LEVEL OF IMPLEMENTATION OF NON-PHARMACOLOGICAL INTERVENTIONS TO PREVENT COVID-19 INFECTION AND ASSOCIATED FACTORS AMONG ADULT RESIDENTS IN ASSOSA TOWN, BENISHANGUL GUMUZ REGION, NORTH WEST ETHIOPIA

A THESIS SUBMITTED TO FACULTY OF PUBLIC HEALTH, DEPARTMENT OF EPIDEMIOLOGY, JIMMA UNIVERSITY; IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR MASTERS OF PUBLIC HEALTH IN EPIDEMIOLOGY

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Level of Implementation of Non-Pharmacological Interventions to Prevent COVID-19 Infection and Associated Factors among adult residents in Assosa town, Benishangul Gumuz Region North West Ethiopia

A Thesis submitted to Faculty of Public Health, Department of Epidemiology, Jimma University; in partial fulfillment of the requirements for Masters of Public Health in Epidemiology

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ABSTRACT

Background: Non-pharmacological interventions (NPIs) are public health measures that aim to prevent and/or control Severe Acute Respiratory Syndrome (SARS-CoV-2) transmission in the community. NPIs are also known as community mitigation strategies. The scientific evident NPIs are; Personal protective measures, Environmental measures, Social distancing measures, and Travel-related measures. There are no well-known levels and factors influencing their implementations at community level as there are no previous complete studies eversince for current COVID-19 pandemic assailing the fortheworld.

Objective: To assess level of implementation of Non-Pharmacological Interventions to Prevent COVID-19 Infection and Associated Factors among adult residents in Assosa town, Benishangul Gumuz Region, North West Ethiopia.

Methods: Community-based cross-sectional study was conducted from May 24 to June 11/2021 among 418 adult residents using simple random sampling technique. Structured questionnaire and observational checklists was used to collect data. Data were entered in to Epi Data version 3.1 and exported to SPSS version 23 to perform various analyses. Bivariable logistic regression analysis was performed to identify candidate variables at p-value of <0.25 and then multivariable logistic regression analysis was conducted to determine the factors associated with NPIs. In multivariable model, adjusted odds ratios together with their corresponding 95% confidence interval (CI) was calculated to assess strength of association and to declare statistical significance at p-value of < 0.05.

Results: A Sample of 418 respondents were interviewed with response rate of 100%. The overall level of non-pharmacological interventions implementation to prevent COVID-19 infection among respondents was 62.3%, 95%CI (0.219, 0.280). Good level of knowledge about COVID-19 (AOR= 5, 95%CI(2.1, 29.61), Moderate level of knowledge about COVID-19 (AOR=3, 95%CI(2.13, 36.5), Positive attitude (AOR=2, 95%CI(1.62, 25.6), wealth index (Second quintile: AOR=2, 95%CI(1.15, 25.3), Third quintile: AOR=3, 95%CI (1.13, 19.1), Fourth quintile: AOR=2.3, 95%CI(2.1, 12.3), Fifth quintile: AOR=2.4, 95%CI(1.9, 12.6), Diploma level of

education AOR=2.3, 95%CI(1.5, 6.92) and Degree level of education AOR=1.3, 95%CI (1.1, 9.2) were significantly associated with implementation of non-pharmacological interventions to prevent COVID-19 infection.

Conclusion: The overall adherence to non-pharmacological interventions to prevent COVID-19 infection implementation is low compared to World Health Organization recommendation. In addition, Knowledge, Attitude, Wealth index and Educational level were factors independently associated with non-pharmacological interventions implementation to prevent COVID-19 infection.

Recommendations: I recommend Federal Ministry of Health, Regional Health Bureau and other stakeholders to deal with and support update of knowledge, capacity building, and review of previous programs and approach of new strategies, requesting their consideration of the importance of human health in the earth, multi-sectoral and multi-lateral cooperation against COVID-19 pandemic. Furthermore our community members to realize scientific evidence and follow medical advices provided by health care provider. Finally researchers` further mode of study.

Key words: COVID-19, Non-pharmacological Interventions (NPIs), level, factors, implementation, Assosa

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ACRONYMS AND ABBREVIATIONS

AOR ---------- Adjusted Odds Ratio with 95%
CDC ---------- Communicable Disease Control and Prevention
CI ---------- Confidence interval
COR ---------- Crude Odds Ratio
EDHS ---------- Ethiopian Demographic and Health Survey
EPHI---------- Ethiopian Public Health Institute
EU/EEA---------- European Union, European Economic Area
FMOH---------- Federal Ministry of Health
H1N1 ---------- swine influenza/flu
H5N1 ---------- avian influenza/flu
HHs---------- Households
MERS ---------- Middle East Respiratory Syndrome
MOH ---------- Ministry of Health
NGOs---------- Non-Governmental Organizations
NIOSH ---------- National Institute for Occupational Safety and Health
NPIs ---------- Non-pharmacological interventions
OSHA ---------- Occupational Safety and Health Administration
PHC ---------- Primary Health Care
RHBs ---------- Regional Health Bureaus
SARS---------- Severe Acute Respiratory Syndrome
SD ---------- Standard Deviation
SPSS---------- Statistical Package for Social Science software
UK ---------- United Kingdom
UNICEF ---------- United Nations Children's Fund
USAID ---------- United States Agency for International Development
WHO ---------- World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 Background

Non-pharmacological interventions (NPIs) are public health measures that aim to prevent and/or control Severe Acute Respiratory Syndrome (SARS-CoV-2) transmission in the community. Non-pharmacological Interventions (NPIs) are actions, apart from getting vaccinated and taking medicine that people and communities can take to help slow the spread of illnesses like pandemic influenza (flu). NPIs are also known as community mitigation strategies. The scientific evident NPIs are; Personal protective measures (e.g. hand hygiene, respiratory etiquette and face masks); Environmental measures (e.g. surface and object cleaning, and other environmental measures); Social distancing measures (e.g. contact tracing, isolation of sick individuals, quarantine of exposed individuals, school measures and closures, workplace measures and closures, and avoiding crowding); and Travel-related measures (e.g. travel advice, entry and exit screening, internal travel restrictions and border closure). NPIs are the only set of pandemic countermeasures that are readily available at all times and in all countries(1–8).

Following the World Health Organization (WHO) recognition and declaration of the pandemic spread of COVID-19 on 11 March 2020, two days apart Ethiopia has confirmed the first case of COVID-19 from Japanese that came from Burkina Faso in March 13, 2020. And has immediately adopted the basic measures to reduce COVID-19 transmission that has been recommended by WHO such as: to use face masks, to cover coughs and sneezes, to wash hands regularly, to avoid contact with infected people, to maintain an appropriate distance from people, to refrain from touching eyes, nose, and mouth, in case of symptoms to seek medical care early and call in advance the center assigned for COVID-19 response, Stay informed and follow advice given by healthcare providers(8-11).

Ethiopia also has taken part in fighting the COVID-19 pandemic and taken the containment measures as that of the world community since the beginning of the pandemic. For example; The authorities have closed borders, closed schools, ordered the shuttering of nightclubs and entertainment outlets, announced social distancing measures, and called in retired and in-training

medical personnel, In addition, all people entering Ethiopia from another country are subjected to mandatory 14-day quarantine at designated hotels at the traveller's expense; The authorities postponed the elections, which were scheduled for August 29; on April 8, the Prime Minister declared a state of emergency under Article 93 of the constitution, which allows it to impose more strict measures(8,9).

Coronaviruses are a family of viruses common across the world in animals and humans; some coronaviruses cause the common cold; others cause diseases, which are much more severe such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), both of which often lead to pneumonia. It has been also stated that the new CORONA virus an RNA virus that belongs to the family of CORONA (Latin Crown, from the structure of the virus under electron microscope) identified as the cause of the acute respiratory disease in humans since the end of December 2019 as 2019-nCoV, later labeled as SARS-CoV-2 by WHO. A virus of a different strain of CORONA virus from SARS and MERS CORONA viruses, and the difference were not limited to genetic make-up only but also in the clinical presentations, case fatality and the rate of spread across the globe(3,8,10).

In general, it has been mentioned that the disease is mainly transmitted via the respiratory route when people inhale droplets and particles that infected people release as they breathe, talk, cough, sneeze, or sing. Infected people are more likely to transmit COVID-19 the longer and closer they interact with others, and infection can occur over longer distances, particularly indoors. Likewise, COVID-19 affects different people in different ways(8,11).

CDC mentioned that the people with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms may appear 2-14 days after exposure to the virus. Most infected people will develop mild to moderate illness and recover without hospitalization, and those have serious symptoms must seek immediate medical attention. In addition the clinical manifestation of COVID-19 infection have been classified in to most common symptoms: such as fever, fatigue or tiredness, and coughing; less common symptoms: like headache, sneezing, runny nose, muscle pain, joint pain, loss of test or smell & or appetite,

diarrhoea; serious symptoms: such as difficulty breathing or shortness of breath or nasal congestion, chest pain or pressure**,** loss of speech or movement(11,12).

1.2 Problem Statement

Even though the information on COVID-19 is rapidly changing, sometimes daily, it has been stated early during emerge of the virus on 31st December 2019, Chinese authorities notified the WHO of an outbreak of pneumonia in Wuhan City, which was later classified as a new disease: COVID-19. Even though global scientists are intensifying research into COVID-19, as the World Health Organization (WHO) moves to expand its scientific collaboration and monitoring of emerging variants of SARS-CoV-2, the virus that causes COVID-19(3,8).

Experts mentioned that the current COVID-19 pandemic was unprecedented, but the global response drawed on the lessons learned from other disease outbreaks over the past several decades like that of Ebola virus disease, SARS-CoV and MERS-CoV, and the attention was given to describe the characteristics, its effects and its behaviour for example the timing and extent of the peak of an outbreak, its precise impact on individuals, accordingly revised estimates of its potential mode of spread, severity and impact then adopting the prevention modalities which has been applied during SARS outbreaks(10,13).

Reports indicated that Non-pharmacological Interventions (NPIs) have played a critical role in reducing transmission rates and the impact of COVID-19 in the European Union, European Economic Area (EU/EEA) and United Kingdom (UK). Until a safe and effective vaccine is available to all those at risk of severe COVID-19 disease, NPIs will continue to be the main public health tool against SARS-CoV-2(1,3,4).

Communicable Disease Control and Prevention (CDC) has stated that COVID-19 was a new disease and there was limited information regarding risk factors for severe illness based on available information and clinical expertise at starting time of the pandemic, 65 years older adults and people of any age who have serious underlying medical conditions such **as** Asthma, Chronic kidney disease being treated with dialysis, Chronic lung disease, Diabetes, Haemoglobin

disorders, Immunocompromised, Liver disease, People in nursing homes or long-term care facilities, Serious heart conditions, Severe obesity might be at higher risk for severe illness from COVID-19(14).

WHO Emergency Situational Updates reported the march 9, 2021 COVID-19 epidemiological update as there were over 2.7 million new COVID-19 cases were reported a week before, a 2% increase compared to the previous week. The global case increase was driven by increases in the Eastern Mediterranean(10%), African Region (10%), and Europe (4%), while small declines were seen in the Americas (-2%), South-East Asia (-2%) and Western Pacific regions (-6%) (15). UNHCR stated, 09 March 2021, as the Ethiopian Ministry of Health (MoH) reported 168,335 coronavirus (COVID-19) cases and 2,451 deaths in the country. Ethiopia is currently one of five countries in Africa registering the highest numbers of COVID-19 cases, according to WHO, with a recent rise in the number of positive cases and deaths(16).

Global COVID-19 situational update reports showed that according to the WHO (as 30 September 2021, of 5:15pm CEST), there have been 233,136,147 confirmed cases of COVID-19, including 4,771,408 deaths, reported to WHO. As of 29 September 2021, 6,136,962,861 vaccine doses have been administered globally. In addition it mentioned last eight months COVID-19 situation in Ethiopia, from 3 January 2020 to 5:15pm CEST, 30 September 2021, stating there have been 344,322 confirmed cases of COVID-19 with 5,534 deaths, reported to WHO. As of 26 September 2021, 3,535,329 vaccine doses have been administered(17).

According to the Ethiopian Ministry of Health and the Ethiopian Public Health Institute's COVID-19 pandemic preparedness and response daily situation report (as 30, September 2021), since the first COVID-19 case was reported on 13 March, 2020, from 3,474,018 laboratory tests conducted a total of 345, 674 COVID-19 cases have been registered; out of these, 312,806 have recovered and 5,582 have died and total of 2,853,785 people have been vaccinated(18).

Few studies reported about the adherence to COVID-19 preventive measures in the first stage of the outbreak, like that Ugandan which reported high level of adherence to some of the individual

preventive measures, overall, 96% adhered to frequent handwashing, 90% to physical distancing, and 86% to cough hygiene, whereas the use of masks was low at 33%. And reported finally only 495 (29%) of participants were adherent to all the preventive measures(19).

Study done on improving the impact of non-pharmaceutical interventions during COVID-19 revealed that there were a range of demographic, social and psychological factors underpinning engagement with quarantine, school closures, and personal protective behaviours. Aside from the factors impacting on acceptance and compliance, there are several key community concerns about their use that need to be addressed including the potential for economic consequences(20).

NPIs can have an impact on the general well-being of the people and their economy. Then, the NPIs practice needed guidance with real data from local situation, which might at end, contribute to the protection of the most vulnerable people in the whole community. As long as there is no enough access to effective and safe vaccine to protect those at risk of severe COVID-19, NPIs are still the most effective public health interventions against COVID-19 and the like infections.

Reports showed that worldwide and at country level, day-to-day increases of COVID-19 status in terms of cases and deaths(13,21–26). Even though there is recently vaccine development at advanced world, and vaccination of selected groups of the society, prevention so far, the best practice in order to reduce the impact of COVID-19 considering the lack of effective treatment. Despite the efforts of government, voluntary campaign through media and local creation of awareness to implement NPIs in the town, still the ignorance of our people has been observed deteriorating day-to-day which may put the whole community at risk of this pandemic infection. In addition, the individual behaviour, beliefs and social characteristics of our communities had played the great role that impact the implementations of medical advices provided by health care provider, as well as absence of great deal of previous studies on local residents` factors that could affects the scientific evidence application to the real life

1.3 Significance of study

This study intended to determine the level of non-pharmacological interventions(NPIs) implementation and the factors which affects practices of COVID-19 preventive measures; by understanding the factors, barriers, and defining the level of implementation we can identify what strategies need to be adopted to motivate individuals and improve community practice. As a result, to plan interventions based on these key factors, will also ensure local and national implement appropriate and targeted responses, and acknowledge the strategies that will have an impact on an individual and the community. Therefore, the information from this study would enable the government and other stakeholders to revise and develop programs to improve prevention and control strategies of COVID-19 in the town and entire region; as well as to state the reference for further study since no complete studies done so far in the town and the region.

CHAPTER TWO: LITERATURE REVIEW

2.1 Level of non-pharmacological interventions (NPIs) implementation

Study done in Uganda to assess Level and determinants of adherence to COVID-19 preventive measures in the first stage of the outbreak, reported high level of adherence to some of the individual preventive measures, overall, 96% adhered to frequent handwashing, 90% to physical distancing, and 86% to cough hygiene, whereas the use of masks was low at 33%. And reported finally only 495 (29%) of participants were adherent to all the preventive measures(19).

The study reported also, those participants who obtained COVID-19 information from healthcare workers those who obtained COVID-19 information from village leaders, or those worried about their health were more likely to adhere to the preventive measures positively. Staying with siblings reduced the odds for high adherence. Furthermore reported females, health care workers, and those in the second wealth quintile were very satisfied with the preventive measures. Regarding some barriers it stated also participants who reported violence or discrimination at home during the lockdown period were less likely to be very satisfied with the COVID-19 the preventive measures(19).

The study undertaken in Dessie city of Ethiopia revealed the most frequently mentioned preventive measures were frequent hand washing (89.6%), physical distancing (82.8%), avoiding handshaking (54.7%), staying at home (44.6%) and face mask utilization (42.7%) (27).

Study done in Dirashe district of southern Ethiopia revealed that only 12.3% of the participants adhered to the existing COVID-19 preventive measures. This reported as low adherence to the recommended preventive measures(28).

2.2 Factors associated with non-pharmacological interventions (NPIs) implementation

Review done on twenty-six papers related to acute respiratory syndrome, avian influenza/flu (H5N1), swine influenza/flu (H1N1), and pandemics revealed psychological factors associated with carrying out the behaviours; such as perceived susceptibility to the disease, perceived efficacy of behavior, cues to action, social norms, state anxiety, perceptions about communications from authority, knowledge, are mentioned in detail in the following points;

Perceived susceptibility to the disease: associations between perceptions of risk and carrying out preventive behaviours. Perceived severity of disease: Constructs of perceived severity as assessed in the studies included the chances of dying from the disease and its infectivity. Mentioned the study showed that those who felt that swine flu was more severe were more likely to report carrying out hand washing, disinfecting, and arranging flu friend behaviours. Travelers between Hong Kong and mainland China who thought that SARS was fatal were more likely to wear masks, and those who believed that SARS was under control were found to be less likely to wear a mask(29,30).

Perceived efficacy of of behaviour: Perceived efficacy of behaviour was assessed in the studies by how far the respondents felt that the behaviour would protect them from disease; In a UK study, an association has been found between the perceived efficacy of preventive behaviours (hand washing, making flu friend plans, cleaning surfaces) in protecting against swine flu and reports of having carried these out. Studies amongst Hong Kong residents cross border travelers and air travelers have found a relationship between the perceived efficacy of mask wearing to protect against SARS and a greater likelihood of carrying out this behaviour(31). A relationship has also been found between efficacy of facemask use and reported intentions to wear one in the event of an avian influenza pandemic. A relationship has been found in the UK between the perceived efficacy of avoidant behaviours in protecting against swine flu and individuals reporting having carried them out. An association has been found in Hong Kong between a belief that avoiding public places was effective in protecting against SARS and doing this, and a belief that facemask wearing is efficacious and compliance with quarantine(29,31).

Social norms: Social pressure (in terms of what people think is expected of them by authority and family) has been shown to be associated with mask wearing during the outbreak of SARS, and of other recommended behaviours (good personal hygiene, keeping home clean, and building up body immunity) amongst adolescents. A qualitative Canadian study found an association between social pressure to comply with quarantine and carrying out this behavior(29,30).

Cues to action: Cues to action incorporated both internal cues (such as bodily symptoms) and external cues (such as mass media campaigns). It has been found in studies carried out in Hong Kong that individuals who had experienced symptoms that could be an indication of infection with SARS were more likely to adopt precautionary behaviours (e.g., hand washing, respiratory hygiene, etc.(32). A longitudinal study carried out in Hong Kong found that presence of symptoms was the best predictor of health service use(29,33).

State anxiety: Studies carried out in Hong Kong and Singapore have found that individuals with higher levels of general anxiety (as measured by the State-Trait Anxiety Inventory, are more likely to adopt recommended precautionary behaviours to protect against SARS such as hand washing, cough hygiene, mask wearing, using utensils, and washing after touching contaminated surfaces(34). The finding that higher anxiety is associated with a greater chance of uptake of precautionary behaviours was also observed in a longitudinal study carried out in Hong Kong(31,35).

Perceptions about communications from authority: It has been found that those individuals in Singapore who believed that the authorities were open with their communication were more likely to carry out precautionary behaviours. These included covering the mouth with bare hand when sneezing or coughing, washing hands after sneezing, coughing, or clearing nose; using soap or liquid hand-wash when washing hands; wearing a mask; using serving utensils for shared food; taking preventive measures when touching objects; washing hands after touching objects. In addition, those with greater trust in authorities to contain the spread of SARS and swine flu were more likely to adopt precautionary behaviours, and avoidant behaviours, and accept

antiviral medication. A Canadian qualitative study found that inconsistent information from authorities lead to individuals questioning the credibility of the information available and this affected their compliance with quarantine(7,29,35).

Age: Review reported also cross-sectional studies carried out in Singapore and Hong Kong examining the influence of age on behaviours to protect against SARS have found that older people are more likely to adopt precautionary behaviours such as included hand washing, respiratory hygiene, mask wearing, using utensils, and washing after touching contaminated surfaces(36). Stated the report also indicated older people are more likely to say they intend to be vaccinated against influenza during an outbreak of SARS, moreover mentioned age category from 18–24 more likely to follow recommended behaviours (hand washing more, cleaning surfaces more) than older people(29).

