

2022-07-12

# Adults Covid-19 Vaccination Acceptance Levels and Associated Factors in Bahir Dar City Administration, Amhara Region, North West Ethiopia

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

ADULTS' COVID-19 VACCINATION ACCEPTANCE LEVELS AND  
ASSOCIATED FACTORS IN BAHIR DAR CITY ADMINISTRATION,  
AMHARA REGION, NORTH WEST ETHIOPIA

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A RESEARCH THESIS TO BE SUBMITTED TO THE DEPARTMENT OF  
ENVIRONMENTAL HEALTH, SCHOOL OF PUBLIC HEALTH, COLLEGE OF  
MEDICINE AND HEALTH SCIENCES, BAHIR DAR UNIVERSITY FOR THE  
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR MASTERS OF PUBLIC  
HEALTH IN WATER, SANITATION, AND HYGIENE.

JULY, 2022  
BAHIR DAR

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A STUDY TITTLE	ADULTS' COVID-19 VACCINATION ACCEPTANCE LEVELS AND ASSOCIATED FACTORS IN BAHIR DAR CITY ADMINISTRATION, AMHARA REGION, NORTH WEST ETHIOPIA
STUDY PERIOD	March 8-30, 2022
STUDY AREA	BAHIR DAR CITY ADMINISTRATION, AMHARA REGION, NORTH WEST ETHIOPIA

## **ACKNOWLEDGEMENTS**

Firstly, I would like to thank my advisors, **Dr Achenef Motbainor** and **Mr Tebkew Shibabaw**, for their valuable contribution throughout the process of this research work, and also **Dr Muluken Azage** for his strong support and coaching.

Secondly, I am grateful to Bahir Dar University, College of Medicine and Health Sciences, School of Public Health, and the Department of Environmental Health Sciences for giving me this opportunity.

I would also like to thank the City Municipal Office of Bihar Dar city administration for their cooperation in giving me the necessary information.

Lastly, I would like to thank the study participants, data collectors, and supervisors for their valuable contribution to the success of this study.

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## **ACRONYMS AND ABBREVIATIONS**

AOR	Adjusted odds ratio
BSc	Bachelor of Science
COR	Crudes odds ratio
CI	Confidence interval
COVID-19	Corona virus disease 2019
HHs	Households
SARS-CoV-2	Severe acute respiratory syndrome-coronavirus 2
SPSS	Statistical package for social science
WHO	World Health Organization

## **ABSTRACT**

**Background:** Coronavirus disease 2019 is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 which is responsible for the worst pandemic today. Currently, there are strong efforts that made the COVID-19 vaccine available in Ethiopia to control the spread of the virus. But little is known about the adult population's acceptance of COVID-19 vaccination in Bahir Dar city, Amhara region, Ethiopia.

**Objective:** To assess adults' COVID-19 vaccination acceptance levels and associated factors in Bahir Dar City Administration, North West Ethiopia, 2022.

**Methods:** A community-based cross-sectional study was conducted among adults at Bahir Dar city, Amhara region, from March 8<sup>th</sup> -30<sup>th</sup>, 2022. A multistage sampling technique was used to select 788 respondents. Face-to-face interviews were used to collect the data, which were entered into Epi-data and exported into SPSS for analysis. Descriptive statistics were computed and presented by tables, graphs, and texts. Bivariable logistic regression analysis was computed to identify variables for multivariable analysis. Multivariable logistic regression analysis was computed to identify statistically significant variables by considering  $p < 0.05$ .

**Results:** From 788 samples, a total of 728 adults participated in this study with a response rate of 92.4%. The acceptance rate of COVID-19 vaccination was 62.0% (95% CI: 58.3%, 65.5%). The factors significantly associated with vaccine acceptance were educational status of grade 9-12 [AOR=2.67, 95% CI: (1.14, 6.27)] and completed higher education [AOR=3.05, 95% CI: (1.49, 6.24)], occupation of daily laborers [AOR=2.09, 95% CI: (1.06, 4.13)], living with a person at risk of severe COVID-19 disease [AOR = 3.12, 95% CI: (1.98, 4.91)], high perceived susceptibility of Covid-19 [AOR = 2.02, 95% CI: (1.26, 3.24)], high perceived severity of COVID-19 [AOR = 3.39, 95% CI: (2.12, 5.41)], good knowledge on COVID-19 disease [AOR = 2.85, 95% CI: (1.68, 4.83)], good practice on COVID-19 prevention [AOR =3.10, 95% CI: (1.46, 6.59)], and good knowledge on COVID-19 vaccine [AOR =2.47, 95% CI: (1.16, 5.27)].

**Conclusion:** The current study found that two out of every three individuals are willing to receive COVID-19 vaccination. Educational status, occupational status, knowledge and preventive practice toward COVID-19 disease, knowledge of its vaccine, and perceptions of the disease susceptibility and severity affect the acceptance of COVID-19 vaccination. This implies that multiple efforts are still needed to improve the COVID-19 vaccine's acceptability.

**Keywords:** Acceptance, COVID-19, vaccine, vaccination, associated factors, Ethiopia.

# INTRODUCTION

## 1.1. Background

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by a newly emergent coronavirus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) also known as Novel coronavirus (1). The virus is responsible for the worst pandemic ever and has contributed to health, lives, and economic losses all over the world (2). It emerged in Wuhan, China at the end of December 2019 and rapidly spread globally, leading to more than 6,345,595 deaths and above 551,226,298 confirmed cases of COVID-19 till 8<sup>th</sup> July 2022(3, 4). After detecting the first case in Ethiopia in March 2020, the number of cases and deaths increased from time to time. As of July 15, 2022, the country had 467, 691 COVID-19 cases and 7,428 deaths domestically (5). Although most persons with COVID-19 have mild to moderate symptoms, the condition can lead to serious medical consequences and death in some cases (6).

As recommended by the World Health Organization (WHO), different prevention and control measures such as hand washing, physical distancing, movement restrictions, often referred to as 'lockdowns', and applying personal protective materials like face masks have been implemented in various countries to reduce the burden of COVID-19 (7). Besides these measures, vaccination could be a key protective measure against COVID-19 (7). To fight the COVID-19 pandemic, researchers from all over the world have made remarkable efforts to create vaccines against the virus. Currently, the COVID-19 vaccine has been made available. As of January 2022, twenty-seven vaccines have been approved by WHO to use in different countries (8). Simultaneously till July 15, 2022, additional 367 vaccines are under clinical trials, of which 169 of them are in the clinical phase (9). Vaccination was prioritized for vulnerable groups in most countries globally but currently, it is being given to all candidate individuals. Ethiopia started administering the vaccine on March 13, 2021 and is currently provided for different groups of the adult population (10). Currently, five COVID-19 vaccines are approved for use in Ethiopia namely, Pfizer, Janssen, Oxford/AstraZeneca, Serum Institute of India Covishield, and Sinopharm (11).

## **1.2. Statement of the Problem**

Vaccination has been a crucial tool for improving health outcomes and life expectancy by controlling and preventing infectious disease transmissions including COVID-19 (12). This could be effective when individuals have a favorable attitude and acceptance towards COVID-19 vaccination. But evidence on COVID-19 vaccination acceptance has demonstrated that the acceptability rate of the vaccine is low and differs across nations and different areas within the nations ranging from 28.7% to 91.3% (13-22). A global survey, which included 19 countries report showed that COVID-19 vaccine acceptance has high heterogeneity (23). In Africa, it ranged from 43.55% in Egypt to 82.765% in Mauritius (24).

In our country, Ethiopia, the acceptance rate of COVID-19 vaccination has considerable problems. A systematic review and meta-analysis revealed that a pooled acceptance rate for the COVID-19 vaccination was 51.64% (25).

Acceptance of COVID-19 vaccination is affected by different factors. Evidence showed that age, occupational status, gender, marital status, educational status, income, perceived risk of COVID-19 infection, attitude towards COVID-19, knowledge of COVID-19, being sick with COVID-19, the pre-existence of chronic disease, fear of side effects, and lack of confidence in vaccine effectiveness influence individuals vaccination acceptance (18, 26-31). The success of vaccination acceptance is also determined by trust in vaccinations and the institutions that provide them (32). In addition, vaccination myths and conspiracy theories have been spreading, and the developing world is easily accepting of them. This may cause people to be reluctant and maleficent about vaccination (33). Waning public confidence in vaccines due to rumors and conspiracy theories is a major challenge for public health experts and policymakers worldwide (34).

Low acceptance of COVID-19 vaccination leads to further spread of COVID-19 disease which allows the pandemic to be continued (35). Consequently, it will have a devastating health impact on humans (36). In addition, it has a significant socio-economic burden that cannot be underestimated. It has caused a substantial reduction in the workforce and an increase in unemployment globally (37). It also causes severe disruptions and unprecedented challenges for healthcare systems worldwide (38). Despite these negative consequences, there is no study about the acceptance of COVID-19 vaccination among adults in Bahir Dar city, Amhara region,

Ethiopia. Since adults are eligible for its vaccination, knowing the acceptance rate among them is imperative.

### **1.3. Justification of the Study:**

Vaccination is a key component to control the COVID-19 disease pandemic. Understanding the attitude and ensuring the population's acceptance towards vaccination of the COVID-19 vaccine is equally important with effective and equitable distribution of the vaccines. To answer this knowledge gap, studies that targeted different groups of populations are conducted regarding vaccination acceptance globally and locally in Ethiopia. However, the findings showed the presence of heterogeneity between different countries and even within a country. So, studies at different localities are mandatory to assess the acceptance of COVID-19 vaccination but little is known in the Amhara region, Ethiopia. Hence, the present study aimed to assess adults' level of COVID-19 vaccination acceptance and associated factors in Bahir Dar City administration, North West Ethiopia.

### **1.4. Significance of the study**

Undertaking a study related to COVID-19 at this critical time is vital. Specifically, the vaccine acceptance status among the general population is crucial to draw policy plans and assess available resources to meet COVID-19 and overall health challenges to lessen the acute pandemic burden. The finding of this study will contribute to Amhara Regional Health Bureau, Bahir Dar zonal Health Department, Bahir Dar city administration, and non-governmental organizations working on COVID-19 prevention and control to identify the gap in COVID-19 vaccination acceptance and its associated factors. This will ultimately be used to design different strategies that could optimize the acceptance of COVID-19 vaccination. Individuals will also be benefited from this study in terms of COVID-19 disease prevention and control interventions. Additionally, it will act as a baseline for future researchers to conduct further studies.

## **2. LITERATURE REVIEW**

### **2.1. Adult's acceptance of COVID-19 Vaccination**

Different studies have been carried out to assess the level of acceptance regarding COVID-19 vaccination. A global survey which was conducted among 19 countries revealed that 71.5% of respondents accept the vaccine if it were proven safe and effective. The finding further described the presence of differences in acceptance rates among countries which ranged from almost 90% in China to less than 55% in Russia (23). Another national study in Russia showed that 41.7% of their study participants were willing to get the vaccine if it became available (39).

In the United States, a national survey was conducted to measure intent to receive COVID-19 vaccines as well as the attitude towards COVID-19 vaccine, values, and trust in local, state, and federal public health authorities. The findings showed that half of the adults intend to accept COVID-19 vaccines (40). Other two different studies from America also reported an acceptance rate of 69% and 67% for the COVID-19 vaccine (41, 42). From Ecuador, researchers found that 97% of study participants agree to get vaccinated against COVID-19 (43).

In China, different studies were conducted on the acceptance of the COVID-19 Vaccine among adults. Acceptance rates ranged from 37.2%-91.3% in different parts of the country (13, 14, 18, 21, 44). A similar study was also conducted in Jordan that showed that 36.3% of their study participants accept the COVID-19 vaccine (45). In Indonesia, 93.3% of respondents would like to be vaccinated for a 95% effective vaccine, but this acceptance decreased to 67.0% for a vaccine with 50% effectiveness (46).

