ASSASEMENT OF KNOWLEDGE, ATTITUDE, AND, PRACTICE TOWARDS COVID-19 PREVENTION MEASURES AND ASSOCIATED FACTORS AMONG ADULT PATIENTS WITH CHRONIC DISEASE ATTENDING  OUTPATIENT CHRONIC CARE FOLLOW-UP AT NEKEMTE TOWN PUBLIC HOSPITALS, WESTERN ETHIOPIA, 2021

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**August, 2021**

**Jimma, Ethiopia**

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# Abstract

**Background:** Coronavirus disease was first detected in China in December 2019. Controlling an epidemic requires changing people's knowledge, attitudes, and practices especially, the high-risk groups.

**Objective:** The purpose of this study was to assess the knowledge, attitudes, and, practice towards COVID-19 prevention practice and associated factors in patients with chronic disease at Nekemte town public hospitals.

**Methods:** A hospital-based cross-sectional study was conducted among 403 chronic disease patients attending outpatient chronic care clinics from May to June 2021 at Nekemte town public hospitals, Western Ethiopia. A systematic random sampling technique was used to select the study subjects. An interviewer-based questionnaire was used. Multivariable logistic regression analysis with a 95% confidence interval was used to identify factors associated with poor knowledge, negative attitude, and poor practice towards COVID-19 prevention and control measures. The adjusted odds ratio (AOR) was used to determine the magnitude of the association between the outcome and independent variables. P-values <0.05 were considered as statistically significant.

**Result:** A total of 403 study participants included in this study with 100% response rate. Prevalence of poor knowledge, negative attitude, and poor practice towards COVID-19 prevention measures were 38.7% (95%CI (33.93-43.49%), 47.4% (95%CI (42.5-52.29%), and 58.3% (95%CI (53.48-63.15%), respectively. In multiple logistic regression analysis, unable to read and write (AOR 2.58, 95%CI 1.29, 5.17) and widowed marital status (AOR 0.29, 95%CI 0.11, 0.73) were predictors of poor knowledge whereas being rural resident (AOR1.96, 95%CI 1.11-3.48), Television as source of information, (AOR 0.54, 95%CI 0.32, 0.89), and poor knowledge (AOR 2.00, 95%CI 1.27, 3.16) were predictors of negative attitude. Age group ( 40-60) years (AOR 0.53, 95%CI 0.34, 0.84), being farmer (AOR 2.17, 95%CI 1.14, 4.15), source of information, and having poor knowledge about COVID-19 prevention and control measures (AOR 1.79, 95%CI 1.15, 2.79) were significantly associated with poor practice.

**Conclusion:** The study found that still the knowledge, attitude, and prevention practice of chronic disease patients is insufficient to control and prevent the COVID-19 virus. Thus, health professionals, especially those working at chronic care clinic should provide in-depth information about COVID-19 to their patients. Thus, health professionals, especially those working at chronic care clinic should provide in-depth information about COVID-19 to their patients. Moreover, Medias, NGOs, and any other concerned bodies should work on these patients through behavioral change education towards COVID-19 prevention practice.

**Keywords:** Knowledge, Attitude, Practice, chronic disease patients, COVID-19, Nekemte, Ethiopia

## Acknowledgments

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## Acronyms and Abbreviations

AOR             Adjusted Odds Ratio

ARDS            Acute Respiratory Distress Syndromes

CI              Confidence Interval

COVID           Corona Virus Disease

CVD             Cardiovascular Disease

DM              Diabetes Mellitus

ETB             Ethiopian Birr

HIV             Human Immuno Virus

ICTV            International Committee on Taxonomy of Virus

KAP             Knowledge, Attitude, Practice

MERS            Middle East Respiratory Syndrome

MERS- Cove      East Respiratory Syndrome Corona Virus

OR              Odds Ratio

SARS-CoV-2      Severe Acute Respiratory Syndrome Corona Virus Type2

SPSS            Statistical Package for Social Sciences

WHO             World Health Organization

# CHAPTER 1: INTRODUCTION

## 1.1. Background of the study

In December 2019, a new type of coronavirus (2019nCov) emerged in China, which became a public health of international concern. This virus became named the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) through the International Committee on Taxonomy of Viruses (ICTV), and the disease known as Coronavirus Disease-19(1). COVID-19 is an acute respiratory disease caused by SARS-CoV-2, a novel coronavirus closely related to SARS-CoV. The virus is transmitted from person-to-person by both symptomatic and asymptomatic persons through close contact (within 6 feet) via respiratory droplets(2).

The global pandemic of Corona Virus (COVID-19) disease has had a disproportionate effect on patients dwelling with underlying chronic disease infection. An excessive burden of extreme disease and loss of life from the coronavirus disease 2019 (COVID-19) has been continuously found in older patients, mainly people with pre-existing medical co-morbidities. Evidence showed that underlying chronic conditions like high blood pressure, cardiovascular disorder, diabetes, obesity, and respiration disease have emerged as tremendous threat elements for the development of intense COVID-19(3).

## 1.2 Statement of the problem

The new coronavirus disease (COVID19) is spreading rapidly and is a huge economic, social and health problem worldwide(4). As of June 2021, the World Health Organization has reported 179,241,734 confirmed cases of COVID19 worldwide, of which 3,889,723 people have died. In Ethiopia, from 3 January 2020 to 24 June 2021, there have been 275,502 confirmed cases of COVID-19 with 4,292 deaths, reported to WHO(5). With some countries across Africa continuing to see increases in Covid-19 cases, there's concern about a new variant of coronavirus in South Africa. The World Health Organization (WHO) has urged African countries to strengthen surveillance of the virus to detect possible mutations. There's been an average increase of 30% in weekly new cases and 35% in new deaths in South Africa over the four weeks up to 10 January, according to the Africa Centers for Disease Control (CDC)(6).

An excessive burden of severe disease and death from the coronavirus disease 2019 (COVID-19) has been constantly located in older patients, specifically of individuals with pre-existing medical co-morbidities. The highest rate of Hospital admission, re-admission, long hospital stays, and death from COVID-19 has been associated with chronic co-morbidities like (hypertension, diabetes,

chronic pulmonary disease, liver disease, cardiovascular diseases (3)(8)(9)(10). Hypertension seemed consistently as the most widespread determinant in COVID-19 patients. A retrospective cohort study in China involving 191 COVID-19 patients, of whom fifty-four died in the hospital, 91 (48%) patients had comorbidity, with high blood pressure being the most common 58 (30%) patients, accompanied by diabetes 36 (19%) patients and coronary heart disease 15 (8%) patients(11). The factors observed to be independently related to an increased risk of in-patient death have been an age greater than sixty-five years, coronary artery disease (10.2%, vs. 5.2% amongst the ones without the disease,), coronary heart failure (15.3%, vs. 5.6% amongst the ones without coronary heart failure, cardiac arrhythmia (11.5%, vs. 5.6% amongst the ones without arrhythmia, continual obstructive pulmonary disorder (14.2%, vs. 5.6% amongst the ones without the disorder(12).

Immediately after the first confirmed case of COVID-19 in Ethiopia in March 2020, the Government of Ethiopia took several public health measures to prevent increased levels of infection these included closing all schools and restricting large gatherings and movements of people. Hand washing and social distancing were the main prevention measures that the government has communicated to the general public through various media platforms(13)(14)(15).

Currently, even though an effective vaccine is ready, its distribution is limited, and hence the only currently available measure to reduce transmission is to identify and isolate individuals who are contagious(16). The absence of a comprehensive approach to ensure vaccine access in developing countries threatens to prolong the pandemic, escalating inequalities and delaying the global economic recovery. Even if enough vaccine doses are eventually made available through multilateral and other channels, success will also be constrained by challenges in the health systems of many developing countries. These challenges range from a lack of trained medical personnel and inadequate health infrastructure (including adequate vaccine storage facilities) to limited tracking mechanisms(17).

Its relatively weak health system, inadequate infrastructure, population mobility, and vulnerability to social and political unrest, Ethiopia is very vulnerable to the pandemic Therefore, implementing effective intervention strategies to contain the rapidly spreading virus has become a top priority for the country(16).

Since the first COVID19 case on March 13, 2020, the Ethiopian Government has taken various measures directed by the World Health Organization. These measures include educating the public to wash their hands regularly with soap and water, maintaining social distancing, tracing contacts,

and self-isolation measures. In addition, the government announced the closure of schools and workplaces, restricted public gatherings, and established COVID19 working groups at all levels(16)(18). Despite all measures, the spread and death from COVID-19 is still not controlled. Poor understanding of the disease among the community enhances the spread of infection and death. Moreover, even though chronic disease patients are more likely to be die and develop severe illnesses from COVID-19, most of the current studies are targeted to studying knowledge, attitude, and practice of general communities and health professionals but not chronic disease Therefore, this study was aimed to assess the knowledge, attitude, and practice towards COVID-19 prevention and control measures, and associated factors among adult chronic disease patients attending Nekemte town public hospitals.

## 1.3. Significance of the study

The conclusions of these results are noteworthy for designing appropriate policies, programs, and strategies to address a variety of problems in patients with chronic disease by identifying differences in the Knowledge, Attitude, Practice, and contributing factors. This finding could add to the existing knowledge base on COVID-19 in patients with chronic disease patients. This can help improve the quality of care and patient safety. Overall, this study provides valuable information for Nekemte town health officers, health professionals of Nekemte Town public hospitals, and policymakers to plan for resources and act accordingly as the pandemic remains a challenge.

## CHAPTER 2: LITERATURE REVIEW

### 2.1. Overview of the literature

COVID-19 is one of the big general health crises for the global especially for low-income countries like Ethiopia. Evidence showed that peoples with underlying medical conditions especially, those with chronic diseases and older people are at the highest rate of developing severe disease and death from COVID-19. Evidence showed that older age peoples have increased rates of COVID-19-associated hospitalization. From hospitalized patients with COVID-19, most of them have underlying medical conditions. However, most of the current evidence showed that the most important preventive and control measures like social distancing, hygiene, and wearing face masks in a public area where social distancing is difficult to maintain to protect the older adults and persons with underlying medical conditions(19). The current existing studies about chronic disease patient's knowledge, attitude, and practice towards COVID-19 prevention and control measures summarize there is a visible gap between chronic disease patient's knowledge, attitude, and practice, and the most determining factors for their knowledge and practice are different across their socio-demographic characteristics of sex, age, educational status, marital status, place of residence, income. Their KAP level also different across their source of information about COVID-19 source of information and their knowledge and in addition to, their knowledge, attitude, and practice are interrelated, the knowledge status can determine practice(23-29).

Systematic review and meta-analysis showed that there was a significant gap in knowledge, attitude and practice concerning COVID-19 amongst in Ethiopia. This is important information and requires that the country step up the provision of accurate and up-to-date information on COVID-19 (21–23)

### 2.2. Awareness of Chronic disease patients towards COVID-19 prevention and control measures

A study performed at Addis Zemen hospital northwest Ethiopia confirmed 99.2% of chronic disease patients were aware of the COVID-19 pandemic and their primary source of information were television and radio 59.9%. The study showed that only 3.9% of chronic disease patients heard information from Health professionals and only 3.2% of them received it from Newspaper. Concerning awareness approximately the disease, Cough (88%) and fever (82.2%) have been the maximum usually recognized signs and symptoms of COVID-19 by chronic patients(20). A sectional study in Vietnam found 93.7% awareness among chronic disease patients towards COVID-

19 prevention and control and their major sources of information were television (72.8%) and social media (62.1%)(24).