Gender: Review mentioned that Cross-sectional studies carried out in Hong Kong and Singapore and longitudinal study carried out in Hong Kong had found that women are more likely than men to adopt precautionary behaviours including hand washing, respiratory hygiene, mask wearing, using utensils, and washing after touching contaminated surfaces to protect against SARS(36). Also UK study, women were also more likely than men to follow recommended behaviours in the face of a swine flu pandemic(30). And Internet survey carried out in USA with mainly American respondents at the beginning of the swine flu outbreak found that women were more likely than men to carry out avoidant behaviour. In contrast to this mentioned there were no gender differences found in one Australian study for intentions to wear a mask,(37) or actual facemask use in studies carried out in The Netherlands and Hong Kong. In addition, no gender differences were found in intentions to be vaccinated(38). Moreover, finalized as the pattern of results here showed that when there is a significant difference women are consistently more likely than men to carry out the behaviours(38). However, a proportion of studies do not find any gender differences(29).

Ethnicity: Few studies have examined the association between ethnicity and behaviour during a pandemic like that of UK which reported the participants from non-White ethnic backgrounds

were more likely than White participants to take protective action and to adopt avoidant behaviours such as avoiding large crowds or public transport(30). And USA cross-sectional found that Hispanic respondents were more likely than Black or White respondents to say they would have a vaccine for swine flu and additionally Hispanic and White respondents were more likely than Black respondents to say that they would take an antiviral drug(39). An Australian cross-sectional study found that those individuals who spoke a language other than English in the home were less likely to say they would wear a mask, be vaccinated or quarantined in the event of an outbreak of pandemic flu(38). In contrast to this report mentioned that a study carried out in Singapore found no association between ethnicity and precautionary behaviour(35). And finalized that there was insufficient evidence to draw any firm conclusions about associations between ethnicity and pandemic-related behaviours(29,38).

Marital status: The review also stated one cross-sectional study in Hong Kong found married people to be more likely to wear face masks to protect themselves against SARS and another also carried out in Hong Kong, found that married people were more likely to report that they would comply with quarantine policies in the event of an outbreak of avian influenza. At the same time mentioned reports against this results as other studies like that of china study done on SARS related preventive and risk behaviours practised by Hong Kong–mainland China cross border travellers during the outbreak of the SARS epidemic in Hong Kong and the like had found no influence of marital status on reported mask wearing or hand washing and other precautionary behaviours or vaccination uptake. In addition, concluded lastly as the association between marital status and behaviour is therefore inconclusive(29).

Educational level/working status: Cross-sectional studies carried out in Hong Kong have found that those with more education are more likely to adopt precautionary behaviours such as The behaviours included hand washing, respiratory hygiene, mask wearing, using utensils, and washing after touching contaminated surfaces to protect against SARS and avian influenza(32). And study done in Australia found that more highly educated people reported a greater intention to wear a face mask in the event of pandemic influenza and in Korea during a SARS outbreak have been found to report that they intend to be vaccinated against influenza(38). In contrast to

this, Hong Kong cross-sectional study found that those with lower educational attainment were more likely to carry out protective behaviours. In addition, the USA cross-sectional study found that less educated people were more likely to say that they would be willing to be vaccinated against swine flu(29).

Also mentioned reports against this result as other studies carried out in Hong Kong and The Netherlands found no association between educational level and reported mask wearing or hand washing. And generally reported as many studies had shown unclear relationship between educational level and avoidant behaviour. But finalized as a whole more educated people are likely to take protective and avoidant behaviour, mentioning inclusiveness of some results(29).

Knowledge: Cross-sectional studies in Hong Kong and Australia have found that greater knowledge about how SARS is transmitted is associated with greater adoption of precautionary behaviours, and that a greater knowledge of the meaning of a pandemic is associated with intentions to comply with quarantine restrictions. Misconceptions and lack of knowledge can also be important. For example, a study in Hong Kong found that a belief that there was sustained spread by human to human contact of avian flu in the last 12 months (a misconception) was associated with precautionary behaviour (eating less poultry, taking/stocking Tamiflu, getting vaccinated) and misconceptions about mode of transmission of avian flu was associated with avoidance of hospitals(29).

However, a longitudinal study found that level of knowledge of SARS was not consistently or strongly associated with future uptake of precautionary behavior. Additionally, a study carried out in The Netherlands found no association between knowledge of SARS and behavior(29).

Saudi Arabian study that assessed knowledge and attitude of the community towards COVID-19 and their precautionary measures against the disease among Aseer Region residents reported 97.4% and 68.1% of the participants knew the transmission methods and symptoms of COVID-19, respectively**.** And mentioned that the age and educational level differences among the the residents did not significantly affect their precautionary measures against COVID-19.As it also

found that female participants have been using more precautionary measures than male participants(40).

Hong Kong and Australia longitudinal study mentioned above have reported the generalization that more educated people are more likely to adopt preventive and avoidant behaviours, although three studies found that less educated people were more likely to adopt the behaviours. There is some evidence that these observed associations may be mediated by differing attitudes, for example, higher levels of perceived susceptibility to disease amongst women may explain why there is an observed link between being female and being more likely to comply with quarantine restrictions, wear a mask, and perform hygiene behaviours. Gender has been found to be related to risk judgments in other areas than pandemic disease. For example, found that of 25 hazards (e.g., the risk posed by nuclear power plants) women consistently judged risk higher than men did(29).

Study done among high-risk groups in Addis Ababa city stated that half (48%) of the study participants had poor knowledge on mode of transmission and (60%) had good knowledge on prevention methods for COVID-19. The study reported also low (49%) practice of preventive measures towards COVID-19. In addition, reported the female gender, older age, occupation (health care and grocery worker), lower income and the use of the 8335 free call Centre. Older age, occupation (being a health worker), middle income, experience of respiratory illness and religion were significantly associated with being knowledgeable about the prevention methods for COVID-19 and factors that influenced knowledge on COVID-19 transmission mechanisms. In the same way, stated occupation, religion, income, knowledge on the transmission and prevention of COVID-19 were associated with the practice of precautionary measures towards COVID-19. Moreover, concluded as study participants had moderate knowledge and practice(41).

Reported result of study done in Dirashe district of southern Ethiopia showed 63.51% of participants had good knowledge and 54.5% of the participants had favorable attitude towards COVID-19 preventive measures(28).

Study undertaken in Dessie city revealed the source of participant information about CCOVID-19 were from television (79%), radio (37%) and social media/Facebook (31.6%). And they know the symptom like fever (78.8%) while 68.9% and 23.6% reported cough and shortness of breathing, respectively. In addition, commonly mentioned modes of transmission were direct contacts like handshaking (94.3%), respiratory droplets (52.1%) and indirect contacts to contaminated inanimate objects (33.3%). Airborne way of transmission is also mentioned by 37.7% of the participants. The study finalized that 92.7% of participants have sufficient knowledge about COVID-19, while 96% have a favorable attitude to prevent and control the pandemic, and 44.6% adequate practice(27).

Report of the study done in Jimma among Jimma university medical center visitors stated that majority 83.0% knew the main clinical symptoms of COVID-19. 72.0% knew that older people with chronic illnesses are high-risk group prompt to developing a severe form of the disease, and about 95.1% knew that the coronavirus spreads via respiratory droplets, 31.2% of them knew the asymptomatic individual can transmit the virus, and only 6.1% knew that children and young adults had to involve preventive measures. 77.3% frequently washed hand, whereas 53.8% avoided hand shaking were the dominant practices. Knowledge status, self-efficacy (positively), older age, and unemployment (negatively) predicted hand washing and avoidance of handshaking. In the same way stated the overall, 41.3% of the visitors had high knowledge and majority of them knew the ways of protection against COVID-19 infection mentioning the challenge in the transformation of knowledge to actual practice in order to control the disease(42).

Also Dirashe district`s reported that the Urban residence, favorable attitude and COVID-19-related stigma were independently associated with communities adherence with COVID-19 preventive measures(28).

Study done in Gonder showed the challenges of social distancing in the community, majority of the study participants, which was 55.36 %, have poor compliance to social distancing measures

set by the government and health authorities. In addition, indicated the compliance increased with increasing age(43).

Finding of study done in Debretabor stated Overcrowding 66.1% insufficient training71.05% , lack of resources52.55%, and less commitment 51.45%, lack of policy 68.95% lack of knowledge 41.5% were perceived barriers to physical distance measure practice among healthcare providers(44).

Internet-based study done in Ethiopia reported two misperceived factors; myths (31.6%) and false assurances (32.9%), and one correctly identified; engagement in standard precautions (17.1%) was perceived inhibitors which impact the combating efforts exerted to control the Covid-19 infection, explained Myths about protection from the virus involve perceived religiosity and effectiveness of selected food items, hot weather, traditional medicine, and alcohol drinking, ranging from 15.1% to 54.7%. False assurances include people's perception that they were living far away from areas where COVID-19 was rampant (36.9%), and no locally reported cases were present (29.5%) (45).

2.3 Conceptual framework

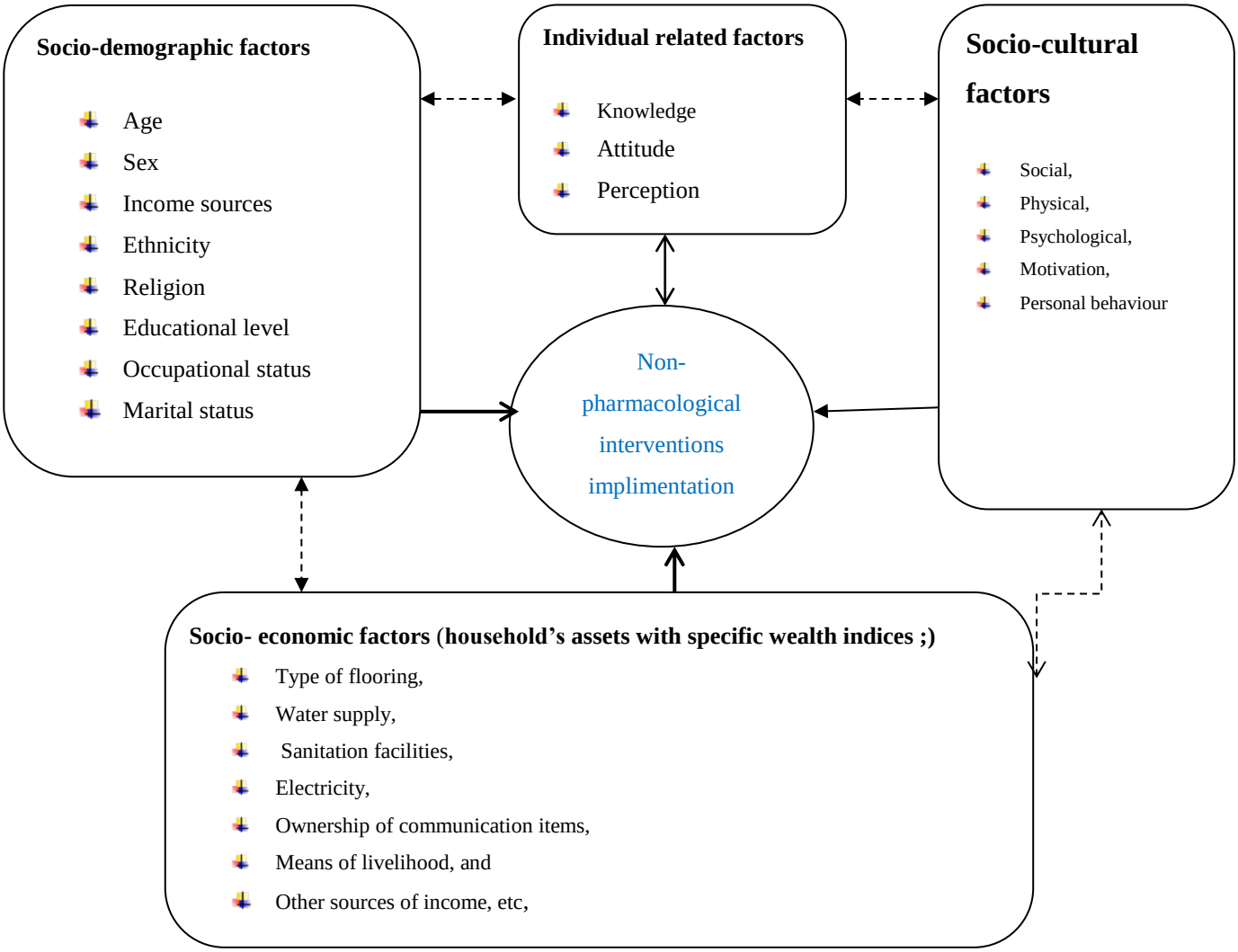

Figure 1: Conceptual framework of level of Non-pharmacological interventions implementation and associated factors among adult residents of Assosa town, 2021

CHAPTER THREE: OBJECTIVES

3.1 General objective

To assess level of implementation of Non-Pharmacological Interventions to Prevent COVID-19 Infection and Associated Factors among adult residents in Assosa town, Benishangul Gumuz Region, North West Ethiopia.

3.2 Specific objectives

To determine level of implementation of Non-Pharmacological Interventions to Prevent COVID-19 Infection

To identify the factors associated with implementation of Non-Pharmacological Interventions to Prevent COVID-19 Infection

CHAPTER FOUR: METHODS AND MATERIALS

4.1 Study area and Period

The study was conducted from May 24 to June 11/2021 in Assosa town, the capital of the Benishangul-Gumuz National Regional State. The town ranked as town administration is located in the North West part of the country about 675 kilometers away from the capital Addis Ababa. The town surrounded and shares boundaries with major parts of Oura district of Assosa Zone in the North and North East, West, then in the South East parts, and Abramo district in the South. The town currently divided in to two administrative districts comprising 10 Kebeles of community close fitting sub-administrative. The town has total population of 68,080 and 15,129 households based on 2013 E.C projected estimation. There is one public general hospital and two health centers, and other public and private sectors providing primary health care services, eight public schools of different levels, and one youth center in the town. Currently there are eight Mosques, five Orthodox Churches, eight Protestant churches, and a Catholic Church, religious institutions leading their follower communities spiritually.

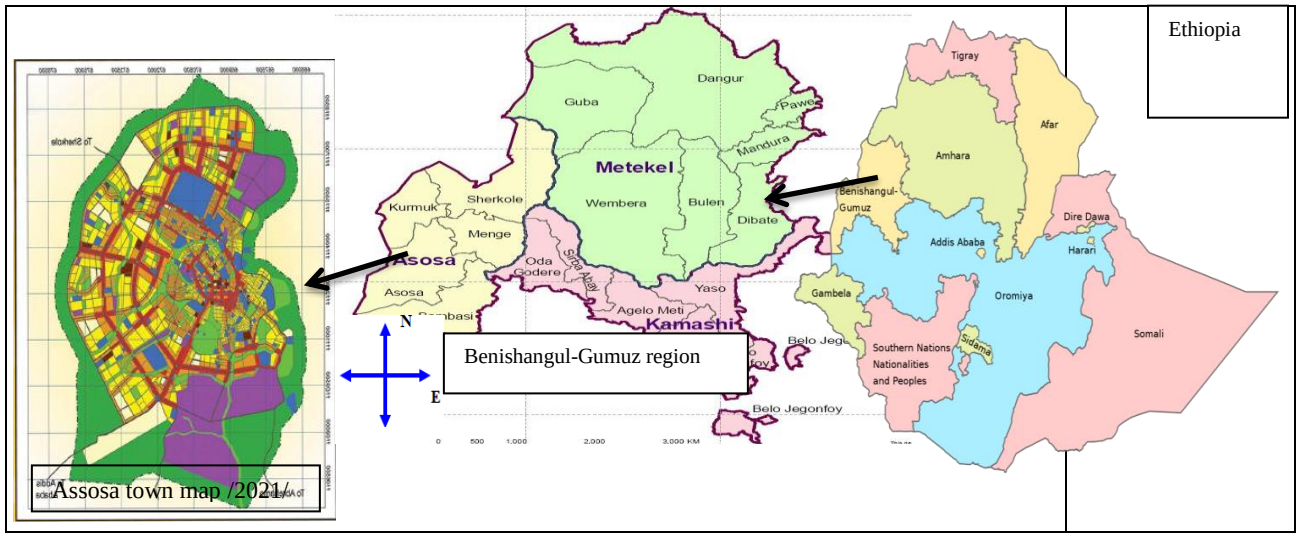

Figure 2 : Map of Assosa town in Benishangul-Gumuz region, Assosa indicated in Assosa Zone; taken from EDHS and Assosa town adminstration-2021.)

4.2 Study design

Community-based cross-sectional study was used.

4.3 Population

4.3.1 Source Population

All households residing in Assosa town during the study period

4.3.2 Study Population

All randomly selected households of Assosa town during the study period

4.3.3 Inclusion criteria

Residents eighteen and above years old, who were living for at least 6 months in Assosa town

4.3.4 Exclusion criteria

Individuals who were critically ill and unable to respond were excluded from the study

4.4 Sample size determination and sampling procedure

4.4.1 Sample size

From literatures reviewed there were limited studies showed the prevalence about the level of NPIs implementation to consider for the estimation of the sample size, also similar studies showed some factors affecting NPIs implementation. To address the objectives, the prevalence reported on misperceived factors; myths (31.6%) and false assurances 32.9% of Internet-based study done in Ethiopia, and prevalence of poor compliance to social distancing measures (55.36 %) from study done in Ethiopian Gonder community; in addition

to other factors like knowledge, attitude, adherence to prevention measures were considered for sample size calculation as shown in the following table**.** (Table 1)

Table 1: Sample size calculation using Epi-info version 7.2.4.0 software for factors associated with NPIs implementation to prevent COVID-19 infection in different studies.

Variables	Authors	Study area	Percent of prevalence		CI p-value	Power	Ratio	Sample size for group 1		Total sample size
Myths	Kebede, Y. *et al.* (2020)	Ethiopia	31.6		0.316	80		332.135		**333**
False assurances	Kebede, Y. *et al.* (2020)	Ethiopia	32.9		0.329	80		373.95456		**374**
Poor compliance to social distance	Hailu, W. (2020)	Northwest Ethiopia	55.36		0.5536	80		379.74		**380**
Factors	Authors	Study area	Percent of prevalence of good,favourable,and good respectively		CI p-value (AOR)	Power	Ratio	Sample size for group 1	Sample size for group 2	Total sample size
			%of non-exposed	% of exposed						
Knowledge	Bante, A. *et al.* (2021)	Dirashe district of southern Ethiopia	94.55/13.45	86.55/5.75	1.04	80	1	12	18	30
Attitude	Bante, A. *et al.* (2021)	Dirashe district of southern Ethiopia	83.76/7.51	92.49/16.24	1.05	80	1	16	16	32
Adherence	Bante, A. *et al.* (2021)	Dirashe district of southern Ethiopia	94.81/5.19	85.51/14.49	2.435	80	1	12	20	32

So the sample size for this study was estimated using a single population proportion formula to address the first objective, considering the following statistical assumptions:

95% level of confidence, taking 5% margin error and 80% power for all variables, confidence level = 1.96, taking the 55.36 % prevalence reported on poor compliance to social distancing measures from study done in Ethiopia, Gonder community for sample size calculation**.**

$$n=\frac{Z^2P(1-P)}{D^2}$$

Where n= the sample size Z= the standard normal value corresponding to the desired level of confidence, 95% which corresponds to the value 1.96, P= proportion of estimated of the population proportion, D= the margin of error defined by the alternative hypothesis (the existing difference), 5% is accepted.

$n=\frac{Z^2P(1-P)}{D^2}=$ $n=\frac{1.96^2\times0.5536(1-0.5536)}{0.05^2}=$ $n=379.74\approx380$

Taking 5% marginal error the sample size becomes $379.74\approx380$

By considering 10 percent of non-respondent rate $\frac{380+10}{100*380}=418.$

4.4.2 Sampling technique

All ten Kebeles was separately enlisted and proportionate allocation was done to each kebele. A total of HHs was enumerated and the initial HH was selected by lottery method from each kebele finally, 418 respondents have been selected from the sampled households using simple random sampling technique.