In an online survey in Europe, 73.9% of the 7664 participants from seven countries stated that they would be willing to get vaccinated against COVID-19 if a vaccine would be available (47). In another study conducted specifically in France, an acceptance rate of 77.6% was reported (26). In the survey from the United Kingdom, 64% of participants reported being very likely to be vaccinated against COVID-19, 27% were unsure, and 9% reported being very unlikely to be vaccinated (17).

In the study from the Arab world, 62.4% of participants accept the COVID-19 vaccine (48). Another study conducted specifically in Qatar, Saudi Arabia, Kuwait, and India on the acceptance of a COVID-19 Vaccine revealed that only 44.7%, 64.7%, 53.1%, and 79% were

willing to take the COVID-19 vaccine respectively (28, 49-51). From Middle Eastern countries, 36.8% of acceptance was reported (20). An international survey among Low- and Middle-income countries also found an overall acceptance rate of 76.4% by considering 90% of vaccine effectiveness (52).

In Africa, a variety of results are found from different studies. In a cross-sectional study conducted among participants from 42 African and Middle East countries, 66.81% of the participants would like to be vaccinated against COVID-19 (53). Another survey conducted among 6 Sub-Saharan African countries showed that 87.6% of the participants accept vaccination against Covid-19 (54). In other studies, acceptance rates of 55.9%, 53.6%, and 50.2% were reported from a study conducted in the Democratic Republic of Congo, Uganda, and Nigeria respectively (16, 55, 56)

In Ethiopia, community-based cross-sectional studies were conducted in different regions. In the Gurage zone, 62.6% of the respondents had the intention to use the COVID-19 vaccine (57). Other studies from Wolaita Sodo showed that 45.5% and 46.1% of participants showed a willingness to take a COVID-19 vaccine if it becomes available (58, 59). Moreover, a rate of 31.3% to 69.3% was reported from studies that are conducted among different groups of populations like university students, health care workers, pregnant mothers, lactating mothers, and patients with chronic disease(60-65).

## **2.2. Factors affecting acceptance of COVID-19 Vaccination**

### **2.2.1. Socio-demographic factors**

COVID-19 vaccination acceptance is affected by a variety of factors. Researchers have identified many socio-demographic and other factors (31). Studies revealed that the acceptance of COVID-19 vaccination is significantly associated with the socio-demographic characteristics of individuals. Among different socio-demographic factors, age is one of the predictors which is indicated by many findings. According to the study findings from China, France, Saudi Arabia, and Nigeria, older age is associated with COVID-19 vaccine acceptance (18, 26-30). In contrast to those findings, an international survey conducted among Low- and Middle-Income Countries showed individuals with lower age groups accept the COVID-19 vaccine than older age groups (52).



Regarding sex, males were more likely to accept the COVID-19 vaccine compared to females which is supported by different literature (26, 29, 30, 42, 48, 50, 66, 67). Marital status is also a significant factor in the acceptance of the COVID-19 vaccine. Findings showed that being married is a positive predictor of acceptance of this vaccine (28, 66). The educational status of participants also affects vaccine acceptance. In a study conducted in China, individuals who have the educational status of a master's degree or above are more likely to accept the COVID-19 vaccine than those who have a lower educational status (18). A study conducted in Ethiopia also showed individuals attending secondary education and above were more likely to accept the vaccine compared with those who have a lower level of education (57). Additionally, as revealed by different studies, being a health care worker, having a higher household income, and having full-time employment are also significant factors of COVID-19 vaccine acceptance (26, 29, 68, 69). Contrary to this finding, research conducted by Tran VD and his colleagues revealed that the intention to receive the COVID-19 vaccine was relatively higher among people with lower monthly incomes (39).

### **2.2.2. Knowledge-related factors**

Knowledge status of COVID-19 disease is also associated with the acceptance of its vaccine. As evidenced by some findings, COVID-19 vaccination acceptance is significantly high among individuals who had a good knowledge level regarding COVID-19 disease (52, 70, 71). Knowledge of the COVID-19 vaccine is also associated with acceptance. A study from Ethiopia showed adult populations who had good knowledge about the COVID-19 vaccine were more likely to accept the COVID-19 vaccine as compared to their counterpart (57).

### **2.2.3. Psychological and behavioral factors**

Studies identified different psychological and behavioral factors that affect the acceptance of COVID-19 vaccination. In various studies perceiving a high risk of COVID-19 infection affects vaccine acceptance positively (26, 27, 41, 66, 67). Likewise, the perceived severity of COVID-19 infection is also an important factor to accept the COVID-19 vaccination (41). Many studies also revealed that believing in the efficacy of COVID-19 vaccination is associated with COVID-19 vaccination (18, 29, 41, 66). Preventive practice level toward COVID-19 disease is also associated with vaccination acceptance (60, 65). Additionally having a positive attitude towards a vaccine positively affects its acceptance (27, 72).

#### **2.2.4. Clinical factors**

Previous COVID-19 infection status has a link with COVID-19 vaccination acceptance. A study showed participants who had tested negative for COVID-19 had a higher odds of willingness to be vaccinated (52). On the other hand, the previous COVID-19 infection status of a close relative/friend has also an association with COVID-19 vaccination acceptance. As revealed by a study finding from Wolaita Sodo, Ethiopia, having a close relative/friend ever infected by COVID-19 has a positive association with COVID-19 vaccination acceptance (59).

#### **2.2.5. Institutional factors**

Evidence also found that media exposure to COVID-19 has an association with its vaccine acceptance. Findings from China, the United Kingdom, Turkey, and Australia showed people with greater exposure to media reports about COVID-19 were more likely to accept COVID-19 vaccination (18, 71, 73). (27, 72) On the other hand, other studies discovered that having a positive trust in the healthcare system increases the acceptance of COVID-19 vaccination (30, 39). Trust in the government also affects its acceptance. In a study conducted in Nigeria, individuals who trust the government to take control of COVID-19 disease accept its vaccine compared with their counterparts (30).

## CONCEPTUAL FRAMEWORK

The following diagram depicts the relationship between the dependent variable and different identified independent variables required for this particular research.

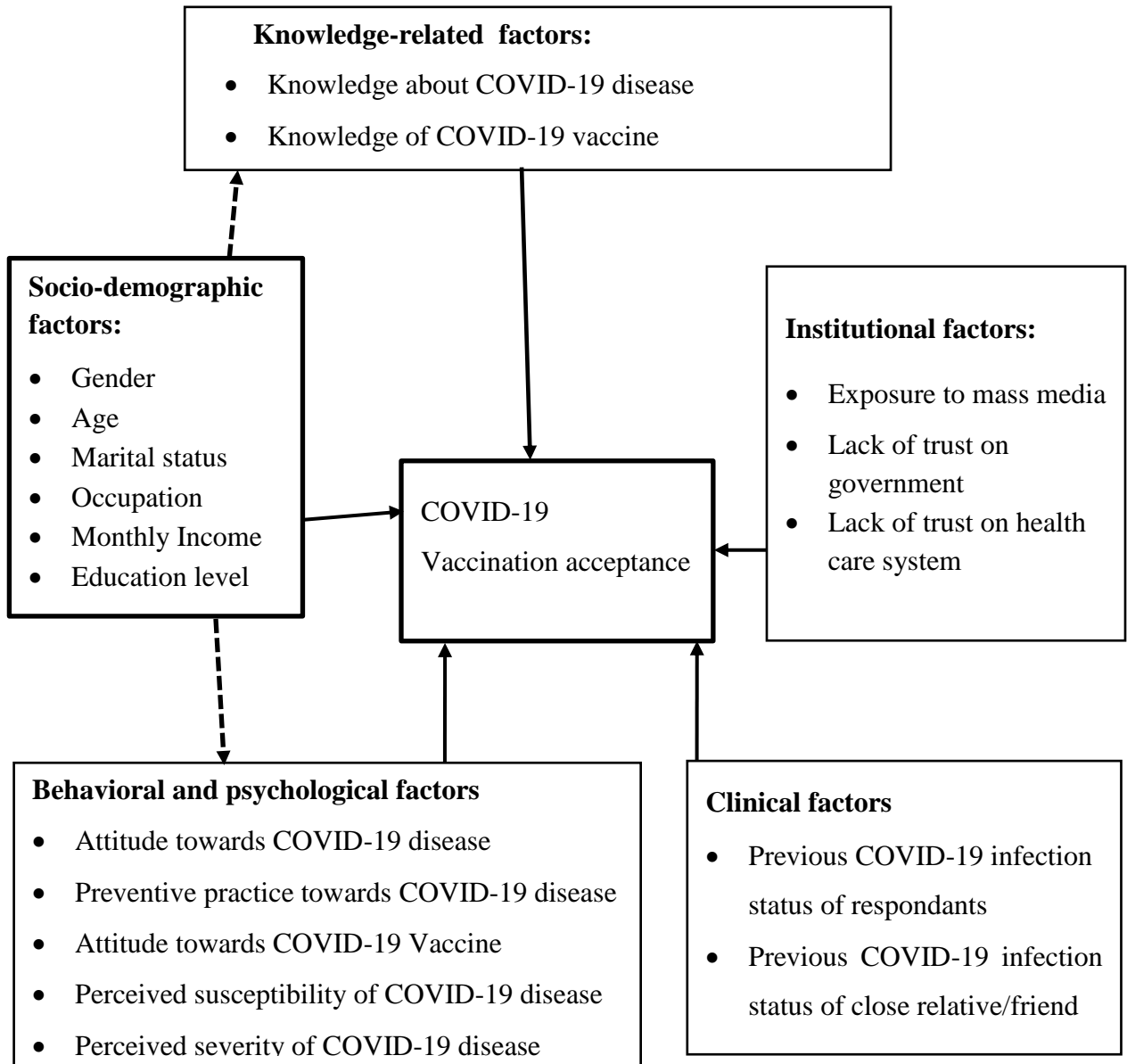


Figure 1: Conceptual framework of factors associated with acceptance regarding covid-19 vaccination in Bahir Dar city administration, Amhara region, Northwest Ethiopia, 2021/22

(Source: the conceptual framework is developed by the principal investigator by reviewing different literature (18, 26-30, 42, 48, 50, 52, 66-73)

### **3. OBJECTIVES**

#### **3.1. General objective**

To assess adults' level of COVID-19 vaccination acceptance and associated factors in Bahir Dar City administration, North West Ethiopia in 2022.

#### **3.2. Specific objective**

- To determine adults' level of COVID-19 vaccination acceptance in Bahir Dar City administration, North West Ethiopia in 2022.
- To identify factors associated with COVID-19 vaccination acceptance among adults in Bahir Dar City administration, North West Ethiopia in 2022.

## **4. METHODS AND MATERIALS**

### **4.1. Study design**

A community-based cross-sectional study was employed to assess adults' level of COVID-19 vaccination acceptance and associated factors in Bahir Dar City administration, North West Ethiopia.

### **4.2. Study area and period**

The study was conducted in the Bahir Dar city administration from March 8-30, 2022. Bahir Dar is the capital city of Amhara National Regional State which is located at a distance of 560 Kilometers from Addis Ababa in the North West direction, which is the capital city of Ethiopia; Its elevation is 1800 meters above sea level. Administratively, the city has been structured into six sub-cities and kebeles; namely; Fasilo, Belay Zelek, Tana, Dagmawi Minilik, Atsie Tewodros, and Gish Abay. According to the Bahir Dar Town Mayor's Office and/or Bahir Dar Zonal Health Department data in 2021/22, the total population of the city is 283, 456 with a composition of 151,365 males and 132,091 females, and with a total household number of 65,920. In the city administration, there are 3 public hospitals; 3 private hospitals, 6 urban health centers, 4 satellite health centers, and 10 health posts (74).