## 2.3. Knowledge of chronic disease patients towards COVID-19 prevention and control measures

According to a cross-sectional study conducted among People with Hypertension and Diabetes Mellitus Attending Public Health Facilities in Ambo, Ethiopia, the patients having the desired level of knowledge about COVID-19 was only 37.59%. The study confirmed that the prevalence of poor knowledge among patients was 31.44% and around thirty percent (30.97%), of them, were having moderate knowledge(25).

A cross-sectional study conducted at Addis Zemen hospital, Northwest Ethiopia, found a high prevalence of poor knowledge (33.9%) among chronic patients. The study confirmed only 37.4% of chronic disease patients have been having proper knowledge regarding COVID-19 prevention and control measures. Regarding transmission modes of the COVID-19, 70.1% of patients were known that shaking hands of infected individuals can transmit infection, almost half (53.7%) of them know touching an object or surface with the virus on it, then touching the mouth, nose, or eye can spread COVID-19, most of the chronic disease patients (85.4%) know that avoiding going to crowded places prevents the spread of infection, and 75.7% of them know that wearing masks when moving out of the home can prevent the infection of COVID-19 (24). A study carried out Among 363 Participants Living with HIV/AIDS in Rwanda, Kigali, confirmed that, of 363 people living with HIV/AIDS, 97% had appropriate knowledge in COVID-19 prevention and control measures(26).

In a cross-sectional study conducted among high-risk age groups in Korea, district, Tigray, Ethiopia, 37.7%, of study participants, were found with poor knowledge of COVID- 19 prevention and control. The majority, 98.8% of the respondents had heard the information about COVID-19 prevention and control, and (36%) of the respondents did not know the most vulnerable groups to COVID-19(27). A study carried out in Addis Ababa, Ethiopia, indicated that almost half (48%) of the study participants had poor knowledge regarding the transmission mode of COVID-19(28). The study conducted among chronic illness patients at outpatient departments in Ho Chi Minh City, Vietnam, showed Just over two-thirds of the participants (68.4%) answered with sufficient knowledge of COVID-19(24).

## 2.4. Attitude of chronic disease patients towards COVID-19 prevention and control measures

According to a study conducted in Ambo, Ethiopia, most of the participants have a good attitude towards COVID-19 prevention and control measures. Accordingly, 68.1% of participants were strongly agreed that COVID-19 is a cause for serious illness, while 20.6% perceived that COVID-19 is a curable disease. The study indicated, 53.7% of individuals agree that their risk of having COVID-19 is high, 72.3% of them agree that early detection of COVID-19 can improve the outcome of treatment and 47.5% of the respondents do not agree that COVID-19 disease results in death(25).

A study performed at Addis Zemen hospital, Northwest Ethiopia, confirmed that 36.1% of the chronic disease patients perceived they have a moderate risk of infection with COVID-19. Only 28.7% take high care of themselves(20). A study in Rwanda, Kigali indicated a high prevalence of poor attitude (26%) towards COVID-19 prevention and control measures among HIV/AIDS patients(26). A study in Tigray showed 43.4% of the high-risk groups had a negative attitude to COVID-19 prevention and control (28). A study in Vietnam showed Most chronic disease patients had a positive attitude toward COVID-19 (90.8%), although some misconceptions existed(24).

## 2.5. Practice of chronic disease patients towards COVID-19 prevention and control measures

The study conducted in Ambo revealed that the overall prevalence of poor COVID-19 preventive practice among the study participants was 45.39%. According to the study, most chronic patients have a good practice of visiting health institutions with suspicion of infection with COVID-19. The majority of them avoid close contact with individuals with cold or flu symptoms like cough, fever, or sneezing, 91.7% cover their nose and mouth when sneezing or coughing, and wash their hands, and 84.9% of them were clean frequently touched objects and surfaces. The study showed Only 33.1% of the study individuals clean their hands frequently by using cleaning soap for at the least 20 seconds to prevent spreading COVID-19 and only 32.4% of them Avoid public transportations (bus, taxi, plane, train, etc.)(25).

The study in Addis Zemen, Ethiopia revealed a high prevalence of poor practice among chronic disease patients. Accordingly, the prevalence of poor practice among chronic disease patients was low (47.3%). Only 25.9 % of study people had proper practice. According to the study, washing hands with soap frequently, avoiding handshaking as a prevention practice was practiced by 65.5% and 71.7% of study subjects. The prevalence of mask utilization during home leave had been practiced by only 36.6% of subjects. Avoiding overcrowded areas and disinfecting of frequently

contact objects and surfaces were practiced only by 38.1% and 52.2% respectively. The study indicated that practicing physical distance was the least practiced COVID-19 prevention and control measure by Chronic disease patients(20).

A study in Korea Tigray revealed that about 52.5% of the respondents had a poor practice of COVID-19 prevention and control. 71.4% of the respondents had gone to the crowded area. About three-fourths, (76.1%) of the respondents were not used any hand-rub-based alcohol or sanitizer, near to half (47.3%) of the patients were not applied physical distance at every moment, and more than one-third (36.5%) of them did not cover their mouth and nose with a tissue or other material during sneezing and coughing. More than half (56.6%) of chronic patients did touch their eyes and noses before they wash their hands with water, soap, or sanitizer daily. A total, (88.8%) of patients had declared that they did not use any type of mask in crowded and during their movement(27). A study in Addis Ababa showed the practice of preventive measures towards COVID-19 was found to be low (49%)(28). A study in Vietnam confirmed Almost three-fourths (77.2%) of the individuals with chronic disease maintain proper practices for prevention(24).

## 2.6. Factors Associated with Knowledge of chronic disease patients towards COVID-19 prevention and control measures

The study conducted in Ambo revealed Age, occupation, source of information were associated with the knowledge status of chronic patients. Accordingly, the study showed as age increases by 1 year, knowledge level about COVID-19 decreases by 1.8%. In keeping with the study, patients running personal businesses have been about three times much more likely to have poor knowledge about COVID-19 than individuals who have been public servants. Patients that heard information about COVID-19 from social media have been 53% much less likely to have poor knowledge than those who got information via mass media(25).

According to the study conducted at Addis Zemen hospital, Northwest Ethiopia, age, educational status, residence, and monthly income were significantly associated with poor knowledge. For one year increase in age, the odds of poor knowledge were indicated at 6%. Those who can't read and write have been 7.1 times higher odds of having a low level of knowledge than individuals of secondary and above educational level. Rural residents were nineteen times higher odds of having poor knowledge than rural residents(20). A study conducted in Ho Chi Minh City, Vietnam, showed, the rate of good practices in those who had sufficient knowledge was 1.24 times more than that amongst those who had inadequate knowledge(24).

## 2.7. Associated factors with the practice of chronic disease patients towards COVID-19 prevention and control measures

A correctional study conducted in Ambo indicated that educational status, knowledge status, source of information are factors associated with the practice of chronic disease patients towards COVID-19 prevention and control measures. The study confirmed that patients without formal schooling were more likely to have poor COVID-19 prevention practice than individuals who were with the first degree and above. Those patients who have poor knowledge about COVID-19 prevention practice had 1.66% times much more likely to have poor COVID-19 prevention practice than people who had knowledge degree of moderate and above. Patients who used sources of information about COVID-19 on the day by day basis have been about sixty-six percent times much less likely to have poor COVID-19 prevention practice than individuals who used the information weekly(25).

The study in Addis Zemen Hospital also identified marital status, educational status, area of residence, monthly income, and poor knowledge are observed to be related to poor practice. A study showed the odds of poor practice in single individuals have been 3.9 times higher than married chronic patients; chronic disease patients who cannot read and write were 2.7 and 3.5 times more likely to practice poorly than those who read and write. Chronic patients from the rural areas had 2.7 times higher likelihood of poor practice than those from urban. Those who earn an income of less than the mean were 2.3 higher odds of poor practice than those above the mean. Odds of poor practice were 8.6 times higher among those with poor knowledge(20). A study among chronic disease patients in Vietnam confirmed that adult males have a much less rate of good practice than females(24). A cross-sectional study in Rwanda showed a positive correlation between knowledge, attitude, and practice. Attitude scores increase as knowledge increases, practice score increases as knowledge increases and practice score increases as attitude score increase(26).

# Conceptual framework

Diagram below shows conceptual framework of factors associated with poor knowledge, negative attitude, and poor practice towards COVID-19 prevention and control measures among chronic disease patients developed from literature review(20-22)(27)(29)
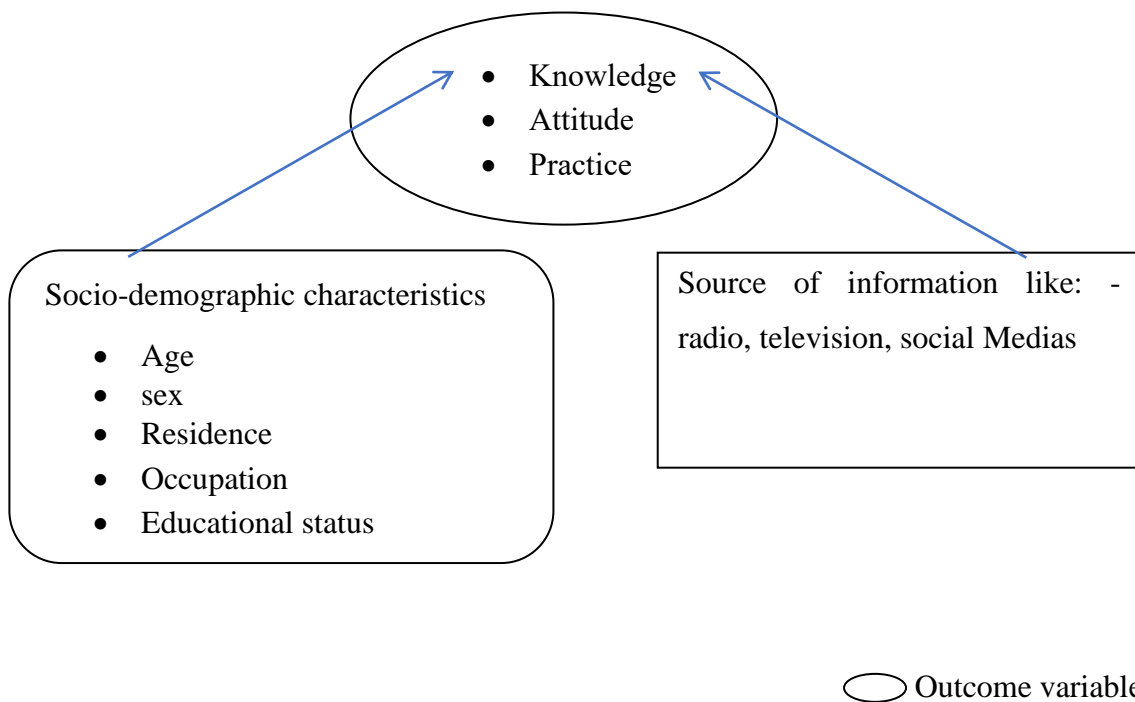