Schematic presentation of Sampling Procedures

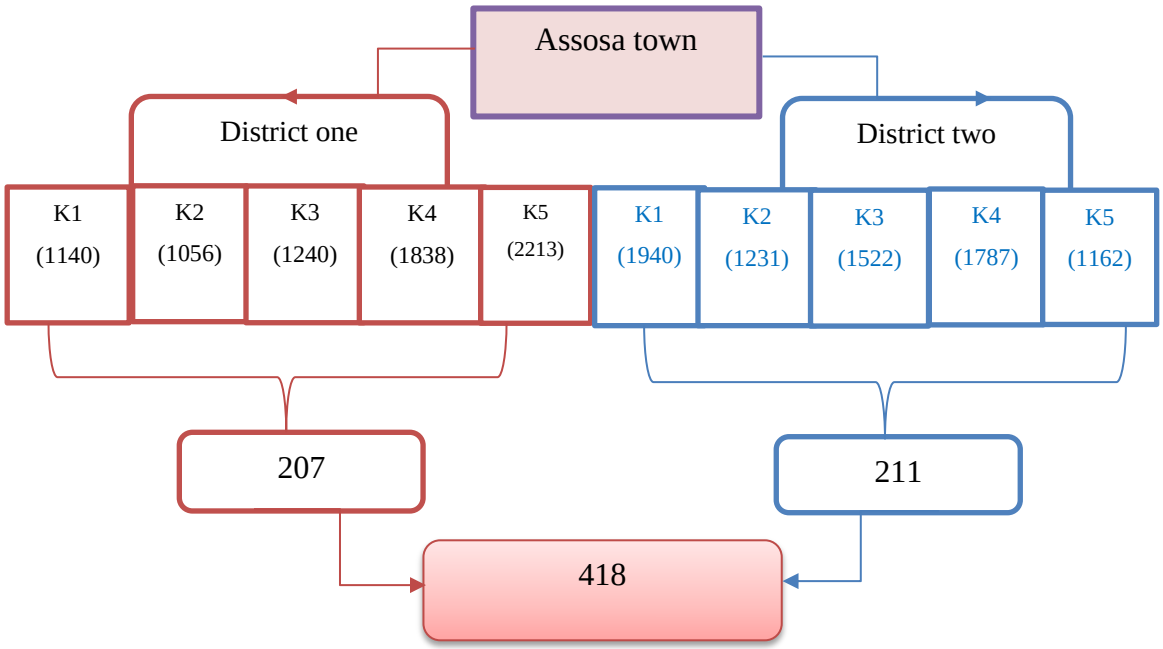

Figure 3: Schematic presentation of sampling procedures for the proportional allocation of sample size to each kebele in Assosa town, 2021.

N.B. K1, K2…etc. indicates kebele numbers

4.5 Instrument & data collection procedure

To assess the level of implementation of NPIs to prevent COVID-19 infection and associated factors: structured interviewer-administered questionnaire adopted from some literatures and EDHS then modified and developed observational checklists was used to collect the Personal protective measures, Social distancing measures, Environmental measures, Travel-related measures, Socio: Demographic, Economic, Cultural, Behavioural, and other related factors that impacts the implementation of NPIs to prevent Covid-19 infection related information. The selected respondents' households' environment were observed before interview and then respondents eligible for the study was randomly selected from household's members and interviewed face to face on prevention of current pandemic of COVID-19 disease.

4.6 Study Variables

4.6.1 Dependent variable

Non-pharmacological interventions implementation

4.6.2 Independent variables

Socio-demographic variables including age, sex, marital status, and occupation,

Socio- economic factors wealth indices such as household's assets with specific wealth indices; type of flooring, water supply, sanitation facilities, electricity, ownership of communication items, means of livelihood, and other sources of income, etc.,

Individual related factors: Attitude, perception, knowledge about COVID-19 prevention,

Personal protective measures: face masks, hand hygiene, and respiratory etiquette,

Environmental measures: surface and object cleaning and other environmental measures

Social distancing measures: contact tracing, isolation of sick individuals, quarantine of exposed individuals, school measures, workplace measures, and avoiding crowding

Travel-related measures: travel advice, entry and exit screening related factors, were explanatory variables considered to study the level and factors that affects the practice of non-pharmacological interventions to prevent COVID-19 infection among adult residents in households of Assosa town, Benishangul-Gumuz Region, North West Ethiopia, 2021.

4.7 Measurements and definitions

Knowledge: Knowledge of the respondents on COVID-19 prevention methods was measured by the total number of correct answers to eight (8) items on knowledge questions, with a minimum score of 0 and maximum of 8. Those who scored 80% and above were declared as having good knowledge, those who have in between 60% to 79% declared as having moderate knowledge and those who scored less than 60% were declared as having poor knowledge.

Good knowledge: Those who scored 80% and above on COVID-19 prevention methods from knowledge questions.
Moderate knowledge: Those who scored 60% to 79% on COVID-19 prevention methods from knowledge questions.
Poor knowledge: Those who scored less than 60% distinct features of COVID-19 prevention methods from knowledge questions.

Attitude: Attitude of the respondents toward COVID-19 prevention methods was measured by Likert scale type questions. This was measured by the total number of correct answers from attitude questions toward COVID-19 prevention methods and the mean score of these answers was computed. Then respondents were declared as having favourable attitude and unfavourable attitude.

Favorable attitude: Those who scored above mean to the correct answers from attitude measuring COVID-19 prevention methods questions.
Unfavorable attitude: Those who scored mean and below mean to the correct answers from attitude measuring COVID-19 prevention methods questions.

Implementation or Practice: compliance to NPIs was considered as good (high) if an individual either implemented ≥75% of the personal protective measures, environmental measures, social distancing measures, travel-related measures. Moreover, was considered poor (low) compliance if was either.

Wealth index: Wealth index key background characteristics or assets and services included as indicator variables such as owing home, type of roofing and flooring, room for sleeping and cooking, type of water supply, type of sanitation, electricity, refrigerator, Television, mobile phone, fixed phone line, radio, electric mita`d (pan), vehicle, having bank account, means of livelihoods and others, which are shared between household members, and most are just indicators of possession of at least one or none, rather than quantities was analysed per households using Principal Component Analysis (PCA) to measure the economic status of the respondents household. Considering the key assumptions of PCA such makes the assumption that there is no unique variance, the total variance is equal to common variance. Recall that variance can be partitioned into common and unique variance.

The composite variables were extracted by summing up the principal components into three components. The adequacy of the model for PCA was checked by value of Kaiser-Meyer-Olkin measure of sample adequacy (KMOSA), it became 0.78, and the sample was adequate. Eigen values were used to decide number of Principal Components (PCs) to be retained. Only PCs with Eigen values greater than 1.0 were retained. Three components were explained wealth index with the overall cumulative variance percentage of 68.5%. Detection of outliers & inter-item consistency was performed. To check inter–item consistency, Cronbach's alpha for all factor lodgings of each component were computed and it became 0.81. Then, Quintiles of wealth index were generated using the composite score, at final was used to measure the NPIs practice level between households in relation to economic status asserting respondent`s household as first quintile (Poorest) to fifth quintile (Richest).

First quintile (Poorest): respondents in 0-20% of wealth index percentile
Second quintile (Poor): respondents in 21-40% of wealth index percentile
Third quintile (Medium): respondents in 41-60% of wealth index percentile
Fourth quintile (Rich): respondents in 61-80% of wealth index percentile
Fifth quintile (Richest): respondents in 81-100% of wealth index percentile

Physical measures to stop respiratory viruses spreading between people include: Washing hands often; Not touching eyes, nose, or mouth; Sneezing or coughing into elbow; Wiping surfaces with disinfectant; Wearing masks, eye protection, gloves, and protective gowns; Avoiding contact with other people (isolation or quarantine); Keeping a certain distance away from other people (distancing); and Examining people entering a country for signs of infection (screening)

Proper hand hygiene practice: A person washes hands; the front, back, fingertips, rub thumb and palms with adequate water and detergent at least for 20 -30 seconds or uses sanitizer/hand rub to the level of compliance before getting in the facility or taking the services.

Social distancing: public health measures taken to delay and diminish transmission of COVID-19: At the individual level, it involves the use of non-contact greetings, maintaining at least one-meter distance between oneself and other people, and staying home when ill. At the community level, it involves closure of any events or settings in which people gather together, including schools, workplaces, houses of worship, and cultural, social and sports events.

Proper physical distance: A person keeps at least 1 meter away from another person during getting services, during greetings, during shopping, during discussing, or during praying.

Proper respiratory hygiene: A person covers the mouth and nose with mask or any type of cloth or handkerchief or tissue.

Source: The DHS wealth index: Approaches for Rural and Urban Areas.2008 and World Health Organization:https://www.who.int/redirect-pages/mega-menu/health-topics/popular/coronavirus-disease-(covid-19)(46)

4.8 Data processing and analysis

The data were collected through questionnaire and checked for its completeness and then was cleaned, coded and entered in to Epi–data version 3.1 and exported to Statistical Package for Social Science (SPSS) software version 23 for analysis. Descriptive statistics like frequency and

percentage with chi-square mean and standard deviation with students t-test, Hosmer Lemeshow goodness of fit test, Bivariable logistic regression analysis was performed to identify candidate variables at p-value of <0.25 and then multivariable logistic regression analysis was conducted to determine the factors associated with NPIs implementation. In multivariable model, adjusted odds ratios together with their corresponding 95% CI was calculated to assess strength of association and to declare statistical significance at p-value of < 0.05.

4.9 Data quality assurance

To maintain the data quality the questionnaire was translated from English to Amharic language and back to English. Data collectors and respondents were employed strict COVID-19 prevention techniques during data collection. Data collectors were able to hear and speak the respective local languages of the study area were trained for one day and the data collection process was strictly supervised for checking the completeness of the filled questionnaire and five percent re-interviewing of sample was done.

4.10 Ethical considerations

Ethical clearance was obtained from the institutional review board of Jimma University (Ref.NO:17/RPGY/93/21). Permission letters were obtained from respective Assosa town administration and town health department. Before the beginning of data collection, informed-verbal and written consent was obtained from respondents, after informing them all the purpose, benefit, risk, the confidentiality of the information, and the voluntary nature of the participation in the study.

4.11 Dissemination plan

The result of the study was presented and after incorporating comments it was submitted to the Jimma University, Institute of health, Faculty of public health, Department of Epidemiology and was disseminated to the Assosa town administration, Assosa town health department and Benishangul-Gumuz region health bureau. For further utilization of the results, It was made available in the library for further reference and maximum efforts will be done to publish it on reputable scientific journals.

CHAPTER FIVE: RESULT

5.1 Socio-demographic characteristics of respondents

Among the total sample size four hundred and eighteen (418), were interviewed, giving a response rate of 100%. Overall, 224 of the respondents were female (53.6%) and 194 were male (46.4%). Respondents age ranged from 18 to 80 years, and their mean (±SD) age was 33.81 (±12.046), and majority of them, two hundred and fifteen (59.8%) were between 18-27 years old. Majority of the respondents, about 287(68.7%) were married. Their educational status distribution showed micro convergence in majority. Most of the respondents were Orthodox 193(46.2%) followed by Muslim 178(42.6%) in religion. Governmental employee 130(31.1%), Housewife 81(19.4%) followed by Merchant; 72(17.2%) were occupational status represented the majority of the respondents. Also majority of them (28.2%) were laid in the second quintile (poor) wealth index (Table 2)

Table 2: Socio-demographic characteristics of respondents of selected households in Assosa town, 2021

Variables	Responses	Frequency (N)	Percent (%)
Sex	Male	194	46.4
	Female	224	53.6
Age in years	18-27	250	59.8
	28-37	100	23.9
	38-47	50	11.6
	≥ 48	18	4.3
	Benishangul	79	18.9
	Amhara	194	46.4
	Oromo	95	22.7
	Gumuz	7	1.7

Ethnicity	Shinasha	20	4.8
	Mao/Komo	2	0.5
	Others* Debub, Tigray and Gurage	21	5
Religion	Muslim	179	42.6
	Orthodox	193	46.2
	Protestant	39	9.3
	Catholic	8	1.9
Educational status	Unable to read and write	21	5
	Only read and write	15	3.6
	Grade 1-8	92	22
	Grade 9-12	90	21.5
	Diploma	99	23.7
	Degree	93	22.2
	Masters	8	1.9
Marital status	Single	124	29.7
	Married	287	68.7
	Divorced	3	0.7
	Widowed	3	0.7
	Others* Separated	1	0.2
Occupational status	Government employee	130	31.1
	Private organs'	23	5.5
	Merchant	72	17.2
	Farmer	18	4.3
	Daily laborer	32	7.7
	House wife	81	19.4
	Student	44	10.5
	Others* Jobless, Retired, Driver	18	4.3

Wealth index	First quintile (Poorest)	102	24.5
	Second quintile (Poor)	118	28.2
	Third quintile (Medium)	53	12.7
	Fourth quintile (Rich)	95	22.7
	Fifth quintile (Richest)	50	11.9

5.2 Non-pharmacological interventions implementation to prevent COVID-19

NPIs implementation to prevent COVID-19 related characteristics of the respondents was measured using four various categories such as Personal protective measures, Social distancing measures Environmental measures, and Travel-related measures were described in the tables listed below. (Tables: 3, 4, 5, 6)

The overall level of NPIs implementation to prevent COVID-19 infection among respondents was 62.455% from the four various categories of NPIs recommended to be implemented by the community such as Personal protective measures 230 (55.02%), Social distancing measures 361(86.4%), Environmental measures 402 (96.2%), and Travel-related measures 51(12.2%) respectively.

5.2.1 Personal protective measures

The overall personal protective measure adherence among the respondents reported was 230 (55.02%). (Table 3)

Table 3: Personal protective related measures to control COVID-19 related characteristics of respondents of selected households in Assosa town, 2021

Variables	Responses	Frequency (N)	Percent (%)
Do you wear face mask to protect yourself from Coronavirus (COVID-19)?	Yes	221	52.9
	No	197	47.1
If yes how often you wear?	Always	267	63.87
	Sometimes	140	33.49
	Only in crowding areas	8	1.9
	Others*	3	0.71
Do you wash your hands with soap or use hand sanitizer regularly	Yes	251	60.04
	No	167	39.96
How often you wash your hands with soap or use hand sanitizer regularly	Only when I enter my home	98	23.4
	Always when I feel my hand might touched any	120	28.7
	Contaminated objects	190	45.4
	Others*	10	2.4
What do you do when coughing or sneezing	I do nothing, since it happens suddenly so I cannot control myself at the time of sneezing/coughing	100	23.9
	Sometimes I use my hand to cover my nose /mouth	283	67.7
	Others*	35	8.4
Do you think people in your area are practicing personal protective measures; like hand hygiene, respiratory etiquette and face masks to protect themselves or others from Coronavirus (COVID-19)?	Yes	290	69.4
	No	128	30.6

If no, why do you think the reason?(multiple answer is possible)	They think no Coronavirus (COVID-19)	150	35.9
	They think Coronavirus cannot infect them	157	37.5
	They claim they have traditional /local medicine to cure Coronavirus	34	8.1
	They believe there is Coronavirus but, neglecting the prevention methods.	67	16
	Others*	10	2.4
Overall compliance	**Responses**	**Frequency (N)**	**Percent (%)**
	Yes	**230**	**55.02%**
	No	**188**	**44.97%**

5.2.2 Social distancing measures

The overall of adherence to social distancing measures of households showed majority 361(86.4%) of respondents reported the compliance to social distancing measures while 57 (13.6%) denied the adherence. (Table 4)

Table 4: Social distancing related measures to control COVID-19 related characteristics of respondents of selected households in Assosa town, 2021

Variables	**Responses**	**Frequency (N)**	**Percent (%)**
Few days ago, have you gone to any crowded places? (Church, mosque, open	Yes	148	35.4
	No	270	64.6

market, funeral, wedding, work…)			
If yes, do you think it was an absolute reason?	Yes	148	35.4
	No	270	64.6
What form of transport you often used to go out of your home?	On foot	182	43.5
	Public transport	163	38.9
	Private transport	73	17.5
Most of the time, do you keep yourself 6 feet (2 meters) apart from other people	Yes	250	59.8
	No	168	40.2
Did you use physical greetings such as handshaking, hugs and kisses	Yes	98	23.4
	No	320	76.6
Do have any (your children, relative….) who go to school at your home?	Yes	368	88
	No	50	12
Do think, he/she apply Covid-19 prevention measures in the way and in side school?	Yes	300	71.8
	No	118	28.2
What do you do whenever you think an individual might have Covid-19?	I will call Covid-19 center	98	23.4
	I will isolate him/her in single room	236	56.5
	I will treat him/her with traditional/local remedies	39	9.3
	Others***** /	45	10.8
Are you able to fully protect yourself against the Coronavirus (COVID-19)?	Yes	250	59.8
	No	168	40.2
What is preventing you from fully protecting yourself against the Coronavirus (COVID-19)? (multiple answer is possible)	Shortage of soaps	87	20.8
	Shortage of hand sanitizer	123	29.4
	Shortage of masks	50	12

	Increasing of the price of items in the market	50	12
	Loss/Decrease of wages	10	2.4
	Unavailability of these items in some areas	58	13.9
	Insufficient information	35	8.4
	Others*	5	1.2
Did you think why people are not used to apply prevention measures to prevent Covid-19? (multiple answer is possible)	They don't know it is protective	108	25.8
	They think it is against the norms	123	29.4
	They think it is against the religion thought	67	16
	They think no Covid-19	100	23.9
	Others *	20	4.8
Overall compliance	**Responses**	**Frequency (N)**	**Percent (%)**
	Yes	361	86.4%
	No	57	13.6%

5.2.3 Environmental measures

The overall of adherence to environmental measures of households showed majority 402(96.2%) of the respondents reported the compliance to environmental measures while 16 (3.8%) denied the adherence. (Table 5)

Table 5: Environmental related measures to control COVID-19 related characteristics of respondents of selected households in Assosa town, 2021

Variables	Responses	Frequency (N)	Percent (%)
Do you think Coronavirus (COVID-19) can stay on any objects/materials/ for long time	Yes	150	35.9
	No	268	64.1
Do you use to clean objects/materials/ at your work area/office (tables, shelves, chairs…) to kill virus from the surface?	Yes	250	59.8
	No	168	40.1
If yes, what do you use to clean objects/materials/ at your work area/office (tables, shelves, chairs…) to kill virus from the surface?	Water only	80	19.1
	Water and soap	120	28.7
	Alcohol based sanitizer	100	23.9
	Both Water, soap and then sanitizer	92	22
	Others*	26	6.2
Overall compliance	**Responses**	**Frequency (N)**	**Percent (%)**
	Yes	**402**	**96.2%**
	No	**16**	**3.8%**

5.2.4 Travel-related measures

The overall adherence to travel-related measures of the respondents only 51(12.2%) always followed the travel related measures while 367(87.8%) sometimes respectively. (Table 6)

Table 6: Travel-related measures to control COVID-19 related characteristics of respondents of selected households in Assosa town, 2021

Variables	Responses	Frequency (N)	Percent (%)
How often you follow travel advices to prevent Covid-19 related to travel especially when crossing borders between Ethiopia and Sudan for marketing or treatment?	Always	48	11.5
	Some times	360	86.1
	Never follow	7	1.7
	Others*	3	0.7
Could you indicate people fear to come front to undergo Covid-19 screening during entry and exit borders between Ethiopia and Sudan for marketing or treatment? (multiple answer is possible)	Fear of 14 days quarantine isolation	250	59.8
	Fear to lost work during quarantine	103	24.6
	Fear of social stigma	40	9.6
	Others*	25	6
Overall compliance	**Responses**	**Frequency (N)**	**Percent (%)**
	Yes	**51**	**12.2%**
	No	**367**	**87.8%**

5.3 Individual related factors

5.3.1 Knowledge related characteristics of the respondents

Regarding the knowledge related characteristics; 310 (74.2%) of the respondents had good knowledge, 100(23.9%) had moderate knowledge, and 8(1.9%) had poor knowledge of COVID-19 preventive measures (Table 7).