### **4.3. Population**

#### **4.3.1. Source population**

The Source population was all adults who reside in the Bahir Dar city Administration

#### **4.3.2. Study population**

The study population was all adults who are residing in selected sub-cities in Bahir Dar city Administration from whom the study subjects are selected.

#### **4.3.3. Study Unit**

The study subject/unit was randomly selected adults from whom the required information or data was drawn.

#### 4.4. Inclusion and exclusion criteria

##### 4.4.1. Inclusion criteria

All adults who reside in the Bahir Dar city and whose ages were greater than 18 years were included in the study.

##### 4.4.2. Exclusion criteria

Adults with mental disorders or other health problems during the data collection time were excluded from the study.

#### 4.5. Sample size determination and sampling procedure

##### 4.5.1. Sample size determination

The sample size was calculated using the single population proportion formula and considering the following assumptions: 95% level of confidence, 5% degree of precision, or margin of error, and the proportion of acceptance towards COVID-19 vaccination from a study conducted in the Gurage zone, Ethiopia, which was 62.6% (57). Using the following formula

$$n = \frac{\left(\frac{Z_{\alpha}}{2}\right)^2 P(1 - P)}{d^2}$$

Where n= minimum sample size required for the study

Z= standard normal distribution (Z=1.96) with CI of 95% and  $\alpha = 0.05$

P= proportion of vaccination acceptance (p=0.63)

d= is a tolerable margin of error (d=0.05)

$$n = \frac{(1.96)^2 (0.63) (1-0.63)}{(0.05)^2} = \mathbf{358}$$

Then, by taking the design effect as 2 and assuming a 10% non-response rate, the final sample size was taken as **788**.

##### 4.5.2. Sampling procedure

A multi-stage sampling technique was used to collect the data. Two (above 30%) sub-cities were selected using a simple random sampling technique (lottery method). A systematic random sampling technique was used to select households from the selected sub-cities by considering

proportional to size allocation. The sampling interval was determined by dividing the total study population by the total sample size (788). So based on this, the sampling interval (K) was calculated to be  $24,048/788 \approx 30$ . The first participant was selected randomly by a lottery method from 1 to 30, and the next respondent was chosen at regular intervals (every 30). When there were two and above adults from each household, one was selected by lottery method for the study. On the condition that when study participants were not available at the first visit, these adults were revisited once the same day or the following day. If not available again, the study participant was considered a non-respondent.

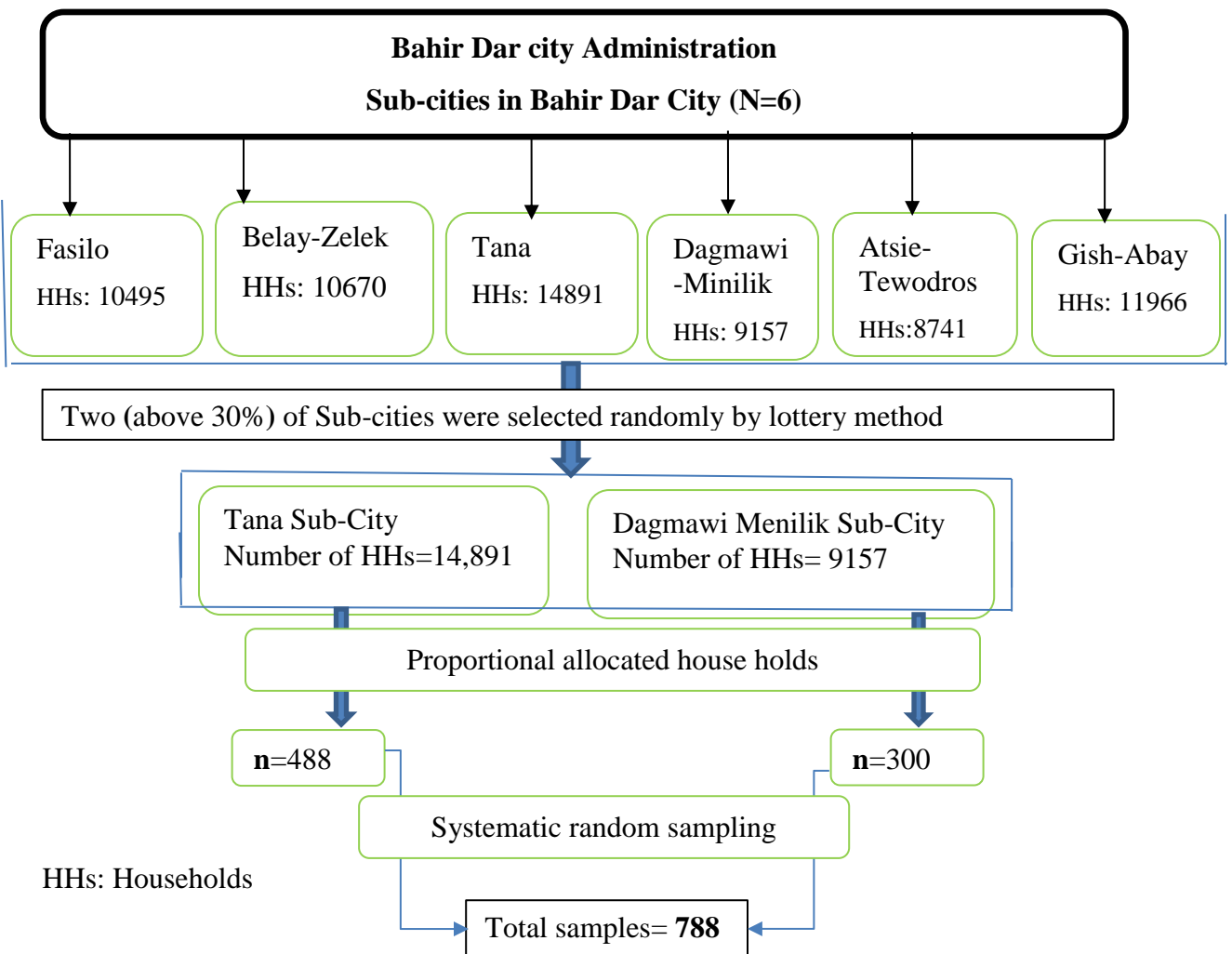


Figure 2: Schematic presentation of sampling procedure used when participants were selected at Bahir Dar city, Amhara region, Ethiopia, 2021/22.

## **4.6. Study Variables**

### **4.6.1. Dependent variable**

The dependent variable was adult's acceptance of the COVID-19 Vaccine

### **4.6.2. Independent variables**

#### **4.6.2.1. Socio-demographic variable**

Gender, age, marital status, occupation, monthly income, and education level were the independent variables

#### **4.6.2.2. Knowledge-related factors**

Knowledge about COVID-19 disease, knowledge of the COVID-19 vaccine

#### **4.6.2.3. Psychological and behavioral factors**

Perceived susceptibility, perceived severity, attitude towards COVID-19 disease, preventive practice towards COVID-19 disease, attitude towards COVID-19 vaccine

#### **4.6.2.4. Clinical factors**

Previous COVID-19 infection status of respondents and family members

#### **4.6.2.5. Institutional factors**

Exposure to mass media, lack of trust in government, lack of trust in the health care system

## **4.7. Operational and terms of definitions**

**Acceptance towards Covid-19 vaccination:** When the respondent was found to be interested (willing to be vaccinated) the respondent was considered as accepting to be vaccinated. When He/she was not interested, the respondent was considered as not accepting to be vaccinated (57).

**Knowledge of Covid-19 disease:** The overall knowledge of Covid-19 disease was categorized, using Bloom's cut-off point, as good if the score was between 80 and 100% ( $\geq 9.6$  out of 12 scores), moderate if the score was between 60 and 79% (between 7.2-9.5 out of 12 scores), and poor if the score was less than 60% ( $\leq 6.5$  out of 12 scores) (75, 76).

**Knowledge of Covid-19 vaccine:** The overall knowledge towards Covid-19 vaccine was categorized, using Bloom's cut-off point, as good if the score was between 80 and 100% ( $\geq 4$  out



of 5 scores), moderate if the score was between 60 and 79% ( between 3-3.9 out of 5 scores), and poor if the score was less than 60% (scores  $\leq 3$  out of 5) (75, 76).

**Attitude towards Covid-19 disease:** The overall attitude toward Covid-19 disease was categorized, using Bloom's cut-off point, as good if the score was between 80 and 100% ( $\geq 32$  out of 40 scores), moderate if the score was between 60 and 79% ( between 24-31.9 out of 40 scores), and poor if the score was less than 60% (scores  $\leq 24$  out of 40) (75, 76).

**Attitude towards Covid-19 vaccine:** The overall attitude towards Covid-19 vaccine was categorized, using Bloom's cut-off point, as good if the score was between 80 and 100% (scores  $\geq 24$  out of 30), moderate if the score was between 60 and 79% (scores between 18-23.9 out of 30), and poor if the score was less than 60% (scores  $\leq 18$  out of 30) (75, 76).

**Practice towards Covid-19 preventive measures:** the overall practice level was categorized, using Bloom's cut-off point, as good, moderate, and poor if the score was between 80 and 100% (scores  $\geq 10.4$  out of 13), 60 and 79% (scores between 7.8-10.3 out of 13), and less than 60% (scores  $\leq 7.8$  out of 13) respectively (75, 76).

**Perceived susceptibility of COVID-19 disease:** categorized as high when the sum score of its items was equal to and above the mean value (10.76), and low when the sum score of its items was below the mean value (77).

**Perceived severity of COVID-19 disease:** categorized as high when the sum score of its items was equal to and above the mean value (11.98), and low when the sum score of its items is below the mean value (77).

## **4.8. Data collection tool and method**

### **4.8.1. Data collection tool**

A structured interviewer-administered questionnaire was used to collect the data. The questionnaire was developed after reviewing different pieces of literature on the topic. The questionnaire had 6 parts and comprised questions covering socio-demographic and economic characteristics, knowledge, attitude, and practice related to covid-19 and covid-19 vaccine. Part one; socio-demographic characteristics and economic variables; (09 items), part two; COVID-19 related questions; (16 items), part three-five; questions about knowledge (12 items), attitude (7

items), and Practice toward WHO Recommended COVID-19 preventive measures (9 items) and part six; question items related with the COVID-19 vaccine (13 items).

#### **4.8.2. Data collection method**

The questionnaire was developed in English then translated into Amharic (local language) then back to English to check the consistency. Ten BSc nurses were recruited as data collectors and three supervisors who can speak the local language were followed & supervised the data collection process. The data were obtained at the household level through face-to-face interviews. The adult participant who was participating in the study signed the informed consent and then the interview was followed in a quiet and spacious area.

#### **4.9. Data quality assurance**

To assure the data quality, training had been given to both data collectors and supervisors on the purpose of the study, data collection technique, and tool by the principal investigator for two days. Moreover, the questionnaire was pre-tested on adults (5% of the total sample size) who were residing in Bahir Dar city administration other than the selected sub-cities for this study. During data collection, questionnaires had been reviewed by supervisors for ensuring the completeness of questions every day and appropriate measures were taken. The principal investigator and the supervisors were closely monitoring the data collection process. Once data was entered, basic quality assurance measures like checking for any missing data and outliers were done.

