332,856 <http://www.ethiovisit.com/ethiopia/ethiopia-regions-and-cities.html>. The city is structured in 6 sub cities with a total of 26 kebeles. Bahir Dar city has two specialized public hospitals, one primary public hospital and eight public health centers. There are also 134 private (primary, medium, specialty clinics and pharmacy) health institutions in the city.

### **4.2 Study design & period**

A community-based cross-sectional study was applied among 392 individuals in Bahir dar city from January 15- 30, 2022.

### **4.3 Source population**

The source populations were all peoples who were living in Bahir dar city.

### **4.4 Study population**

The study populations were all peoples who were living within the selected Kebeles in Bahir dar city.

### **4.5 Inclusion and exclusion criteria**

#### **4.5.1 Inclusion criteria**

All COVID-19 unvaccinated people and whose age greater than or equals to 18 years would be included in the study.

#### **4.5.2 Exclusion criteria**

All people who were COVID-19 vaccinated, whose age less than 18 years or those people who were critical sick would be excluded in the study.

## 4.6 Variables of the Study

### 4.6.1 Dependent Variable

- Willingness to receive COVID19 vaccine: Yes / No

### 4.6.2. Independent Variables

- **Socio-demographic variables;**
  - age,
  - gender,
  - religion,
  - marital status,
  - educational status,
  - occupation and
  - household monthly income
- **Medical history:**
  - ✓ Experience with respiratory diseases for the last year
  - ✓ Presence of chronic diseases
- **COVID-19 Experience:**
  - ✓ Experience of COVID-19infection,
  - ✓ Family members or friends infected with COVID-19,
  - ✓ Family members or friends died with COVID-19,
- **Knowledge towards COVID-19 vaccine;**
  - Awareness about covid19 vaccine
  - Number of required vaccine dose
  - Priorities group for vaccination
  - How vaccine available for the population
- **Attitudes towards COVID-19 vaccine:**
  - Susceptibility
  - Severity
  - Benefit
  - Barrier
  - Risky
  - Trust
  - Effectiveness and Safety of vaccine

## 4.7 Operational Definitions

**Willingness to vaccine:** An early accepting of a COVID19 vaccine when a vaccine is available.

**Good knowledge:** A respondent who scored equals to or above the mean level will be defined as having a good knowledge.

**Poor knowledge:** A respondent who scored below the mean level will be defined as having a poor knowledge.

**Positive attitude:** A respondent who scored equals to or above the mean level will be defined as having a positive attitude.

**Negative attitude:** A respondent who scored below the mean level will be defined as having a negative attitude.

**Chronic diseases:** Participants who experience with hypertensive, diabetic, HIV, heart disease, chronic kidney disease and cancer) causes.

## 4.8 Sample size determination

### 4.8.1 Sample size determination for the first objective

A sample size was determined by using a single population proportion formula, by taking 95% confidence interval, 5% margin of error, 81% proportion of willingness to receive COVID 19 vaccine (2), 1.5 design effect and adding up 10% non-response rate.

$$n = \frac{(Z_{\alpha/2})^2(p(1-p))}{d^2} \quad \text{where } Z_{\alpha/2} = 1.96, \quad p = 0.81, \quad (1-p) = 0.19 \text{ and } d = 0.05.$$

$$n = \frac{1.96^2 \times (0.81)(1-0.81)}{(0.05)^2} = 237$$

The calculated sample size (based on this formula) is 237. By add a non-response rate of 10% of the calculated sample size =  $(237 \times 10/100) = 23.7$  (24 households) = 261 and then adjust by 1.5 design effect =  $(261 \times 1.5) = 391.5$ . Then, the total sample size was **392**.

#### 4.8.2 Sample size determination for the second objective

Sample size determination for the second objective would be calculated by double population proportion using Epi info version 7 stat calc programs and summarized as follow.

Table 1: Summary of Sample size calculation for second objective

Factors	CI	AO R	Pow er	Proportion in unexposed group	Proportion in exposed group	Sampl e size	Non-respon se rate	Design effect	total sample
Chronic disease(41)	95	1.45	80	34.4	49.8	46	10	1.5	77
Family members or friends infected with COVID19(33)	95	1.09	80	61.5	59.9	22	10	1.5	38
Attitude(43)	95	6.9	80	79.3	25.8	136	10	1.5	225

The calculated Sample size for the 1<sup>st</sup> objective is greater than sample size calculated for the 2<sup>nd</sup> objectives. So the maximum sample size of the 1<sup>st</sup> objective (n) =392 was used for this study.

#### 4.9 Sampling Procedure and sampling technique

Multi-stage sampling technique was employed to recruit the participants. There are 26 kebeles in Bahir dar city administration; of which seven of them were selected randomly by lottery method. The total sample would be allocated proportionally to each kebeles. Households from each kebeles were selected by applying a systematic random sampling technique. From the specific households that selected, only one randomly selected eligible individual was interviewed. The first household selected from the house of respective kebeles using the lottery method and the next household identified systematically by using the sampling interval. Total households of each kebeles obtained from family folder registration books.