*Figure 1: Conceptual framework of factors associated with knowledge, attitude, and practice towards COVID-19 prevention and control measures among chronic disease patients.*

# CHAPTER 3: OBJECTIVES

## 3.1. General Objective

❖ The major objective of the present study is to investigate the knowledge, attitude, and, practice towards COVID-19 prevention measures and associated factors among adult patients with chronic disease at Nekemte town public hospitals from May to June 2021

## 3.2. Specific objectives

❖ To measure the knowledge towards COVID-19 prevention measures among adult patients with chronic disease at Nekemte town public hospitals from May to June 2021

❖ To describe the attitude of  adult chronic disease patients towards COVID-19 prevention measures at Nekemte town public hospitals from May to June 2021

❖ To find out the practice towards COVID-19 prevention measures among adult patients with chronic disease at Nekemte town public hospitals from May to June 2021

❖ To identify factors associated with poor prevention of COVID-19 among adult patients with chronic disease at Nekemte town public hospitals from May to June 2021

# CHAPTER 4: METHODS AND MATERIALS

## 4.1. Study area and period

The present study was conducted in two public health hospitals including Nekemte Specialized hospital, and Wollega University Referral Hospital both found in Nekemte Town from April to May, 2021. Nekemte Town is found in Western part Ethiopia, East Wollega Zone, Oromia Region, and 331 Km far away from Addis Ababa. The town is the capital of the East Wollega Zone. According to the National Population and Housing Census of 2007, the population of the town was 76,817. Out of this 39,167 (50.98%) were males and 37,650 (49.02%) were female(30). Data from Nekemte Town Health Office showed the existing health facilities in the town include two governmental hospitals, two health centers (both governmental), two NGO clinics, nine mid-levels, and 16 small level private clinics, five drug stores, and supplies, seven pharmacies, and five rural drug vendors.

## 4.2. Study design

A hospital-based cross-sectional study was conducted

## 4.3. Population

### 4.3.1. Source population

All adult patients with chronic diseases attending the chronic disease follow-up at Nekemte town public hospitals were the source population.

### 4.3.2. Study population

All adult patients with chronic diseases attending the chronic disease follow-up clinics at Nekemte town public hospitals during the data collection period were the study population.

## 4.4. Inclusion and exclusion criteria

### 4.4.1 Inclusion criteria

All patients with chronic diseases (hypertension, diabetes mellitus, chronic kidney diseases, Cardiovascular and liver diseases) who were available at the chronic care clinics during the data collection period were enrolled in this study.

### 4.4.2. Exclusion criteria

Patients who were on follow-up during the study period and who were unable to respond to questions due to severe illness or admitted patients were excluded from this study.

## 4.5. Sample size and sampling technique

### 4.5.1. Sample Size

A single population proportion formula, $(Z_{(\alpha/2)}{}^2 p(1-p))/d^2$ with a 47.3% prevalence of poor COVID-19 prevention practice among chronic disease patients taken from the study conducted at Addis Zemen Hospital; Northwest Ethiopia with a 95% confidence interval, 5% margin of error (d), and 5% non-response rate was used to calculate the desired sample size(20). The sample size for significantly associated factors with poor knowledge, attitude, and practice was calculated using EPI-info by considering a 95% CI, and 80% power (21-26). (Table 1 and 2). The maximum sample size from the calculated sample size was taken as the minimum required sample size for this study. Therefore, the calculated sample size of 403 from a single population proportion was the final sample size for this study.

$$n = (Z_{(\alpha/2)}{}^2 p(1-p))/d^2 = ((1.96)2 \; 0.488(1-0.488))/((0.05)^2) = 384.$$

Where n = required sample size

P = chronic patients' practice towards COVID-19 Prevention and control obtained from related study.

Z = Significance level at a confidence interval of 95%

d = margin of error (0.05).

Z $\alpha/2$ = value of the standard normal distribution corresponding to a significant level of alpha ($\alpha$) 0.05 which is 1.96.

With a 5% non-response rate, the final sample size was **403.**

*Table 1: Sample size determination for KAP towards COVID-19 prevention and control among chronic disease patients using single population proportion formula*

| List of variables | Proportion | CI | α-value | Margin of error | Non-response rate | Sample size | Final sample size |
|---|---|---|---|---|---|---|---|
| **Poor knowledge** | 33.9% (20) | 95% | 1.96 | 5% | 5% | 345 | 363 |
| | 37.59% (25) | 95% | 1.96 | 5% | 5% | 361 | 379 |
| **Negative attitude** | 41% (20) | 95% | 1.96 | 5% | 5% | 372 | 391 |
| | 79.2% (25) | 95% | 1.96 | 5% | 5% | 254 | 267 |
| **Poor practice** | 47.3% (20) | 95% | 1.96 | 5% | 5% | 383 | 403 |
| | 45.39% (25) | | 1.96 | 5% | 5% | 381 | 400 |

*Table 2: Sample size for associated factors for COVID-19 prevention practice among chronic disease patients using Open Epi info, 2021*

| List of variables | Proportion | CI | α-value | Margin of error | Non-response rate | Sample size | Final sample size |
|---|---|---|---|---|---|---|---|
| **Poor knowledge** | 33.9% (20) | 95% | 1.96 | 5% | 5% | 345 | 363 |
| | 37.59% (25) | 95% | 1.96 | 5% | 5% | 361 | 379 |
| **Negative attitude** | 41% (20) | 95% | 1.96 | 5% | 5% | 372 | 391 |
| | 79.2% (25) | 95% | 1.96 | 5% | 5% | 254 | 267 |
| **Poor practice** | 47.3% (20) | 95% | 1.96 | 5% | 5% | 383 | 403 |
| | 45.39% (25) | | 1.96 | 5% | 5% | 381 | 400 |

### 4.5.2. Sampling technique

In Nekemte town, there were two public hospitals (Nekemte specialized hospital and Wollega University referral hospital). Both hospitals were purposively included in the study. The calculated sample size was allocated in proportion to the number of patients in each hospital based on the list of chronic disease patients obtained from both Hospital registration files (252 participants were assigned to Nekemte specialized and 151 participants were assigned to Wollega University referral hospitals). Then, the required numbers of individuals assigned to each hospital were selected by systematic random sampling after calculating the sampling interval (K=12) by dividing the total number of adults with chronic disease in each hospital by the desired sample size from each hospital based on the previous month's patient flow. The first study participant was selected randomly from the k participants appointed on the date of data collection based on their medical registration number. Finally, data were collected every kth individual for each hospital from the randomly selected participants on the date of their follow-up till the required samples were obtained.
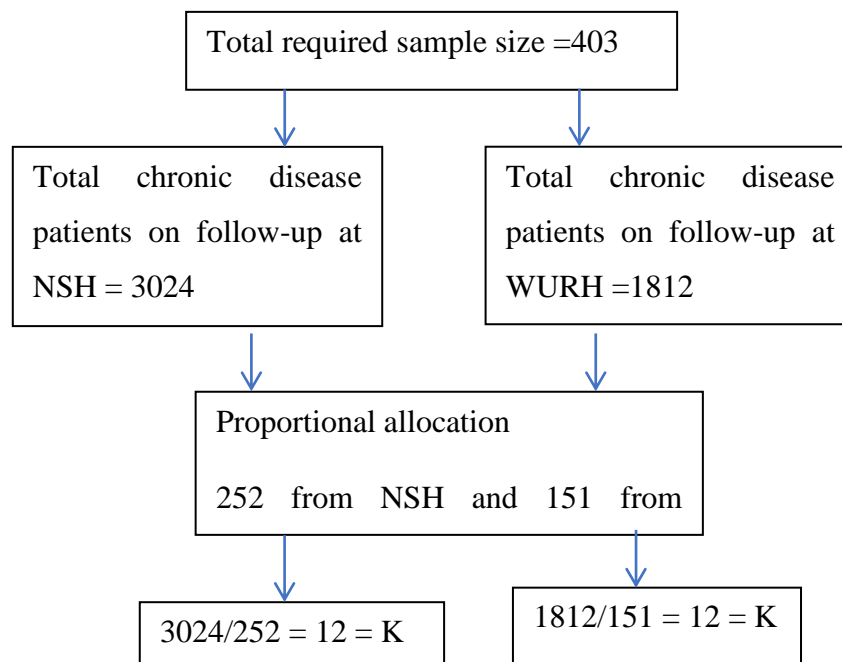


*Figure 2: Sampling technique of chronic disease patients attending chronic disease follow-up clinics at Nekemte Town public hospitals, Western Ethiopia, 2021*

## 4.6. Data collection procedures

A structured inter- viewer-administered questionnaire developed after a literature review on comparable studies was used to collect the required data(24-26). The questionnaire consists of socio-demographic variables, awareness, 19 knowledge, 14 attitude, and 12 practice related questions. The Knowledge questions were replied to on true or false and I don't know. 1 was assigned for a correct answer and zero was assigned to incorrect and don't know answer alternatives. Participant's response was counted and scored separately for knowledge, attitude, and practice questions. This score was pooled and the mean score was calculated to determine respondent's knowledge, attitude, and practice(27). Accordingly, study participants who scored greater than or equal to the mean score for knowledge (15.37), attitude (5.96), and practice (7.15) were categorized to have good knowledge, positive attitude, and good practice respectively. While study participants who scored less than the mean value for knowledge, attitude, and practice were categorized to have poor knowledge, negative attitude, and poor practice respectively. Knowledge and attitude questions were replied on 3 alternatives and practice questions were replied on 2 alternatives (yes or no) questions. Data was collected by BSc Nurses under regular supervision from May to June, 2021 after two days data collection training was given.

## 4.7. Study variables

### 4.7.1. Dependent variable

- Knowledge, attitude, and practice

### 4.7.2. Independent variables

- Socio-demographic variables like: -Sex, age, monthly income, residence, occupation, educational level, marital status.
- Knowledge as an independent variable for attitude of chronic disease patients towards COVID-19 prevention and control measures
- Knowledge and attitude as an independent variable for the practice of chronic disease patients towards COVID-19 prevention and control measures
- Source of information like - social media, radio, television

## 4.8. Operational definitions

**Good knowledge**: knowledge was assessed by 19 knowledge related questions. Respondents who scored at and above the mean score of knowledge questions were considered to be having good knowledge otherwise poor knowledge.

**Positive attitude:** attitude was assessed by 14 attitude related questions. Respondents who scored at and above the mean score of attitude questions were considered to be having positive attitude otherwise, negative attitude.

**Good practice:** practice was assessed by 12 practice related questions. Respondents who scored at and above the mean score of practice questions were considered to be having good practice otherwise, poor practice(27).

## 4.9. Data processing and analysis procedures

The data were coded, checked for completeness, and entered using Epi Data-Version .3.1 and exported to SPSS version 25 for analysis. Descriptive analyses were performed to describe the socio-economic and clinical characteristics, as well as the knowledge, attitude, and practice of the study participants. Both binary and multivariable logistic regression analyses were performed to identify factors associated with poor knowledge, negative attitude, and poor practice towards COVID-19 prevention measures. Multi-collinearity diagnosis and hos-mer and lame-show goodness fit for multivariable logistic regression analysis and were performed. Variables having p-values of <0.25 in bivariate logistic regression were entered into multivariable logistic regression analysis. The strength of factors associated with knowledge, attitude, and practice was demonstrated by an adjusted odds ratio (AOR) with a 95% confidence interval (CI). P-value <0.05 was considered statistically significant. Data were presented statements, charts, tables, and figures.