#### **4.10. Data processing and analysis**

Data were coded, and entered into Epi-data version 4.6 and then had been exported to SPSS version 23.0 for analysis. After data cleaning, descriptive statistics such as frequencies, proportions, and summary statistics were computed and presented using tables, graphs, and texts. Model fitness was checked by the Hosmer-Lemeshow goodness of fit test. The p-value for the test was 0.205 which was greater than 0.05 indicating that the model fitted the data. The binary logistic regression analysis has been done to identify factors related to the acceptance of the COVID-19 vaccine as the dependent variable. All variables that showed a  $p < 0.25$  during the bi-variable analysis were taken as independent variables for the final model. Those with  $p < 0.05$  at multivariable logistic regression analysis were considered statistically significant.

#### **4.11. Ethical Consideration**

Ethical clearance had been obtained from the Institutional Review Board of the College of Medicine and Health Sciences, Bahir Dar University. A permission letter was obtained from Bahir Dar City Administration. Full information had been provided to the study participants regarding the purpose and nature of the research and then written informed consent was obtained from each participant. Participation in the study was voluntary, and participants had been well informed about their right even not to participate in the study and the right to withdraw from the study at any point of the interview. Moreover, the confidentiality of the information was assured using anonymous questionnaires and kept the data in a secured place.

## 5. RESULTS

### 5.1. Socio-demographic characteristics of the study participants

In this study a total of 788 participants were expected to have participated; among them, data were collected from 728 randomly selected participants providing a 92.4% response rate. Of the total respondents, more than half (54.9%) were males. The median age of the participants was 31(IQR 22 - 41) years. Greater than half (56.6%) of the participants were single, while a small proportion (5.4%) were widowed/widower. Above two-fifths of the participants (43.4 %) were employed in either the public or private sectors. The next highest percentage (31.3%) was unemployed, while the remaining 14.0%, 8.0%, and 3.3% were daily laborers, merchants, and farmers, respectively. In terms of educational attainment, a small proportion of the participants (9.6%) were uneducated, whereas the majority (66.9%) had completed higher education and above (Table 1).

**Table 1: Sociodemographic characteristics of the study participants residing in Bahir Dar city administration, Northwest Ethiopia, 2022 (n=728)**

Variables		Frequency	Percent
Sex	Male	400	54.9
	Female	328	45.1
Age (Years)	18-25	243	33.4
	26-35	212	29.1
	>35	273	37.5
Marital status	Married	203	27.9
	Single	412	56.6
	Widowed/widower	39	5.4
	Separated/Divorced	74	10.2
Religion	Orthodox	643	88.3
	Protestant	15	2.1
	Muslim	54	7.4
	Catholic	16	2.2

Educational level	Unable to read and write	70	9.6
	Primary school (grade 1-8)	71	9.8
	High school (grade 9-12)	100	13.7
	Higher education	487	66.9
Occupational status	Unemployed	228	31.3
	Daily laborer	102	14.0
	Farmer	24	3.3
	Employed	316	43.4
	Merchant	58	8.0
Monthly income (Ethiopian birr)	≤2000	194	26.6
	2001 – 4000	200	27.5
	>4000	334	45.9

## 5.2. Psychological and Behavioral factors

### 5.2.1. Knowledge of COVID-19 disease and vaccine among study participants

Slightly more than one-third of the study participants 271(37.2%) had good knowledge of the COVID-19 disease; 193 (26.5%) had poor knowledge, and the remaining 264(36.3%) had moderate knowledge. Regarding the COVID-19 vaccine, 67 ( 9.2%), 275 (37.8%), and 386 (53%) of study participants had good, moderate, and poor knowledge respectively (Figure 3).

### 5.2.2. Attitude toward COVID-19 disease and vaccine among study participants

Out of the total participants, 12 (1.6%) of them had a good attitude about the COVID-19 disease; most of them 557 (76.5%) had a poor attitude, and the remaining 159 (21.8%) had a moderate attitude. Of the participants, only 203 (27.9%) of them had a good attitude toward the COVID-19 vaccine. The remaining 374 (51.4%) and 151 (20.7%) had a poor and moderate attitude towards it, respectively (Figure 3).

### 5.2.3. Practice toward COVID-19 prevention measures among participants

Of the total participants, 63 (8.7%) and 136 (18.7%) had good and moderate COVID-19 prevention practices, respectively, whereas the majority of 529 (72.7%) had poor COVID-19 prevention practices (Figure 3).

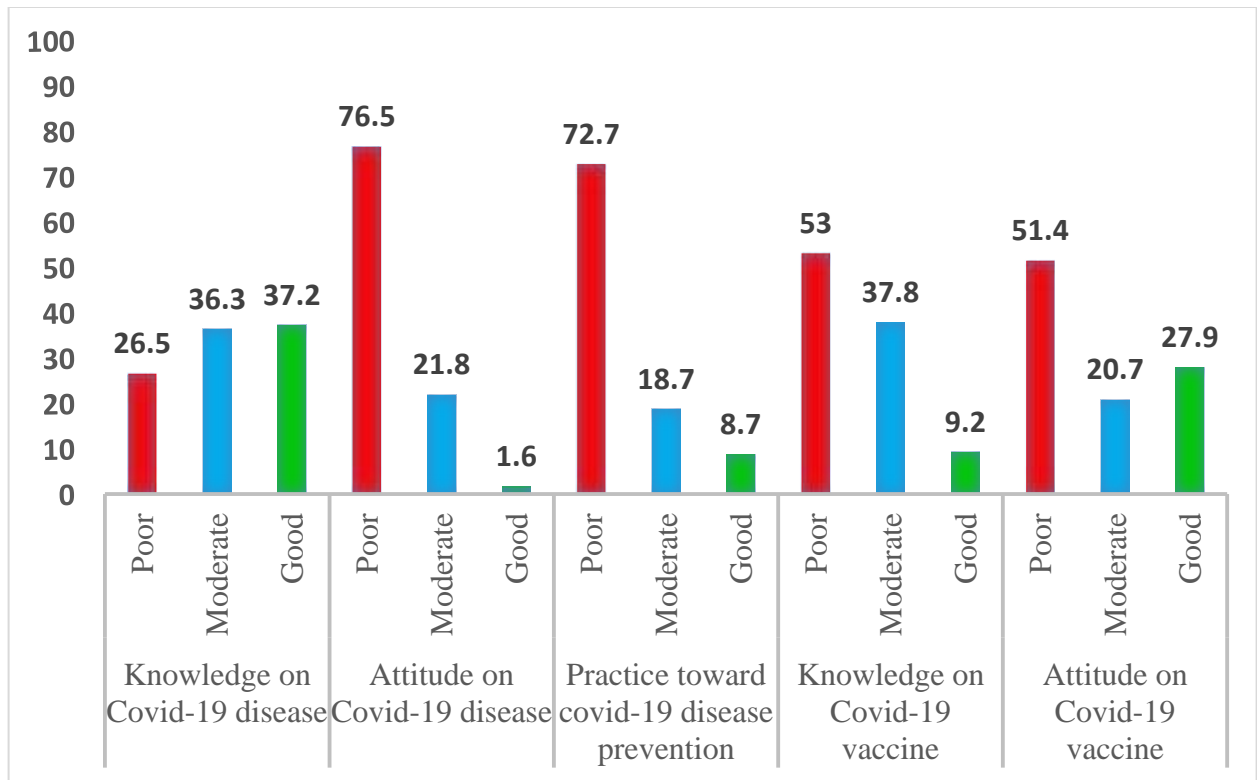


Figure 3: Percentage distribution of knowledge-related and behavioral characteristics of study participants residing in Bahir Dar city administration, Northwest Ethiopia, 2022.

#### 5.2.4. Perceived Susceptibility & Perceived Severity

Three hundred twelve (42.9%) of the study participants showed low perceived susceptibility to the COVID-19 disease, while 416 (57.1%) had high perceived susceptibility. On the other hand, 494 (67.9%) and 234 (32.1%) of them had a high and low degree of perceived severity of COVID-19 disease respectively (table 2).

Table 2: Psychological characteristics of the study participants residing in Bahir Dar city administration, Northwest Ethiopia, 2022 (n=728)

Variables		Frequency	%
Perceived susceptibility to COVID-19 disease	High	416	57.1
	Low	312	42.9
Perceived severity of COVID-19 disease	High	494	67.9
	Low	234	32.1

### 5.3. Clinical characteristics of study participants

Forty-eight (6.6%) of the respondents reported that their family members or friends were infected with COVID-19 and 55 (7.6%) reported that their family members or friends died due to COVID-19. Moreover, 276 (37.9%) of study participants were living with people at risk of severe COVID-19 disease. Out of all participants, 31 (4.3%) were currently infected with COVID-19, and 23 (3.2%) were previously infected with COVID-19 (Table 3).

**Table 3: Clinical characteristics of study participants residing in Bahir Dar city administration, Northwest Ethiopia, 2022 (n=728)**

Variables		Frequency	%
Family members or friends died due to COVID-19	Yes	55	7.6
	No	673	92.4
Participants living with people at risk of severe COVID-19 disease	Yes	276	37.9
	No	452	62.1
Participants currently Infected with COVID-19	Yes	31	4.3
	No	697	95.7
Participants previously infected with COVID-19	Yes	23	3.2
	No	705	96.8
A family member or friend has been infected with COVID-19	Yes	48	6.6
	No	680	93.4

### 5.4. Institution-related characteristics of study participants

Of the total participants, only 260 (35.7%) of them believed that the government can control the COVID-19 pandemic with the current situation and facilities. On the other hand, 275 (37.8%) of them thought that the healthcare system can control the COVID-19 pandemic. Regarding getting information about the COVID-19 pandemic, more than half (51.0%) got it from the World Health Organization (WHO) whereas a small proportion (6.6%) of study participants got it from the Internet and social media. On the other hand, out of the total participants of the study, 418 (57.4%) of the participants believed that reported cases of COVID-19 were exaggerated (Table 4).

**Table 4: Institution-related characteristics of study participants residing in Bahir Dar city administration, Northwest Ethiopia, 2022 (n=728)**

Variables		Frequency	%
Trust the government can control the COVID-19	Yes	260	35.7
	No	468	64.3
Trust the healthcare system can control the COVID-19	Yes	275	37.8
	No	453	62.2
The main source of information on pandemic COVID-19 is the WHO	Yes	371	51.0
	No	357	49.0
The main source of information on pandemic COVID-19 is the Ministry of Health	Yes	103	14.1
	No	625	85.9
The main source of information on pandemic COVID-19 is News and Media	Yes	216	29.7
	No	512	70.3
The main source of information on pandemic COVID-19 is the Internet and social media	Yes	48	6.6
	No	680	93.4
Those who are confident with the advice given by the government related to COVID-19	Completely confident	188	25.8
	Fairly Confident	305	41.9
	Somewhat Confident	168	23.1
	Slightly Confident	23	3.2
	Not Confident at all	44	6.0
Those who believed that reported cases of COVID-19 are exaggerated	Yes	418	57.4
	No	122	16.8
	May be	188	25.8



### 5.5. Acceptance of Covid-19 vaccination

In this study, the acceptance rate of COVID-19 vaccination was 62.0% (95% CI: 58.3%, 65.5%). Lack of trust, safety issues, and other concerns about the vaccine were identified as a reason for refusing to be vaccinated (table 5).

Table 5: Reasons for not accepting the COVID-19 vaccine among study participants residing in Bahir Dar city administration, Northwest Ethiopia, 2022 (n=277)

Reasons for not accepting the COVID-19 vaccine	Frequency	%
Lack of trust	130	17.9
Safety issues	124	17
other concerns <sup>#</sup>	23	3.2

<sup>#</sup>= others include don't have enough information and prefer other ways of protection

### 5.6. Factors associated with COVID-19 vaccination acceptance

In bi-variable logistic regression analysis, eighteen independent variables listed in the regression table below were found to have P-value < 0.25. Subsequently, these variables were entered into the multivariable analysis. In multivariable analysis, educational status, occupational status, living with people at risk of severe COVID-19 disease, perceived susceptibility status, perceived severity status, knowledge of COVID-19 disease, practice on COVID-19 disease prevention, and knowledge of COVID-19 vaccine showed statistically significant association with acceptance of the covid-19 vaccine.