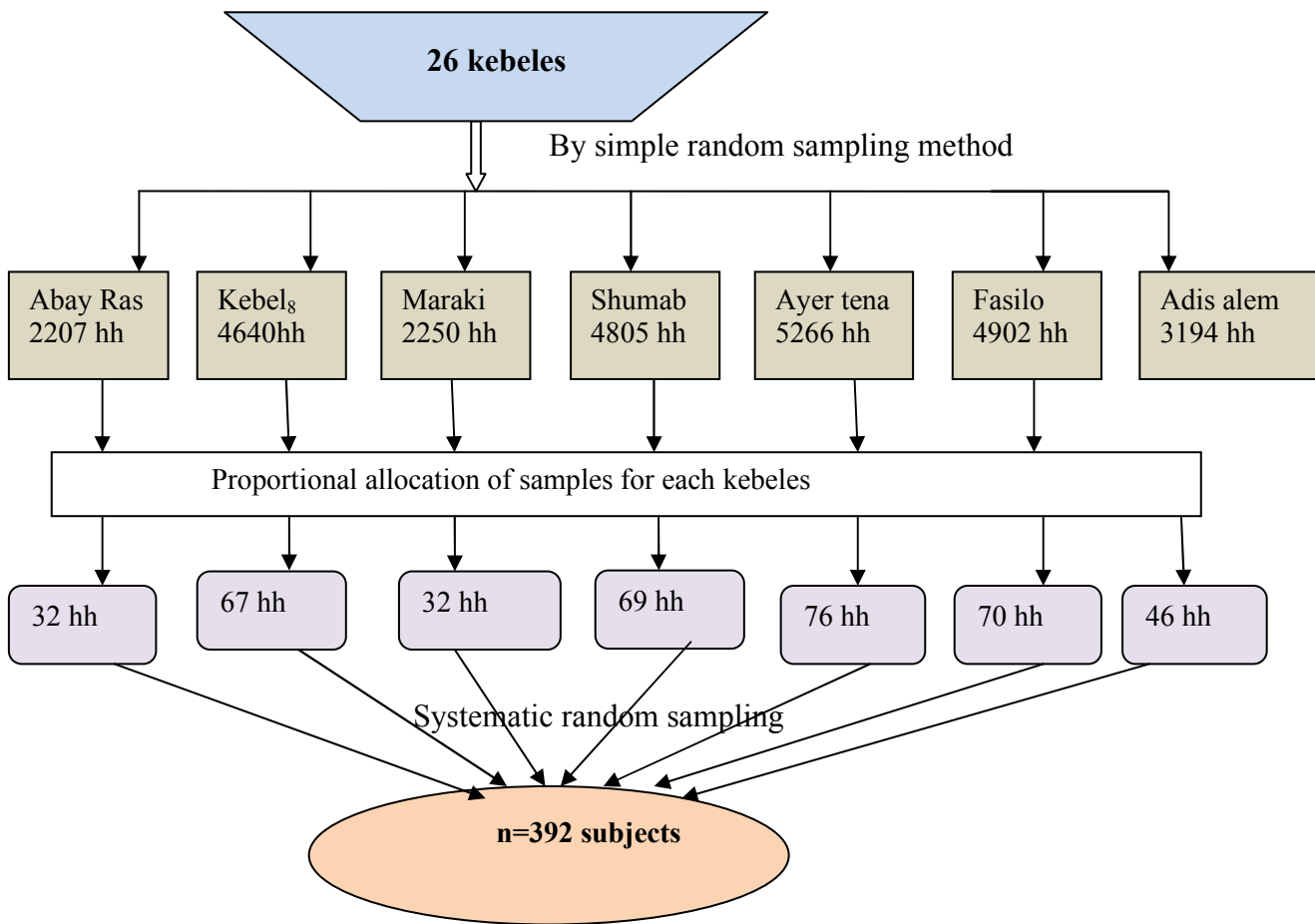


Figure 2: Diagrammatic representation of sampling procedure.

#### 4.10 Data collection tools and measurements

Data were collected by using a structured questionnaires which were adapted from reviewed literatures(44, 45). The questionnaires have 5 components: socio-demographic variables, medical history and COVID19 experiences, knowledge towards COVID-19 vaccine, attitude towards COVID-19 vaccine, and willingness to receive COVID-19 vaccine. The questionnaire was prepared in English and translated into Amharic for the interview and retranslated to English to ensure consistency. The questionnaires were administered face-to-face by three health professional data collectors and one supervisor.

**Knowledge:** Would be assessed based on 10 questions focused on COVID19 vaccine. Multiple answer questioners were changed into dichotomous answer to compute Knowledge score. Knowledge was defined as good if the respondents scored above or equals to the mean level.

**Attitude:** would be assessed by using 11 questions focus on the importance of vaccination, safety and effectiveness of the COVID-19 vaccine, susceptibility, risky and complication from COVID-19, confidence and trust in health workers and governments regarding vaccination information. Multiple answer questioners were changed into dichotomous answer to compute attitude score. A respondent who scored above or equals to the mean level was defined as having a positive attitude.

#### **4.11 Data Quality control and management**

The data collectors and supervisor were trained for two days on data collection tools. The Amharic version of the questionnaire was tested on 5% of the sample in non-selected shimbit kebele in Bahir dar city. All data collectors and supervisor were participated on pre testing of the questionnaires. Problems highlight during the pre-test were corrected before the start of the actual survey. Each question was properly coded and continuous supervision was done during pre-test and data collection period by the investigator and supervisor. Completeness and consistency of recording on the questionnaire sheets were evaluated by supervisor at the end of each working day.

#### **4.12 Data processing and analysis**

Data were entered and coded in Epi Data version 3.1 and exported to SPSS version 23 software for data analysis. Frequency and proportion were used to summarize categorical variables, whereas mean and standard deviation were used to summarize continuous variables. The main outcome of the study was willingness to receive COVID19 vaccine. Both binary simple and multiple logistic regressions were performed, to identify factors associated with willingness to receive a COVID19 vaccine. A simple binary logistic regression was used to identify candidate variables for multiple logistic regressions at P-value < 0.25 and CI 95%. Variables associated with willingness to COVID-19 vaccination were also identified in multiple logistic regressions using Odds Ratio with 95% CI and P-value less than 0.05. Goodness of the model was checked by the Hosmer Lemshow goodness of fit test.



## **5. Ethical Consideration**

Ethical clearance of this study was obtained from Institutional Review Board of College of Medicine and Health science, Bahir Dar University and official letter was submitted to Amhara Public Health Institute, Bahir dar city administration, Bahir dar city Health Office and for the selected kebeles administrative office. The purpose and importance of the study were explained to the study participants and verbal consent was obtained from all participants before starting the interview. They would be also informed about the possibility to refuse participation at any time of data collection. Confidentiality of the data was assured and kept secretly; code number was assigned to the study participants without mentioning their name.

## **Dissemination of the Results**

Draft report was shared and discussed with advisors for possible modifications and comments and all relevant comments were incorporated. The report was finalized and the copy was submitted to Bahir Dar University, College of medicine and health science, school of public health, Department of Health system management and Health economics. The result will be also disseminat to Amhara Public Health Institute and Bahir dar city health office to take appropriate interventions based on recommendation. Furthermore, the research findings will be send for possible publication on international journals.