Table 7: Knowledge related characteristic of respondents of selected households in Assosa town, 2021

Variables	Responses	Frequency (N)	Percent (%)
Have you heard/seen messages of the Coronavirus (COVID-19)?	Yes	400	95.7
	No	18	4.3
Main source of information/messages about Coronavirus (COVID-19)?	Television	80	19.1
	Radio	130	31.1
	Social media	100	23.9
	Friends/neighbors	20	4.78
	Health professionals	36	8.6
	Kebele Administrators	30	7.1
	Religious leaders	20	4.78
	Others*	2	0.47
To what extent do you agree/disagree with the following statement? It is difficult to decide which information I receive about the coronavirus is real, fake, or just rumors.	Disagree	58	13.87
	Strongly disagree	300	71.77
	Neutral	10	2.39
	Agree	20	4.78
	Strongly agree	30	7.17
What are the main means of coronavirus (COVID-19) Transmission? (multiple answer is possible)	Exposure to droplets during sneezing, coughing and talking	198	47.36
	Hand shaking	93	22.24
	Touching eyes, nose and mouth with unclean hands	53	12.67
	Touching of objects/surfaces contaminated with virus	40	9.56

	Any close contact with infected person (family member, caregivers…)	60	14.35
	Washing hands with soap or using hand sanitizer	250	59.8
	Avoid touching out face with unclean hands	97	23.2
	Putting face masks	37	8.8
What are the main prevention methods of coronavirus (COVID-19)?	Social distancing measures	23	5.5
	Staying at home unless absolutely essential to move out	5	1.2
	Avoid crowding areas	10	2.4
	Others*		
	Fever	100	23.9
	Headache	81	19.4
	Coughing	50	11.9
Are any of the following possible signs of	Sneezing	10	2.4
Coronavirus (COVID-19)? (Select all that	Runny nose/nasal	35	8.4
apply)	congestion		
	Fatigue/ tiredness	32	7.6
	Muscle pain	10	2.4
	Joint pain	10	2.4
	Difficulty breathing	15	3.6
	Loss of appetite	10	2.4
	Diarrhea	10	2.4
	I Don't know	5	1.2
What have you done to protect you and/or	Washing your hands for	89	21.3

your family from the Coronavirus (COVID-19)?	20 second with soap and water		
	Use Sanitizers	51	12.2
	Wear mask to cover nose and chin when out of the house	60	14.4
	Stand 6 feet apart from people	78	18.7
	Staying at home (unless it is absolutely necessary to go out)	40	9.6
	Not touching face	32	76.5
	Taking medicines without doctor's prescription	62	14.8
	Others*	6	1.4
How do you feel about Coronavirus (COVID-19)?	Fearful	80	19.1
	Very fearful	197	47.1
	No feeling	30	7.2
	Fearful but optimistic	35	8.4
	Optimistic	76	18.2
Variables	**Responses**	**Frequency (N)**	**Percent (%)**
Knowledge status on COVID-19	**Poor**	**8**	**1.9**
	Moderate	**100**	**23.9**
	Good	**310**	**74.2**

5.3.2 Attitude related characteristics of the respondents

Regarding to attitude related characteristics; 264 (63.2%) of the respondents had favorable attitude and 154 (36.8%) of them had unfavorable attitude toward COVID-19 (Table 8)

Table 8: Attitude related characteristic of respondents of selected households in Assosa town, 2021

Variables	Response category				
	Strongly Agree	Agree	Uncertain	Disagree	Strongly disagree
	N (%)	N (%)	N (%)	N (%)	N (%)
COVID-19 infection is severe disease	198(47.4)	90(21.5)	30(7.1)	60(14.35)	40(9.6)
It is better to die than getting COVID-19 infection	30(7.1)	50(11.9)	33(7.8)	105(25.1)	200(47.8)
COVID-19 has serious negative consequences on human life	198(47.4)	90(21.5)	30(7.1)	60(14.35)	40(9.6)
COVID-19 is extremely harmful	200(47.8)	160(38.3)	10(2.4)	18(4.3)	30(7.2)
It is likely that I will get COVID-19 infection	200(47.8)	160(38.3)	10(2.4)	18(4.3)	30(7.2)
I am at risk for getting COVID-19 infection	100(23.9)	98(23.4)	8(1.9)	108(25.8)	120(28.7)
COVID-19 disease is not occurred in my locality. So, I don't have to worry about it	30(7.1)	50(11.9)	33(7.8)	105(25.1)	200(47.8)
It is possible that I will get COVID-19 infection	200(47.8)	160(38.3)	10(2.4)	18(4.3)	30(7.2)
In many aspects, I am less likely to acquire COVID-19	198(47.4)	90(21.5)	30(7.1)	60(14.35)	40(9.6)
I believe that washing hands frequently with soap and water	200(47.8)	160(38.3)	10(2.4)	18(4.3)	30(7.2)

kills/remove the virus that causes COVID-19					
I believe that using alcohol-based sanitizer hand rub kills the virus that causes COVID-19	200(47.8)	150(35.9)	20(4.8)	30(7.2)	18(4.3)
I believe that maintaining social/ physical distancing can prevent COVID-19 infection.	200(47.8)	150(35.9)	20(4.8)	30(7.2)	18(4.3)
I believe that avoiding touching eyes, nose and mouth prevent COVID-19 infection.	198(47.4)	90(21.5)	30(7.1)	60(14.35)	40(9.6)
I believe that covering my cough/ sneezing using the bend of my elbow or a tissue prevent spread of COVID-19.	100(23.9)	198(47.4)	12(2.9)	64(15.3)	44(10.5)
I believe that avoiding living/working in crowed places and close contact with anyone prevent risk of infection with COVID-19.	100(23.9)	198(47.4)	12(2.9)	64(15.3)	44(10.5)
I believe that staying at home help to prevent infections with COVID-19.	156(37.3)	120(28.7)	8(1.9)	87(20.8)	47(11.2)
I believe that following good respiratory hygiene is effective to protect the people around me from COVID-19	156(37.3)	120(28.7)	8(1.9)	87(20.8)	47(11.2)
I believe that make quarantine the people who are suspected with the COVID – 19 or close contact with person infected with the COVID – 19 are effective mechanism to reduce the spread of the virus?	198(47.4)	90(21.5)	30(7.1)	60(14.35)	40(9.6)
I believe that isolation and treatment	97(23.2)	120(28.7)	56(13.4)	129(30.7)	16(3.8)

of people who are infected with the COVID-19 are effective ways to reduce the spread of the virus					
I believe that adhered to or following advice given by healthcare provider can reduce the chance of acquiring COVID-19 infection	97(23.2)	120(28.7)	56(13.4)	129(30.7)	16(3.8)
I believe that people with fever, cough and difficulty breathing could seek medical care early help to manage COVID-19 infection	97(23.2)	120(28.7)	56(13.4)	129(30.7)	16(3.8)
I have the skill to follow recommended hand washing practices to prevent myself from COVID-19 infection	127(30.4)	188(44.9)	30(7.2)	30(7.2)	43(10.3)
I am confident that Ethiopia can win the battle against the COVID-19 virus.	127(30.4)	188(44.9)	30(7.2)	30(7.2)	43(10.3)
I believe that use of personnel protective equipment (mask) is effective to prevent COVID-19 infection.	200(47.8)	150(35.9)	20(4.8)	30(7.2)	18(4.3)
I am confident that I can maintain at least 2 meter distance between myself and anyone to prevent COVID-19 infection	200(47.8)	150(35.9)	20(4.8)	30(7.2)	18(4.3)
I believe that avoiding close contact with domestic animals (dog, cat, shot/got, cattle etc.) can prevent the spread of COVID – 19 infection	97(23.2)	120(28.7)	56(13.4)	129(30.7)	16(3.8)
I believe that avoiding eating raw animal product can prevent the spread of COVID – 19 infection	97(23.2)	120(28.7)	56(13.4)	129(30.7)	16(3.8)

Variables	**Responses**	**Frequency (N)**	**Percent (%)**
Attitude status toward COVID-19	Unfavorable	154	36.8
	Favorable	264	63.2

5.3.3 Respondents Perception towards COVID-19 prevention

The overall perception of the respondents to wards COVID-19 infection showed majority 393 (94.0%) positively agreed to the disease harmfulness which need to be cautioned as a very few 25(6.0%) disagreed (Table 9).

Table 9: Respondents Perception of selected households in Assosa town, 2021

Questions	Responses	Frequency (N)	Percent (%)
Corona virus (COVID-19) is fearful.	disagree	154	36.8
	agree	264	63.2
COVID-19 infection is severe disease	Disagree	32	7.7
	Agree	386	92.3
COVID-19 has serious negative consequences on human life	Disagree	34	8.1
	Agree	384	91.9
I am at risk for getting COVID-19 infection	Disagree	135	32.3
	Agree	283	67.7
In many aspects, I am high likely to acquire COVID-19	Disagree	154	36.8
	Agree	264	63.2
COVID-19 disease can occur in my locality. So, I have to worry about it	Disagree	108	25.8
	Agree	310	74.2
I believe that people with fever, cough and difficulty breathing could seek medical care early helps to manage COVID-19 infection	Disagree	40	9.6
	Agree	378	90.4
I believe that adhered to or following advice given by healthcare provider can reduce the chance of acquiring COVID-19 infection	Disagree	28	6.7
	Agree	390	93.3
Performing routine activities such as monitoring body	Disagree	9	2.2

temperature, open windows to keep the air fresh, rest properly and do not stay up late and appropriate exercise helps to keep me healthy or helps my body to prevent many diseases including Covid-19?	Agree	409	97.8
In recent times, my hand washing behaviour has increased as compared to the era of no corona virus infection.	Disagree	52	12.4
	Agree	366	87.6
By this time, I am able to fully protect myself against the Coronavirus (COVID-19).	Disagree	135	32.3
	Agree	283	67.7
Variables	**Responses**	**Frequency (N)**	**Percent (%)**
Overall of respondents perception towards Covid-19	**No**	**25**	**6.0**
	Yes	**393**	**94.0**

5.3.4 People perception towards COVID-19 prevention

The overall risky personal perception of the households revealed that almost above half 221(52.9%) of the respondents reported perceived risky personal behaviour whereas 197 (47.1%) reported healthy perception. (Table 10)

Table 10: People Perception of selected respondents among households in Assosa town, 2021

Variables	**Responses**	**Frequency (N)**	**Percent (%)**
People in your locality perceive that COVID-19 is a dangerous disease.	Yes	385	92.1
	No	33	7.9
Most people in your locality perceive that they are susceptible or at risk	Yes	335	80.1
	No	83	19.9
Do people still live in a very crowned condition?	Yes	221	52.9
	No	197	47.1
Do people still use suffocated transportation means?	No	214	51.2
	Yes	204	48.8

Do people are still hugging/shaking hands as they greet	Yes	214	51.2
	No	204	48.8
Do people cannot stay home for economic & other reasons?	Yes	296	70.8
	No	122	29.2
Do people don't still adequately access water/sanitizers like alcohol?	Yes	245	58.6
	No	173	41.4
Do people don't still access personal protective equipment like face masks	Yes	235	56.2
	No	183	43.8
Do people with flu/similar symptoms are not well screened?	Yes	247	59.1
	No	171	40.9
Do people with flu like symptoms are not seeking medical care early?	Yes	265	63.4
	No	153	36.6
Do people fear social stigma or bias if suspected with COVID-19?	Yes	377	90.2
	No	41	9.8
They live in hot weather and that is not suitable for corona-virus	No	305	73.0
	Yes	113	27.0
They live in setting that is far away from corona-virus hot spot areas	No	343	82.1
	Yes	75	17.9
They have adequate traditional protective medicines.	No	310	74.2
	Yes	108	25.8
They believe that eating garlic, onions, ginger or honey help to prevent Covid-19	Yes	258	61.7
	No	160	38.3
They are religious enough (God/Allah protect them)	Yes	251	60.0
	No	167	40.0
Variables	**Responses**	**Frequency (N)**	**Percent (%)**
Overall of risky Personal perception towards Covid-19	**Yes**	**221**	**52.9**
	No	**197**	**47.1**

5.4 Barriers to COVID-19 infection prevention measures implementation

Beside the assessment of level and factors associated with non-pharmacological interventions implementation among adults in the households, any socio-cultural factors such as social, physical, psychological, capacity, motivation, and personal behaviours that might affect the NPIs practice and claimed to be a barrier to the prevention or control of COVID-19 infection was assessed using proper questions related to each part of the interview under each session of variables measurements. Accordingly individual perceived barriers to own full protection against COVID-19 disease and others risky perceptions, barriers to preventive measures such as personal protective, social distancing, and adherence to travel advices related barriers were identified.

This study showed neglecting 179(67.5%), no COVID-19 disease 34(12.8%), COVID-19 cannot infect them 18 (6.8%), have traditional /local medicine to cure COVID-19 18(6.8%) and only 2(0.8%) reported no information as barriers to perform personal protective measures like hand hygiene, respiratory etiquette and facemasks to protect themselves or others from COVID-19 infection. Also mix of all barriers 179(68.1%) i.e. frightening, neglecting, doubt whether the measures are protective or not, measures against their norms or religion, no Covid-19 disease that impacted social distancing preventive measures. In addition fear of quarantine isolation 203(48.6%), fear of loss of work during quarantine 135 (32.3%), mix of these (i.e. fear of quarantine, loss of work, and social stigma) 46(11.0%), and fear of social stigma 34(8.1%) as barrier to adhere to travel related preventive measure.

5.5 Observed NPIs implementation to prevent COVID-19 among the respondents at household level

Practical inspections of selected households have done using observational checklist before interview during data collection. The overall observed preventive practice of households among the respondents showed 306 (73.2%) had good adherence and 112 (26.8) poor adherence to preventive practices respectively. (Table 11)

Table 11: Observed NPIs implementation of households in Assosa town, 2021.

Questions	Responses	Frequency (N)	Percent (%)
Is there any hand washing basin with water visible at entry or appropriate place	Yes	237	56.7
	No	181	43.3
Does he/she wash hands at entry to the home?	Yes	306	73.2
	No	112	26.8
Does he/she use soap while washing hands?	Yes	331	79.2
	No	87	20.8
Does he/she wash hands appropriately?	Yes	330	78.9
	No	88	21.1
Does he/she have a sanitizer at hand or nearby?	No	223	53.3
	Yes	195	46.7
Currently, is he/she covers face or wearing a facemask?	Yes	281	67.2
	No	137	32.8
Is he/she covers face or wearing a facemask appropriately?	Yes	284	67.9
	No	134	32.1
Variables	**Responses**	**Frequency (N)**	**Percent (%)**
The overall observed preventive practice	**good adherence**	**306**	**73.2**
	poor adherence	**112**	**26.8**

5.6 Factors associated with NPIs implementation to prevent COVID-19

Statistical analysis done to identify the level of implementation of non-pharmacological interventions to prevent COVID-19 infection and associated factors among adults in households, firstly Univariate logistic regression applied to check frequency and distribution of each independent variable over the dependent variable. In the bivariate analysis, respondent's age,

sex, marital status, educational status, occupational status, wealth idex, knowledge, attitude and others risky personal perception were among variables have been found eligible to fit goodness of fit test model of analysis.(Table 12)

Table 12: The Result of Bivariable Analysis on Factors Associated with Non-pharmacological interventions (NPIs) implementation among Adult Residents of Assosa town, Benishangul Gumuz Region, North west Ethiopia, 2021 (N = 418)

Variables	**Category**	**NPI implementation**		**COR (95% CI)**	**P-value**
		Yes	**No**		
Age in years	18-27	200(80.0)	50(20.0)	1	
	28-37	80(80.0)	20(20.0)	1 (0.89, 3.45)	0.61
	38-47	25(50.0)	25(50.0)	0.25 (0.13, 2.34)	0.3
	≥ 48	10(55.5)	8(44.4)	0.31 (0.23, 1.42)	0.38
Sex	Male	125(64.4)	69(35.7)	1	
	Female	150(67)	74(33.03)	1.1 (0.89, 3.91)	0.289
Marital status	Single	100(80.6)	24(19.4)	1	
	Married	200(69.7)	87(30.3)	0.55 (0.12, 3.12)	0.93
Educational level	Only read and write	7(46.7)	8(53.3)	1	
	Grade 1-8	47(51.1)	45(48.9)	1 (0.8, 3.91)	0.31
	Grade 9-12	50(55.6)	40(44.4)	1.4 (0.5, 4.92)	0.007
	Diploma	69(69.7)	30(30.3)	2.6 (2.13, 8.12)	0.02
	Degree	53(57.0)	40(43.0)	1.5 (2.5, 4.9)	0.001
	Masters	5(50.0)	5(50.0)	1.14 (4.6, 13.5)	0.01
Occupational status	Government employee	100(76.9)	30(23.1)	1	
	Private organs’	12(52.2)	11(47.8)		
	Merchant	42(58.3)	30(41.7)	0.42 (0.16, 6.2)	0.06
	Farmer	10(55.6)	8(44.4)	0.38 (0.5, 15.9)	0.07

	Daily laborer	22(68.8)	10(31.2)	0.66 (0.2, 4.9)	0.93
	House wife	61(75.3)	20(24.7)	0.92 (0.5, 5.9)	0.81
	Student	27(61.3)	17(38.6)	0.47 (0.9, 4.9)	0.32
	Others	10(55.5)	8(44.5)	0.37 (1.5, 10.9)	0.21
Wealth index	First quintile (Poorest)	50(49.1)	52(50.9)	1	
	Second quintile (Poor)	79(66.9)	39(33.1)	2.1 (5.13, 18.12)	0.001
	Third quintile (Medium)	40(75.5)	13(24.5)	3.2 (1.13, 8.1)	0.01
	Fourth quintile (Rich)	60(64.5)	35(36.8)	1.78(2.1, 12.3)	0.03
	Fifth quintile (Richest)	35(70.0)	15(30)	2.43(3.13, 9.61)	0.001
Knowledge about COVID-19	Poor	9(50.0)	9(50.0)	1	
	Moderate	70(77.8)	20(22.2)	3.5 (10.13, 32.6)	0.021
	Good	260(83.9)	50(16.1)	5.2 (5.1, 19.61)	0.001
Attitude	Unfavorite	100(64.9)	54(35.1)	1	
	Favorite	210(79.5)	54(20.5)	2.1(7.1, 18.61)	0.031

Multivariable logistic regression analysis of level of implementation of non-pharmacological interventions to prevent COVID-19 infection and associated factors, was conducted best on Hosmer Lemeshow showed in bivariable logistic regression analysis that performed to identify candidate variables at p-value of <0.25 cut-off point to determine the factors associated with Non-pharmacological interventions implementation.

Multivariable logistic regression analysis showed that Diploma educational level, Degree educational level; second quintile , third quintile, fourth quintile, fifth quintiles wealth indices;

moderate knowledge, good knowledge; in addition favourable attitudes were statistically significantly associated with non-pharmacological interventions implementation. (Table 13)

Table 13: The Result of Multivariable Analysis on Factors Associated with Non-pharmacological interventions (NPIs) implementation among Adult Residents of Assosa town, Benishangul Gumuz Region, North west Ethiopia, 2021 (N = 418)

Variables	**Category**	**NPI implementation**		**AOR (95% CI)**	**P-value**
		Yes	**No**		
Educational level	Only read and write	7(46.7)	8(53.3)	1	
	Grade 1-8	47(51.1)	45(48.9)	1.2 (0.89, 6.51)	0.72
	Grade 9-12	50(55.6)	40(44.4)	1.2 (0.61, 7.9)	0.21
	Diploma	69(69.7)	30(30.3)	2.3 (1.5, 6.92)*	0.007
	Degree	53(57.0)	40(43.0)	1.3 (1.1, 9.2)*	≤ 0.001
	Masters	5(50.0)	5(50.0)	1.14 (4.6, 15.7)	0.06
Wealth index	First quintile (Poorest)	50(49.1)	52(50.9)	1	
	Second quintile (Poor)	79(66.9)	39(33.1)	2 (1.15, 25.3)*	0.012
	Third quintile (Medium)	40(75.5)	13(24.5)	3 (1.13, 19.1)*	≤ 0.001
	Fourth quintile (Rich)	60(64.5)	35(36.8)	2.3 (2.1, 12.3)*	0.012
	Fifth quintile (Richest)	35(70.0)	15(30)	2.4 (1.9, 12.6)*	0.012
Knowledge about COVID-19	Poor	9(50.0)	9(50.0)	1	
	Moderate	70(77.8)	20(22.2)	3 (2.13, 36.5)*	0.003
	Good	260(83.9)	50(16.1)	5 (2.1, 29.61)*	≤ 0.001
Attitude	Unfavorite	100(64.9)	54(35.1)	1	
	Favorite	210(79.5)	54(20.5)	2 (1.62, 25.6)*	≤ 0.001

CHAPTER SIX: DISCUSSION

This study intended to assess the level of non-pharmacological interventions to prevent COVID-19 infection implementation and associated factors among adult residents in Assosa town considering the time of pandemic assailing fortheworld.