Accordingly, the odds of accepting the COVID-19 vaccination among adults who had an educational status of grade 9-12 and completed higher education were 2.7 and 3 times higher compared to that of adults who were not able to read and write, respectively [AOR=2.67, 95% CI: (1.14, 6.27)] and [AOR=3.05, 95% CI: (1.49, 6.24)]. Likewise, the odds of accepting the COVID-19 vaccination among daily laborers was 2 times higher than that of individuals who were unemployed [AOR=2.09(1.06, 4.13)]. On the other hand, the odds of accepting the COVID-19 vaccination among participants who were living with people at risk of severe COVID-19 disease was 3 times higher compared with their counterparts [AOR = 3.12, 95% CI: (1.98, 4.91)].

Regarding the perception, the odds of accepting the Covid-19 vaccination among participants who had high perceived susceptibility was 2 times higher compared with those who had low perceived susceptibility [AOR = 2.02, 95% CI: (1.26, 3.24)]. Whereas, the odds of accepting the Covid-19 vaccination among participants who had high perceived severity was 3.4 times higher compared with those who had low perceived severity [AOR = 3.39, 95% CI: (2.12, 5.41)].

On the other hand, the odds of accepting the Covid-19 vaccination among participants who had good knowledge of COVID-19 disease was 2.9 times higher compared with those who had poor knowledge of COVID-19 disease [AOR = 2.85, 95% CI: (1.68, 4.83)]. Regarding the practice of COVID-19 prevention, the odds of accepting the COVID-19 vaccination among participants who had good practice was 3 times higher compared with those who had poor practice [AOR = 3.10, 95% CI: (1.46, 6.59)].

In this study analysis, the odds of accepting the Covid-19 vaccination among participants who had good knowledge of the COVID-19 vaccine were 2.5 times higher compared with those who had poor knowledge of the COVID-19 vaccine [AOR = 2.47, 95% CI: (1.16, 5.27) (Table 5).

**Table 6: Factors associated with acceptance of Covid-19 Vaccine among study participants at Bahir Dar City Administration, Northwest Ethiopia, 2022**

Variables		COVID-19 Vaccination acceptance		Crude odds ratio (95% CI)	Adjusted odds ratio (95% C.I)
		Yes	No		
Sex	Male	240	160	0.83 (0.63, 1.13)	0.70(0.46, 1.06)
	Female	211	117	1	1
Age (years)	18 – 25	156	87	1.45(1.02, 2.07)*	1.14(0.70, 1.85)
	26 – 35	144	68	1.71(1.18, 2.49)**	1.55(0.95, 2.51)
	>35	151	122	1	1
Marital status	Married	128	75	0.63(0.35,1.14)	0.89(0.42, 1.89)
	Single	246	166	0.55(0.32, 0.95)*	1.02(0.50, 2.08)
	Widowed	23	16	0.53(0.24, 1.21)	0.52(0.19, 1.43)
	Separated/divorced	54	20	1	1
Religion	Orthodox	396	247	1.60(0.59, 4.33)	1.59(0.41, 6.25)
	Protestant	10	5	2.00(0.47, 8.56)	2.02(0.30, 13.38)
	Muslim	37	17	2.18(0.70, 6.78)	2.34(0.50, 11.02)
	Catholic	8	8	1	1
Educational level	Unable to read and write	21	49	1	1
	Grade 1-8	45	26	4.04(2.00, 8.16)***	2.10(0.82, 5.36)
	High school (9-12)	66	34	4.53(2.35, 8.74)***	2.67(1.14, 6.27)*
	Higher education	319	168	4.43(2.57, 7.64)***	3.05(1.49, 6.24)**
Occupational status	Unemployed	116	112	1	1
	Daily laborer	72	30	2.32(1.41, 3.82)***	2.09(1.06, 4.13)*
	Farmer	8	16	0.48(0.20, 1.17)	0.66(0.20, 2.18)
	Employed	233	83	2.71(1.89, 3.89)***	1.54(0.95, 2.51)
	Merchant	22	36	0.59(0.33, 1.07)	0.73(0.35, 1.52)
Monthly income (Ethiopian birr)	≤2000	99	95	0.47(0.33, 0.68)***	0.72(0.42, 1.21)
	2001 – 4000	122	78	0.71(0.49, 1.02)	0.76(0.47, 1.24)
	>4000	230	104	1	1
Family members/ friends died due to COVID-19	Yes	41	14	1.88(1.00, 3.51)	1.86(0.81, 4.24)
	No	410	263	1	1
Living with people at risk of severe COVID-19 disease	Yes	227	49	4.72(3.29, 6.76) ***	3.12(1.98, 4.91) ***
	No	224	228	1	1
Trust the government	Yes	203	57	3.16(2.24, 4.46)***	1.51(0.94, 2.42)
	No	248	220	1	1
Trust the health care System	Yes	210	65	2.84(2.04, 3.97) ***	1.53(0.97, 2.43)
	No	241	212	1	1
Perceived Susceptibility	High	327	89	5.57(4.02, 7.72)***	2.02(1.26, 3.24)**
	Low	124	188	1	1

Perceived Severity	High	373	121	6.17(4.39, 8.67)***	3.39(2.12, 5.41)***
	Low	78	156	1	1
Knowledge_COVID19 disease	Good	196	75	3.39(2.30, 5.01)***	2.85(1.68, 4.83)***
	Moderate	171	93	2.39(1.63, 3.49)***	1.20(0.71, 2.01)
	Poor	84	109	1	1
Attitude_COVID19 disease	Good	5	7	0.37(0.16, 1.17)	1.13(0.20, 6.26)
	Moderate	78	81	0.50(0.35, 0.71)***	0.69(0.42, 1.14)
	Poor	368	189	1	1
Practice on COVID19 disease prevention	Good	48	15	2.14(1.17, 3.92)*	3.10(1.46, 6.59)**
	Moderate	86	50	1.15(0.78, 1.70)	1.50(0.90, 2.49)
	Poor	317	212	1	1
Knowledge on COVID19 vaccine	Good	52	15	3.00(1.63, 5.51)***	2.47(1.16, 5.27)*
	Moderate	192	83	2.00(1.44, 2.77)***	1.25(0.81, 1.94)
	Poor	207	179	1	1
Attitude on COVID19 vaccine	Good	117	86	0.65(0.46, 0.93)*	1.57(0.94, 2.62)
	Moderate	81	70	0.55(0.38, 0.81)**	0.99(0.60, 1.66)
	Poor	253	121	1	1

Abbreviation: COR, crude odds ratio, \* = P-value < 0.05, \*\* = P-value < 0.01, \*\*\* = P-value < 0.001

## 6. DISCUSSION

This study aimed to assess the proportion of adults' acceptance of COVID-19 vaccination and associated factors in the Bahir Dar City Administration. The acceptance of COVID-19 vaccination was 62.0%. The finding is consistent with previous studies conducted in Gurage Zone, Ethiopia (57). It is also similar to studies done in the United Kingdom (17), China (18), Saudi Arabia (28), and the Arab world (48).

On the other hand, it is lower than a study finding conducted in low and middle-income countries (52) and Sub-Saharan Africa (54). The possible explanation for this inconsistency might be methodological and time differences. Their data collection method was via mobile phone and online platforms like Facebook, WhatsApp, Instagram, and other social media which creates a bias towards recruiting a sample with higher educational attainment and literacy. Additionally, such participants may have better information regarding the COVID-19 disease as well as its vaccine because of internet exposure. All these factors ultimately increase the acceptance of the vaccination program in the aforementioned studies. Similarly, this finding was lower than a study conducted in different states of America (41, 42), Ecuador (43), different parts of China (14, 21, 44), Europe (47), France (26), India (51), and global study (23). The discrepancy might be due to the difference in characteristics of study populations such as educational status and socioeconomic status. The time difference is also another reason that the above-mentioned studies were conducted while the case and death rates of Covid-19 were higher, which might influence people's health perceptions and, as a result, their acceptance of preventive measures including vaccination.

In contrast, the adults' acceptance of COVID-19 vaccination in the current study is higher than the study done in Wolaita Sodo town, Ethiopia (58). This gap may result from the different educational backgrounds of the study participants. Compared to the previous study, a higher proportion of participants in the present study (66.9 %) had a college diploma or above. Considering better educational level is associated with acceptance, as shown by the current study and others (18, 26-30), this difference may increase the vaccination acceptability in the current study. On the other hand, it is believed that various governmental initiatives over time may increase people's acceptability of the vaccination. It is also higher than the studies done in Nigeria (16), the Democratic Republic of Congo (55), and Uganda (56). This inconsistency

might be due to differences in participants' characteristics in terms of educational status. For example, in the study from the Democratic Republic of Congo, only 29% of their study participants attain higher education which is much lower than the current study. This study finding is also higher than the studies conducted in Russia (39), America (40), Jordan (45), Qatar (49), and Kuwait (50). The source of the discrepancy might be the difference between the participants' COVID-19 preventive practice level and sociodemographic attributes like educational attainment. In comparison to the aforementioned studies, the level of preventative practice is lower in the current study. This may boost the need for vaccination as a COVID-19 disease protective mechanism.

The study also identified variables like educational level, occupational status, perceived susceptibility and severity of COVID-19 disease, living with a person at risk of COVID-19 disease, knowledge of COVID-19 disease, practice on COVID-19 disease prevention, and knowledge of COVID-19 vaccine as factors significantly associated with COVID-19 vaccination acceptance.

In the present study, the odds of accepting the Covid-19 vaccination was higher among participants who completed higher education or High school (9-12) compared with uneducated participants. This finding is supported by studies conducted in Ethiopia (57) and China (18). The possible rationale for this link could be that in most cases, educated people read various updates on the internet, in magazines, newsletters, and other forms of media to gain a thorough awareness of the disease and its vaccination. This will have a favorable impact on Covid-19 vaccine acceptability. This finding implies that raising educational attainment may be one method for immunizing the adult population and reducing the impact of any diseases on the world.

Regarding occupation, daily laborers were more likely to accept COVID-19 vaccination than those who were unemployed. This may be explained by the fact that daily laborers are more likely than unemployed people to come into contact with people who have the COVID-19 disease because of the nature of their jobs. As a result, they will accept the COVID-19 vaccine more readily to lower their risk of contracting the disease and its financial effects on them and their family.

On the other hand, individuals who lived with a person at risk of severe COVID-19 disease had a higher acceptance of the COVID-19 vaccination. This could be due to people who lived with someone who was at high risk of severe COVID-19 disease wanting to lower their risk of catching the disease to prevent future disease transmission to those high-risk people.

As revealed by the result of this study the odds of accepting the Covid-19 vaccination were significantly higher among participants who had high perceived susceptibility and severity towards COVID-19 disease. This result is in line with other literature (26, 27, 41, 66, 67). If individuals have a greater perceived risk of getting infected and developing severe disease, this will motivate them to be vaccinated. According to the health belief model (HBM), an individual's probability of adopting a specific health behavior is driven by his or her belief in a personal threat of illness or disease which supports our result (78).

This study showed that good knowledge of COVID-19 disease is positively associated with the acceptance of the COVID-19 vaccination. This finding is consistent with the studies conducted in the U.S., Vietnam, and Australia (52, 70, 71). Therefore, increasing knowledge about COVID-19 disease should be an effective way to increase acceptance of the vaccine.