## 6. RESULTS

### 6.1 Socio demographic & economic characteristics

A total of 382 respondents participated in the study with a response rate of 97.4%. More than half of the participants were young adult age (58.1%) and almost half of the participants were female (50.5%). Most study participants were Orthodox Christian religion (62.0%) and more than half of the participants were married (56.3%). Majority of the study participants have a college diploma or above (34.6%) and 43.5% of monthly household income was reported in between 70-140 USD. Only 7.9% of participants were working in health facilities (Table2).

Table 2: Socio-demographic factors related to willingness to receive COVID19 vaccine among individuals (n=382) in Bahir dar city, Ethiopia, 2022.

Variables		Frequency	Percent
Age in years	Young adult age (18-40 )	222	58.1
	Middle adult age (41-65)	102	26.7
	Old age (> 65)	58	15.2
Gender	Male	189	49.5
	Female	193	50.5
Religion	Orthodox	237	62.0
	Muslim	107	28.0
	Protestant	23	6.0
	Other religions*	15	4.0
Marital status	Single	115	30.1
	Married	215	56.3
	Divorced	30	7.9
	Widowed	22	5.8
Educational status	Not educated	64	16.8
	Primary educated	77	20.2
	Secondary educated	109	28.5

Occupation	College diploma &above	132	34.6
	Housewife	100	26.2
	Student	59	15.4
	Merchant	72	18.8
	Civil servant	78	20.4
	Other occupation**	73	19.1
Monthly household income in ETB (USD)	≤ 3500 (≤70)	134	35.1
	3500-7000 (70-140)	166	43.5
	≥ 7000 (≥140)	82	21.5
Working in health facility	Yes	30	7.9
	No	352	92.1

\*(other religion) indicate Catholic religion and The 7<sup>th</sup> Adventist religion followers.

\*\* (other occupation) indicate daily laborers, retailer, contractor)

## 6.2 Medical history and COVID-19 Experience

A quarter (24.6%) and one-third (32.2%) of participants were reported having chronic diseases and respiratory diseases respectively in the last year. Only 22.0% of participants were reported having experience with COVID-19 infection and a quarter (25.7%) of them was also having history of family members or friends infected with COVID-19.

Table 3: Medical history and COVID19 experience towards willingness to receive COVID19 vaccine among individuals (n=382) in Bahir dar city, Ethiopia, 2022.

Variables		Frequency	Percent
Respiratory diseases in the past year?	Yes	123	32.2
	No	259	67.8
Chronic Diseases	Yes	94	24.6
	No	288	75.4
Family history with chronic disease	Yes	116	30.4
	No	266	69.6
Experience with COVID19 infection	Yes	84	22.0
	No	298	78.0
History of family members or friends infected with COVID-	Yes	98	25.7

### 6.3 Knowledge of COVID-19 vaccines:

The distribution of each of the knowledge items for COVID-19 vaccine is presented in Table 5, More than half (52.1%) of the participants were shown good knowledge about the COVID-19 vaccine. Almost all (98.2%) of participants knew that COVID19 had a vaccine. More than a third (36.1%) of the participants knew the required AstraZeneca doses. Most (90.0%) of the study participants were informed about the starting of mass campaign COVID19vaccination. More than half (53.1%) of the study participants knew COVID-19 vaccine was available for the population in free. Two third (66.7%) of the study participants had known health care workers, People with chronic diseases and elder people should be vaccinated first before vaccinating other population groups. Regarding the respondents' sources of information, Healthcare workers were the most chosen source (39.3%) and followed by Government media (36.1%).

Table 4: COVID-19 vaccine related knowledge's towards willingness to receive COVID19 vaccine among individuals (n=382) in Bahir dar city, Ethiopia, 2022.

Variables		Frequency	Percent
Does COVID19 have a vaccine?	Yes	375	98.2
	No	7	1.8
Doses required for AstraZeneca vaccine	One	65	17.0
	Two	138	36.1
	Three	49	12.8
	Don't know	130	34.1
COVID19 Vaccine can leads disability after receiving a Vaccine?	Yes	35	9.2
	No	347	90.8
COVID19 vaccine increases allergic reaction?	Yes	181	47.4
	No	114	29.8
	Don't know	87	22.8
Does the government of Ethiopia starting a campaign	Yes	344	90.1

COVID19 vaccination?	No	38	9.9
Availability of COVID-19 vaccine for the population?	Free	203	53.1
	Paid	53	13.9
Who should be vaccinated first?	Don't know	126	33.0
	HCW, People with chronic diseases and elder peoples	255	66.7
	Pregnancy & lactating women	96	25.2
	Children & Adults	31	8.1
Sources frequently used?	Health care provider	122	31.9
	Governmental media	126	33.0
	Social media	134	35.1
	<b>Good</b>	<b>199</b>	<b>52.1</b>
<b>Knowledge score</b>	<b>Poor</b>	<b>183</b>	<b>47.9</b>

#### 6.4 Attitude towards COVID19 vaccine

The distribution of each of the attitude items for COVID-19 vaccine is presented in Table 6, Majority (60.7%) of the participants were shown positive attitude of COVID-19 vaccine. It was found that more than half of the study participants agreed on the perceived susceptibility to getting COVID-19 (53.1%) in future. While severity of complications was agreed on perceived as very serious by almost quarter of the study participants (64.4%), the majority of them agreed on perceived benefits of getting COVID-19 vaccine (70.4%). However, 45.3% of the study participants were concerned with side effect of the vaccine, 69.6% of the participants were concerned with religious belief to take the vaccine and 20.4% of the study participants were concerned with effectiveness of the vaccine. Most of them were agreed on actions taken by the government that avail the vaccine in free (71.2%).

Table 5: Attitude factors towards willingness to receive COVID19 vaccine among individuals (n=382) in Bahir dar city, Ethiopia, 2022.