This study identified that Diploma and Degree levels of educational were found statistically significantly associated with NPIs implementation to prevent COVID-19 infection. It showed that as educational status increases, the likelihood of implementing NPIs to prevent COVID-19 infection increases. This finding was agreed with Hong Kong study, which has found that those with more education are more likely to adopt precautionary behaviours(32). Furthermore, Australian study found that more highly educated people reported a greater intention to wear a facemask in the event of pandemic influenza(47).

In contrast to this results study done in Saudi Arabian mentioned that the educational level differences among the residents did not significantly affect their precautionary measures against COVID-19(40)**.** Besides the Hong Kong and The Netherlands studies found no association between educational level and reported mask wearing or hand washing(31).Also Hong Kong cross-sectional study found that those with lower educational attainment were more likely to carry out protective behaviours(29). In addition, the USA cross-sectional study found that less educated people were more likely to say that they would be willing to be vaccinated against swine flu; this different might be due study designs and population of study (39).

In this study, Second quintile, Third quintile, Fourth quintile, and Fifth quintile wealth indices also have been found statistically significantly associated with NPIs implementation to prevent COVID-19 infection. Respondents in the third wealth index (poor) were three times more likely to implement NPIs to prevent COVID-19 infection. This relatives to studies done in Addis Ababa of Ethiopia which found the income had been associated with the practice of precautionary measures towards COVID-19(41).

This study also showed that Good level of knowledge and Moderate level of knowledge about COVID-19 infection was statistically significantly associated with NPIs implementation to prevent COVID-19 infection. This means, respondents who had good knowledge about COVID-19 were 5 times more likely to implement non-pharmacological interventions to prevent COVID-19 infection compared to their counterparts. This result is consistent with Cross-sectional studies done in Hong Kong and Australia have found that greater knowledge about how SARS is transmitted is associated with greater adoption of precautionary behaviours, and mentioned greater knowledge of the meaning of a pandemic is associated with intentions to comply with quarantine restrictions(29).

In contrast to this Hong Kong study found that misconceptions and lack of knowledge was associated with precautionary behaviour (eating less poultry, taking/stocking Tamiflu, getting vaccinated) and misconceptions about mode of transmission of avian flu was associated with avoidance of hospitals; this might because population and scope of study(29).

This study also found favourable attitude was statistically significantly associated with NPIs implementation to prevent COVID-19 infection. This indicate that respondents who had favourable attitude towards COVID-19 were twice more likely to implement NPIs to prevent COVID-19 infection compared to those with unfavourable attitude. This converges with reported result of study done in Dirashe district of southern Ethiopia which reported 54.5% of the participants had favorable attitude towards COVID-19 preventive measures(28). Moreover, to the Dessie city of Ethiopia study, which finalized that 96% of respondents, has a favorable attitude to prevent and control the pandemic.

This study finalized that, the overall level of non-pharmacological interventions implementation to prevent COVID-19 infection was 62.3%,95%CI(0.219,0.280) from the four various categories of NPIs recommended by World Health Organization to be implemented by the community such as Personal protective measures 230 (55.02%), Social distancing measures 361(86.4%), Environmental measures 402(96.2%), and Travel-related measures 51(12.2%) respectively.

This was higher than the study done in Gonder city of Ethiopia, which reported the challenges of social distancing in the community; majority of the study participants, which was 55.36 % had poor compliance to social distancing measures set by the government and health authorities(44). In contrast with the study undertaken in Dessie city of Ethiopia reported the most frequently mentioned preventive measures were frequent hand washing (89.6%), physical distancing (82.8%), avoiding handshaking (54.7%), staying at home (44.6%) and face mask utilization (42.7%) (27). This different might be because of the scope study.

Limitations and strengths of the study

Since the study design was cross-sectional, it might not show the temporal relationship between the dependent and independent variables, data collection tool used was adopted from few literatures and its majority part developed by the investigator based on the context of current Covid-19 prevention, which were not previously validated. And the strength could be the scopes that tend to assess all recommended COVID-19 prevention measures and method of data collection using face-to-face intervening besides a high response rate of 100% gained from the respondents of the study.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1 CONCLUSION

Since this study intended to assess the level of non-pharmacological interventions implementation to prevent COVID-19 infection and associated factors thus the result of this study revealed that the overall adherence to non-pharmacological interventions implementation to prevent COVID-19 infection is low compared to the preventive measures recommended by World Health Organization. In addition, Knowledge, Attitude, Wealth index and Educational level were factors independently associated with non-pharmacological interventions implementation to prevent COVID-19 infection.

7.2 RECOMMENDATIONS

Since the adherences to non-pharmacological interventions implementation to prevent COVID-19 infection in Assosa town is low; I recommend the following:

For Federal Ministry of Health and Benishangul Gumuz Regional Health Bureau: To provide updated knowledge, build the capacity of health care providers. Revise programs approaches with new strategies to over persuade the community members in excluding individual, traditional and community characteristics those hinder the implementation of recommended healthy preventive measures which aids the improve of COVID-19 prevention and control strategies in the town and entire region, as well as at nation level, at last behavioral change communication and strict monitor of authority guidelines.

For Assosa town health department and governmental health care providing institutions in the town: To work cooperatively with Regional Health Bureau and to facilitate in providing updated knowledge, health care provider`s capacity building, review of programs and approaches to over persuade the community members to follow the recommended healthy preventive measures and strategies to prevent COVID-19 infection in the town.

For none-governmental health aiding organizations and other administrative stakeholders: To support COVID-19 prevention strategies, cooperate with Federal, Regional as well as local health promoting agents in providing updated knowledge, capacity building, review of programs and approaches and to support by any means the voluntary campaign provided through media and local creation of awareness to implement non-pharmacological interventions. I request their consideration of the importance of human health in the earth, multi-sectoral and multi-lateral cooperation against COVID-19 pandemic.

To Assosa community members to realize scientific evidence regarding Corona virus and pay attention for the implementations of medical advices provided by health care provider, as well as listen and participate in the support of government, and voluntary campaign in the creation of awareness in the non-pharmacological interventions implementation of in the town.

To the researchers, further mode of study on non-pharmacological interventions using different approaches.

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ANNEXES

ANNEX A: - CONSENT

CONSENT FORM

Data Collector:

Greetings! My name is_____ I am working temporarily as a data collector with Kemal-Eddin Osman Abdurahman from Department of Epidemiology, faculty of public health, institute of health, Jimma University, which is conducting a study research on **Level of Implementation of Non-Pharmacological Interventions to Prevent COVID-19 Infection and Associated Factors among adult residents in Assosa town, Benishangul Gumuz Region North West Ethiopia.** Therefore, we are requesting your consent to participate in this study.

The information that you will give us in this study will contribute for identifying the level and factors affecting the implementation of Non-pharmacological interventions to prevent Covid-19 at community level in Assosa town. In participating in this study, you will be required to answer questions in this questionnaire that will take about few minutes to answer. No names will be used on the questionnaire and individual responses will be kept confidential. Only the researcher and the research advisors will have access to them. There are no risks associated with this study. The participation is voluntary, and you are free to withdraw from the study if you wish with no resultant penalties. If you are interested to participate in this study, please sign the consent form provided and then respond to the questions asked.

Your honest and genuine participation in responding to the questions prepared is very important & highly appreciated.

Participant:

I have agreed to participate in this study. I understand that all information will be confidential and anonymous. I have been given the opportunity to ask questions and know that I am free to withdraw my consent at any time.

_____ (signature of respondent certifying that data collector has accepted to participate in the study).

_____ (signature of data collector certifying that respondent has given informed consent written and verbally).

<u>የስምምነት መፈረሚያ ቅጽ</u>

<u>መረጃ ሰብሳቢ</u>

ጤና ይስጥልኝ! ስሜ ---------- ይባላል፡፡ ከጅማ ዩኒቨርሲቲ ጤና እንስቲትዩት በሕ/ሰብ ጤና ፋኩልቲ የኢፒዲሞሎጂ ት/ት ክፍል በአሶሳ ከተማ ዉስጥ የሚኖሩት አዋቂዎች የኮቪድ-19 በሽታ ለመከላከል የሚጠቅመዉን መድኃኒት-ያልሆኑት አገልግሎቶች የተግባር ደረጃ እና የእነዚህን አተግባበር የሚወስኑ ነገሮች ለመለየት ጥናት ከሚካሄደዉ ከአቶ ከማልኢዲን ዑስማን አብዱረህማን ጋር በአሁኑ ሰዓት በግዜያዊ መረጃ ሰብሳቢነት እየሰራሁ እገኛለሁ፡፡ ስለሆነም በዚሁ ጥናት ላይ ተሳታፊ እንዲሆኑ የእርሶ ስምምነት እንጠይቃለን፡፡

ጥናቱን በተመለከተ የሚሰጡን መረጃ የኮቪድ-19 በሽታ ለመከላከል የሚጠቅመዉን መድኃኒት-ያልሆኑት አገልግሎቶች የተግባር ደረጃ እና የእነዚህን አተግባበር የሚወስኑ ነገሮች በከተማዉ ማህበረሰብ ዘንድ ምንና ምን ደረጃ ላይ እንደሆነ ለመለየት ይረዳል፡፡ በጥናቱ ላይ ለመሳተፍ ለጥናቱ በተዘጋጀዉ የመጠይቅ ጥያቄዎች ለመመለስ የተወሰኑ ደቂቃዎች ይፈጅቦታል፡፡

በመረጃዉ ላይ የእርሶ ስም የማይጠቀስ ሲሆን የግል መረጃዎም በምስጥር ይያዛል፤ ከዋናዉ አጥኚ እና አማካሪ በስተቀር ወደ ሌላ ሰዉ ወይም ድርጅት አይተላለፍም፡፡ ከጥናቱ ጋር ተያያዥነት ያለዉ ጉዳት የለም፤ ተሳትፎዎም በፈቃደኝነት ላይ የተመሠረተ ነዉ፤ ጥናቱን በማንኛዉም ሰዓት ማቋረጥ ይችላሉ፤ ስለዚህ በዚህ ጥናት ላይ ለመሳተፍ ፈቃደኛ ከሆኑ በቀረበዉ ስምምነት ቅጽ ላይ በመፈረም የሚጠየቁትን ጥያቄዎች በትትክል እንዲመልሱ በአክብሮት እጠይቃለን ፡፡

የሚሰጡት መረጃ ወይም መልስ እጅግ ጠቃሚም ከመሆኑም በላይ ለማህበረሰቡ ያለዉን ጠቀሜታም የጎላነዉ፡፡

<u>ተሳታፊ</u>

በጥናቱ ለመሳተፍ በሙሉ ፈቃደኝነት ላይ የተመሰረተ መሆኑን፣የሰጠሁት መረጃ ሚስጥራዊነቱ የተጠበቀ፣በእኔ ላይ ምንም ዓይነት ጉዳት እደማይደርስብኝ ስለጥናቱ ወይም ስለ ሙቤቴ ጥያቄ ቢኖረኝ መጠየቅ እና ጥናቱን በማንኛዉም ሰዓት ማቋረጥ እንደሚችል ተነግሮኝ የተረዳሁ ስለሆነ በጥናቱ ላይ ለመሳተፍ ፈቃደኛ መሆኔን በፊርማዬ አረጋግጣለሁ፡፡

_____(የተሳታፊ ፊርማ መረጃ ሰብሳቢዉ መረጃ ለመዉሰድ የተፈቀደለት መሆኑን ማረጋገጫ)

_____(የመረጃ ሰብሳቢ ፊርማ ተሳታፊዉ በቃሉ መረጃ ለመስጠት ፈቃደኛ ስመሆኑ ማረጋገጫ)

ANNEX B: - ENGLISH VERSION QUESTIONNAIRE

DATA COLLECTION INSTRUMENT TO STUDY LEVEL OF IMPLEMENTATION OF NON-PHARMACOLOGICAL INTERVENTIONS TO PREVENT COVID-19 INFECTION AND ASSOCIATED FACTORS AMONG ADULT RESIDENTS IN ASSOSA TOWN, 2021

INSTRUCTION: This data collection instrument has two parts interview questionnaire and observational checklists; part two, which contains the observational checklists, should be filled prior to the interview part!

PART ONE: STUDY QUESTIONNAIRE

Data collector_____ Supervisor _____ Code: _____

SECTION I: SOCIO-DEMOGRAPHIC CHARACTERISTICS

Identification particulars

Address:

Woreda_____Kebele_____Ketena/zone_____

S.N	1. Sex	2. Age (in year)	3. Ethnicity	4. Religion	5. Educational level	For 18 years & above aged people	
						6. Marital status	7. Occupational status
		( )					

Sex Ethnicity Religion Educational level marital status Occupational status

1- Male 2- Female 3- Others/ specify /_____	1- Berta 2- Amhara 3- Oromo 4- Gumuz 5- Shinasha 6- Mao/komo 7- Others/specify/ _____	1- Muslim 2- Orthodox 3- Protestant 4- Catholic 5- Others/specify/___ _____	1- Unable to read and write 2- Only read & write 3- Grade 1-8 4- Grade 9-12 5- Diploma 6- Degree 7- Masters 8- Other /specify/	1- Single 2- Married, please no of wives if >1( ) 3- Divorced 4- Widowed 5- Other/specify/ _____	1- Governmental employee 2- Private organs' 3- Merchant 4- Farmer 5- Daily labor 6- House wife 7- Student 8- Other/specify/_

SECTION II: SOCIO-ECONOMIC CHARACTERISTICS / WEALTH INDEX QUESTIONS/			
S.N	Questions	Responses	Remarks
1.	Does your household have… electricity?	**1-** Yes 2- No	
2.	Does your household have … a television?	**1-** Yes 2- No	
3.	Does your household have … a radio?	**1-** Yes 2- No	
4.	Does your household have … a mobile phone?	1- Yes 2- No	
5.	Does your household have … a fixed phone line?	1- Yes 2- No	
6.	Does your household have… a refrigerator?	**1-** Yes 2- No	
7.	Does your household have… an electric mita`d (pan?	**1-** Yes 2- No	
8.	Does your household have … a table?	**1-** Yes 2- No	
9.	Does your household have … a chair?	**1-** Yes 2- No	
10.	Does your household have … a bed with cotton/sponge/spring mattress?	**1-** Yes 2- No	
11.	Does your household have … any type of vehicle for transportation	**1-** Yes 2- No	
12.	Does any member of household have … a house?	**1-** Yes 2- No	
13.	Does any member of this household have a bank account?	**1-** Yes 2- No	
14.	What is the main source of drinking water for members of your household?	**1-** Piped to yard **2-** Plot **3-** Others /specify/_____	
15.	What kind of toilet facility do members of your household usually use?	**1-** Pit latrine with slab **2-** Pit latrine without slab **3-** No facility / bush / field **4-** Others /specify/_____	

16.	What type of fuel does your household mainly use for cooking?	**1-** Electricity **2-** Wood **3-** Both Electricity& wood **4-** Others /specify/_____	
17.	What is the main material of the floor in your household?	**1-** Earth **2-** Cement **3-** Others /specify/_____	
18.	What is the main material of the exterior walls in your household?	**1-** Wood/Bamboo with mud **2-** Blockets **3-** Other/specify/_____	
19.	What is the main material of the roof in your household?	1- Metal / corrugated iron 2- Graz 3- Others /specify/_____	
20.	Means of livelihood	**1-** Agriculture/ farming **2-** Animal husbandry **3-** Mixed (Agriculture & animal husbandry) **4-** Trading **5-** Governmental organization **6-** Private Organization **7-** Others /specify/_____	
21.	The average monthly income of the family _____ (In money or in kind and if reported convert it in to ETB)	**1-** <1000 **2-** 1000-2999 **3-** 3000-4999 **4-** 5000+ **5-** Others /specify/_____	
22.	Other means of generating income	**1-** Handicraft **2-** Selling fuel wood & charcoal **3-** No **4-** Others /specify/_____	

SECTION III: KNOWLEDGE ABOUT COVID-19			
S.N	Questions	Responses	Remarks

1.	Have you heard/seen messages of the Coronavirus (COVID-19)?	**1-** Yes **2-** No	
2.	Main source of information/messages about Coronavirus (COVID-19)?	**1-** Television 2- Radio 3- Social media 4- Friends/neighbors **4-** Health professionals 5- Kebele Administrators 6- Religious leaders 7- Others/specify/___	
3.	To what extent do you agree/disagree with the following statement? It is difficult to decide which information I receive about the coronavirus is real, fake, or just rumors.	**1-** Disagree **2-** Strongly disagree **3-** Neutral **4-** Agree **5-** Strongly agree	
4.	What are the main means of coronavirus (COVID-19)? Transmission? (multiple answer is possible)	**1-** Exposure to droplets during sneezing, coughing and talking **2-** Hand shaking **3-** Touching eyes, nose and mouth with unclean hands **4-** Touching of objects/surfaces contaminated with virus **5-** Any close contact with infected person (family member, caregivers…)	
5.	What are the main prevention methods of coronavirus (COVID-19)?	**1-** Washing hands with soap or using hand sanitizer **2-** Avoid touching out face with unclean hands **3-** Putting face masks **4-** Social distancing measures **5-** Staying at home unless absolutely essential to move out **6-** Avoid crowding areas 7- Others/specify/____	
6.	Are any of the following possible signs of Coronavirus (COVID-19)? (Select all that apply)	1- Fever 2- Headache 3- Coughing 4- Sneezing 5- Runny nose/nasal congestion 6- Fatigue/ tiredness 7- Muscle pain 8- Joint pain 9- Difficulty breathing 10- Loss of appetite 11- Diarrhea 12- I Don't know	
7.	What have you done to protect you and/or your family from the Coronavirus (COVID-19)?	1- Washing your hands for 20 second with soap and water 2- Use Sanitizers 3- Wear mask to cover nose and chin when out of the house	

		4- Stand 6 feet apart from people 5- Staying at home (unless it is absolutely necessary to go out) 6- Not touching face 7- Taking medicines without doctor's prescription 8- Others/specify/____	
8.	How do you feel about Coronavirus (COVID-19)?	1- Fearful 2- Very fearful 3- No feeling 4- Fearful but optimistic 5- Optimistic 6- Others/specify/____	
9.	Are any of the following possible signs of Coronavirus (COVID-19)? (Select all that apply)	**1-** Most common;Fever,Fatigue/tiredness, Coughing **2-** Less common;Headache,Sneezing,Runny nose, Muscle pain, Joint pain, Loss of test/smell& appetite, Diarrhea **3-** Serious symps;Difficulty breathing, nasal congestion **4-** All known symptoms **5-** I Don't know **6-** Both most & serious **7-** Others/specify/___	
10.	Not all persons with COVID-19 will develop to severe cases. Only those who are elderly, have chronic illnesses, and are obese are more likely to be severe cases	**1-** Yes **2-** No **3-** I don`t know	
11.	For you in your locality, who are at high risk of getting COVID-19? (Multiple response is possible)	**1.** Young grups; Adolescents (10-15) yrs. old, Youth (16-29) yrs. old, Adults (30-50) yrs. old **2.** Weak groups; Children (0-9) yrs. old, Geriatrics/Older peoples, pregnant women, People with underlying chronic illnesses (DM, HTN, etc.…) **3.** Care giving group; Health workers **4.** All groups **5.** Both weak & care givers **6.** Others/specify/____	
12.	What do you think about what people in your locality would like to know about the COVID-19? (Multiple response is possible)	**1-** Prevention/transmission&symptoms;How to protect from the disease, Symptoms of the new coronavirus disease, How it is transmitted **2-** Management; What to do if they have the symptoms, About treatment of COVID-19 & isolation or quarantine **3-** About Most at risk groups	