In our study, the odds of accepting the Covid-19 vaccination among participants who had good practice in COVID-19 prevention were higher acceptance of the vaccination compared with those who had poor prevention practice. On the other hand, good knowledge of the COVID-19 vaccine positively affects its acceptance which is similar to other findings (27, 57, 72). This could be rationalized by the fact that if they had a better understanding of the vaccine, they would be more aware of the COVID-19 vaccination program's benefits and ultimately accept it. This study indicates that creating awareness of the COVID-19 vaccine will increase the utilization of the COVID-19 vaccine among the adult population.

## **7. LIMITATION OF THE STUDY**

The lack of qualitative data supplementation in this study limited its ability to explore socio-cultural barriers to adults' refusal of the COVID-19 vaccine.

## **8. CONCLUSION**

According to this study, approximately two out of three adults accept the COVID-19 vaccination, which can be considered as low. Higher educational status, daily laborers in terms of occupation, living with people at risk of severe COVID-19 disease, high perceived susceptibility and severity of COVID-19 disease, good knowledge of COVID19 disease, good practice on COVID-19 prevention, and good knowledge of COVID-19 vaccine were factors that were significantly associated with the acceptance of COVID-19 vaccination.

## **9. RECOMMENDATIONS**

Since low vaccine knowledge is associated with acceptance, health institutions should better convey clear and adequate information about the vaccine's benefits, effectiveness, safety, and adverse effects to promote vaccine knowledge and acceptability. Besides this, health professionals need to provide special consideration to those who have a low awareness of the risk and severity of Covid-19 illness, lack of knowledge about the disease and its vaccine, poor preventive practice towards COVID-19 disease, have a negative attitude toward the vaccine, and for those who are daily laborers and uneducated individuals.

The Amhara Regional Health Bureau and Non-Governmental Organizations need to support and integrate awareness creation activities toward COVID-19 disease and vaccination at all health facility levels in an organized way.

For future researchers, it is appreciated to conduct research on this topic by broadening the scope and study area to better understand the problem.



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## 11. APPENDICES

### 11.1. Annex I: Information Sheet

**Bahir Dar University**

**School of Public Health**

Good morning/Good afternoon. My name is \_\_\_\_\_ and I am a member of a team researching to assess attitudes and acceptance of adults regarding COVID-19 vaccination in Bahir Dar City administration, Northwest Ethiopia. The study is conducted by **Asheneffe Belaihun**, an MPH student in collaboration with Bahir Dar University, School of Public Health.

The purpose of my visit today is to take information from you on COVID-19-related attitudes and acceptance of the covid-19 vaccine. If you are willing to participate, I will ask you a few questions. I will visit your home and backyard environment to collect information. In the study, if you are found to have certain health problems, appropriate educational counseling and education will be given to you. However, no financial payment will be made for your participation.

Your name will not be written on this form and will never be used with any information you may tell me. You do not have to answer any questions that you do not want to answer and you may end this interview at any time you want. However, your honest answer to these questions and your continued interest to participate in the study will help for a better understanding of the attitudes and acceptance of adults regarding COVID-19 vaccination which help in designing and implementing appropriate intervention programs to alleviate the problem.

We would very much appreciate your participation in this research by genuinely responding to the interviews. Your participation in the study is fully based on your interest and choice. It would take 20-30 minutes to complete the questionnaire. If you have any questions during my interview and observation of the home and backyard of the environment, you can ask me at any time so that I can elaborate on them. It is also possible to communicate with the principal investigator through Tel +251913 232437.

**11.2. Annex II: Informed Consent Form**

With the due understanding of the aforementioned information, would you be willing to participate in the study?

Yes

<p><b><u>Signature/Finger print of the participant</u></b></p> <p>Signature/Finger print _____ Date _____</p> <p>(Proceed to the interview)</p>
---

No  (Terminate the interview)

<p><b><u>Signature of the interviewer</u></b></p> <p>Name _____ Signature _____ Date _____</p>
--

<p><b><u>Supervisors/Researcher remark and signature</u></b></p> <p>-----</p> <p>-----</p> <p>Name _____ Signature _____ Date _____</p>
---

Questionnaire Number	.....
Residence address	Urban (sub-city .....House No.....)

Time started..... Time ended.....

### 11.3. Annex III: English version questionnaire

#### Part I: Socio-demographic and economic variables

Instructions: Put the respondent's answer inside the box

S. No	Variables	Answer	Response Options
101.	Sex	<input type="text"/>	1. Male 2. female
102.	Age	<input type="text"/>	.....
103.	Marital status of the respondent	<input type="text"/>	1. Married      2. Single 3. Widowed    4. Separate 5. Divorced
104.	Total family size of the HH (household)	<input type="text"/>	Write in number _____
105.	The religion of the respondent	<input type="text"/>	1. Orthodox    2. Protestant 3. Muslim      4. Catholic 5. Others (specify) _____
106.	Ethnicity of the Respondent	<input type="text"/>	1. Amhara    2. Agew 3. Oromo     4. Tigrie 5. Others (specify) _____
107.	The educational level of respondent	<input type="text"/>	1. unable to read and write 2. able to read and write 3. Primary (grade 1-8) 4. High school (9-12) 5. Higher education (diploma and above)
108.	Occupational status	<input type="text"/>	1 =not working 2 = daily laborer 3 = farmer, 4 =employed 9. Other (specify) _____
109.	Monthly income of the HH (in Ethiopian birr)	<input type="text"/>	.....

Part II: COVID-19 disease-related questions

201. Currently Infected with COVID-19
1. Yes
2. No
202. Previously infected with COVID-19
1. Yes
2. No
203. Has a family member or friend been infected with COVID-19?
1. Yes
2. No
204. Have family members or friends died due to COVID-19?
1. Yes
2. No
205. The main source of COVID-19 pandemic information?
1. World Health Organization (WHO)
2. National Ministry of Health
3. News and Media
4. Internet and Social Media
5. More than one source
6. Other, specify_____
206. Are you living with a person at risk (pregnant, cardiovascular disease, respiratory disease, patients with cancer, immune-compromised) of severe COVID-19
1. Yes
2. No
207. Do you trust the government can control the COVID19 pandemic with the current situation and facilities available?
1. Yes
2. No
3. Do not know
208. How confident are you in the advice given by the government information related to

COVID-19?
1. Completely confident
2. Fairly Confident
3. Somewhat Confident
4. Slightly Confident
5. Not Confident at all
209. Do you think that the number of reported cases of COVID-19 is being exaggerated?
1. Yes
2. No
3. May be
210. Do you trust the healthcare system can control the COVID19 pandemic with the current situation?
1. Yes
2. No
3. Do not know

<b>Perceived susceptibility to COVID-19</b>	Strongly agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly disagree (5)
211. My chance of getting COVID-19 in the next few months is great					
212. I am worried about the likelihood of getting COVID-19 in the near future					
213. Getting COVID-19 is currently a possibility for me.					
<b>Perceived severity of COVID-19</b>					
214. Complications from COVID-19 are serious					
215. I will be very sick if I get COVID-19					
216. I am afraid of getting COVID-19					

Part III: Questions on knowledge related to Covid-19 disease

Statements	True	False	I don't know
301. The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and myalgia.			
302. Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.			
303. There currently is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from the infection.			
304. Not all persons with COVID-2019 will develop into severe cases. Only those who are elderly, have chronic illnesses, and are obese are more likely to be severe cases.			
305. Eating or contacting wild animals would result in infection by the COVID-19 virus.			
306. Persons with COVID-2019 cannot infect the virus others when a fever is not present.			
307. The COVID-19 virus spreads via the respiratory droplets of infected individuals.			
308. Ordinary residents can wear general medical masks to prevent infection by the COVID-19 virus.			
309. It is not necessary for children and young adults to take measures to prevent infection by the COVID-19 virus.			
310. To prevent the infection by COVID-19, individuals should avoid going to crowded places such as train stations and avoid taking public transportations.			
311. Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.			
312. People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the observation period is 14 days.			

Part IV: Questions on attitude related to COVID-19 disease

401. The Novel Corona Virus is undoubtedly human-made to implement particular agendas.
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
402. Local governmental policies would help reduce the spread of the SARS-CoV-2 virus
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
403. Maintaining a social distance from COVID-19 suspected and confirmed cases would reduce the prevention of CVOID-19
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
404. Do you think you are not at risk of contracting the COVID-19 because your immunity is strong?
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
405. The traditional remedies (i.e., herbs) may protect from infectious diseases such as COVID-19

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
406. To which extent do you agree that physical distancing can protect you and your family from contracting COVID-19 disease?
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
407. Do you think that following precautionary measures on a personal level would help the community fight against the COVID-19 pandemic?
407.1. Hand washing
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
407.2.Mask wearing:
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree



Part V: Practice toward WHO Recommended COVID-19 disease preventive measures

501. Do you wash your hands for 20 seconds with soap and water?	1. Yes 2. No
502. If yes to the above question, How frequently you have been practicing handwashing?	3. Always
	2. Sometimes
	1. Rarely
	0. None
503. Do you sneeze/cough into your arm/elbow?	1. Yes 2. No
504. Do you avoid shaking hands?	1. Yes 2. No
505. Do you maintain a social distance of at least one meter?	1. Yes 2. No
506. Do you avoid touching your face?	1. Yes 2. No
507. Do you stay at home quite often?	1. Yes 2. No
508. Do you use a face mask?	1. Yes 2. No
509. If yes to the above question, How frequently you have been wearing masks?	3. Always
	2. Sometimes
	1. Rarely
	0. None

Part VI: Vaccine-related questions

<b>Questions on acceptance of COVID-19 vaccine</b>
601. Are you willing to take the COVID-19 vaccine?
1. Yes
0. No
602. if no, for the above question, what are the reasons for not willing to take the vaccine?
1. Not trust
2. Due to its safety
3. Other _____
<b>Questions on Attitude of COVID-19 vaccine</b>
603. The COVID-19 vaccines, in general, will be useful in controlling the disease

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
604.Receiving an authorized vaccine for COVID-19 will be safe and trusty.
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
605. I am concerned about serious complications of the vaccines
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
606. I believe the available vaccine is effective that could protect against COVID-19.
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
607. I believe that taking the vaccine for COVID-19 usually outweighs the benefits of vaccines than the risks.
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

608. May you encourage your family/friends/relatives to get vaccinated?
1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
<b>Questions on Knowledge of COVID-19 vaccine</b>
609. Do you know about the COVID-19 vaccine development?
1. Yes
2. No
610. Do you know about the effectiveness of the COVID-19 vaccine?
1. Yes
2. No
611. Is it dangerous to use an overdose of COVID-19 vaccines?
1. Yes
2. No
612. Does COVID-19 vaccination increase allergic reactions?
1. Yes
2. No
613. Does vaccination increase autoimmune diseases?
1. Yes
2. No

**11.4. Annex IV : የአሜሪካ ቅጂ መረጃ ቅፅ፣ የፍቃድ ፎርም እና መጠይቅ**

**አባሪ 1: የመረጃ ቅፅ**

**ባህር ዳር ዩኒቨርሲቲ**

**የህዝብ ጠፍ ትምህርት ቤት**

እንደምን አደርክ/ እንዴት ዋልክ? በባህር ዳር ከተማ አስተዳደር በሰሜን ምዕራብ ኢትዮጵያ የኮቪድ-19 ክትባትን በተመለከተ የአዋቂዎችን አመለካከት እና ተቀባይነት ለመገምገም የሚያጠናቁ ቡድን አባል ነኝ፤ ስሜን - ----- ይባላል። ጥናቱ የተካሄደው የኤም ፒ ኤች ተማሪ የሆነው አሸነፈ በላይሁን ከባህር ዳር ዩኒቨርሲቲ የህብረተሰብ ጠፍ ትምህርት ቤት ጋር በመተባበር ነው።