Variables		Frequency	Percent
Chance of getting COVID-19 in the future is very high	Agree	203	53.1
	Disagree	179	46.9
Without vaccination the incidence of COVID-19 will not be reduced	Agree	85	22.3
	Disagree	297	77.7
Complications of COVID19 is very serious	Agree	246	64.4
	Disagree	136	35.6
Currently available COVID-19 vaccine against COVID-19 infection	Agree	269	70.4
	Disagree	113	29.6
Concerned about potential side effects of COVID-19 vaccine.	Agree	173	45.3
	Disagree	209	54.7
Due to religious belief, am concerned to COVID-19 vaccination.	Agree	266	69.6
	Disagree	116	30.6
Concerned about the effectiveness of the vaccine available.	Agree	78	20.4
	Disagree	304	79.6
Vaccination will increase my chance of getting COVID-19.	Agree	250	65.4
	Disagree	132	34.6
COVID-19 vaccine should be afforded to everyone for free.	Agree	272	71.2
	Disagree	110	28.8
Government or Health care workers promote the people to get vaccination.	Agree	294	77.0
	Disagree	88	23.0
<b>Attitude score</b>	<b>Positive</b>	<b>232</b>	<b>60.7</b>
	<b>Negative</b>	<b>150</b>	<b>39.3</b>

### 6.5 Willingness to receive COVID19 vaccine

Out of 382 participants, 60.2 % were willing to receive COVID-19 vaccine.

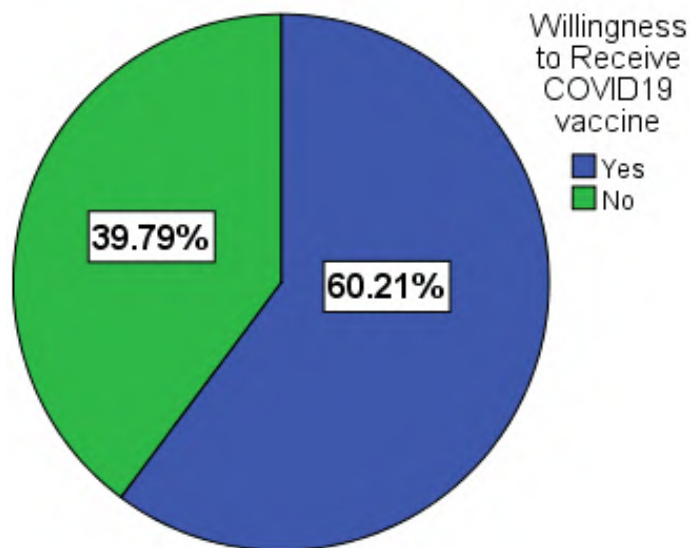


Figure 3: willingness to receive COVID19 vaccine if available among individuals (n=382) in Bahir dar city, Ethiopia, 2022.

### 6.6 Factors associated with willingness to receive COVID-19 vaccine

To identify factors associated with willingness to receive COVID19 vaccine, each variable were assessed independently wither they were predictor of willingness to receive COVID19 vaccine or not. So each independent variable was tested first by using simple binary logistic regression analysis. According to the binary logistic regression analysis  $p < 0.25$  were; gender, household income, working on health facility, respiratory disease, chronic disease, experience with COVID19 infection, history of family members or friends infected with COVID19, knowledge score and attitudes score were significantly associated with COVID-19 vaccine acceptance.

Independent variables that had association in the simple binary logistic regression analysis were fed to the multiple binary logistic regression analysis to see their final significance association with willingness to receive COVID19 vaccine. In multiple binary logistic regression analysis; working on health facility, chronic disease, experience with COVID19 infection, history of



family members infected with COVID19, knowledge score and attitude score remained significance with willingness to receive COVID19 vaccine in the model at ( $p < 0.05$ ). The assumptions of multiple binary logistic regression analysis were assessed using the Hosmer Lemshow model of fitness test which resulting in a p-value of 0.51.

Table 6: Multiple and simple binary logistic regression analysis for associated factors of willingness to receive COVID19 vaccine among individuals in Bahir dar city, Ethiopia.

Variables	Willingness to receive COVID19 vaccine		Sig.	COR:(95%CI)	AOR:(95%CI)
	Yes: n (%)	No: n (%)			
<b>Gender</b>					
Male	98(51.9%)	91(48.1%)	0.001	2.0(1.3-3.0)	1.2(0.7-2.2)
Female	132(68.4%)	61(31.6%)		1	1
<b>Household income (ETB)</b>			0.004		
≤3500	93(69.4%)	41(30.6%)		1	1
3500-7000	99(59.6%)	67(40.4%)	0.08	1.5(0.95-2.5)	1.7(0.8-3.2)
≥7000	38(46.3%)	44(53.7%)	0.001	2.6(1.5-4.6)	1.9(0.8-4.3)
<b>Working on health facility</b>					
Yes	6(20.0%)	24(80.0%)	0.000	7.0(2.8-17.5)	<b>4.3(1.4-13.0)*</b>
No	224(63.6%)	128(36.4%)		1	<b>1</b>
<b>Respiratory Diseases</b>					
Yes	59(48.0%)	64(52.0%)	0.001	2.1(1.4-3.3)	1.6(0.9-2.8)
No	171(66.0%)	88(34.0%)		1	1
<b>Chronic disease</b>					
Yes	32(34.0%)	62(66.0%)	0.000	4.3(2.6-7.0)	<b>4.8(2.6-9.0)*</b>
No	198(68.8%)	90(31.2%)		1	<b>1</b>

<b>Experience with COVID-19 infection</b>					
Yes	29(34.5%)	55(65.5%)	0.000	3.9 (2.4-6.5)	<b>2.0(1.1-3.7) *</b>
No	201(67.4%)	97(32.6%)		1	<b>1</b>
<b>Family members or friends infected with COVID-19</b>					
Yes	37(37.8%)	61(62.2%)	0.000	3.5(2.2-5.6)	<b>2.9(1.5-5.4)*</b>
No	193(68.0%)	91(32.0%)		1	<b>1</b>
<b>Knowledge</b>					
Good	87(37.8%)	112(73.7%)	0.000	4.6(2.9-7.2)	<b>2.0(1.2-3.7)*</b>
Poor	143(62.2%)	40(26.3%)		1	<b>1</b>
<b>Attitudes</b>					
Positive	95(40.9%)	137(59.1%)	0.000	12.9(7.2-23.5)	<b>8.7(4.5-16.9)*</b>
Negative	135(90.0%)	15(10.0%)		1	<b>1</b>