## 4.10. Data quality management

The internal consistency of the data collection tool was checked and it's in of acceptable range of cronbach's alpha value (0.805 for knowledge questions and 0.786 for attitude questions). The required data were collected by fluent speakers of the local language under regular supervision after giving two-day training for data collectors.

## 4.11. Ethical consideration

Ethical approval for the study was obtained from Institutional Review Board of Jimma University. Supportive letter was obtained from Jimma University Epidemiology department to administrative office of Nekemte town public hospitals. Oral informed consent was obtained from each participant before their participation and the confidentiality of study participants was kept.

## 4.12. Dissemination plan

The finding of this study will be submitted and presented to the department of epidemiology, faculty of public health, institute of health, Jimma University for defense for graduation paper in MPH/Epidemiology and different stakeholder's that will contribute to improving the knowledge, attitude, and practice of chronic disease patients. Finally, the effort will be made to present in various seminars, workshops and for publication in peer reviewed journals.

# CHAPTER 5: RESULTS

## 5.1 Socio-demographic Characteristics of the Study Participants

A total of 403 study participants were included in this study with a 100% response rate. The mean age (mean ±SD) of the study participants was 40.6±12.9. More than half (51.4%, n=208) of the respondents were males. Out of the total study participants, 282 (70%) were married. Regarding the educational status, 109 (27%) of the study participants cannot read and write while 166(41.2%) had an educational status of "secondary and above". Of the total respondents, 252 (62.5%) survey respondents came from urban areas. The mean monthly income of study participants were 3241.7ETB. About one-third (34.5%) of the participants were getting monthly income below 1500 ETB. One hundred thirty-one (32.5%) and 114(28.3%) study participants were government employees and farmers, respectively.

Regarding of awareness of participants regarding COVID-19, all patients (100%) heard about the pandemic COVID-19. The major primary sources of information for study participants were television 261(64.8%) and radio 225 (55.8%). In terms of symptom perception, dyspnea is the most obvious (89.4%) reported symptoms followed by cough 358 (88.6%), fever 339(83.9% and fatigue 317(78.5%). (Table 3).

*Table 3: Socio-demographic characteristics of Chronic Disease Patients, Nekemte Town public Hospitals, Western Ethiopia, 2021.   (N=403).*

| Variables | Category | Frequency, n | Percentage, % |
|---|---|---|---|
| **Sex of respondents** | Male | 207 | 51.4% |
| | Female | 196 | 48.6% |
| **Age category** | 18-40 | 217 | 53.8% |
| | 41-50 | 157 | 39.0% |
| | >=61 | 29 | 7.2% |
| **Marital status** | Married | 282 | 70.0% |
| | Unmarried | 65 | 16.1% |
| | Divorced | 24 | 6.0% |
| | Widowed | 32 | 7.9% |
| **Educational status** | unable to read and write | 109 | 27.0% |
| | only read and write | 63 | 15.6% |
| | primary education | 65 | 16.1% |
| | secondary and above | 166 | 41.2% |
| **Place of residence** | Urban | 252 | 62.5% |
| | Rural | 151 | 37.5% |
| **Monthly Income** | <1500 ETB | 139 | 34.5% |
| | 1500-3000 ETB | 132 | 32.8% |
| | >3000 ETB | 132 | 32.8% |
| **Occupation** | government employee | 131 | 32.5% |
| | Merchant | 89 | 22.1% |
| | Farmer | 114 | 28.3% |
| | Housewife | 69 | 17.1% |

## 5.2. Knowledge of chronic disease patients towards COVID-19 Prevention and control measures

Prevalence of poor knowledge towards COVID-19 prevention measures was found to be 38.7% (95%CI (33.93-43.49%). The participants had better knowledge (84-89%) on four variables such as on clinical symptoms (fever, cough, shortness of breath and elderly people and comorbid will develop severe form) of COVID-19. However, the participants showed high variability (48-78%) on clinical symptoms (fatigue, duration of symptoms, not all develop severe form, effective treatment or vaccine).

Participants had better knowledge (94-98%) on three variables (touching/hand shaking of infectede individuals, touching infectious objects, and through air via droplets during coughing and sneezing). But, participants showed insufficient knowledge on COVID-19 transmission during asymptomatic phase (59.6%, n=240).

Participants shad howed consistent knowledge (92-97%) on four variables (mask wearing, avoiding crowded area, handwashing with soap/using alchol, avoiding infectious area) towards COVID-19 mode of transmission. (Table 4).

*Table 4: Summary of participants' knowledge on clinical symptoms, mode of transmission; and prevention and control measures in two public hospitals, Nekemte Town, Western Ethiopia, month 2021*

| Variables | Category | Frequency, n | Percentage, % |
|---|---|---|---|
| **Knowledge on clinical symptoms** | | | |
| Fever | Yes | 338 | 83.9% |
| | No | 32 | 7.9% |
| | don't know | 33 | 8.2% |
| Cough | Yes | 357 | 88.6% |
| | No | 18 | 4.5% |
| | don't know | 28 | 6.9% |
| Shortness of breath | Yes | 360 | 89.3% |
| | No | 15 | 3.7% |
| | don't know | 28 | 6.9% |
| Fatigue | Yes | 316 | 78.4% |
| | No | 29 | 7.2% |

| | don't know | 58 | 14.4% |
|---|---|---|---|

| **Knowledge on mode of transmission** | | | |
|---|---|---|---|
| Touching or shaking of hands of an infected person | Yes | 388 | 96.3% |
| | No | 8 | 2.0% |
| | don't know | 7 | 1.7% |
| Touching an object or surface with the virus | Yes | 393 | 97.5% |
| | No | 4 | 1.0% |
| | don't know | 6 | 1.5% |
| Via respiratory droplets of infected individuals | Yes | 380 | 94.3% |
| | No | 5 | 1.2% |
| | don't know | 18 | 4.5% |
| **Knowledge on prevention and control measures** | | | |
| Wearing masks when moving out of home to where peoples are overcrowded | Yes | 372 | 92.3% |
| | No | 20 | 5.0% |
| | don't know | 11 | 2.7% |
| Avoid going to crowded places | Yes | 381 | 94.5% |
| | No | 16 | 4.0% |
| | don't know | 6 | 1.5% |
| Washing hands frequently with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer (60%) | Yes | 381 | 94.5% |
| | No | 16 | 4.0% |
| | don't know | 6 | 1.5% |
| Traveling to an infectious area | Yes | 385 | 95.5% |
| | No | 10 | 2.5% |
| | don't know | 8 | 2.0% |

## 5.3 Associated Factors of Poor Knowledge on COVID-19

In bivariate analysis, age category 18-40 years and 41-60 years, marital status of unmarried and widowed, educational status of unable to read and write and only read and write, rural residence, income below 1500 and between 1500 and 3000ETB, occupational status of merchant, farmer and housewife, information source from radio, television and other social medias were candidate variables for multivariable logistic regression.

Moreover, multivariable binary logistic regression, only marital status of widowed (p-value 0.009, AOR 0.29, 95%CI 0.11-0.73) and educational status of unable to read and write (P-value = 0.007, AOR 2.58, 95%CI 1.29-5.17) were significantly associated variables with poor knowledge of the chronic disease patients towards COVID-19 prevention measures. Those who are unable to read and write were 2.58 times higher odds of having poor knowledge towards COVID-19 prevention measures than those of secondary and above education, (P-value = 0.007, AOR2.58, 95%CI 1.29-5.17). Those who were the marital status of widowed were 0.29 times fewer odds of having poor knowledge compared to those who are married. (Table 5)

*Table 5: Factors associated with poor knowledge towards COVID-19 prevention among chronic disease patients in bivariable and multivariable logistic regression analysis Nekemte town public hospitals, Western Ethiopia, 2021 (N=403).*

| Variables | Category | Knowledge | | p-value | COR(95%CI) | AOR(95%CI) |
|---|---|---|---|---|---|---|
| | | Good | Poor | | | |
| Age (n=403) | 18-40 years | 144(58.3%) | 73(46.8%) | | 1 | |
| | 41-60 years | 91(36.8%) | 66(42.3%) | 0.098* | 1.43(0.94-2.19) | 1.03(0.63-1.66) |
| | >= 60 years | 12(4.9%) | 17(10.9%) | 0.011* | 2.79(1.27-6.16) | 1.37(0.55-3.41) |
| Marital status (n=403) | Married | 163(66.0%) | 119(76.3%) | | 1 | |
| | Unmarried | 47(19.0%) | 18(11.5%) | 0.033* | 5.25(0.29 – 0.95) | 0.61(0.31-1.19) |
| | Divorced | 13(5.3%) | 11(7.1%) | 0.730 | 1.16(0.50-2.68) | |
| | Widowed | 24(9.7%) | 8(5.1%) | 0.066* | 0.46(0.20 – 1.05) | 0.29(0.11-0.73) |
| Educational status (n=403) | Unable to read and write | 45(18.2%) | 64(41.0%) | 0.000* | 3.601(2.16 –5.99) | 2.58(1.29-5.17) |
| | Read and write | 39(15.8%) | 24(15.4%) | 0.154* | 1.56(0.845– 2.87) | 0.93(0.44-1.98) |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Primary education | 44(17.8%) | 21(13.5%) | 0.549 | 1.21(0.65-2.25) | |
| | Secondary and above | 119(42.8%) | 47(30.1%) | | 1 | |
| Residence (n=403) | Rural | 172(30.4%) | 80(48.7%) | 0.000* | 2.18(1.44 - 3.30) | 1.60(0.89-2.87) |
| | Urban | 75(69.6%) | 76(51.3%) | | 1 | |
| Income (n=403) | <1500 | 76(18.9%) | 63(15.6%) | 0.016* | 1.84(1.12-3.03) | 1.24(0.68-2.24) |
| | 1500-3000 | 80(19.9%) | 52(12.9%) | 0.157* | 1.44(0.87-2.39) | 0.94(0.52-1.68) |
| | >=3000 | 91(22.6%) | 41(10.2%) | | 1 | |
| Occupation (n=403) | Government employee | 95(38.5%) | 36(23.1%) | | 1 | |
| | Merchant | 56(22.7%2) | 33(21.2%) | 0.113* | 1.55(0.87 - 2.77) | 1.19(0.63-2.23) |
| | Farmer | 52(21.1%) | 62(39.7%) | 0.000* | 3.15(1.85 – 5.36) | 1.38(0.65-2.94) |
| | Housewife | 44(17.8%) | 25(16.0%) | 0.203* | 1.45( 0.80 – 2.79) | 0.76(0.35-1.66) |
| Source of information (n=403) | Radio (yes) | 116(53.0%) | 62(60.3%) | 0.156* | 1.34(0.89 – 2.02) | 0.95(0.56-1.59) |
| | Radio (No) | 131(47.0 %) | 94(39.7%) | | 1 | |
| | Television( yes) | 76(69.2%) | 66(57.7%) | 0.019* | 0.66(0.40 -0.92) | 1.29(0.75-2.22) |
| | Television (No) | 171(30.8%) | 90(42.3%) | | 1 | |
| | Health professionals(yes) | 123(50.2%) | 85(45.5%) | 0.359 | 0.83(0.55-1.24) | |
| | Health professionals(No) | 124(49.8%) | 71(54.5%) | | | |
| | Other (yes) | 181(26.7%) | 133(14.7%) | 0.005* | 0.47(0.28 - 0.80) | 0.59(0.31-1.13) |
| | Other (No) | 66(73.3%) | 23(85.3%) | | 1 | |

Note: *P-value is significant at 0.25, in COR., **p-value is significant at 0.05 in AOR.