		4- All-important about COVID-19 **5-** mgt&risk groups **6-** Prevention & Mgt **7-** Others/specify____	
SECTION IV : ATTITUDE TOWARDS COVID-19			
S.N	Questions	Responses	Remarks
1.	COVID-19 infection is severe disease	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
2.	It is better to die than getting COVID-19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
3.	COVID-19 has serious negative consequences on human life	1- Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
4.	COVID-19 is extremely harmful	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
5.	It is likely that I will get COVID-19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
6.	I am at risk for getting COVID-19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
7.	COVID-19 disease is not occurred in my locality. So, I don't have to worry about it	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
8.	It is possible that I will get COVID-19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
9.	In many aspects, I am less likely to acquire COVID-19	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
10.	I believe that washing hands frequently with soap and water kills/remove the virus that causes COVID-19	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
11.	I believe that using alcohol-based sanitizer hand rub kills the virus that causes COVID-19	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
12.	I believe that maintaining social/physical distancing can prevent COVID-19 infection.	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
13.	I believe that avoiding touching eyes, nose and mouth prevent COVID-19 infection.	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
14.	I believe that covering your cough/sneezing	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly	

	using the bend of my elbow or a tissue prevent spread of COVID-19.	disagree	
15.	I believe that avoiding living/working in crowed places and close contact with anyone prevent risk of infection with COVID-19.	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
16.	I believe that staying at home help to prevent infections with COVID-19.	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
17.	I believe that following good respiratory hygiene is effective to protect the people around me from COVID-19	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
18.	I believe that make quarantine the people who are suspected with the COVID – 19 or close contact with person infected with the COVID – 19 are effective mechanism to reduce the spread of the virus?	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
19.	I believe that isolation and treatment of people who are infected with the COVID-19 are effective ways to reduce the spread of the virus	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
20.	I believe that adhered to or following advice given by healthcare provider can reduce the chance of acquiring COVID-19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
21.	I believe that people with fever, cough and difficulty breathing could seek medical care early help to manage COVID-19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
22.	I have the skill to follow recommended hand washing practices to prevent myself from COVID-19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
23.	I am confident that Ethiopia can win the battle against the COVID-19 virus.	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
24.	I believe that use of personnel protective equipment (mask) is effective to prevent COVID-19 infection.	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
25.	I am confident that I can maintain at least 2 meter distance between myself and anyone to prevent COVID-19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	

26.	I believe that avoiding close contact with domestic animals (dog, cat, shot/got, cattle etc.) can prevent the spread of COVID – 19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
27.	I believe that avoiding eating raw animal product can prevent the spread of COVID – 19 infection	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
28.	I believe that COVID-19 will finally be successfully controlled.	**1-** Strongly Agree 2- Agree 3- Uncertain 4- Disagree 5- Strongly disagree	
SECTION V: PERCEPTION TOWARDS COVID-19			
S.N	Questions	Responses	Remarks
1.	Coronavirus (COVID-19) is fearful.	**1-** Agree **2-** Disagree	
2.	COVID-19 infection is severe disease	**1-** Agree **2-** Disagree	
3.	COVID-19 has serious negative consequences on human life	**1-** Agree **2-** Disagree	
4.	I am at risk for getting COVID-19 infection	**1-** Agree **2-** Disagree	
5.	In many aspects, I am high likely to acquire COVID-19	**1-** Agree **2-** Disagree	
6.	COVID-19 disease can occur in my locality. So, I have to worry about it	**1-** Agree **2-** Disagree	
7.	I believe that people with fever, cough and difficulty breathing could seek medical care early help to manage COVID-19 infection	**1-** Agree **2-** Disagree	
8.	I believe that adhered to or following advice given by healthcare provider can reduce the chance of acquiring COVID-19 infection	**1-** Agree **2-** Disagree	
9.	Performing routine activities such as monitoring body temperature, open windows to keep the air fresh, rest properly and do not stay up late and appropriate exercise helps to keep me healthy or helps my body to prevent many diseases including Covid-19?	**1-** Agree **2-** Disagree	
10.	In recent times, my hand washing behaviour has increased as compared to the era of no corona virus infection?	**1-** Agree **2-** Disagree	
11.	By this time, I am able to fully protect myself	**1-** Agree **2-** Disagree	

	against the Coronavirus (COVID-19).		
12.	What prevents you from fully protecting yourself against the Coronavirus (COVID-19)? (Multiple response is possible)	**1-** Shortage of items; soaps, hand sanitizer, masks **2-** Loss/Decrease of incomes, increasing of the price of items in the market or in some areas **3-** Insufficient information **4-** All mentioned **5-** Nothing	
SECTION-VI: People perception on the practices that can exacerbate the spread of COVID-19 In your locality, people perception on the practices that can exacerbate the spread of COVID-19			
1.	People in your locality perceive that COVID-19 is a dangerous disease?	**1-** Yes **2-** No	
2.	Most people in your locality perceive that they are susceptible or at risk of getting COVID-19?	**1-** Yes **2-** No	
3.	Do people still live in a very crowned condition	**1-** Yes **2-** No	
4.	Do people still use suffocated transportation means	**1-** Yes **2-** No	
5.	Do people are still hugging/shaking hands as they greet	**1-** Yes **2-** No	
6.	Do people cannot stay home for economic & other reasons	**1-** Yes **2-** No	
7.	Do people don't still adequately access water/sanitizers like alcohol	**1-** Yes **2-** No	
8.	Do people don't still access personal protective equipment like face masks	**1-** Yes **2-** No	
9.	Do people with flu/similar symptoms are not well screened	**1-** Yes **2-** No	
10.	Do people with flu like symptoms are not seeking medical care early	**1-** Yes **2-** No	
11.	Do people fear social stigma or bias if suspected with COVID-19?	**1-** Yes **2-** No	
12.	They live in hot weather and that is not suitable for corona-virus	**1-** Yes **2-** No	
13.	They live in setting that is far away from corona-virus hot spot areas	**1-** Yes **2-** No	
14.	They have adequate traditional protective medicines	**1-** Yes **2-** No	
15.	They believe that eating garlic, onions, ginger or honey help to prevent COVID-19 infection.	**1-** Yes **2-** No	
16.	They are religious enough (God/Allah protect them)	**1-** Yes **2-** No	
SECTION VII: - PRACTICE TO CONTROL CORONAVIRUS (COVID-19)			
i- Personal protective measures; face masks, hand hygiene, and respiratory etiquette			
S.N	Questions	Responses	Remarks

1.	Do you wear facemask or wash your hands or use hand sanitizer regularly to protect yourself from Coronavirus (COVID-19)?	**1-** Yes **2-** No	
2.	How often you wear facemask to protect yourself from Coronavirus (COVID-19)?	**1-** Always **2-** Sometimes	
3.	How often you wash your hands with soap and water regularly?	**1-** Always **2-** Sometimes	
4.	How often you use hand sanitizer regularly?*	**1-** Always **2-** Sometimes	
5.	How often you use your elbow or towel to cover your nose /mouth?	**1-** Always **2-** Sometimes	
6.	From your experience, when do you avoid touching simply your face/nose/mouth?	**1-** Always **2-** Sometimes	
7.	How often do you think people in your area are practicing personal protective measures; like hand hygiene, respiratory etiquette and facemasks to protect themselves or others from Coronavirus (COVID-19)?	**1-** Always **2-** Sometimes	
8.	What do you think the reason why people in your area are not practicing personal protective measures; like hand hygiene, respiratory etiquette and facemasks to protect themselves or others from Coronavirus (COVID-19)? (multiple response is possible)	**1-** They think no Coronavirus (COVID-19) **2-** They think Coronavirus cannot infect them **3-** They claim they have traditional /local medicine to cure Coronavirus **4-** They believe there is Coronavirus but neglecting the prevention methods. **5-** All mentioned **6-** Others/specify/_____	
ii-	Environmental measures; surface and object cleaning and other environmental measures		
S.N	Questions	Responses	Remarks
1.	Do you think Coronavirus (COVID-19) can stay on any objects/materials/ for long time	**1-** Yes **2-** No	
2.	Do you use to clean objects/materials/ at your work area/office (tables, shelves, chairs…) to kill virus from the surface?	**1-** Yes **2-** No	
3.	What do you use to clean objects/materials/ at	**1-** Water only **2-** Water and soap **3-** Alcohol based sanitizer	

	your work area/office (tables, shelves, chairs…) to kill virus from the surface?	**4-** Both Water, soap and then sanitizer **5-** Others/specify/_____	
iii-	Social distancing measures; contact tracing, isolation of sick individuals, quarantine of exposed individuals, school measures and closures, workplace measures and closures, and avoiding crowding		
S.N	Questions	Responses	Remarks
1-	Few days ago, have you gone to any crowded places? (Church, mosque, open market, funeral, wedding, work…)	**1-** Yes **2-** No	
2-	Do you think your movement to any crowded places it was an absolute reason?	**1-** Yes **2-** No	
3-	Do you use private transport and own foot alternatively rather than public transports whenever you go out of your home?	**1-** Yes **2-** No	
4-	Most of the time, do you keep yourself 6 feet (2 meters) apart from other people	**1-** Yes **2-** No	
5-	Have you stopped physical greetings such as handshaking, hugs and kisses to prevent Covid-19?	**1-** Yes **2-** No	
6-	Do you call Covid-19 center whenever you think an individual might have Covid-19?	**1-** Yes **2-** No	Called center__
7-	Do think, your children, relative applies Covid-19 prevention measures in the way and in side school?	1- Yes 2- No	
8-	Do you isolate an individual you suspect might have Covid-19 in a single room	**1-** Yes **2-** No	
9-	What do you think why people are not used to apply *Social distancing measures* to prevent Covid-19? (multiple response is possible)	**1-** They don't know it is protective **2-** They think it is against the norms/religion thought **3-** They think no Covid-19 **4-** All mentioned **5-** Others/specify/___	
iv.	Travel-related measures: travel advice, entry and exit screening, internal travel restrictions and border closure		

S.N	Questions	Responses	Remarks
1-	How often you follow travel advices to prevent Covid-19 related to travel especially when crossing borders between Ethiopia and Sudan for marketing or treatment?	**1-** Always **2-** Some times	
2-	How often your member follow travel advices to prevent Covid-19 related to travel especially when crossing borders between Ethiopia and Sudan for marketing or treatment?	**1-** Always **2-** Some times	
3-	Could you indicate why people fear to come front to undergo Covid-19 screening during entry and exit borders between Ethiopia and Sudan for marketing or treatment? (multiple response is possible)	**1-** Fear of more days quarantine isolation **2-** Fear to lost work during quarantine **3-** Fear of social stigma **4-** All mentioned **5-** Others/specify/_____	Example 14 days quarantine time

PART TWO: OBSERVATIONAL CHECKLISTS

i- This part should be filled before interview questions;			
S.N	Questions	Responses	Remarks
1-	Is there any hand-washing basin with water visible at entry or appropriate place?	1- Yes 2- No	
2-	Does he/she wash hands at entry to the home?	1- Yes 2- No	
3-	Does he/she use soap while washing hands?	1- Yes 2- No	
4-	Does he/she wash hands appropriately?	1- Yes 2- No	
5-	Does he/she have a sanitizer at hand or nearby?	1- Yes 2- No	
6-	Currently, is he/she covers face or wearing a facemask?	1- Yes 2- No	
7-	Is he/she covers face or wearing a facemask appropriately?	1- Yes 2- No	
8-	Does he/she maintain social distancing throughout data collection period?	1- Yes 2- No	

==========THE END==========

WE THANK YOU ON BEHALF OF KEMAL-EDDIN; JIMMA UNIVERSITY FOR YOUR PARTICIPATION

ANNEX C: - AMHARIC VERSION QUESTIONNAIRE

በአሶሳ ከተማ ዉስጥ የሚኖሩት አዋቂ ዎች የኮቪድ-19 በሽታ ለመከላከል የሚጠቅመዉን መድኃኒት-ያልሆኑት አገልግሎቶች (NON-PHARMACOLOGICAL INTERVENTIONS (NPIs) የተግባር ደረጃ እና የእነዚህን አተግባበር የሚወስኑ ነገሮችን መረጃ ለማጥናት የተዘጋጀ መጠይቅ፤ አሶሳ 2013/2021

መመሪያ: ይህ የመረጃ መጠይቅ ሁለት ዋና ክፍሎች አሉት የኢንተርቪዉ (interview questionnaire) እና በመመልከት የሚሞላ ቼክሊስት (observational checklists) ሲሆን በስተመጨረሻ ያለዉን ቼክሊስት በቅድሚያ ከእንተርቪዉ ክፍል በፊት መሞላት አለበት።።

ክፍል አንድ : አጠቃለይ መረጃ መጠይቅ

መረጃ ሰብሳቢ_____ **ሱፐርቫይዘር** _____**የመጠይቅ መለያ ቁጥር:** _____

ክፍል I: የጥናቱ ተሳታፊ ማህበራዊ ኩነታት መረጃዎች

የማንነት መግለጫ

አድራሻ: ወረዳ_____**ቀበሌ**_____**ቀጠና/ሰፈር/ዞን**_____

ተቁ	1. ጾታ	2. ዕድሜ (በዓመት)	3. ብሄረሰብ	4. ኃይማኖት	5. ትምህርት ደረጃ	ከ18 ዓመት ዕድሜና ከዚያ በላይ ለሆኑት	
						6. የትዳር ሁኔታ	7. የሥራ ሁኔታ
		( )					

ጾታ	ብሄረሰብ	ኃይማኖት	ትምህርት ደረጃ	የትዳር ሁኔታ	የሥራ ሁኔታ
1- ወንድ 2- ሴት 3- ሌላ/ይጠቀስ/_____	1- በርታ 2- አማራ 3- አሮሞ 4- ጉሙዝ 5- ሽናሻ 6- ማኦ/ኮሞ 7- ሌላ/ይጠቀስ/_____	1- ሙስልም 2- አርቶዶክ 3- ኘሮቴስታንት 4- ካቶሊክ 5- ሌላ/ይጠቀስ/_____	1- ማንበብና መፃፍ የማይችል 2- ማንበብና መፃፍ የሚችል 3- ክፍል 1-8 4- ክፍል 9-12 5- ዲፕሎማ 6- ዲግሪ 7- ማስተርስ 8- ሌላ/ይጠቀስ/_____	1- ያላገባ 2- ያገባ፣ የምስቶች ብዛት ከ >1 ከሆኑ ቁጥራቸዉ ( ) 3- የፈታ/የፈታች/ለየብቻ የምኖሩ 4- የሞተባት/የሞተችበት 5- ሌላ/ይጠቀስ/_____	1- የመንግስት 2- የግል ድርጅት 3- ነጋዴ 4- ገበሬ 5- የቀን ሥራ 6- የቤት እመቤት 7- ተማሪ 8- ሌላ/ይጠቀስ/_____

ክፍል ii: ማህበራዊ-እኮኖሚያዊ መረጃዎች / WEALTH INDEX QUESTIONS/			
ተ.ቁ	ጥያቄ	መልስ	ምርመራ
1.	ቤተሰብዎ የኤሌክትሪክ አገልግሎት አለዉ?	1- አዎ 2- አይደለም	
2.	በቤተሰብዎ ዉስጥ ቴሌቪዢን አለ?	1- አዎ 2- አይደለም	
3.	በቤተሰብዎ ዉስጥ ሬድዮ አለ?	1- አዎ 2- አይደለም	
4.	በቤተሰብዎ ዉስጥ ተንቀሳቃሽ ስልክ አለ?	1- አዎ 2- አይደለም	
5.	በቤተሰብዎ ዉስጥ ቋሚ የጠረጴዛ ስልክ አለ?	1- አዎ 2- አይደለም	
6.	በቤተሰብዎ ዉስጥ ማቀዝቀዣ/ፊሪጅ አለ?	1- አዎ 2- አይደለም	
7.	በቤተሰብዎ ዉስጥ የኤሌክትሪክ ምጣድ አለ?	1- አዎ 2- አይደለም	
8.	በቤተሰብዎ ዉስጥ ጠረጴዛ አለ?	1- አዎ 2- አይደለም	
9.	በቤተሰብዎ ዉስጥ ወንበር አለ?	1- አዎ 2- አይደለም	
10.	በቤተሰብዎ ዉስጥ ባለጥጥ፣ስፖኝጅ፣ስፕሪንግ አልጋ አለ?	1- አዎ 2- አይደለም	
11.	ከቤተሰብዎ አባላት ዉስጥ የባንክ ሂሳብ ያለዉ አለ?	1- አዎ 2- አይደለም	
12.	በቤተሰብዎ ዉስጥ መንቀሳቀሻ ማንኛዉም መንገንዣ አለ?	1- አዎ 2- አይደለም	
13.	በቤተሰብዎ ዉስጥ የግል መኖሪያ ቤት ያለዉ አለ?	1- አዎ 2- አይደለም	
14.	የቤተሰብዎ አባላት የሚጠቀሙት ዋናኛዉ የዉሃ ምንጭ ምንድነዉ?	1- ከቧንቧ ዉ ወደ ግቢ 2- የይዞታ 3- ሌላ/ይጠቀስ/_____	
15.	የቤተሰብዎ አባላት የሚጠቀሙት የሽንት ቤት አይነት ምንድነዉ?	1- የጉድጓድ ባለእስላጥ 2- የጉድጓድ እስላጥ የሌለዉ 3- ሽንት ቤት የለም / ሜዳ ላይ/ 4- ሌላ/ይጠቀስ/_____	
16.	የቤተሰብዎ አባላት ለምግብ ማብሰያ የሚጠቀሙት ኃይል ምንድነዉ?	1- ኤሌክትሪክ 2- ማገዶ/እንጨት/ 3- ሁለቱም (ኤሌክትሪክና ማገዶ/ 4-ሌላ/ይጠቀስ/_____	
17.	የቤተሰብዎ መኖሪያ ቤት ወለል በዋናነት የተሠራዉ ከምንድነዉ?	1- መሬት 2- ሲሚንቶ 3- ሌላ/ይጠቀስ/_____	
18.	የቤተሰብዎ መኖሪያ ቤት ግድግዳ በዋናነት የተሠራዉ ከምንድነዉ?	1- እንጨት/ቀርከሃ በጭቃ 2- ብሎኬት 3-ሌላ/ይጠቀስ/_____	
19.	የቤተሰብዎ መኖሪያ ቤት ጣራ በዋናነት የተሠራዉ ከምንድነዉ?	1- ቆርቆሮ 2- ሣር 3- ሌላ/ይጠቀስ/_____	
20.	የቤተሰብዎ አባላት ዋናኛዉ የገቢ ምንጭ ምንድነዉ?	1- ግብርና/እርሻ 2-እርባታ 3-ሁለቱም (ግብርና/እርሻ እና እርባታ) 4- ንግድ 5- የመንግስት ስራ 6-የግል ድርጅት	

		7-ሌላ/ይጠቀስ/_____	
21.	አማካይ የቤተሰብ ወረሃዊ ገቢ? ____ (በጥሬ ገንዘብ ወይም በዓይነት ከሆነ ወደ ብር ተቀይሮ ይፃፍ)	1- <1000 2- 1000-2999 3- 3000-4999 4- 5000+ 5-ሌላ/ይጠቀስ/_____	
22.	ተጨማሪ የገቢ ምንጭ ?	1- የእጅ ሥራ 2- እንጨትና ከሰል ሽያጭ 3-የለም 4- ሌላ/ይጠቀስ/_____	