\* indicates significance variables at p-value  $\leq 0.05$

Participants who were working on health facility had 4.3 (95% CI; 1.4-13.0) times more likely to receive COVID-19 vaccine than who were working on other site. This study also indicated that the odds of willingness to receive COVID-19 vaccine were 4.8 times (95% CI: 2.6–9.0) higher among those participants who had chronic diseases compared with those who had not chronic diseases. Those Participants who experience with COVID19 infection were 2.0 (95% CI; 1.1–3.7) times more likely to accept the COVID-19 vaccine than those who did not experience with COVID19 infection. Furthermore, those who had family members or friends infected with COVID19 were 2.9 (95% CI: 1.5–5.4) times more likely to accept the COVID-19 vaccine than those who did not have family members infected with COVID19. The odds of accept COVID-19 vaccine among those participants who had good knowledge about COVID19 and its vaccine were 2.0 (95%CI: 1.2- 3.7) times as compare to those participants who had poor knowledge about COVID19 and its vaccine. What’s more those who had positive attitudes on COVID19 vaccine were 8.7 (95% CI: 4.5–16.9) times more likely to accept COVID-19 vaccine than those who had negative attitudes on COVID19 vaccine.

## 7. DISCUSSION

Vaccination is one of the most important inventions in the field of public health in the 21st century. However, its acceptance is varied due to different factors. Thus low level of vaccine acceptance emphasizes the fact that the availability of COVID-19 vaccines is not the only issue.

In this study, we found that 60.2% of the total study participants demonstrated willingness to receive vaccination against COVID-19 once a vaccine is available. Prior estimates suggest that the threshold for COVID-19 herd immunity varies among countries (46, 47), with a suggested average threshold of approximately 67% (14). Hence, the observed acceptance level of 60.2% in the current report indicates an urgent need for public health strategies to increase acceptance of potential COVID-19 vaccines in the general population.

COVID-19 vaccine acceptance was related to several factors that included: working on health facility, chronic disease, experience with COVID19 infection, History of family members infected with COVID19, good knowledge and positive attitude of COVID19 vaccine.

The level of willingness to receive a COVID-19 vaccine among these study participants (60.2%) was lower than studies conducted in Japan 67.7% (26), Iran 74.2% (28), Somalia 76.8% (34). This variation could be due to the difference in study setting, study population, study period (the well-controlled period), difference in perception for the vaccine, insufficient knowledge about the vaccine and difference in attitude towards COVID19 vaccine.

On the other hand, the willingness to receive a COVID-19 vaccine in this report were similar to those reported in China 60.4% (27), Democratic Republic of Congo 55.9% (31) and in Guraga zone - Ethiopia 62.6% (36). Moreover, the willingness to receive a COVID-19 vaccine among this study participants was slightly higher in Kuwait 53.1% (15), Nigeria 50.2% (32) and more higher in Jordan (36.8%) (30), Cameroon (15.4%) (48), Egypt (25%)(49) and Ethiopia (33.7%)(50). This variation could be due to the difference in study setting; study population, difference in perception for the vaccine, difference in knowledge and attitude towards COVID19 vaccine or more information becomes available on the safety and effectiveness of COVID-19 vaccines.

## **Factors associated with willingness to receive COVID-19 vaccine**

We identified several factors associated with willingness to receive a COVID-19 vaccine. Participants working in health facility were 4.3 times more likely to accept vaccination against COVID-19 than participants working in other work site. Perhaps these participants had a better understanding of COVID-19 and its vaccine and they are also a high-risk group for infection due to their close interactions with sick persons. This finding has also been documented in Iran (28), Israel(51), Turkey (52) and Democratic Republic of Congo(31). In contrast, study findings in Ethiopia(38) showed that acceptability increases in participant who working on non-health related jobs. Such conflicting findings might be due to individual perceptions and beliefs about vaccination.

Moreover, the odd of acceptability of vaccine was 4.8 times higher among participants who had chronic diseases than participants who had not chronic diseases. The reason might be participants with chronic diseases have increased risk of mortality after COVID19 infection. These observations are similar to findings in South Ethiopia (35), (36), Japan (26), Turkey(52) and Australian(39).

Furthermore, those Participants who experience with COVID19 infection were 2.0 times more likely to accept the COVID-19 vaccine than those who did not experience with COVID19 infection. Likewise, those who had family members or friends infected with COVID19 were 2.9 times more likely to accept the COVID-19 vaccine than those who did not have family members or friends infected with COVID19. The reason may be participants may seek or search more information about the safety and effectiveness of COVID-19 vaccines due to its exposure. This finding was supported by studies conducted in South Ethiopia(35), Libya (33).

The odds of accept COVID-19 vaccine among those participants who had positive attitude for COVID19 vaccine were 8.7 times as compare to those participants who had negative attitude for COVID19 vaccine. The possible reasons may be due to religious belief, cultural difference, and individual perceptions, sufficient information not available on the safety and effectiveness of COVID-19 vaccines. This finding was in line with study conducted in Ethiopia (43),Saudi Arabia (29),Vietnam (40), United States(53),Israel (51).

What's more those who had good knowledge on COVID19 and its vaccine were 2.0 times more positively to accept the COVID-19 vaccine than those who had poor knowledge on COVID19 and its vaccine. This might be due to educational difference, insufficient and unreliable source of vaccine information. This finding was consistent with study conducted in Ethiopia (50),(43), Vietnam(40), Syrian (54).

## **8. STRENGTH AND LIMITATION OF THE STUDY:**

This study was tried to assess the willingness of the population to receive COVID19 vaccine when it is available by using community based survey. However this study was not supported by qualitative data to know the reasons of participants who don't willing to receive COVID19 vaccine.

## **9. CONCLUSION**

In total, only 60.2% of the study participants were willing to receive vaccination against COVID-19 once a vaccine becomes available. Such findings were public health importance and should guide public health efforts in increasing acceptance of vaccination against COVID-19 in the population. Working on health facility, chronic diseases, COVID19 experience, family members infected with COVID19, good knowledge and positive attitude were significantly associated with willingness to receive COVID19 vaccine once available.

## 10. RECOMMENDATION

These findings suggest that, public health strategies are urgently needed to address the wide misinformation and conspiracy theories surrounding COVID-19 vaccines.

### **For Minister of Health or Health Bureau:**

To reach the herd immunity against COVID-19, health authorities should:

Raising public awareness through various communication channels to mitigate fears, concerns and misinformation over COVID19 Vaccine

Conduct transparent communication and education about COVID19 vaccine effectiveness and safety via appropriate channels toward the public.