## 5.4 Attitude of chronic disease patients towards COVID-19 Prevention and control measures

Prevalence of negative attitudes towards COVID-19 prevention measures among chronic disease patients were 47.4 % (n= 191 N=403, 95%CI (42.5-52.29%). Only 52.6% (n= 212 N=403) of chronic disease patients had a positive attitude towards COVID-19 prevention and control measures. One hundred seventy-six (43.7%) of the participants perceived that they have a high risk of infection with COVID-19. Regarding self-care, 253(62.5%) respondents reported that they undertook high care to prevent COVID-19 while 33(8.2%) study participants took very low care. Being infected with the COVID-19 virus was highly threatening for about two-third (66.7%) of chronic disease patients. On the contrary, it was not annoying at all for 78(19.4%) of them. Almost half (49.1%) of the study participants perceived that washing hands frequently for 20 seconds with soap or using sanitizer is very easy. Avoiding; touching face with the unwashed hand, shaking others, and attending in a crowded population were considered very easy by 136 (33.9%), 140 (34.7%), and 140(34.7%) respondents, respectively. Less than half (40.2%) of the study participants perceived that practicing physical distance is very difficult. (Table 6)

*Table 6: Attitude of chronic disease patients towards COVID-19 prevention and control measures, Nekemte town public hospitals, Northwest Ethiopia, 2021(N=403)*

| Variables | Category | Frequency, n | Percentage,% |
|---|---|---|---|
| Risk of infection with COVID-19 | High | 176 | 43.7% |
| | Medium | 147 | 36.5% |
| | Low | 80 | 19.9% |
| Level of care to yourself | High care | 253 | 62.5% |
| | Medium care | 118 | 29.3% |
| | Low care | 33 | 8.2% |
| Being infected with COVID-19 | Very easy | 78 | 19.4% |
| | Easy | 56 | 13.9% |
| | Difficult | 269 | 66.7% |
| Washing hands frequently with soap and water for at least of 20 seconds | Very easy | 197 | 48.9% |
| | Easy | 168 | 41.7% |
| | Difficult | 38 | 9.4% |

| | | | |
|---|---|---|---|
| Avoiding touching faces with unwashed hands | Very easy | 136 | 33.7% |
| | Easy | 119 | 29.5% |
| | Difficult | 148 | 36.7% |
| Avoiding of shaking others | Very easy | 140 | 34.7% |
| | Easy | 134 | 33.3% |
| | Difficult | 129 | 32.0% |
| Avoiding of attending crowded population area | Very easy | 140 | 34.7% |
| | Easy | 128 | 31.8% |
| | Difficult | 135 | 33.5% |
| Practicing physical distancing | Very easy | 120 | 29.8% |
| | Easy | 121 | 30.0% |
| | Difficult | 162 | 40.2% |
| Covering mouth or nose with elbow during coughing or sneezing | Very easy | 219 | 54.3% |
| | Easy | 137 | 34.0% |
| | Difficult | 47 | 11.7% |
| Avoiding close contact with infected individuals | Very easy | 199 | 49.4% |
| | Easy | 134 | 33.3% |
| | Difficult | 70 | 17.4% |
| Using a face mask during home leaving | Very easy | 241 | 59.8% |
| | Easy | 114 | 28.3% |
| | Difficult | 48 | 11.9% |
| Listening and following of directions given by state and local authority | Very easy | 235 | 58.3% |
| | Easy | 117 | 29.0% |
| | Difficult | 51 | 12.7% |
| Isolating of oneself, if get sick to avoid the spread of COVID-19 | Very easy | 141 | 35.0% |
| | Easy | 150 | 37.2% |
| | Difficult | 112 | 27.8% |
| Staying at home to reduce risk of infection | Very easy | 130 | 32.3% |
| | Easy | 124 | 30.8% |

| | | | | Difficult | 149 | 37.0% | |

## 5.5 Factors associated with a negative attitude towards COVID-19 prevention and control measure among chronic disease patients

Logistic regression model was fitted using the following variables that had p-value below 0.25 in bivariate analysis. Those variables are being age above 60 years, marital status of unmarried, educational status of unable to read and write, read and write, and primary education, being rural resident, monthly income below 1500 and between 1500-3000ETB, being farmer and being house wife, radio and television as source of information, and having poor knowledge.

Thus, in multivariable logistic regressions, rural residence (P-value 0.02, AOR 1.96, 95%CI 1.11, 3.48), television as source of information (P-Value 0.017, AOR 0.54, 95%CI 0.32-0.81) and poor knowledge (P-value 0.003, AOR 2.00, 95%CI 1.27, 3.16) were significantly associated variables with negative attitude. Rural residents were 1.96 times higher odds of having a negative attitude towards COVID-19 prevention measures than urban residents (P-value 0.021, AOR 1.96, 95%CI 1.11, 3.48). Those who are having poor knowledge were 2.005 times higher odds of having a negative attitude towards COVID-19 prevention measures than those who do not have (P-value 0.003, AOR 2.00, 95%CI 1.27, 3.16). Those who heard COVID-19 information from television were 0.54 fewer odds of having a negative attitude towards COVID-19 prevention measures than those who do not hear from television (P-Value 0.017, AOR 0.54, 95%CI 0.32-0.80). (Table 7)

*Table 7: Factors associated with negative attitude towards COVID-19 prevention among chronic disease patients in bivariable and multivariable logistic regression analysis Nekemte town public hospitals, Western Ethiopia, 2021 (N=403).*

| Variables | Category | Attitude | | P-value | COR(95%CI) | AOR(95%CI) |
|---|---|---|---|---|---|---|
| | | Positive | Negative | | | |
| Age (N=403) | 18-40 years | 117(55.2%) | 100(52.4%) | | 1 | |
| | 41-60 years | 87(41.0%) | 70(36.6%) | 0.774 | 0.94(0.62-1.42) | |
| | >61 years | 8(3.8%) | 21(11.0%) | 0.01 * | 3.07(1.30-7.24) | 2.20(0.84-5.79) |
| Marital status (N=403) | Married | 14(69.3%) | 135(70.7%) | | 1 | |
| | Unmarried | 41(19.3%) | 24(7.3%) | 0.112* | 0.64(0.37– 1.11) | 0.79(0.42-1.52) |
| | Divorced | 10(4.7%) | 14(7.3%) | 0.328 | 1.52(0.65-3.55) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Widowed | 14(6.6%) | 18(9.4%) | 0.371 | 1.40(0.67-2.92) | |
| Educational status (N=403) | Unable to read and write | 54(25.5%) | 55(28.8%) | 0.041 * | 1.66(1.02– 2.72) | 0.64(0.32-1.28) |
| | Read and write | 26(12.3%) | 37(19.4%) | 0.005 * | 2.33(1.29– 4.20) | 1.32(0.64-2.74) |
| | Primary | 29(13.7%) | 36(18.8%) | 0.017* | 2.03(1.13– 3.63) | 1.76(0.91-3.38) |
| | Secondary and above | 103(48.6%) | 63(33.0%) | | 1 | |
| Place of residence (N=403) | Rural | 155(26.9%) | 97(49.2%) | 0.000* | 2.63(1.74- 3.99) | 1.96(1.11-3.48) |
| | Urban | 57(73.1%) | 94(50.8%) | | 1 | |
| Monthly income (N=403) | <1500 | 63(15.6%) | 76(18.9%) | 0.003* | 2.11(1.30-3.44) | 1.51(0.84-2.70) |
| | 1500-3000 | 65(16.1%) | 67(16.6%) | 0.019* | 1.80(1.10-2.95) | 1.40(0.80-2.44) |
| | >3000 | 84(20.8%) | 48(19.1%) | | 1 | |
| Occupation (N=403) | Gov't | 79(37.3%) | 52(27.2%) | | 1 | |
| | Merchant | 50(23.6%) | 39(20.4%) | 0.542 | 1.18(0.69-2.04) | |
| | Farmer | 53(25.0%) | 61(31.9%) | 0.031* | 1.75(1.05– 2.91) | 0.57(0.27-1.21) |
| | Housewife | 30(14.2%) | 39(20.4%) | 0.024* | 1.97(1.11– 3.57) | 1.11(0.52-2.34) |
| Source of information (N=403) | From radio(yes) | 108(49.1%) | 70(63.4%) | 0.004* | 1.79(1.20 - 2.67) | 1.34(0.84-2.14) |
| | From radio(No) | 104(50.9%) | 121(36.6%) | | 1 | |
| | Television (yes) | 57(73.1%) | 85(55.5%) | 0.000* | 0.46(0.30 -0 .69) | 0.54(0.32-0.89) |
| | Television (No) | 155(26.9%) | 106(44.5%) | | 1 | |
| | Health professionals(yes) | 107(49.5%) | 101(47.1%) | 0.629 | 0.91(0.61-1.34) | |
| | Health professionals(No) | 105(50.5%) | 90(52.9%) | | 1 | |
| | Other (yes) | 165(22.2%) | 149(22.0%) | 0.969 | 0.99(0.62-1.59) | |
| | Other (No) | 47(77.8%) | 42(78.0%) | | 1 | |
| Poor knowledge (N=403) | Yes | 66(31.1%) | 90(47.1%) | 0.001* | 1.97(1.31 - 2.96) | 2.00(1.27-3.16) |
| | No | 146(68.9%) | 101(52.9%) | | 1 | |

Note: *P-value is significant at 0.25, in COR., **p-value is significant at 0.05 in AOR

**Practice of chronic patients towards COVID-19 prevention and control measures**

Prevalence of poor practice towards COVID-19 prevention and control measures among chronic patients were 58.3 %( 95%CI (53.48-63.15%). Only 168 (41.7%) of study participants had a good practice towards COVID-19 prevention and control measures (Table 3). Three hundred-seventeen (78.7%) study participants reported that they washed their hands with soap frequently. Two-hundred -sixty-nine (66.9%) of the study participants had participated in crowded areas. Most (72.5%) of the respondents had avoided handshaking. Three hundred fifty-four (87.8%) of the study participants used face masks during leaving their homes. Nearly half (49.1%) of them take off their masks by touching the front and (59.6%) of them re-use the disposable mask. Practicing physical distancing was the least 111(27.5%) practiced preventive measures. About 313 (77.7%) of the respondents cover their nose and mouth when sneezing or coughing, and washing their hands and 267 (66.3%) of the participants were clean frequently touched objects and surfaces. Avoiding crowded areas like public transportations to reduce COVID-19 spreading was the least 134 (33.3%) practiced preventive measure (Table 8).