ክፍል III: ስለ ኮሮና ቫይረስ (ኮቪድ-19) በሽታ እውቀት			
ተ.ቁ	ጥያቄ	መልስ	ምርመራ
1.	ስለ ኮሮና ቫይረስ (ኮቪድ-19) በሽታ መልዕክት ሰምቶ ያውቃሉ?	1- አዎ 2- አይደለም	
2.	ስለ ኮሮና ቫይረስ (ኮቪድ-19) በሽታ መልዕክት ከየት ነዉ የሰሙት ? (ከአንድ በላይ መልስ ይቻላል)	1- ቴሌቪዢን 2- ሬድዮ (FM…) 3- ማህበራዊ የትስስር ገፆች /ሚድያ/(ፌስቡክ፣ ቴሌግራም…) 4- ጓደኞች/ዘመድ/ጎረቤት… 5- የጤና ባለሙያዎች 6- የቀበሌ አስተዳዳሪዎች 7- የኃይማኖት መሪዎች 8- ሌላ/ይጠቀስ/_____	
3.	ከሁሉም የመልዕክት ምንጮች ታማኒነት ያለዉ ወይም ከእርሶ ጋር ለብዙ ግዜ ለመቆየት የቻለ የቱ ነዉ ? (ከአንድ በላይ መልስ ይቻላል)	1- ቴሌቪዢን 2- ሬድዮ (FM…) 3- ማህበራዊ የትስስር ገፆች /ሚድያ/(ፌስቡክ፣ ቴሌግራም…) 4- ጓደኞች/ዘመድ/ጎረቤት… 5- የጤና ባለሙያዎች 6- የቀበሌ አስተዳዳሪዎች 7- የኃይማኖት መሪዎች 8- ሌላ/ይጠቀስ/_____	
4.	ስለ ኮሮና ቫይረስ (ኮቪድ-19) በሽታ የሚተላለፉ መልዕክቶች በተመለከተ ከሚከተለዉ ሀሳብ ጋር ምን ያህል ይስማማሉ? ከሚሰማዉ የኮሮና ቫይረስ (ኮቪድ-19) በሽታ መልዕክቶች፡-ትክክል፣ ዉሸት፣ወይም የአሉባልታ ወሬ ነዉ.. ወዘተ.. ለመወሰን ከባድ ነዉ,	1- አስማማለሁ 2- አልስማማም 3- አላዉቅም 4- መልስ የለም	
5.	የኮሮና ቫይረስ (ኮቪድ-19) በሽታ ዋና ዋና መተላለፊያ መንገድ/ች የትኛዉ ነዉ? (ከአንድ በላይ መልስ ይቻላል)	1- በሚያስነጥሱበት፣ በሚያስሉበት እና በሚናገሩበት ግዜ ከአፍንጫና አፍ ከሚወጣዉ ብናኝ መጋለጥ 2- በእጅ መጨባበጥ 3- ፊት/ዓይን፣አፍንጫ እና አፍ ባልታጠበ እጅ መንካት 4- በቫይረሱ የተበከል ቁሳቁስ/ዕቃዎች መንካት 5- በቫይረሱ የተያዘን ማንኛዉ ሰዉ(የቤተሰብ አባል፣አሳዳጊ ወይም አስታማሚ…) አካላዊ ንክኪ ማድረግ 6- ሌላ/ይጠቀስ/_____	
6.	የኮሮና ቫይረስ (ኮቪድ-19) በሽታ ዋና ዋና መከላከያ መንገድ/ች የትኛዉ ነዉ? (ከአንድ በላይ መልስ ይቻላል)	1- እጅን በዉሃና ሳሙና መታጠብ ወይም አልኮል ሳኒታይዘር (sanitizer) መጠቀም 2- ፊት/ዓይን እና አፍንጫ ባልታጠበ እጅ አለመንካት 3- የፍት ጭምብል(ማስክ) ማድረግ 4- ማህበራዊ ርቀት መጠበቅ 5- በጣም አስፈላጊ/ወሳኝ እስካልሆነ ድረስ በቤት ዉስጥ መቆየት 6- ሰዎች በሚበዙበት(የተጨናነቀ) ቦታ አለመገኘት 7- ሌላ/ይጠቀስ/_____	
7.	በአሁኑ ግዜ የኮሮና ቫይረስ (ኮቪድ-19) በሽታ መከላከያ ክትባት አለዉ?	1- አዎ 2- አይደለም	
8.	ለተለያዩ የማህበረሰብ ክፍሎች ከሚሰጠዉ የኮሮና ቫይረስ (ኮቪድ-19) በሽታ መከላከያ ክትባት የመከተብ ዕድል ሊጋጥመዎታል?	1- አዎ 2- አይደለም	
9.	የሚከተሉት የኮሮና ቫይረስ (ኮቪድ-19) በሽታ ምልክቶች	1- ጥኩሳት 2- የራስ ምታት 3- ሳል 4- ማስነጠስ 5- የንፍጥ መብዛትና የአፍንጫ መታፈን	

	ናቸዉ።። (ከቀረቡት አማራጮች የሆኑት ሁሉ ይምረጡ)	6- የድካም ስሜት 7- የጡንቻ ህመም 7- የመጋጣጣሚያ ህመም 8- የትንፋሽ ማጠር 9- የምግብ ፍላጎት መቀነስ 10- የመቅመስ ስሜት ማጣት 11- የማሽተት ስሜት ማጣት 12- ተቅማጥ 13- አላዉቅም	
10.	በኮቪድ-19 በሽታ የተያዘ ሁሉ ሰዉ አይደለም የበሽታዉ ከባድ ደረጃ ላይ የሚደርሰዉ፤ በዕድሜ የገፉ፣ተጓዳኝ በሽታ ያለበቸዉ እና ከፍተኛ የሰዉነት ክብደት ላለባቸዉ ግለሰቦች ብቻ ናቸዉ።።	1- አዎ 2- አይደለም 3- አላዉቅም	
11.	ለእርሶ፤ በአከባቢያችሁ ለኮሮና ቫይረስ (ኮቪድ-19) በሽታ በጣም ተጋላጭ የሆኑት የትኛዉ ነዉ/ናቸዉ? (ከአንድ በላይ መልስ ይቻላል)	1. ልጆች (0-9) ዓመት 2- ጎልማሶች 10 to 15 ዓመት 3- ወጣቶች (16-29 ዓመት) 4- አዋቂዎች(30-50 ዓመት) 5- ሽማግሌዎች/በዕድሜ የገፉ/ 6- ነፍሰጡሮች 7- የጤና ባለሙያዎች 8- ተጓዳኝ በሽታ ያለበቸዉ (ለምሳሌ የስኳር፣የደም ግፍት...., ወዘተ)	
12.	ለእርሶ፤ በአከባቢያችሁ ስለኮሮና ቫይረስ (ኮቪድ-19) በሽታ ሰዎች ለማወቅ የሚፈልጉት ምንድነዉ? (ከአንድ በላይ መልስ ይቻላል)	1- ራሳቸዉ ከበሽታዉ ለመከላከል የሚያስችላቸዉ 2- የበሽታዉ ምልክቶች 3- በሽታዉ እንዴት እንደሚተላለፍ 4- የበሽታዉ ምልክቶች ሲታይባቸዉ ምን ማድረግ እንደሚጠበቅባቸዉ 5- ለበሽታዉ በጣም ተጋላጭ የሆኑት አካላትን 6- ስለበሽታዉ ህክምና ስለለይቶ ማቆየት(quarantine)	

ክፍል IV : ስለኮቪድ-19 በሽታ አመለካከት

ተ.ቁ	ጥያቄ	መልስ	ምርመራ
1.	የኮቪድ-19 በሽታ (ኢንፌክሽን) ከባድ በሽታ ነው።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
2.	በኮቪድ-19 በሽታ (ኢንፌክሽን) ከመያዝ መሞት ይሻላል	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
3.	ኮቪድ-19 በሽታ በሰው ሕይወት ላይ ከባድ አሉታዊ ውጤቶች አሉት	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
4.	ኮቪድ-19 በሽታ በጣም ጎጂ ነው።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
5.	የኮቪድ-19 በሽታ (ኢንፌክሽን) ምናልባት ሊይዘኝ ይችላል።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
6.	ለኮቪድ-19 በሽታ (ኢንፌክሽን) ተጋላጭ ነኝ	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም	

		4 - አልስማማም 5 - በጣም አልስማማም	
7.	የኮቪድ-19 በሽታ (ኢንፌክሽን) በአካባቢዬ አልተከሰተም። ስለዚህ, ስለሱ መጨነቅ አያስፈልገኝም	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
8.	በኮቪድ-19 በሽታ (ኢንፌክሽን) ልያዝ እችላለሁ	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
9.	በብዙ ገፅታዎች፣ ኮቪድ-19ን የማግኘት እድሌ አነስተኛ ነው።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
10.	እጅን በሳሙና እና በውሃ በተደጋጋሚ መታጠብ ኮቪድ-19ን የሚያመጣው ቫይረስ ይገድላል/ያስወግደዋል ብዬ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
11.	በአልኮል ላይ የተመሰረተ የእጅ ማጽጃ (ሳኒታይዘር) መጠቀም ኮቪድ-19ን የሚያስከትለውን ቫይረስ ይገድላል ብዬ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
12.	ማህበራዊ/አካላዊ ርቀትን መጠበቅ የኮቪድ-19 በሽታን (ኢንፌክሽንን) ይከላከላል ብዬ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
13.	አይን፣ አፍንጫን እና አፍን ከመንካት መቆጠብ የኮቪድ-19 በሽታን (ኢንፌክሽንን) ይከላከላል ብዬ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
14.	የክርንዎን መታጠፍ ወይም መሀረብን በመጠቀም ሳል/ማስነጠስዎን መሸፈን የኮቪድ-19 ስርጭትን እንደሚከላከል አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
15.	በተጨናነቁ ቦታዎች ከመኖር/ከመሥራት መቆጠብ እና ከማንም ጋር መቀራረብ በኮቪድ-19 የመያዝ አደጋን እንደሚከላከል አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
16.	ቤት ውስጥ መቆየት በኮቪድ-19 የሚመጡ በሽታን/ኢንፌክሽኖችን ለመከላከል ይረዳል ብዬ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
17.	ጥሩ የአተነፋፈስ ንጽህናን መከተል (ሳል/ማስነጠስዎን መሸፈን) በአካባቢዬ ያሉትን ሰዎች ከኮቪድ-19 ለመጠበቅ ውጤታማ እንደሆነ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
18.	በኮቪድ 19 የተጠረጠሩ ሰዎችን ለይቶ በማቆየት ወይም በኮቪድ 19 ከተያዘ ሰው ጋር የቅርብ ግንኙነት ባለማድረግ የቫይረሱን ስርጭት ለመቀነስ ውጤታማ ዘዴዎች ናቸው ብዬ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
19.	በኮቪድ-19 የተያዙ ሰዎችን ለይቶ በማቆየት እና ማከም የቫይረሱን ስርጭት ለመቀነስ ውጤታማ መንገዶች ናቸው ብዬ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
20.	በጤና አገልግሎት(እንክብካቤ) አቅራቢዎ/ሰጭዎ የሚሰጠውን ምክር በትክክል መከተል በኮቪድ-19 በሽታ (ኢንፌክሽን) የመያዝ እድልን ይቀንሳል ብዬ አምናለሁ።	1 - በጣም እስማማለሁ 2 - እስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	

21.	ትኩሳት፣ ሳል እና የመተንፈስ ችግር ያለባቸው ሰዎች የኮቪድ-19 በሽታን (ኢንፌክሽንን) ለመቆጣጠር ቀደም ብለው የህክምና እርዳታ ሊፈልጉ እንደሚችሉ አምናለሁ።	1 - በጣም አስማማለሁ 2 - አስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
22.	እራሴን ከኮቪድ-19 በሽታ (ኢንፌክሽን) ለመከላከል የሚመከሩ የእጅ መታጠብ ልምዶችን የመከተል ችሎታ አለኝ፡፡	1 - በጣም አስማማለሁ 2 - አስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
23.	ኢትዮጵያ የኮቪድ-19 ቫይረስን ለመከላከል የምታደርገውን ትግል እንደምታሸንፍ እርግጠኛ ነኝ።	1 - በጣም አስማማለሁ 2 - አስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
24.	የኮቪድ-19 በሽታ (ኢንፌክሽንን) ለመከላከል የመከላከያ መሳሪያዎችን ለምሳሌ ጭምብል (ማስክ) መጠቀም ውጤታማ ነው ብዬ አምናለሁ።	1 - በጣም አስማማለሁ 2 - አስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
25.	የኮቪድ-19 በሽታን (ኢንፌክሽንን) ለመከላከል በራሴ እና በማንኛውም ሰው መካከል ቢያንስ 2 ሜትር ርቀት መጠበቅ እንደምችል እርግጠኛ ነኝ፡፡	1 - በጣም አስማማለሁ 2 - አስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
26.	ከቤት እንስሳት (ውሻ፣ ድመት፣ ፍየል፣ከብት ወዘተ) ጋር የቅርብ ግንኙነትን ማስወገድ የኮቪድ-19 ኢንፌክሽን እንዳይሰራጭ ይከላከላል ብዬ አምናለሁ።	1 - በጣም አስማማለሁ 2 - አስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
27.	ጥሬ የእንስሳትን ምርት አለመብላት የኮቪድ-19 በሽታን (ኢንፌክሽንን) እንዳይሰራጭ ይከላከላል ብዬ አምናለሁ።	1 - በጣም አስማማለሁ 2 - አስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	
28.	የኮቪድ-19 በሽታ ወረርሽኝ ለመጨረሻ ግዜ አስተማማኝ በሆነ መልክ ቁጥጥር ስር ይዉላል፤	1 - በጣም አስማማለሁ 2 - አስማማለሁ 3 - እርግጠኛ አይደለሁም 4 - አልስማማም 5 - በጣም አልስማማም	

ክፍል V: ስለኮቪድ-19 በሽታ አጠቃላይ አስተያየት

ተ.ቁ	ጥያቄ	መልስ	ምርመራ
1.	ኮቪድ-19 በሽታ አስፈሪ ነው	1- እስማማለሁ 2- አልስማማም	
2.	ኮቪድ-19 በሽታ በጣም አስከፊ በሽታ ነዉ	1- እስማማለሁ 2- አልስማማም	
3.	የኮቪድ-19 በሽታ በሰዉ ልጅ ህይወት ላይ ነጥቲቭ ተፅእኖ አለዉ	1- እስማማለሁ 2- አልስማማም	
4.	እኔ ለኮቪድ-19 በሽታ ተጋላጭ ነኝ	1- እስማማለሁ 2- አልስማማም	
5.	እኔ በማንኛዉም መልክ ለኮቪድ-19 በሽታ ተጋላጭ ነኝ	1- እስማማለሁ 2- አልስማማም	
6.	ኮቪድ-19 በሽታ በአከባቢ ይከሰታል ለዚህም ሊያስፈራኝ ይገባል	1- እስማማለሁ 2- አልስማማም	
7.	ትኩሳት፣ሳል እና የመተንፈስ ችግር ያለባቸዉ ሰዎች የኮቪድ-19 በሽታን ለመቆጣጠር በወቅቱ የህክምና እርዳታ እንደሚያስፈልጋቸዉ አምናለሁ	1- እስማማለሁ 2- አልስማማም	
8.	በህክምና ባለሙያዎች የሚተላለፉ ምክሮች በመከተል በኮቪድ-19 በሽታ የመያዝ ዕድልን እንደሚቀንስ አምናለሁ	1- እስማማለሁ 2- አልስማማም	
9.	ሁሉግዜ የሰዉነት ሙቀት በመከታተል፣ ንፁህ አየር ለማግኘት በየግዜዉ መስኮት መክፈት፣ እንዳስፈላግነቱ እረፍት መዉሰድ፣ አግባብ ያለዉ የሰዉነት እንቅስቃሴ በማድረግ ራስዎን ከሌሎች በሽታዎች ኮቪድ-19ን ጨምሮ ለመከላከልና ሰዉነትዎ ጤነኛ ሆኖ	1- እስማማለሁ 2- አልስማማም	

	ለመቆየት ይረዳል		
10.	ከቅርብ ግዜ ወዲህ የእጅ መታጠብ ልማዴ /ባህል ከኮቪድ-19 በሽታ በፊት ጋር ሲነፃፀር ጨምሯል	1- እስማማለሁ 2- አልስማማም	
11.	በአሁኑ ግዜ ራሴን ከኮቪድ-19 በሽታ ሙሉበሙሉ ለመከላከል እችላለሁ፡፡	1- እስማማለሁ 2- አልስማማም	
12.	ራስዎን ከኮቪድ-19 በሽታ ሙሉበሙሉ ከመከላከል ምን ይገድብዎታል?(ከአንድ በላይ መልስ ይቻላል)	1- የግብአት እጥረት፡ ሳሙና፣የሳኒታይዘር፣ የፊት መሸፈኛ ጭምብል (ማስክ) እጥረት 2- የመከላከያ ቁሳቁሶች በገበያ ላይ የዋጋ መናር ፣ የገቢ /ምንጭ መቀነስ ወይም በአካባቢዉ አለመኖር 3- በቂ ዕዉቀት/እንፎርሜሽን አለመኖር 4-ሁሉም 5-የሚገድበኝ ነገር የለም	
በእርሶዎ አከባቢ፤ የኮቪድ-19 በሽታ ስርጭት ለመባባስ እስተዋፅኦ ከሚያደርጉ የሰዎች አመለካከቶች በተመለከተ፡-			
1.	በእርሶዎ አከባቢ ሰዎች የኮቪድ-19 በሽታ በጣም አስከፊ በሽታ ነዉ ብሎ ያስባሉ?	3- አዎ 2- አይደለም	
2.	በእርሶዎ አከባቢ አብዛኛዉ ሰዎች ለኮቪድ-19 በሽታ ተጋላጭ ነን ብሎ ያስባሉ?	3- አዎ 2- አይደለም	
3.	እስካሁን አብዛኛዉ ሰዎች፣ ሰዎች በሚበዙበት(የተጨናነቀ) ቦታዎች ይኖራሉ?	3- አዎ 2- አይደለም	
4.	እስካሁን ሰዎች፣ ሰዎች በሚበዙበት (የተጨናነቀ) መጓጓዣ (ትራንስፖርት) ይጠቀማሉ?	3- አዎ 2- አይደለም	
5.	እስካሁን ሰዎች፣ ሥላምታ ለመለዋወጥ በእጅ ይጨባበጣሉ?	3- አዎ 2- አይደለም	
6.	ሰዎች፣ ለእኮኖሚና ለሌሎች ምክኒያቶች ብሎ ቤት አይቀመጡም?	3- አዎ 2- አይደለም	
7.	እስካሁን ሰዎች ዉሃ እና አልኮል-ሳኒታይዘር (sanitizer) ለማግኘት ይቸገራሉ?	3- አዎ 2- አይደለም	
8.	እስካሁን ሰዎች ራስን ለመከላከል የሚያስችል ዕቃዎች ለምሳሌ፡-የፍት ጭምብል(ማስክ) ለማግኘት ይቸገራሉ?	3- አዎ 2- አይደለም	
9.	እስካሁን ሳል ወይም የጉንፋንና ምልክቶች ያለበቻዉ ሰዎች ምርመራ (screening) እየተደረገላቸዉ አይደለም?	3- አዎ 2- አይደለም	
10.	እስካሁን ሳል ወይም የጉንፋንና ምልክቶች ያለበቻዉ ሰዎች የመጀመሪያ የህክምና እርዳታ እያገኙ አይደሉም?	3- አዎ 2- አይደለም	
11.	ሰዎች፣ በኮቪድ-19 በሽታ ከተጠረጠሩ ማህበራዊ መገለል ይፈራሉ?	3- አዎ 2- አይደለም	
12.	ሰዎች፣ እኛ የሚንኖረዉ በሞቃት አየር ዉስጥ ስለሆነ ለኮቪድ-19 ቫይረስ አይመችም ይላሉ?	3- አዎ 2- አይደለም	
13.	ሰዎች፣ እኛ የሚንኖረዉ ኮቪድ-19 በሽታ ካለበት/የታየበት/ ሩቅ ከሆነ አከባቢ ነዉ ይላሉ?	3- አዎ 2- አይደለም	
14.	ሰዎች፣ እኛ በቂ የባህል መድሃኒቶች/ህክምና አለን ይላሉ?	3- አዎ 2- አይደለም	
15.	ሰዎች፣ የኮቪድ-19 በሽታ ነጭ ሽንኩርት፣ቀይ ሽንኩርት፣ጅንጅቢል ወይም ማር በሙቢላት መከላከል እንደሚቻል ያምናሉ?	3- አዎ 2- አይደለም	
16.	ሰዎች፣ እኛ በጎይማኖታችን/በእምነታችን ጠንካሮች ነን (አላህ/እግ.ቤር) ይጠብቀናል ይላሉ?	3- አዎ 2- አይደለም	