### **For Health care provider:**

Should conduct IEC towards the public:

- ✓ Disseminate the correct COVID19 vaccine information
- ✓ Promote perception for COVID-19 vaccine and vaccination and increase awareness of COVID19 vaccine.
- ✓ Conducting better communication about COVID19 vaccine via appropriate channels toward the public.

### **For Researchers:**

Additional studies containing qualitative data will be needed to deep understanding of the issue.



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## 12. ANNEX I

### 12.1 Participant information Sheet

Good morning/ afternoon.

My name is \_\_\_\_\_ and I am here on behalf of Eshetu Anley, student of Bahir Dar University School of public health. He is conducting a research on Assessment of willingness to receive COVID-19 vaccine and factors affecting it among general population in Bahir dar city. He received permission from Bahir Dar University & Bahir dar city administration to conduct this study. Your participation is purely based on your willingness & you have the right to choose not to take part in this study. If you choose to take part, you also have the right to stop at any time.

If you agree to participate in the study, I will ask about your background & socio economic information, COVID-19 related questions and about COVID-19 vaccination. The interview will take upto one hour. The information that you provide will be kept confidential by using code numbers and locking the data. Your name will not be written on the questionnaire. The data will not be used for other purposes other than the study. Your willingness and active participation is very important for the success of this study.

Based on this information, are you willing to participate in this study?

A) Yes

B) No

If yes, I will continue

if no, I will skip to next participant

Signature of the respondent \_\_\_\_\_

Signature of the interviewer \_\_\_\_\_

## 12.2 English version Questioners

### PART-I Socio- demographic characteristics

Instruction: Ask the following questions carefully and circle the alternatives and fill the blank.

S. No	Questions	Response	Skip	Remark
101	Age of respondent	years _____		
102	Gender of respondent	Male .....1 Female.....2		
103	Religion	Orthodox .....1 Muslim .....2 Catholic.....3 Protestant.....4 Others .....5		
104	Marital status	Single.....1 Married.....2 Divorced.....3 Widowed.....4		
105	Education level	Not read & write.....1 Read & write without formal education.....2 Primary school .....3 Secondary school.....4 Diploma & above.....5		
106	Occupational status	No work.....1 Student .....2 Self employed.....3 Employed.....4		
107	Are you working/studying in a medical field?	Yes .....1 No .....2		
108	What is average monthly income of the households?( birr per month)	_____ ETH birr		

**PART-2: Health Status and COVID-19 Experience:**

S. No	Questions	Response	Skip	Remark
201	Are you suffered from respiratory diseases in the past year	Yes No		
202	Do you have any chronic illness (cardiac arrest, hypertension, diabetes, HIV AIDS etc?)	Yes No		
203	Do you have a family with chronic illness	Yes No		
204	Are you currently infected with COVID-19?	Yes No		
205	Are you previously infected with COVID-19?	Yes No		
206	Do you have a family member infected with COVID-19?	Yes No		
207	Do you have family members died due to COVID-19?	Yes No		

**PART-3: Knowledge towards COVID-19 vaccines:**

Instruction: Ask the following questions carefully and tick the alternatives.

S. No	Questions	Response	Skip	Remark
301	Do you know about the COVID-19 vaccine?	Yes No Don't know		
302	How many covid19 vaccine doses required for a single person?	One Two Three Don't know		



303	Have you heard of anyone who Was disabled after receiving a Vaccine?	Yes No		
304	Does vaccination increase allergic reactions?	Yes No Don't know		
305	Do you know the beginning of COVID-19 vaccination in Ethiopia?	Yes No Don't know		
306	How the Government of Ethiopia available COVID-19 vaccine for the population?	Free for everybody <input type="checkbox"/> Paid for everybody <input type="checkbox"/> Don't know <input type="checkbox"/>		
307	Who should have been vaccinated?	Those who have not yet been infected <input type="checkbox"/> People infected with COVID <input type="checkbox"/> Newly recovered from COVID <input type="checkbox"/> Everyone <input type="checkbox"/>		
308	Which population groups should be prioritized for vaccinations?	HCW, chronic patients, and elderly <input type="checkbox"/> Pregnancy & lactating women <input type="checkbox"/> Children and adults <input type="checkbox"/>		
309	Where do you get information about COVID19 vaccine?	Healthcare providers <input type="checkbox"/> Internet <input type="checkbox"/> Media <input type="checkbox"/>		
310	Have you ever heard negative information about COVID-19 vaccination?	Yes No		

**Part 4: Attitudes related to COVID-19 vaccine.**

Instruction: Ask the following questions carefully and circle the alternatives.

S. No	Questions	Response	Skip	Remark
401	Do you believe that you are at a higher risk of being infected by COVID-19?	Yes don't know No		
402	It is not possible to reduce the incidence of COVID-19 without vaccination.	Agree Undecided Disagree		
403	Do you agree currently available COVID-19 vaccine against COVID-19 infection?	Agree Undecided Disagree		
404	I am concerned about potential side effects of COVID-19 vaccine.	Agree Undecided Disagree		
405	Due to religious belief, I will reject COVID-19 vaccination.	Agree Undecided Disagree		
406	I am concerned about serious complications of COVID19.	Agree Undecided Disagree		
407	I have concerns about getting COVID-19 from the vaccine.	Agree Undecided Disagree		
408	Do you believe the COVID-19 vaccine should be afforded to everyone for free?	Agree Undecided Disagree		

409	Do you trust the government or health care providers regarding to vaccination information	Agree Undecided Disagree		
410	Do you agree an effective vaccine was available for everyone?	Agree Undecided Disagree		
411	The newly discovered COVID-19 vaccines are safe.	Agree Undecided Disagree		