*Table 8: Practice of chronic disease patients towards COVID-19 prevention and control measures, Nekemte town public hospitals, Western Ethiopia, 2021(N=403)*

| Variables | Category | Frequency | Percentage N % |
|---|---|---|---|
| participate in meetings, religious activities, events, and other social gatherings or any crowded | Yes | 269 | 66.7% |
| | No | 134 | 33.3% |
| worn a mask when leaving a home in recent days | Yes | 354 | 87.8% |
| | No | 49 | 12.2% |
| Touch the front of the mask when taking it off | Yes | 198 | 49.1% |
| | No | 205 | 50.9% |
| Reuse a mask | Yes | 240 | 59.6% |
| | No | 163 | 40.4% |
| wash hands with soap and water frequently | Yes | 317 | 78.7% |
| | No | 86 | 21.3% |
| Touch eyes, nose, and mouth frequently with unwashed hands | Yes | 153 | 38.0% |
| | No | 250 | 62.0% |
| Clean and disinfect frequently touched objects | Yes | 267 | 66.3% |
| | No | 136 | 33.7% |
| Practice physical distancing | Yes | 111 | 27.5% |
| | No | 292 | 72.5% |
| Use others' phone, tables, offices, and or others' work tools tool | Yes | 189 | 46.9% |
| | No | 214 | 53.1% |
| Limit contact such as hand shaking | Yes | 292 | 72.5% |
| | No | 111 | 27.5% |
| Cover your nose and mouth during coughing or sneezing | Yes | 313 | 77.7% |
| | No | 90 | 22.3% |
| Stay home when you were sick due to a common cold-like infection | Yes | 175 | 43.4% |
| | No | 228 | 56.6% |

## 5.7 Factors associated with poor practice towards COVID-19 prevention and control measure among chronic disease patients

In multivariate binary logistic regression, only age between 40-60 years (P-value 0.007, AOR 0.53, 95%CI 0.34, 0.84), farmer occupation (P-value 0.019, AOR 2.17, 95%CI 1.14, 4.15),  Using television (p-value 0.041, AOR 1.65, 95%CI 1.02, 2.68), and health professionals (p-value-0.021, AOR 1.66, 95%CI 1.08, 2.56) as only source of information, and having poor knowledge about COVID-19 prevention and control measures (p-value 0.010, AOR 1.79, 95%CI 1.15, 2.79) were significantly associated with poor practice. Those who had poor knowledge were 1.79 times higher odds of having poor practice towards COVID-19 prevention measures than those who do not have. Those who are in age group of 40-60 years were 0.533 times less likely to have poor practice towards COVID-19 prevention measures. Study participants who heard of COVID-19 information only from health professionals were 1.66 times higher odds of having poor knowledge than those who heard from all combined sources of information (p-value 0.021, AOR1.66, 95%CI 1.08-2.56). Occupational status of farmers was 2.17 times higher odds of having poor practice (p-value 0.019, AOR 2.17, 95%CI 1.14, 4.15) compared to occupational status of the government employee.(Table: 10).

*Table 9: Factors associated with poor practice  towards COVID-19 prevention among chronic disease patients in bivariable and multivariable logistic regression analysis Nekemte town public hospitals, Western Ethiopia, 2021 (N=403).*

| Variable | Category | Practice | | P-value | COR(95%CI) | AOR(95%CI) |
|---|---|---|---|---|---|---|
| | | **Good** | **Poor** | | | |
| Age | 18-40 years | 81(48.2%) | 136(57.9%) | | 1 | |
| | 41-60 years | 75(44.6%) | 82(34.9%) | 0.044* | 0.65(0.43- 0.99) | 0.53(0.34-0.84) |
| | >=61 | 12(7.1%) | 17(7.2%) | 0.673 | 0.84(0.38-1.86) | |
| Marital status | Married | 118(70.2%) | 164(69.8%) | | 1 | |
| | Unmarried | 26(15.5%) | 39(16.6%) | 0.786 | 1.08(0.62-1.87) | |
| | Divorced | 10(6.0%) | 14(6.0%) | 0.987 | 1.01(0.43-2.34) | |
| | Widowed | 14(8.3%) | 18(7.7%) | 0.836 | 0.92(0.44-1.93) | |
| Educational status | Unable to read and write | 43(25.6%) | 66(28.1%) | 0.585 | 1.15(0.70-1.87) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Read and write | 23(13.7%) | 40(17.0%) | 0.390 | 1.30(0.71-2.36) | |
| | Primary | 31(18.5%) | 34(14.5%) | 0.498 | 0.82(0.46-1.46) | |
| | Secondary and above | 71(42.3%) | 95(40.4%) | | 1 | |
| Place of residence | Urban | 108(64.3%) | 144(61.3%) | | 1 | |
| | Rural | 60(35.7%) | 91(38.7%) | 0.538 | 1.13(0.75-1.71) | |
| Income | <1500 | 50(12.4%) | 89(22.1%) | 0.014* | 1.83(1.13-2.98) | 1.68(0.95-2.94) |
| | 1500-3000 | 51(12.7%) | 81(20.1%) | 0.048* | 1.63(1.00-2.67) | 1.56(0.91-2.69) |
| | >3000 | 67(16.6%) | 65(16.1%) | | 1 | |
| Occupation | Gov't employee | 67(39.9%) | 64(27.2%) | | 1 | |
| | Merchant | 32(19.0%) | 57(24.3%) | 0.027* | 1.86(1.07-3.24) | 1.74(0.98-3.09) |
| | Farmer | 42(25.0%) | 72(30.6%) | 0.025 * | 1.79(1.07-2.99) | 2.17(1.14-4.15) |
| | House wife | 27(16.1%) | 42(17.9%) | 0.107* | 1.63(0.90-2.94) | 1.54(0.79-2.99) |
| Source of information | Radio (yes) | 77(54.2%) | 101(57.0%) | 0.569 | 1.12(0.75-1.67) | |
| | Radio (No) | 91(45.8%) | 134(43.0%) | | 1 | |
| | Television (yes) | 65(61.3%) | 77(67.2%) | 0.220* | 1.29(0.86-1.96) | 1.65(1.02-2.68) |
| | Television (No) | 103(38.7%) | 158(32.8%) | | 1 | |
| | Health professionals (yes) | 96(42.9%) | 112(52.3%) | 0.061* | 1.46(0.98-2.18) | 1.66(1.08-2.56) |
| | Health professionals(No) | 72(57.1%) | 123(47.7%) | | 1 | |
| | Others (yes) | 132(21.4%) | 182(22.6%) | 0.788 | 1.07(0.66-1.72) | |
| | Others (No) | 36(78.6%) | 53(77.4%) | | 1 | |
| Poor knowledge | Yes | 52(31.0%) | 104(44.3%) | 0.007* | 1.77(1.17- 2.68) | 1.79(1.15-2.79) |
| | No | 116(69.0%) | 131(55.7%) | | 1 | |
| Negative attitude | Yes | 76(45.2%) | 115(48.9%) | 0.460 | 1.16(0.78-1.73) | |
| | No | 92(54.8%) | 120(51.1%) | | 1 | |

Note: *P-value is significant at 0.25, in COR., **p-value is significant at 0.05 in AOR

# CHAPTER 6: DISCUSSION

This study is the first study conducted regarding KAP of chronic disease patients in the study area. In this study, all chronic disease patients were aware of COVID-19 prevention and the major primary sources of information were television 261(64.8%) and radio 225 (55.8%). This result is supported by a study at Addis Zemen, Ambo, Aksum, and Addis Ababa (20,22,25,31)

In this study, 38.7% (95%CI (33.93-43.49%)) of patients with chronic disease were having poor knowledge towards prevention and control of the COVID-19 pandemic. This study is supported by a study conducted at Aksum hospital (35.1%)(31). The result is superior to a study at Dessie town hospitals (30.3%)(32), Addis Zemen Hospital (33.9%)(20), Jimma University Medical Center (17.0%)(33), China (10%)(34), and Iran (20.4%)(35). Possible reasons for this difference may be differences in the socioeconomic status and individual characteristics of the study participants.

The majority of survey participants (97%) correctly reported that anyone who came into contact with someone infected with the COVID-19 virus should be immediately quarantined in the right place. These results are similar to the survey of visitors to the Jima University Medical Center (87.4%) and a study conducted at Dessie town hospitals, Northeast Ethiopia (88.9%)(33)(36). However, this percentage is higher than the study conducted at Addis Zemen Hospital (60.6%)(20). This difference may be related to media accessibility, availability and frequency of accurate health information about the virus.

This study found a prevalence of negative attitudes to be 47.4 %( 95%CI (42.5-52.29%). The result is higher than a study at Aksum hospital (40.5%)(31). The discrepancy might be related to socio-economic differences among the study participants, difference in measurement used in measuring attitude level, and data collection time. About (40.1%) of study participants reported that keeping physical distance from others, to prevent spreading COVID-19 was reported difficult preventive measures to be practiced. This result is similar to a study done at Addis Zemen hospital (51.7%), Dessie town hospitals where only (53.3%) and (41.2%) of study participants strongly agree and agree respectively(20)(36).

Concerning prevention practice, 58.3 %( 95%CI (53.48-63.15%) of chronic disease patients had poor practice of COVID-19 prevention measures. This finding is higher than a study at Addis

Zemen (47.3)(20), Aksum hospital(31), Dessie town hospitals(34.6%)(37), Hypertension and diabetes mellitus patients attending public Ambo health facilities (10.4%)(25). The difference may be due to health facility related factors like availability and accessibility of reliable health information systems, socio-economic and individual characteristics of study participants. Moreover, the difference might be due to differences in study period, sources, frequency and accessibility of COVID-19 information, media exposure, and application of governmental state of emergency. These studies were conducted during COVID-19 emergency time. There were high public and government enforcement of the COVID-19 prevention practice. Currently, these preventive measures are weakened and peoples are practicing less.

The educational status of unable to read and write was more likely to have poor knowledge towards COVID-19 prevention and control measures compared to those who attained secondary and above education. This result is in line with the study conducted at Addis Zemen hospital, Ambo health facilities, and Dessie town hospitals, and Aksum hospital where the educational status of cannot read and write, lack of formal education were associated with poor knowledge(20)(25)(36)(31). The reason for this might be uneducated individuals have people have less ability to understand health information and health promotion activities to prevent COVID-19 thus, they would have poor knowledge.

In this study, being a rural residence, having poor knowledge, and source of information were associated with a negative attitude towards COVID-19 prevention measures. Chronic disease patients from rural residents were more likely to have a negative attitude compared to urban residents, those study participants having poor knowledge, and those who do not hear information from television were more likely to have good practice compared to those who heard information from television.

Those who had poor knowledge regarding COVID-19 prevention and control measures were more likely to practice less as compared to those who had good knowledge of COVID-19 prevention and control measures. This finding is in line with the studies done at Addis Zemen hospital, Ambo health facilities, china, and Dessie town hospitals, where those chronic patients having poor knowledge were less likely to have good prevention practice(20)(25)(34)(36). The possible justification, for this reason, might be because knowledge is the main determinant for good practice toward COVID-19 prevention and control measures and these activities are performed after having an awareness of knowledge activities.