የዛሬው ጉብኝቱ አላማ ከኮቪድ-19 ጋር የተያያዘ አመለካከት እና የኮቪድ-19 ክትባቱን ተቀባይነት በተመለከተ መረጃ ከእርስዎ ዘንድ ለመቀበል ነው። ለመሳተፍ ፈቃደኛ ከሆንክ/ሽ ጥቂት ጥያቄዎችን እጠይቅሃለሁ/ሻለሁ። መረጃ ለመስጠት የቤትዎን እና የጓሮ አካባቢዎን እንበኛለሁ። በጥናቱ ወስጥ አንዳንድ የጠፍ ችግሮች እንዳሉዎት ከተረጋገጠ ተገቢ የትምህርት ምክር እና ትምህርት ይሰጥዎታል. ነገር ግን ለተሳትፎዎ የገንዘብ ክፍያ አይከፈልም።

ስምዎ በዚህ ቅጽ ላይ አይጻፍም እና እርስዎ ሊነግሩኝ ከሚችሉት ማንኛውም መረጃ ጋር ፈጽሞ ጥቅም ላይ አይውሉም. መመለስ የሚፈልጓቸውን ማንኛውንም ጥያቄዎች መመለስ የለብዎትም እና ይህንን ቃለ መጠይቅ በፈለጉት ጊዜ ማቆም ይችላሉ። ነገር ግን ለእነዚህ ጥያቄዎች የሰጠች ትክክለኛ መልስ እና በጥናቱ ለመሳተፍ ያለዎት ፍላጎት የጎልጦኦችን አመለካከት እና ተቀባይነት ችግሩን ለመቅረፍ ተገቢውን የጣልቃ ገብነት መርሃ ግብሮችን በመንደፍ እና በመተባበር ላይ ያለውን የኮቪድ-19 ክትባትን በተመለከተ የተሻለ ግንዛቤ እንዲኖር ይረዳል።

ለቃለ መጠይቆቹ እውነተኛ ምላሽ በመስጠት በዚህ ጥናት ላይ ተሳትፎዎን በጣም እናደንቃለን። በጥናቱ ወስጥ ያለዎት ተሳትፎ ሙሉ በሙሉ በእርስዎ ፍላጎት እና ምርጫ ላይ የተመሰረተ ነው። መጠይቁን ለመመለስ ከ20-30 ደቂቃዎች ይወስዳል። በኔ ቃለ ምልልስ እና ስለ አካባቢው ቤት እና ጓሮ ምልክታ ምንም አይነት ጥያቄ ካሉት በማንኛውም ጊዜ ሊጠይቁኝ ይችላሉ፤ ስለዚህ የበለጠ ማበራሪያ እስጣለሁ። እንዲሁም ከዋናው ተመራማሪ ጋር በስልክ ቁጥር +251913 232437 መነጻጸፍ ይቻላል።

**አባሪ II: የስምምነት ቅጽ**

ከላይ የተጠቀሰውን መረጃ በመገባ ለተረጋግጠው በጥናቱ ለመሳተፍ ፈቃደኛ ትሆናለህ?

አዎ

<p><b><u>የአሳታፊው ፊርማ/የጣት አሻራ</u></b></p> <p>ፊርማ/የጣት አሻራ _____ ቀን _____</p> <p>(Proceed to the interview)</p>
---

የለም  (ቃለ መጠይቁን ያቋርጥ)

<p><b><u>የጠያቂው ፊርማ</u></b></p> <p>ስም _____ ፊርማ _____ ቀን _____</p>
---

<p><b><u>ተቆጣጣሪዎች/የተመራማሪ አስተያየት እና ፊርማ</u></b></p> <p>-----</p> <p>-----</p> <p>ስም _____ ፊርማ _____ ቀን _____</p>
--

<p>መጠይቅ ቁጥር</p> <p>.....</p>	<p>.....</p>
<p>የመኖሪያ አድራሻ</p>	<p>ከተማ (ክፍለ ከተማ..... የቤት ቁጥር .....</p>

የጀመረበት ጊዜ ..... የጨሰበት ጊዜ .....

አባሪ III: የአሜሪካ ቅጅ መጠይቅ

ክፍል 1: ማህበረ-ሕዝብ እና ኢኮኖሚያዊ ተለዋዋጫ

መሠሪያ: ምላሽ ሰጪችን በሳጥኑ ወስጥ ያስቀምጡ

ተ.ቁ	ጥያቄዎች	መልስ	የምላሽ አማራጮች
101.	ጾታ	<input type="text"/>	3. ወንድ 4. ሴት
102.	እድሜ	<input type="text"/>	_____
103.	የጋብቻ ሁኔታ	<input type="text"/>	1. ያገገህ    2. ያላገገህ 3. ባል የሞተባት/የሞተበት 4. የተለየ    5. የተፋታ
104.	የቤተሰብ ብዛት	<input type="text"/>	በቁጥር ይጻፍ _____
105.	ሃይማኖት	<input type="text"/>	1. ኦርቶዶክስ    2. ፕሮቴስታንት 3. መስሊም    4. ካቶሊክ 5. ሌላ ካለ ይጠቀስ _____
106.	ብሔር	<input type="text"/>	1. አማራ    2. አገው 3. አሮሞ    4. ትግሬ 5. ሌላ ካለ ይጠቀስ _____
107.	የትምህርት ደረጃ	<input type="text"/>	1. ማኅበረ-ሕዝብ መጻፍ የማይችል 2. ዋና (1-8 ክፍል) 3. ሁለተኛ ደረጃ (9-12) 4. ከፍተኛ ትምህርት (ዲፕሎማ እና ከዚያ በላይ)
108.	የስራ ደረጃ	<input type="text"/>	1 = የማይሰራ    2 = የቀን ስራተኛ    3 = ገበሬ, 4 = ስራተኛ / ባለሙያ 9. ሌላ ካለ ይጠቀስ) _____
109.	የቤተሰቡ ወርሃዊ ገቢ	<input type="text"/>	.....

**ክፍል II፡ ኮቪድ-19 ተዛማጅ ጥያቄዎች**

<b>201.</b> በአሁኑ ጊዜ በኮቪድ-19 ተይዘዋል?
1. አዎ
2. የለም
<b>202.</b> ከዚህ ቀደም በኮቪድ-19 ተይዘዉኑ በር?
1. አዎ
2. የለም
<b>203.</b> የቤተሰብ አባል ወይም ጓደኛ በኮቪድ-19 ተይዟል?
1. አዎ
2. የለም
<b>204.</b> በኮቪድ-19 ምክንያት የቤተሰብ አባላት ወይም ጓደኞች ሞተዋል?
1. አዎ
2. የለም
<b>205.</b> ዋናው የኮቪድ-19 ወረርሽኝ መረጃ ምን ጭንቀት?
1. የዓለም ጠፍ ድርጅት (WHO)
2. ብሔራዊ ጠፍ ጥበቃ ሚኒስቴር
3. ዜና እና ማጺያ
4. ኢንተርኔት እና ማህበራዊ ማጺያ
5. ሌላ፣ ካለ የጠቀስ.....
<b>206.</b> በአደጋ ላይ ካለ ሰው ጋር እየኖርክ ነው? (ነፍሱ ጠፎ፣ የልብና የደም ምደባ በሽታ፣ የመኮንን ፈሻ አካላት በሽታ፣ ካንሰር ያለባቸው ታማኝዎች፣ የበሽታ መቋቋም አቅም የሌላቸው)
1. አዎ
2. የለም

<b>207.</b> መንግስት አሁን ባለውሁኔታ እና መገልገያዎች የኮሮና ወረርሽኝን መቆጣጠር ይችላል ብለው ያምናሉ?
1. አዎ
2. የለም
3. አላወቅም
<b>208.</b> ከኮቪድ-19 ጋር በተገናኘ በመንግስት በሚሰጠውምክር እርግጠኝ
1. ሙሉ በሙሉ እተማመናለሁ
2. ትክክለኛ እተማመናለሁ
3. በመጠኑ እተማመናለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማመንም
<b>209.</b> በኮቪድ-19 የተመዘገቡት በሽተኞች ቁጥር የተጋነነ ነው ብለው ያስባሉ?
1. አዎ
2. የለም
3. ምን አልባት
<b>210.</b> የጤና አጠባበቅ ሥርዓቱ የኮቪድ-19 ወረርሽኝን አሁን ባለውሁኔታ መቆጣጠር እንደማይችል ያምናሉ?
1. አዎ
2. የለም
3. ምን አልባት

ለኮቪድ-19 ተጋላጭ ትግንዛቤ	በጣም እስማማለሁ (1)	እስማማለሁ (2)	ገለልተኛ (3)	አልስማማም (4)	በጣም አልስማማም (5)
<b>211.</b> በመቅጠሉት ጥቂት ወራት ወስጥ በኮቪድ-19 የሚያዝ እድሌ ትልቅ ነው ብለው ያስባሉ					



<b>212.</b> በቅርብ ጊዜ ወስጥ በኮቪድ-19 የሚገኝ እድል አጨቃሰታ					
<b>213.</b> በአሁኑ ጊዜ በኮቪድ-19 እያዛለው ብለው የገምታሉ/እያዛለው በሚለው ይስማማሉ					
<b>የ ኮቪድ-19 ከባድነት ግንዛቤ</b>					
<b>214.</b> በኮቪድ-19 የሚጠቀሙት ግሮች ከባድ ናቸው					
<b>215.</b> ኮቪድ-19 ካጋጠመኝ/ከተያዝኩ በጣም እታመማለሁ ብዬ አስባለሁ።					
<b>216.</b> ኮቪድ-19 ይይዘኛል ብዬ አፈራለሁ					

**ክፍል ሶስት: ከኮቪድ-19 ጋር በተያያዙ ዕውቀት ላይ ያሉ ጥያቄዎች**

<b>መግለጫዎች</b>	<b>እውነት</b>	<b>ወሸት</b>	<b>አላውቅም</b>
<b>301.</b> የ ኮቪድ-19 ዋና ክሊኒካዊ ምልክቶች ትኩሳት፣ ድካም፣ ደረቅ ሳል እና የጠጃቻ ህመም ናቸው።			
<b>302.</b> እንደ ጉንፋን፣ አፍንጫጫጩን ቅ፣ ንፍጥ እና ማሳኝ ጠስ በኮቪድ-19 ቫይረስ በተያዙ ሰዎች ላይ በጣም አናሳ ነው።			
<b>303.</b> በአሁኑ ጊዜ ለ COVID-19 ወጠታማ የሆነ ፈወስ የለም፣ ነገር ግን ቀደም ብሎ በምልክት እና ድጋፍ ሰጭ ህክምና አብዛኛዎቹ ህመማቸውን ከበሽታው እንዲደኑ ሊረዳቸው ይችላል			
<b>304.</b> ሁሉም ኮቪድ-19 ያለባቸው ሰዎች ወደ ከባድ ጉዳዮች ሊዳረጉ አይችሉም። አረጋውያን፣ ሥር የሰደደ ሕመም ያለባቸው እና ከመጠን በላይ ወፍራም የሆኑ ብቻ ከባድ ጉዳዮች የመጋለጥ እድላቸው ሰፊ ነው።			
<b>305.</b> የዳር እንስሳትን መብላት ወይም መካካት በኮቪድ-19 ቫይረስ መያዝን ስከትላል			
<b>306.</b> ኮቪድ-2019 ያለባቸው ሰዎች ትኩሳት በሚገኝበት ጊዜ ቫይረሱን			