***PART5: Willingness to receive a COVID-19 vaccine***

601. If a vaccine is available for COVID19, are you willing to take it?

Yes

No

### 12.3 Amharic version Questioners

#### Informed Consent (Amharic version)

የተጠያቂዎች/ መላሾች ቅፅ

ጠፍ ይስጥልን እንደምን ነዎት \_\_\_\_\_ እባላለሁ፡፡ የመጣሁት በባህርዳር ዩኒቨርሲቲ የህብረተሰብ ጠፍ አጠባበቅ ትምህርት ክፍል የሁለተኛ ድግሪ ለማግኘት በተማሪ እሾቱ አንለይ የሚደረግ የምርምር ጥናትን ወክሎ ነው፡፡ ጥናቱ የኮቪድ19 ክትባትን ለመወሰድ ያለዎት ፍቃደኝነት እና ተዛማጅ ምክንያቶች በሚል በባ/ዳር ከተማ እየተካሄደ ሲሆን ከባህርዳር ዩኒቨርሲቲ ፣ ከባ/ዳር ከተማ አስተዳደር እና በተመረጡ ቀበሌ አስተዳደር ፅ/ቤቶች ፍቃድ አግኝቷል፡፡ በዚህ ጥናት ላይ የሚሳተፉት በእጣ ከተመረጡት ቤቶች መካከል እርስዎም እድል ደርሰዎት አንዱ/አንዷ በመሆንዎ ነው፡፡ በዚህ ጥናት ላይ መሳተፍ በእርስዎ መላ ፍቃደኝነት ላይ የተመሰረተ ነው፡፡ በመሆኑም የእርስዎ ተሳትፎ ለዚህ ጥናት ከፍተኛ አስተዋፅዖ ስለሚያደርግ መልካም ፍቃደዎ ሆኖ በጥናቱ እንደሚሳተፉ ተስፋ አደርጋለሁ፡፡ ነገር ግን ጥናቱ ላይ ባለመሳተፍዎ ወይም ጥናቱን በማቋረጥዎ ምክንያት የሚደርስብዎ አንዳችም ችግር /ጉዳት አይኖርም፡፡ በጥናቱ ለመሳተፍ ከተስማሙ የተወሰኑ ጥያቄዎችን ስለአጠቃላይ ግላዊና ማህበረሠባዊ መረጃዎች፣ ስለኮቪድ19 ክትባት ያለዎትን እውቀት እና መረጃ፣ ስለ ኮቪድ19 ክትባት ያለዎትን አመለካከት፣ እንዲሁም የኮቪድ19 ክትባት ለመወሰድ ያለዎትን ፍቃደኝነት በተመለከተ ጥያቄዎችን እጠይቅዎታለሁ፡፡ በመጨረሻም ከእርስዎ የምንሰበስበው መረጃ ከስምዎ ጋር አይያያዝም፡፡ ስምዎት እንደማይጠቀስና ለማንም አካል አልፎ እንደማይሰጥ ልናረጋግጥልዎ እንወዳለን፡፡ የዚህ ጥናት ወጠት ግን ተጠርዞ እና ተዘጋጅቶ ለሚኖሩበት የጠፍ ድርጅቶች ወይም ለሌሎች አካላት ሊሰጥ ይችላል፡፡

ከላይ በሰጠዎት መረጃ መሰረት በጥናቱ ላይ ለመሳተፍ ፍቃደኛ ነዎት? 1. አዎ 2. አይደለሁም

የመረጃ ሰብሳቢ ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_

የተጠያቂው መለያ ቁጥር -----

ለተጨማሪ ማሰራሪያ የዋና አጥኝወን አድራሻ ይጠቀሙ ስም: እሾቱ አንለይ ስልክ +251 918022073፣ ኢሜይል: eshetuanley@gmail.com

#### ክፍሌ1. መሰረታዊ መረጃን የሚጠለኩ ጥያቄዎች

ለቀረቡት ጥያቄዎች መልስዎ የሆነ ወን በመልስ ሳጥን ወስጥ ያሉትን ቁጥሮች በማክበብ ወይም በመመላት ይግለፁ፡፡

ተ.ቁ	ጥያቄ	መልስ	ዝለል	አስተያየት
101	እድሜዎት ስንት ነዉ	አመት _____		
102	የተጠያቂዉ ያታ	ወንድ .....1 ሴት .....2		
103	ሀይማኖት	አርቶዶክስ .....1 መስሊም..... 2 ካቶሊክ . . . . . 3 ፕሮቴስታንት. . . . . 4 ሌላ..... . . . . . 5		
104	የጋብቻ ሁኔታ	ያላገባ .....1 ያገባ .....2 የፈታ... . . . . .3 በሞት የተለየ ..... . . . . 4		
105	የትምህርት ሁኔታ	ማንበብና መጻፍ የማይችል . . . . .1 ማንበብና መጻፍ የማይችል .....2 1ኛ ደረጃ ትምህርት የጨሰ... .3 2ኛ ደረጃ ትምህርት የጨሰ... .4 ዲፕሎማ ከዚያበላይ የተማረ . . . . .5		
106	ስራ	የቤት እመቤት .....1 ተማሪ .....2 ነጋዴ..... . . . . .3 የመንግስት ተቀጣሪ..... .4 ስራ የሌለው:..... . . . .5		
107	የጠፍ ስራተኛ ወይም ተማሪ ነህ/ነሽ?	አዎ .....1 አይ. . . . .2		
108	የቤትዎ አማካይ ወራዊ ገቢ ምን ያህል ነዉ? ( በብር )	_____ ብር		

**ክፍል -2. የጠፍ ሁኔታ ና COVID-19ን የሚጠላክቱ ጥያቄዎች**

ተ.ቁ	ጥያቄ	መልስ	ዝለል	አስተያየት
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201	በባለፈው ዓመት የመተንፈሻ አካላት በሽታዎች ተጠቂ ነበሩ?	አዎ አይ		
202	ሥር የሰደደ ወይም የማይተላለፍ በሽታ አለብዎት (የልብ ምት ፣ የደም ግፊት ፣ የስኳር፣ የኤችአይቢ በሽታ ፣ ወዘተ) ?	አዎ አይ		
203	ሥር የሰደደ ወይም የማይተላለፍ በሽታ ያለበት ቤተሰብ አለዎት?	አዎ አይ		
204	ባሁኑ ወቅት COVID-19 በሽታ አለብዎት?	አዎ አይ		
205	ካሁን በፊት COVID-19 በሽታ ታመው ያወቃሉ?	አዎ አይ		
206	በ COVID-19 የተጠቃ የቅርብ ዘመድ ወይም ጓደኛ አለዎት?	አዎ አይ		
207	በ COVID-19 የሞተ የቅርብ ዘመድ ወይም ጓደኛ አለዎት?	አዎ አይ		