Even though the nature of the study, being cross-sectional, data being only quantitative study is taken as a limitation for this study, use of validated data collection tool checked for internal consistency and use probability sampling technique were taken as a strength for this study compared to other studies.

# CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

This study concludes that still the knowledge, attitude, and prevention practice of chronic disease patients is insufficient to control and prevent the COVID-19 virus. It was also indicated that educational status and marital status were found to be independent predictors of poor knowledge whereas place of residence, source of information and knowledge status were factors associated with negative attitude. Age, occupation, source of information and knowledge status (having poor knowledge) were found be independent predictors of poor practice regarding COVID-19 prevention and control measures.

Thus, health professionals, especially those working at chronic care clinic should provide in-depth information about COVID-19 to their patients. Moreover, Medias, NGOs, and any other concerned bodies should work on these patients through behavioral change education towards COVID-19 prevention practice.

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# ANNEXES

## Annex1: Information sheet and Verbal consent form for conducting an interview

Greeting:

Hello, my name is _____ I am a data collector for the MPH student at Jimma University. You are randomly chosen to participate in the study of knowledge, attitude, and practice towards COVID-19 prevention and control measures which are undertaking by a master's student at Jimma University. I would like to ask you a series of questions related to your knowledge, attitude, and prevention practice related to covid-19. The survey is a confidential exercise and your name will not be disclosed anywhere. You have the right not to participate and the right to answer or not for questions that might be inconvenient for you. But your cooperation and willingness help identify problems related to the study. The result of these findings was helpful to direct the appropriate Pandemic control and prevention measures among chronic disease patients. Would you be willing to respond to the questions I am going to ask you?

1. Yes _____ 2. No _____

If yes, continue with the questions.

Thank you for your cooperation!!!

Date of interview _____

Questionnaire code _____

Name of interviewer _____Signature _____

Supervisor name_____ Sign_____

## Annex2: English Questionnaire

**Part-I: Socio-demographic and Clinical Characteristics**

| 1 | sex | 1. Male          2. Female |
|---|---|---|
| 2 | Age (in years) | _____ |
| 3 | Marital status | 1. Married          2. unmarried<br>3. Divorced          4. Widowed |
| 4 | Educational status | 2. Unable to read and write<br>3. Read and write<br>4. Elementary<br>5. Secondary and above. |
| 5 | Residence | 1. Urban          2. Rural |
| 6 | Monthly income | _____ETB |
| 7 | Occupation | 1. Government employee<br>2. Merchant          4. Housewife<br>3. Farmer          5. Others |
| 8 | Which type of chronic disease do you have? (more than one response is possible) | a. Diabetes mellitus    d. Heart Disease.<br>b. TB          e. Hypertension<br>c. Chronic lung disease   f. HIV/AIDS<br>g. Other, _____ |
| 9 | Have you ever heard about covid-19? | 1. Yes          2. No |
| 10 | If your answer to Q9 is yes, from where did you hear information about COVID-19? (More than one response is possible). | 1. from radio<br>2. from TV<br>3. from health professionals<br>4. From other social media (Face book, newspaper, friends, etc.) |
| 11 | Which High-risk group do you know for developing severe illness from | a. Old age (elderly).<br>b. DM or HTN or Heart disease co |

| | COVID-19? (More than one response is possible). | morbidity<br><br>c. Suppressed immunity<br><br>d. Chronic lung diseases<br><br>e. Children and Pregnant mother |
|---|---|---|

**Part-II; Knowledge Questions**

| 12 | Fever is a clinical symptom of COVID-19 | 1. Yes 2. No<br>3. I don't know |
|---|---|---|
| 13 | Cough is a clinical symptom of COVID-19 | 1. Yes 2. No<br>3. I don't know |
| 14 | Shortness of breath is a clinical symptom of COVID-19 | 1. Yes 2. No<br>3. I don't know |
| 15 | Fatigue is a clinical symptom of COVID-19 | 1. Yes 2. No<br>3. I don't know |
| 16 | COVID-19 symptoms appear within 2–14 days | 1. Yes 2. No<br>3. I don't know |
| 17 | Currently, there is no effective treatment or vaccine for COVID-2019, but early symptomatic and supportive treatment can help most patients to recover from the infection. | 1. Yes 2. No<br>3. I don't know |
| 18 | Not all persons with COVID-19 will develop severe cases | 1. Yes 2. No<br>3. I don't know |
| 19 | Those who are elderly, have chronic illnesses, and with suppressed immunity are more likely to be in severe cases | 1. Yes 2. No<br>3. I don't know |
| 20 | Touching or shaking the hands of an infected person would result in the infection by the COVID-19 virus | 1. Yes 2. No<br>3. I don't know |
| 21 | Touching an object or surface with the virus on it, then touching your mouth, nose, or eyes with the unwashed hand would result in the infection by the COVID-19 | 1. Yes 2. No<br>3. I don't know |

| | virus | |
|---|---|---|
| 22 | The COVID-19 virus spreads via respiratory droplets of infected individuals through the air during sneezing or coughing of infected patients | 1. Yes      2. No<br>3. I don't know |
| 23 | Persons with COVID-19 cannot infect the virus to others if he has no any symptom of COVID- 19 | 1. Yes      2. No<br>3. I don't know |
| 24 | Wearing masks when moving out of home is important to prevent the infection with COVID-19 virus | 1. Yes      2. No<br>3. I don't know |
| 25 | Children and young adults do not need to take measures to prevent the infection by the COVID-19 virus | 1. Yes      2. No<br>3. I don't know |
| 26 | To prevent the COVID-19 infection, individuals should avoid going to crowded places such as public transportations, religious places, Hospitals, and Workplaces | 1. Yes      2. No<br>3. I don't know |
| 27 | Washing hands frequently with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer (60%) is important to prevent infection with COVD-19 | 1. Yes      2. No<br>3. I don't know |
| 28 | Traveling to an infectious area or having contact with someone traveled to an area where the infection present is a risk for developing an infection | 1. Yes      2. No<br>3. I don't know |
| 29 | Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus | 1. Yes      2. No<br>3. I don't know |
| 30 | People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place | 1. Yes      2. No<br>3. I don't know |

**Part-III; Attitude Questions**

| 31 | Your level of risk of infection with COVD-19? | 1. High    2. Moderate    3. Low |
|---|---|---|

| 32 | How much do you protect yourself from the disease/care to yourself? | 1. High care   2. Moderate care   3. Low care |
|----|---|---|
| 33 | Being infected with COVD 19 to you is | 1. Very easy      2. Easy      3. Difficult |
| 34 | Washing hands frequently for 20 seconds with soap or using sanitizer is | 1. Very easy      2. Easy      3. difficult |
| 35 | Avoiding touching face with unwashed hands | 1. Very easy      2. Easy      3. difficult |
| 36 | Avoiding shaking others | 1. Very easy      2. Easy      3. difficult |
| 37 | Avoiding attending in a crowded population | 1. Very easy      2. Easy      3. difficult |
| 38 | Practicing physical distancing | 1. Very easy      2. Easy      3. difficult |
| 39 | Covering mouth or nose during a cough or sneeze with elbow/a tissue | 1. Very easy      2. Easy      3. difficult |
| 40 | Avoiding close contact with sick people | 1. Very easy      2. Easy      3. difficult |
| 41 | Using a mask when leaving home | 1. Very easy      2. Easy      3. difficult |
| 42 | Listening and following the direction of state and local | 1. Very easy      2. Easy      3. difficult |
| 43 | Isolating oneself, if get sick to avoid the spread | 1. Very easy      2. Easy      3. difficult |
| 44 | Staying at home to minimize the risk of infection | 1. Very easy      2. Easy      3. difficult |

**Part-IV; Practice Questions**

| 45 | Do you participate in meetings, religious activities, events, and other social gatherings or any crowded place in areas with ongoing community transmission? | 1. Yes      2. No |
|----|---|---|
| 46 | In recent days, have you worn a mask when leaving home? | 1. Yes      2. No |
| 47 | If yes, do you touch the front of the mask when taking it off? | 1. Yes      2. No |

| 48 | Do you reuse a mask? | 1. Yes | 2. No |
|----|----------------------|--------|-------|
| 49 | Do you wash your hands with soap and water frequently for at least 20seconds or use sanitizer/60% alcohol? | 1. Yes | 2. No |
| 50 | Do you touch your eyes, nose, and mouth frequently with unwashed hands? | 1. Yes | 2. No |
| 51 | Do you clean and disinfect frequently touched objects and surfaces? | 1. Yes | 2. No |
| 52 | Do you practice "physical distancing" by remaining 6 feet/2 meters away from others at all times? | 1. Yes | 2. No |
| 53 | Do you use other workers' phones, desks, offices, or other work tools and equipment? | 1. Yes | 2. No |
| 54 | Do you limit contact (such as handshakes)? | 1. Yes | 2. No |
| 56 | Do you cover your nose and mouth during coughing or sneezing with the elbow or a tissue, and then throw the tissue in the trash? | 1. Yes | 2. No |
| 57 | Do you prefer to stay at home, in a room with the window open during the transmission period? | 1. Yes | 2. No |
| 58 | Do you stay home when you were sick due to a common cold-like infection during the transmission period? | 1. Yes | 2. No |

# Annex 3: Afaan Oromoo questionnaire

**Waraqaa odeeffannoo fi eeyyamummaa gaaffilee afaanii**

Akkam jirtu,

Maqaan koo _____ jedhama. Yuunivarsiitiii jimmaatti Barataa digirii lammaffaa kan ta'e Barataa Maatiwoos Lammaatiif waraqaa qorannoo eebbaa mata-dureen isaa "knowledge, Attitude and Practice towards Covid-19 Prevention and Control and associated factors among Chronic Disease Patients Attending Nekemte Town Public Health Hospitals", jedhu irratti Odeeffannoo walitti qabaa ta'een gara keessan dhufee jira. Qorannoo kana keessatti hirmaataa akka taatanuuf carraadhaan filatamtanii jirtu. Kanaafuu gaaffilee waa'ee odeeffannoo, beekumsa, ilaalchaa fi eeggannoo isin dhukkuba Koronaa (COVID-19) irratti qabdan isin gaafadha isin gaafadha. Iccitiin odeeffannoo keessanii kan eegamee fi eeyyama keessaniin ala eenyutti iyyuu kan bahu miti. Qorannoo kana keessatti mirga hirmaachuu dhiisuu ni qabdu. Garuu odeeffannoon isin irraa argannu dhibee kana hir'isuu fi ittisuu keessatti gahee guddaa qaba. Odeeffannoo kennuuf eeyyamamoodhaa?

<div align="center">1. Eeyyee_____ 2. Lakki_____</div>

Yoo "Eeyyee" ta'e, itti fufi.

Gargaarsa keessaniif galatoomaa!!!