ደሌሎች መከላከል አይችሉም።			
<b>307.</b> የኮቪድ-19 ቫይረስ በበሽታው በተያዙ ሰዎች የመተንፈሻ ጠበቃዎች ተላለፋል።			
<b>308.</b> ተራ ነዋሪዎች በኮቪድ-19 ቫይረስ እንዳይያዙ አጠቃላይ የህክምና ቅጥር ማድረግ ይችላሉ።			
<b>309.</b> ህፃናት እና ጎልማሶች በኮቪድ-19 ቫይረስ እንዳይያዙ ለመከላከል ርምጃዎችን መወሰድ አስፈላጊ አይደለም።			
<b>310.</b> በኮቪድ-19 ኢንፎክሽኑን ለመከላከል ግለሰቦች በተጨማሪ ቦታዎችን ያደገባቸው ጣቢያ ከመጫወት እና የህዝብ ማመላለሻዎችን ከመወሰድ መቆጠብ ለባቸው።			
<b>311.</b> በኮቪድ-19 ቫይረስ የተያዙ ሰዎችን ማገለል እና ማከም የቫይረሱን ርጭት ለመቀነስ ወጠታማ መንገዶች ናቸው።			
<b>312.</b> በኮቪድ-19 ቫይረስ ከተያዙ ሰው ጋር ግንኙነት ያደረጉ ሰዎች ወዲያውኑ ተገቢውን ቦታ መገለጥ አለባቸው። በአጠቃላይ የእይታ ጊዜ 14 ቀናት ነው።			

**ክፍል IV: ከኮቪድ-19 ጋር በተገናኘ የአመለካከት ጥያቄዎች**

<b>401.</b> ኮሮና ቫይረስ ልዩ አጀንዳዎችን ተግባራዊ ለማድረግ የመገሰውሰራሽ እንደሆነ ጥርጥር የለውም
1. መላ በመላ እተማምናለሁ
2. ትክክለኛ እተማምናለሁ
3. በመጠኑ እተማምናለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማምንም
<b>402.</b> የአካባቢ አስተዳደር ፖሊሲዎች SARS-CoV-2 ቫይረስ ስርጭትን ለመቀነስ ይረዳሉ
1. መላ በመላ እተማምናለሁ

2. ትክክለኛ እተማራ ለሁ
3. በመጠኑ እተማራ ለሁ
4. ትንሽ መተማሪያ
5. በፍጹም አልተማሪም
<b>403.</b> በኮቪድ-19 ከተጠረጠሩ እና ከተረጋገጡ ጠቃሚዎች ማህበራዊ ርቀትን መጠበቅ የኮቪድ-19ን ስርጭት ይቀንሳል
1. ማሉ በማሉ እተማራ ለሁ
2. ትክክለኛ እተማራ ለሁ
3. በመጠኑ እተማራ ለሁ
4. ትንሽ መተማሪያ
5. በፍጹም አልተማሪም
<b>404.</b> የበሽታ መከላከል አቅም ጠንካራ ስለሆነ በኮቪድ-19 የመያዝ እድል የለኝም ብለው ያስባሉ
1. ማሉ በማሉ እተማራ ለሁ
2. ትክክለኛ እተማራ ለሁ
3. በመጠኑ እተማራ ለሁ
4. ትንሽ መተማሪያ
5. በፍጹም አልተማሪም
<b>405.</b> ባህላዊ መድሃኒቶች (ማለትም፡ ዕፅዋት) እንደ ኮቪድ-19 ካሉ ተላላፊ በሽታዎች ሊከላከሉ ይችላሉ
1. ማሉ በማሉ እተማራ ለሁ
2. ትክክለኛ እተማራ ለሁ
3. በመጠኑ እተማራ ለሁ

4. ትንሽ መተማመን
5. በፍጹም አልተማመነም
<b>406.</b> አካላዊ መራራቅ እርስዎን እና ቤተሰብዎን ከኮቪድ-19 በሽታ እንደሚጠበቃቸው እስከ ምን ድረስ ይስማማሉ?
1. ሙሉ በሙሉ እተማመናለሁ
2. ትክክለኛ እተማመናለሁ
3. በሚጠኑ እተማመናለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማመነም
<b>407.</b> በግላዊ ደረጃ የጥንቃቄ እርምጃዎችን መከተል ህብረተሰቡ የኮቪድ-19 ወረርሽኝን ለመከላከል ይረዳል ብለው ያስባሉ?
<b>407.1.</b> እጅ መታጠብ
1. ሙሉ በሙሉ እተማመናለሁ
2. ትክክለኛ እተማመናለሁ
3. በሚጠኑ እተማመናለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማመነም
<b>407.2.</b> ማእከ መልበስ
1. ሙሉ በሙሉ እተማመናለሁ
2. ትክክለኛ እተማመናለሁ
3. በሚጠኑ እተማመናለሁ
4. ትንሽ መተማመን

5. በፍጹም አልተማመነም

**ክፍል V: በአለም የጤና ድርጅት (WHO) የተመሩ የኮቪድ-19 የመከላከያ እርምጃዎች ትግበራ**

501. ለ 20 ሰዓት ድረስ እጅን በሳሙን እና በውሃ ይታጠቡ?	1. አዎ 2. የለም
502. ከላይ ላለው ጥያቄ አዎ ከሆነ ፣ የእጅ መታጠብን ምን ያህል ጊዜ እየተገበሩት ነው?	3. ሁሌም
	2. አንዳንዴ
	1. አልፎ አልፎ
	0. ምንም
503. ሲያሰለግ/ሲያስነጥሰህ በክንድህ/ክርንዎ ይከልላሉ?	1. አዎ 2. የለም
504. እጅ ከመጨበጥ ትቆጠብለህ/ሺ?	1. አዎ 2. የለም
505. በያንስ አንድ ሜትር ማህበራዊ ርቀትዎን ይጠብቃሉ?	1. አዎ 2. የለም
506. ፊትዎን ከመካካት ትቆጠብለህ/ሺ?	1. አዎ 2. የለም
507. ብዙ ጊዜ ቤት ወስጥ የቀመጡ?	1. አዎ 2. የለም
508. ማክክ/የፊት መሻፈኛ የጠቀሙ?	1. አዎ 2. የለም
509. ከላይ ላለው ጥያቄ አዎ ከሆነ ፣ ማክክ/የፊት መሻፈኛን ምን ያህል ጊዜ እየተገበሩት ነው?	3. ሁሌም
	2. አንዳንዴ
	1. አልፎ አልፎ
	0. ምንም

**ክፍል VI: ከክትባት ጋር የተያያዙ ጥያቄዎች**

የኮቪድ-19 ክትባት መቀበልን የሚጠበቁ ጥያቄዎች

<b>601.</b> የኮቪድ-19 ክትባትን ለመወሰድ ፍቃደኛ ኖት?
1. አዎ
0. የለም
<b>602.</b> ከላይ ላለው ጥያቄ, መልስዎ የለም ከሆነ, ክትባቱን ለመወሰድ ፈቃደኛ ያልሆኑበት ምክንያቶች ምንድን ናቸው?
1. አለመተማመን
2. በደህንነት ምክንያት
3. ሌላ ምክንያት ካለ ይጠቀስ _____
<b>በኮቪድ-19 ክትባት አመለካከት ላይ ያሉ ጥያቄዎች</b>
<b>603.</b> የ ኮቪድ-19 ክትባቶች፣ በአጠቃላይ፣ በሽታውን ለመቆጣጠር ጠቃሚይሆናሉ፡፡
1. መሉ በመሉ እተማመናለሁ
2. ትክክለኛ እተማመናለሁ
3. በመጠኑ እተማመናለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማመንም
<b>604.</b> ለኮቪድ-19 የተፈቀደ ክትባት መቀበል ደህንነት የተጠበቀ እና አስተማማኝ ይሆናል፡፡
1. መሉ በመሉ እተማመናለሁ
2. ትክክለኛ እተማመናለሁ
3. በመጠኑ እተማመናለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማመንም
<b>605.</b> ስለ ክትባቶች ከባድ ችግሮች ያሳስበኛል፡፡
1. መሉ በመሉ እተማመናለሁ

2. ትክክለኛ እተማረና ለሁ
3. በመጠኑ እተማረና ለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማመንም
<b>606.</b> ያለው ክትባት ከኮቪድ-19 ሊከላከል የሚችል ወጠታማነት ውስጥ አምና ለሁ
1. ማሉ በማሉ እተማረና ለሁ
2. ትክክለኛ እተማረና ለሁ
3. በመጠኑ እተማረና ለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማመንም
<b>607.</b> የኮቪድ-19 ክትባት መወሰድ ከስጋቶቹ ይልቅ የክትባት ጥቅሞችን ያመዘናል ብዬ አምና ለው
1. ማሉ በማሉ እተማረና ለሁ
2. ትክክለኛ እተማረና ለሁ
3. በመጠኑ እተማረና ለሁ
4. ትንሽ መተማመን
5. በፍጹም አልተማመንም
<b>608.</b> ቤተሰብዎ/ዳደሮችዎ/ዘመዶችዎ እንዲከተቡ አበረታታለሁ፡፡
1. ማሉ በማሉ እተማረና ለሁ
2. ትክክለኛ እተማረና ለሁ
3. በመጠኑ እተማረና ለሁ
4. ትንሽ መተማመን

5. በፍጹም አልተማመነም
<b>በኮቪድ-19 ክትባት እወቅት ላይ ያሉ ጥያቄዎች</b>
<b>609.</b> ስለ ኮቪድ-19 ክትባት ሳይንሳዊ ግኝት እና አሜሪት ያወቃሉ?
1. አዎ
2. የለም
<b>610.</b> ስለ ኮቪድ-19 ክትባት ወጠታማነት ያወቃሉ?
1. አዎ
2. የለም
<b>611.</b> ከሞጠን በላይ የኮቪድ-19 ክትባቶችን ማጠቀም አደገኛ ነው?
1. አዎ
2. የለም
<b>612.</b> የኮቪድ-19 ክትባት የአለርጂ ምላሾችን ይጨምራል?
1. አዎ
2. የለም
<b>613.</b> ክትባቱ ራስን የሚላከል በሽታዎችን ይጨምራል?
1. አዎ
2. የለም



### **11.5. Annex V: Student Declaration**

I, the undersigned, declared that this is my original work, has never been presented in this or any other university, and that all the resources and materials used for the research, have been fully acknowledged.

#### **Principal investigator:**

Name: **Asheneke Belaihun** Signature: \_\_\_\_\_ Date: .....

### **11.6. Annex VI: Assurance of principal investigator**

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and the provision of required progress reports as per the terms and conditions of the research publication office of Bihar Dar University.

Name of the Student: **Asheneffe Belaihun**

Date: \_\_\_\_\_

Signature\_\_\_\_\_

Approval of the Advisors:

Name of the advisors: **Dr Achenef Motbainor (Ph.D.)**

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

**Mr Tebkew Shibabaw (BSc, MPH)**

Date: \_\_\_\_\_

Signature\_\_\_\_\_

**11.6. Annex VI: Assurance of principal investigator**

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and the provision of required progress reports as per the terms and conditions of the research publication office of Bihar Dar University.

Name of the Student: **Ashenefe Belaihun**

Date: 18 Aug 2022

Signature: [Handwritten Signature]

Approval of the Advisors:

Name of the advisors: **Dr Achenef Motbainor (Ph.D.)**

Date: 18/Aug/2022

Signature: [Handwritten Signature]

**Mr Tebkew Shibabaw (BSc, MPH)**

Date: \_\_\_\_\_

Signature \_\_\_\_\_

Examiner: Dr Ancha Admasie

Date: 18/Aug/2022

Signature: [Handwritten Signature]