**ክፍል -3: ስለ COVID-19 ክትባትናተከታቢ እወቀትን በተመለከተ መሠሪያ የሚከተሉትን ጥያቄዎች በጥንቃቄ ይጠይቁ እና አሜራቶን ምልክት ያደርጉባቸው፤ ከአንድ በላይ መልስ ማገኘት ይቻላል ::**

ተ.ቁ	ጥያቄ	መልስ	ዝላል	አስተያየት
301	COVID-19 ክትባት አለው?	አዎ አይ አላወቅም		
302	ለአንድ ሰው ምን ያህል COVID-19 ክትባት ዶዝ ይሰጣል?	አንድ <input type="checkbox"/> ሁለት <input type="checkbox"/> ሶስት <input type="checkbox"/> አላወቅም <input type="checkbox"/>		
303	COVID- 19 ክትባት ተከትቦ የታመመ ወይም የሞተ ሰው አይተሃል/ሰምተሃል?	አዎ አይ		
304	COVID- 19 ክትባት መከተብ አስምን/አላርጅክን ያባብሳል ብለው ያምናሉን?	አዎ አይ አላወቅም		
305	በኢትዮጵያ የ COVID- 19 ክትባት ስለመጀመሩ መረጃው አለዎት?	አዎ አይ		
306	የ COVID-19 ክትባት በኢትዮጵያ ለህዝቡ እንዴት ነው የሚሰጠው?	በነፃ <input type="checkbox"/> በክፍያ <input type="checkbox"/> አላወቅም <input type="checkbox"/>		
307	የ COVID-19 ክትባት በኢትዮጵያ መከተብ ያለበት ማን ነው?	በ COVID-19 ያልተያዘ ሰው <input type="checkbox"/> በ COVID-19 የተያዘ ሰው <input type="checkbox"/> ለሁሉም ሰው <input type="checkbox"/>		
308	የ COVID-19 ክትባት ቅድመ ማግኘት ያለበት ማን ነው?	የጠፍ ባለሙያ፣ ተጎዳኝ በሽታ ያለበት/አዛወጃቶች <input type="checkbox"/> ነብሰጠፎና አጥቢ እናቶች <input type="checkbox"/> ወጣቶችና ጎልማሶች <input type="checkbox"/>		
309	ስለ COVID-19 ክትባት መረጃ የትነው የምታገኙት?	ከጠፍ ባለሙያ <input type="checkbox"/> ከቴሌቪዥን፣ ከሬዲዎ <input type="checkbox"/>		

		ከሶሻል ሚዲያ <input type="checkbox"/>		
310	ስለ COVID-19 ክትባት የሰማት አሉታዊ ሚዲያ አለ?	አዎ አይ		

**ክፍል 4: በ COVID-19 ክትባት ላይ የተሳታፊ አጠባብቂዎችን በተመለከተ**

**መሪያ: የሚከተሉትን ጥያቄዎች በጥንቃቄ ይጠይቁ እና አሜራቶችን ምልክት ያደርጉባቸው**

ተ.ቁ	ጥያቄዎች	ምሳሌ	ዝላል	አስተያየት
401	ከክትባት ወጭ የ COVID-19 ወረርሽኝን መከላከል አይቻልም፤ እርሰዎ ይስማማሉ?	እስማማለው አልወሰንኩም አልስማማም		
402	በኢትዮጵያ የሚጠው የ COVID-19 ክትባት የተሻለና ጥራት ያለው ነው፤ እርሰዎ ይስማማሉ?	እስማማለው አልወሰንኩም አልስማማም		
403	የ COVID-19 ክትባት ጎንዮሽ ጉዳት ያሳስበኛል፤ እርሰዎ ይስማማሉ?	እስማማለው አልወሰንኩም አልስማማም		
404	አሁን የሚጠው የ COVID-19 ክትባት የ COVID-19 ኢንፎክሽንን ይከላከላል፤ እርሰዎ ይስማማሉ?	እስማማለው አልወሰንኩም አልስማማም		
405	ወጤታማ ክትባት ለሁሉም ሰዎች እኩል ይቀርባል ፤ እርሰዎ ይስማማሉ?	እስማማለው አልወሰንኩም አልስማማም		
406	የ COVID-19 ክትባት አደጋ ወይም ኮምፕሊኬሽን ያሳስበኛል፤ እርሰዎ ይስማማሉ?	እስማማለው አልወሰንኩም አልስማማም		
407	የ COVID-19 ክትባት ለሁሉም ሰው በነፃ መስጠት አለበት ብለው ያስባሉ?	አዎ አይ		



408	ስለ COVID-19 ክትባት መረጃ ከጠፍቶ ላለ መገኘት ወይም ከመንግስት ማደጊያ ያግኙኛ፤ እርሶዎ ይስማማሉ?	እስማማለሁ አልወሰንኩም አልስማማም		
409	የ COVID-19 ክትባት የ COVID-19 ኢንፎርሜሽንን ሊያመጣ ይችላል ፤ እርሶዎ ይስማማሉ?	እስማማለሁ አልወሰንኩም አልስማማም		
410	ከሀይማኖት አንጻር የ COVID-19 ክትባት አልከተብም፤ እርሶዎ ይስማማሉ?	እስማማለሁ አልወሰንኩም አልስማማም		
411	በ COVID-19 የመገዝ እድሌ ከፍተኛ ነው ብለው ያምናሉ?	አዎ አይ		

**ክፍል 5- የ COVID-19 ክትባት ለመቀበል ፈቃደኛነት በተመለከተ**

501. የ COVID-19 ክትባት ቢኖር/ቢሰጥዎ እሱን ለመወሰድ ፈቃደኛ ነዎት?

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Annex II: Declaration

I, the under signed, MPH student declare that this thesis is my original work in partial fulfillment of the requirement for the master of degree in Health system and project management.

Name: Eshetu Anley

Signature

Place of submission: School of Public Health, College of Medicine and Health Science, Bahir Dar University.

Date of submission 18/12/14

This thesis proposal work has been submitted for examination with our approval as University Advisors.

Advisor

Name signature

1. Asmamaw Ketemaw

2. Melese Belayneh