ክፍል VI: - የኮቪድ-19 በሽታ ለመከላከል ተግባራት (PRACTICE TO CONTROL (COVID-19))

iv- የሰዉነት አካላት መከላከያ ዘዴዎች; የፊት መሸፈኛ ጭምብል(ማስክ)፣የእጅ ንፅህና፣ ስያስልና ስያስነጥስ በሶፍት/ክንድ መሸፈን ስርዓት

ተ.ቁ	ጥያቄ	መልስ	ምርመራ
1.	ራስዎን ከኮቪድ-19 ለመከላከል የፍት ጭምብል (ማስክ) ያደርጋሉ ወይም, እጅዎን ይታጠባሉ ወይመ ሳኒታይዘር ይጠቀማሉ?	1- አዎ 2- አይደለም	
2.	ራስዎን ከኮቪድ-19 ለመከላከል ምን ግዜ /ያህል	1- ዘወትር/ሁልግዜ/ 2-አልፎአልፎ	

	ጭምብል(ማስክ) ያደርጋሉ?		
3.	ራስዎን ከኮቪድ-19 ለመከላከል ምን ግዜ /ያህል እጅዎን በዉሃና ሳሙና ይታጠባሉ?	**1-** ዘወትር/ሁልግዜ/ 2-አልፎአልፎ	
4.	ራስዎን ከኮቪድ-19 ለመከላከል ምን ግዜ /ያህል አልኮል ሳኒታይዘር (sanitizer) ይጠቀማሉ?	**1-** ዘወትር/ሁልግዜ/ 2-አልፎአልፎ	
5.	በሚያስልህ እና በሚያስነጥስህ ግዜ አፍ/አፍንጫዎ ምን ግዜ /ያህል በክንድዎ የዉስጥ ክፍል ወይም በመሀረብ ይሸፍናለሁ?	1- ዘወትር/ሁልግዜ/ 2-አልፎአልፎ	
6.	ከልምድ አንፃር አፍ/አፍንጫ በእጅ ከመንካት መቼ ይቆጠባሉ?	**1-** ዘወትር/ሁልግዜ/ 2-አልፎአልፎ	
7.	በአከባቢያችሁ ሰዎች ራሳቸዉን ከኮቪድ-19 በሽታ ለመጠበቅ የመከላከል ተግባራት፡- ለምሳሌ የእጅ ንፅህና፣ ስያስልና ስያስነጥስ በሶፍት/ክንድ መሸፈን ስርዓት እና የፍት መሸፈኛ ጭምብል (ማስክ) ማድረግ ምን ግዜ /ያህል በትክክል ይተገበራሉ?	**1-** ዘወትር/ሁልግዜ/ 2-አልፎአልፎ	
8.	በአከባቢያችሁ ሰዎች ራሳቸዉን ከኮቪድ-19 በሽታ ለመጠበቅ የመከላከል ተግባራት በትክክል የማይተገብሩት ለምን ምክንያት ይመስሎታል? (ከአንድ በላይ መልስ ይቻላል)	**1-** የኮቪድ-19 በሽታ እንደሌሌ ያስባሉ **2-** የኮቪድ-19 በሽታ እንደማይዛቸዉ ያስባሉ **3-** የኮቪድ-19 በሽታ የሚያድን የባህል መድኃኒት እንዳለ ያስባሉ **4-** የኮቪድ-19 በሽታ እንዳለ ያምናሉ፤ነገር ግን ከመከላከል ይዘናጋሉ **5-** ሁሉም የተጠቀሱት ናቸዉ **6-** ሌላ/ይጠቀስ/_____	
v-	የአከባቢ መጠበቂያ ተግባራት;- ቁሳቁስ/ዕቃች/ ዕዳት እና ሌሎች የአከባቢ መጠበቂያ ተግባራት		
ተ.ቁ	ጥያቄ	መልስ	ምርመራ
1.	ኮቪድ-19 ቫይረስ በማንኛዉም ቁስ/ዕቃ/ ላይ ለረጅም ግዜያት ለመቆየት ይችላል?	**1-** አዎ 2- አይደለም	
2.	የኮቪድ-19 ቫይረስ ለመግደል በሥራ ቦታዎ ወይም ቢሮዎ ዕቃዎችን፣ (ለምሳሌ ጠረጴዛ፣መደርደሪያ፣ ወንበር...ወዘተ) ያፀዳሉ?	**1-** አዎ 2- አይደለም	
3.	የኮቪድ-19 ቫይረስ ለመግደል ለማፅጃ ምን ምን ይጠቀማሉ?*	**1-** ዉሃ ብቻ 2- ዉሃና ሳሙና 3- አልኮል ሳኒታይዘር **4-** ሁሉም ዉሃ፣ ሳሙና ከዚያም አልኮል ሳኒታይዘር **5-** ሌላ/ይጠቀስ/_____	
vi-	**የማህበራዊ ርቀት መጠበቅ ተግባራት;-** የተጠርጣሪ አሰሳ፣የታመመን ግለሰቦች መለየት፣የት/ቤቶች ጥንቃቄና መዘጋት፣የሥራ ቦታዎች ጥንቃቄዎችና ሰዎች የሚበዙበት(የተጨናነቀ) ቦታ መራቅ በተመለከተ፤		
ተ.ቁ	ጥያቄ	መልስ	ምርመራ
1-	ባለፉት ቀናት ዉስጥ፤ ወደ ሰዎች የሚበዙበት(የተጨናነቀ) ቦታዎች ተጉዞ ያዉቃሉ? (ለምሳሌ መስጅድ፣ ቤተክሪስቲያን፣ ክፍት ገበያ፤ ቀብር፣ ሠርግ፣ ሥራ...)	**1-** አዎ 2- አይደለም	

2-	ጉዞዉ ለበጣም አስፈላጊ/ወሳኝ ምክኒያት ነዉ ብሎ ያስባሉ?	1- አዎ 2- አይደለም	
3-	ከቤት ዉጭ ለመሄድ ከህዝብ መጓጓጉ ይልቅ የግል መጓጓጉ የመጓጓጉ ወይመ በእግር የመሄድ አማራጭ ይጠቀማሉ?	1- አዎ 2- አይደለም	
4-	አብዛኛዉን ግዜ, ራስዎን ከሌሎች 6 ጫማ(2 ሜትር) ያክል ርቀት ይጠብቃሉ?	1- አዎ 2- አይደለም	
5-	በሥላምታ ግዜ አካላዊ ንክክ ለምሳሌ መጨባባጥ፣ መተቃቀፍ፣ መሳሳም... ወዘተ አቁሟል?	1- አዎ 2- አይደለም	
6-	በቤትዎ አንድ ሰዉ በሽታ አለበት ብሎ በሚያስቡበት ግዜ ወደ የኮቪድ-19 የጥሪ ማዕከል ይደዉላሉ?	1- አዎ 2- አይደለም	የጥሪ ማዕከል ቁ._____
7-	ልጅዎ ወይመ ዘመድዎ ወደ ት/ቤት ሲሄዱ በመንገድ ላይም ሆነ ት/ቤት ዉስጥ የኮቪድ-19 መከላከያ መንገዶች ይተገብራሉ ብሎ ያስባሉ?	1- አዎ 2- አይደለም	
8-	አንድ ሰዉ የኮቪድ-19 በሽታ አለበት ብሎ በሚያስቡበት ግዜ ለብቻዉ በአንድ ክፍል ዉስጥ እንዲቆይ ያደርጋሉ?	1- አዎ 2- አይደለም	
9-	ሰዎች የኮቪድ-19 በሽታን ለመከላከል የማህበራዊ ርቀት መጠበቅ ተግባራት ለምን አይፈፅሙም? (ከአንድ በላይ መልስ ይቻላል)	1- የሚከላከል መሆኑን አያዉቁም 2- ባህላቸዉን/እምነታቸዉን የሚቃረን ይመስለቸዋል 3- የኮቪድ-19 በሽታ የሌሌ ስለሚያስቡ 4- ሁሉም የተጠቀሱት 5-ሌላ/ይጠቀስ/_____	
vii-	**ጉዞና ጉዞ ጋር ግንኙነት ያለቸዉ የመከላከል ተግባራት : የጉዞ ምክሮች፣የመግቢያና መዉጫ ጥንቃቄዎች፣ምርመራ(screening) አለማቀፍ ጉዞ ከልከላና ድንበር መዘጋት በተመለከተ፤**		
ተ.ቁ	ጥያቄ	መልስ	ምርመራ
1-	እርሶ (ኮቪድ-19 ከተከሰተ በኋላ) ወደ/ከ ዉጭ ሀገር ለምሳሌ ሱዳን-ኢትዮጵያ ለግብይት፣ህክምና ወዘተ.. ሲንቀሳቀሱና ድንበር ሲሻገሩ ምን ያህል የኮቪድ-19 በሽታን ለመከላከል የሚደረጉ ጥንቃቄዎች፣ ምክሮች በትክክል ይከተሉ/ይተገብሩ ነበር?	1- ዘወትር/ሁልግዜ/ 2-አልፎአልፎ	
2-	የቤተሰብዎ አባል ወደ/ከ ሱዳን-ኢትዮጵያ ለግብይት፣ህክምና ወዘተ.. ሲንቀሳቀሱና ድንበር ሲሻገሩ ምን ያህል የኮቪድ-19 በሽታን ለመከላከል የሚደረጉ ጥንቃቄዎች፣ምክሮች በትክክል ይከተሉ/ይተገብሩ ነበር?	1- ዘወትር/ሁልግዜ/ 2-አልፎአልፎ	
3-	ሰዎች ወደ/ከ ሱዳን-ኢትዮጵያ ለግብይት፣ህክምና ወዘተ.. ሲንቀሳቀሱና የመግቢያና መዉጫ ድንበር ሲሻገሩ የኮቪድ-19 በሽታን ለመከላከል የሚደረጉ ጥንቃቄዎች፣ምክሮች፣ምርመራ(screening) በትክክል ለምን ምክኒያት እንደማይተገብሩ ልነግሩን ይችላሉ (ከአንድ በላይ መልስ ይቻላል)	1- የብዙ ቀናት ለይቶ ማቆያ ግዜ ፍራቻ 2- በለይቶ ማቆያ ወቅት የሚጠፋ የሥራ ግዜ(ኪሳራ ፍራቻ) 3- የማህበረሰቡ ማግለል ፍራቻ(በሽታ አለበት ስለሚባል) 4- ሁሉም የተጠቀሱት 5- ሌላ/ይጠቀስ/_____	ለምሳሌ የ14 ቀናት ለይቶ ማቆያ ግዜ

ክፍል ሁለት: በማየት የሚሞላ ቅጽ (ቼክሊስት) (OBSERVATIONAL CHECKLISTS)

	i- ይህ ክፍል የመጀመሪያዉ ቃለመጠይቅ ጥያቄዎች(interview questions) ከመሞላቱ በፊት የሚሞላ ነዉ		
ተ.ቁ	ጥያቄ	መልስ	ምርመራ

1-	ዉሃ የያዘ የእጅ መታጠቢያ ዕቃ ማግኘት የሚቻልበት በመግቢያ አከባቢ ወይም በሚታይና ትክክለኛ ቦታ ላይ አለ?	2- አዎ 2- አይደለም	
2-	እሱ/አሷ በሚገቡበት ግዜ እጅ ይታጠባሉ?	2- አዎ 2- አይደለም	
3-	እጅ በሚታጠቡበት ወቅት ሳሙና ይጠቀማሉ?	2- አዎ 2- አይደለም	
4-	እጅን በትክክል ይታጠባሉ?	2- አዎ 2- አይደለም	
5-	እሱ/አሷ የእጅ ማፅጃ አልኮል/ሳኒታይዘር ይዘዋል ወይም አጠገባቸዉ አለ?	2- አዎ 2- አይደለም	
6-	አሁን ፍት/አፍ ሸፍነዋል ወይም ማስክ አድርገዋል?	2- አዎ 2- አይደለም	
7-	ፍት/አፍ በትክክል ሸፍነዋል ወይም ማስክ በአግባቡ አድርገዋል?	2- አዎ 2- አይደለም	
8-	እሱ/አሷ በትክክል (በሚገባ መልኩ) ማህበራዊ ርቀትን ጠብቋል?(መረጃ መሰብሰብ እስካበቃ ድረስ)	2- አዎ 2- አይደለም	

==========የመጨረሻ==========

በጥናቱ ላይ በመሳተፈዎ በአጥኚዉ በከማል-ኢዲን ዑስማን እና ጅማ ዩኒቨርሲቲ ስም እናመሰግናለን፡፡

ANNEX D: - SUPPORTIVE LETTERS

Ethical Clearance and supportive papers

Jimma University Institute of Health

Institutional Review Board

Ref.No JHRPGY/93/21

Date: 6/5/2021

To: **Kemal-Eddin Osman**

Subject: Ethical Approval of Research Protocol

The IRB of Institute of Health has reviewed your research project **"Level And Factors Affecting Implementation Of Non-Pharmacological Interventions To Prevent Covid-19 Infection Among Adult Residents In Assosa Town, Benishangul Gumuz Region, North West Ethiopia 2021; A Cross-Sectional Study"**

Thus, this is to notify that this research protocol as presented to the IRB meets the ethical and scientific standards outlined in national and international guidelines. Hence, we are pleased to inform you that your research protocol is ethically cleared.

We strongly recommend that any significant deviation from the methodological details indicated in the approved protocol must be communicated to the IRB before it has been implemented.

With Regards!

Million Tesfaye (MSc, PHD)
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በቤ/ጉ/ክ/መ የአሶሳ ከተማ አስተዳደር ከንቲባ

THE BENISHANGUL GUMUZ REGIONAL ASSOSA TOWN ADMINISTERATION

ቁጥር፡ 100021/ኦ3/81

ቀን፡ 16/09/2013

ለአሶሳ ከተማ አስ/ር ወረዳ 1 ቀጠና 1 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 1 ቀጠና 2 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 1 ቀጠና 3 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 1 ቀጠና 4 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 1 ቀጠና 5 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 2 ቀጠና 1 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 2 ቀጠና 2 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 2 ቀጠና 3 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 2 ቀጠና 4 መስ/ር ጽ/ቤት
ለአሶሳ ከተማ አስ/ር ወረዳ 2 ቀጠና 5 መስ/ር ጽ/ቤት
አሶሳ፤

ጉዳዩ፡- ትብብርን ይመለከታል፤

አቶ ከማል-ኢዲን ዑስማን አብዱረህማን /ዋና ተመራማሪ/ በቀን 13/09/2013 ዓ/ም በፃፉት ማመልከቻ መሰረት በጅማ ዩኒቨርስቲ ድህረ-መረቃ ፕሮግራም በEPIDEMIOLOGY ትምህርት ክፍል ስር /Level and Factors Affecting Implementation of Non-Pharmacological Interventions to Prevent Covid-19 Infection Among adult Residents in Assosa Town,Benishanghl Gumuz Region, North West Ethiopia 2012 በሚል ርዕስ ምርምር እንዲያደርጉ መረጃ መሰብሰብ እንዲችሉ ትብብር እንዲያረግላቸው ጠይቀውናል፡፡

ስለሆነም በእናንተ በኩል ለጥናቱ ጠቃሚ መረጃ መሰብሰብ እንዲችሉ አስፈላጊውን ትብብር እንዲደረግላቸው እናሳውቃለን፡፡

"ከተማችንን በጋራ እናልማ"

ግልባጭ፤
✓ ለአሶሳ ከተማ አስ/ር ወረዳ 1 መስ/ር ጽ/ቤት
✓ ለአሶሳ ከተማ አስ/ር ወረዳ 2 መስ/ር ጽ/ቤት
አሶሳ፤
✓ አቶ ከማል-ኢዲን ዑስማን አብዱረማን
ባሉበት፤

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Note:- please Quote our Ref.No.When Replying ፋ(Fax) 057 775 06 22 Assosa, Ethiopia.

በአሶሳ ከተማ አስተዳደር ጤና መምሪያ

ASSOSA TOWN ADMINISTRATION HEALTH DEPARTEMENT

ቁጥር 2025-[illegible]-13

ቀን 16-9-2013

ለወረዳ 1 ቀጠና 1	ለወረዳ 2 ቀጠና 1
ለወረዳ 1 ቀጠና 2	ለወረዳ 2 ቀጠና 2
ለወረዳ 1 ቀጠና 3	ለወረዳ 2 ቀጠና 3
ለወረዳ 1 ቀጠና 4	ለወረዳ 2 ቀጠና 4
ለወረዳ 1 ቀጠና 5	ለወረዳ 2 ቀጠና 5

ጉዳዩ፡- የትብብር ደብዳቤን ይመለከታል፤

ከላይ በርዕሱ ለመግለጽ እንደተሞከረዉ እኔ ከማል-ኢዲን ዑስማን አብዱረህማ (ዋና ተመራማሪ) በጅማ ዩኒቨርሲቲ ድህረ-መረቃ ፕሮግራም በEPIDEMIOLOGY ትምህርት ክፍል ስር (Level and Factors Affecting Implementation of Non-Pharmacological Intervenions to Prevcnl Covid-19 Infeclion among adult residents in Assosa town Renishangul Gumuz Region Norlh west Ethiopia 2021) በሚል ርዕስ ላይ በሚሰራዉ ምርምር በከተማዉ ሁለቱም ወረዳዎች ሥራ ባሉት አስር ቀበሌዎች (ቀጠናዎች) ዉስጥ ለምርምሩ ሥራ መረጃ ለመሰብሰብ መረጃ ሰብሳቢዎች በማህበረሰብ ዉስጥ በየቤቱ ስለሚዘዋወሩ ለሚመለከታቸዉ እንዲያዉቁና እንዲተባበሩ ይህንን የድጋፍ ደብዳቤ የፃፍንላቸዉ መሆኑን እየገለፅ በእናንተ በኩል የተለመደዉ ትብብራችሁን እንዲታደርጉላቸዉ እንገልፃለን፡፡

ለጤናችን በጋራ እንስራ

አበሴ ታዬ ጊዳ
ABOSE TAYE GIDA

የመምሪያው ኃላፊ
Office Head

ግልባጭ፤
ለከማል-ኢዲን ዑስማን አብዱረህማ
በመምሪያ፤

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CERTIFICATE OF SERVICE

Awarded to:

ABDURAHMAN Kemal-Eddin Osman

In recognition of services provided to RSC Africa as an interpreter for the United States Refugee Admissions Program. RSC Africa acknowledges your assistance as an interpreter for the following languages:

Arabic; Funj; Amharic; English.

Addis Ababa
Location

13 – 17 November 2016
Dates of Service

RSC Africa Field Team Leader

Salil Shah
Interpreter Training Specialist

ANNEX E: - ASSURANCE OF PRINCIPAL INVESTIGATOR

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or another university and that all sources of materials used for this thesis have been fully acknowledged.

Name of PI: **Kemal-Eddin Osman Abdurahman**

Date of submission: _____ Signature:  ___

Approval of the first Advisor

Name of the first advisor: **Fasil Tesema**

Date:_____ Signature: _____

Approval of the Co- Advisor

Name of the co-advisor: **Dawit Regasa**

Date:_____ Signature  _____

Approval of the board of examiners

As a member of the board of examiners of the MPH Thesis Open Defense Examination, I certify that I have read and evaluated the thesis entitled *Level of Implementation of Non-Pharmacological Interventions to Prevent COVID-19 Infection and Associated Factors among adult residents in Assosa town, Benishangul Gumuz Region North West Ethiopia, 2021; A Cross-sectional Study* prepared by Mr. Kemal-Eddin Osman Abdurahman and examined the candidate. I recommend that the Thesis be accepted as fulfilling the thesis requirements for the Degree of Masters of Public Health in Epidemiology.

_____	_____	_____
Chairperson	Signature	Date
_____	_____	_____
Internal Examiner	Signature	Date
_____	_____	_____
External Examiner	Signature	Date