Guyyaa odeeffannoon kun itti fuudhame _____

Koodii waraqaa _____

Maqaa odeeffannoo walitti qabaa _____mallattoo _____

Maqaa supervaayizaraa_____ mallattoo _____


    Odeeffanoo dabalataa ykn gaaffii yoo qabaattan odeeffannoo armaan gadii fayyadamaa;

Maatiwoos Lammaa , +251917811701

Gmail: maatii3399@gmail.com ykn

  Matimph2019@yahoo.com

**Gaaffilee odeeffannoo**

1. Saala       1. Dhiira      2. Dhalaa

2. Umrii (waggaadhaan) _____

3. Haala gaa'elaa   1. Fuudheera/Heerumteetti   2. Hinfuune/hin heerumne   3. Kan hike/hike/te   4. Kan irraa boqote/tte

4. Sadarkaa barnootaa  1. Barreessuu fi dubbisuu hin danda'u  2. Barreessuu fi dubbisuu qofa 3. Sadarkaa 1ffaa    4. Sadarkaa 2ffaa fi isaa ol

5. Bakka jireenyaa    1. Magaalaa    2. Baadiyyaa

6. Galii ji'aan _____Qr.

7. Gahee hojii    1. Hojjetaa mootummaa   2. Daldalaa   3. Qote-bulaa   4. Haadha warrummaa qofa

8. Waa'ee dhibee vaayirasii Koronaa (COVID-19) dhageessanii beektuu?   1. Eeyyee 2. Lakki

9. Yoo deebiin lakk. 9ffaa keessan **'eeyyee'** ta'e, odeeffanoo eessaa argattan? (deebiin tokkoo ol ni danda'aama)   1. Raadiyoo irraa  2. TV irraa    3. Ogessoota fayyaa irraa

   5. Miidiyaalee hawaasaa kan akka facebook ,fi gaazexaa irraa

10. Namoota akkamiitu dhibee Koronaa yoo qabaman caalaatti hubamuu danda'u? (deebiin tokkoo ol ni danda'aama).  1. Namoota umriin isaanii fagaate  2. Namoota dhibeewwan hin daddarbine kan akka dhiibbaa dhiigaa, dhibee sukkaaraa, fi dhibee onnee qaban.  3. Namoota dandeettiin dhibee ittisuu qaama isaanii gadi bu'e    4. Namoota dhibee sombaa qaban

**Gaaffilee beekumsa ilaallatan**

11. Hoo'inni qaamaa mallattoolee Koronaa keessaa isa tokko    1. Eeyyee  2. Lakki  3. Hin beeku

12. Qufaan mallattoolee Koronaa keessaa isa tokko   1. Eeyyee    2. Lakki   3. Hin beeku

13. Hargananuuu dadhabuun mallattoolee Koronaa (COVID-19) vaayirasii keessaa isa tokko  1. Eeyyee   2. Lakki    3. Hin beeku

14. Dadhabbiin qaamaa mallattoolee Koronaa (COVID-19) keessaa isa tokko.  1. Eeyyee  2. Lakki  3. Hin beeku

15. Namni Koronaan qabame mallattoo guyyaa 2-14 gidduutti agarsiisuu danda'a  1. Eeyyee  2. Lakki  3. Hin beeku

16. Yeroo ammaa kanatti dhibeen koronaa Vaayirasii (COVID-19) dawaa fayyisuu danda'u ykn talaallii bu'a qabeessa ta'e hin arganne.  1. Eeyyee  2. Lakki  3. Hin beeku

17. Namoonnii Koronaa (COVID-19) qabaman hundi mallattoolee cimoo ta'aan hin agarsiisan.

1. Eeyyee  2. Lakki  3. Hin beeku.

18. Namoonni umriin isaanii fagaate, dhibeewwan ciccimoo kanneen akka dhiibbaa dhiigaa, dhibee sukkaaraa fi dhibee onneen akkasumas dandeettiin dhibee ittisuu qaama isaanii gadi bu'e yoo Dhibee Koronaa(COVIV-19) qabaman irra caalaatti mallattoolee ciccimoo fi du'aaf geessisan muldhisuu danda'u.  Eeyyee  2. Lakki  3. Hin beeku

19. Nama dhibee vaayirasii Koronaan qabame harka qabanii nagaa gaafachuun ykn tuttuquun dhibichaaf nama saaxila. 1. Eeyyee  2. Lakki  3. Hin beeku

20. Meeshaalee vaayirasiin Koronaa irratti argaman tuttuquun, sana booda osoo harka ofii saaminaa fi bishaaniin ykn sanitizer dhaan hin dhiqatin fuula, afaanii fi ija ofii tuttuquun dhibee vaayirasichaatiif nama saaxila. 1. Eeyyee  2. Lakki  3. Hin beeku

21. Dhibeen vaayirasii Koronaa (COVID-19) qufaadhaan ykn axxiffachuudhaan qilleensa keessa nama dhkkubsataa irraa gara nama fayyaa tokkotti daddarba.

1. Eeyyee  2. Lakki  3. Hin beeku

22. Namno dhibee Vaayirasii Koronaa (COVID-19) qabame utuu mallattoo hin agarsiisin nama fayyaatti dabarsuu hin danda'u.  1. Eeyyee  2. Lakki  3. Hin beeku

23. Yeroo manaan ala gara alaa deeman yeroo mara haguuggii fuulaa (Mask) godhachuun dhibee vaayirasii Koronaa (COVID-19) ittisuuf gargaara. 1. Eeyyee  2. Lakki  3. Hin beeku

24. Ijoollee fi namoonni ga'eessi dhibee vaayirasii Koronaa (COVID-19) irraa of eeguun isaan hin barbaachisu. 1. Eeyyee  2. Lakki  3. Hin beeku

25. Dhibee vaayirasii koronaa irraa of eeguuf iddoowwan namoonni walitti qabaman kanneen akka bakkeewwan geejjiba uummataa, manneen amantaa fi walga'iiwwan

garagaraa deemuu irraa of qusachuun barbaachisaadha. 1. Eeyyee    2. Lakki   3. Hin beeku

26. Harka ofii saamunaa fi bishaaniin yoo xiqqaate sekondii 30f ammaa amma dhiqachuun ykn 'alchol based sanitizer' fayyadamuun dhibee vaayirasii koronaa irraa of eeguuf gargaara. 1. Eeyyee    2. Lakki   3. Hin beeku

27. Iddoowwan vaayirasiin koronaa (COVID-19) itti argamu deemuun ykn namoota iddoowwan vaayirasichi itti argamu deeman waliin tuttuqqii uumuun dhibichaaf nama saaxila. 1. Eeyyee    2. Lakki   3. Hin beeku

28. Namoota dhibee vaayirasii koronaa (COVID-19) qabaman adda baasuu fi yaaluun faffaca'insa dhibichaa hir'isuuf ni gargaara. 1. Eeyyee    2. Lakki   3. Hin beeku

29. Namoonni dhukkubsattoota vaayirasii koronaa wajjin tuttuqii qaban daddafanii qofaatti adda baafamanuu qabu. 1. Eeyyee    2. Lakki   3. Hin beeku


**Gaaffilee ilaalchaa waliin walqabatan**

30. Sadarkan dhibee vaayirasii koronaatiin qabamuu keessanii   1. Ol'aanaadha
    2. Giddugaleessa    3. Gadi aanaadha.

31. Dhibee vaayirasii koronaa (COVID-19) irraa of eeguuf mataa keessaniif eeggannoo hammamii ofiif gootu?   1. Eeggannoo cimaa    2. Eeggannoo gidduma galeessa
    3. Eeggannoo gadi aanaa

32. Dhibee vaayirasii Koronaatiin qabamuun isiniif   1. Baay'ee salphaadha   2. Salphaadha
    3. Baay'ee cimaa/yaaddessaadha

33. Harka ofii saamunaa fi bishaaniin yoo xiqqaate sekondii 20'f dhiqachuun ykn alkoolii fayyadamuun   1. Baay'ee salphaadha    2. Salphaadha
    3. Baay'ee cimaa/yaaddessaadha

34. Utuu harka hin dhiqatin ijaa fi fuula ofii tuttuquu dhiisuun, 1. Baay'ee salphaadha
    2. Salphaadha   3. Baay'ee cimaa/yaaddessaadha

35. Namoota harka fuudhuu dhiisuun, 1. Baay'ee salphaadha 2. Salphaadha 3. Baay'ee cimaa/yaaddessaadha

36. Iddoowwan namoonni walitti qabaman irraa fagaachuun, 1. Baay'ee salphaadha
    2. Salphaadha   3. Baay'ee cimaa/yaaddessaadha

37. Walirraa fageenya tarkaanii lamaa fi isaa ol eeggachuun, 1. Baay'ee salphaadha
    2. Salphaadha   3. Baay'ee cimaa/yaaddessaadha

38. Yeroo qufa'aan ykn axxiffatan Afaanii fi funyaan ofii ciqileen haguuguun,  1. Baay'ee salphaadha  2. Salphaadha    3. Baay'ee cimaa/yaaddessaadha

39. Namoota dhibee vaayirasii Koronaa (COVID-19) qabaman irraa wajjin tuttuqqii hir'isuun, 1. Baay'ee salphaadha    2. Salphaadha    3. Baay'ee cimaa/yaaddessaadha

40. Yeroo manaa bahaan haguuggii fuulaa (mask) uffachuun, 1. Baay'ee salphaadha    2. Salphaadha   3. Baay'ee cimaa/yaaddessaadha

41. Qajeelfamoota vayirasii koronaaf bahaan hordofuu fi dhaggeeffachuun, 1. Baay'ee salphaadha  2. Salphaadha    3. Baay'ee cimaa/yaaddessaadha

42. Daddarba dhibee vaayirasii koronaa hir'isuuf yoo dhibichaan qabaman adda of baasuun,
    1. Baay'ee salphaadha    2. Salphaadha    3. Baay'ee cimaa/yaaddessaadha

43. Daddarba dhibee vaayirasii koronaa hir'isuuf mana turuun,          1. Baay'ee salphaadha
    2. Salphaadha    3. Baay'ee cimaa/yaaddessaadha


**Gaaffilee eeggannoo fi hojiirra oolmaa ittisa Koronaa waliin walqabatan**

44. Iddoo namoonni itti baay'atan kanneen akka walga'ii, fi kkf ni deemtuu?      1. Eeyyee
    2. Lakki

45. Yeroo dhihootti yeroo manaa baatan haguuggii fuulaa (mask) iffattanii beektuu?    1. Eeyyee    2. Lakki

46. Yoo deebiin gaaffii 46 ffaa keessan 'eeyyee' ta'e, yeroo haguuggii fuulaa (mask) of irraa baaftan fuuldura isaa qabdaniitii?    1. Eeyyee    2. Lakki

47. Haguuggii fuulaa (mask) si'a tokko fayyadamtan irra deebiin ni fayyadamtuu?     1. Eeyyee    2. Lakki

48. Harka keessan saamunaa fi bishaanii yoo xiqqaate sekondii 20'f ni dhiqattuu ykn alkoolii/sanitizer ni fayyadamtuu?    1. Eeyyee    2. Lakki

49. Utuu harka keessan hin dhiqatin fuula keessan ammaa amma ni tuttuqxuu?    1. Eeyyee
    2. Lakki

50. Meeshaalee yeroo baay'ee itti fayyadamtan/tuttuqxan ni alkoolii ykn sanitizer dhaan ni qulqulleessituu?    1. Eeyyee    2. Lakki

51. Yeroo hundaa fageenya keessan  tarkaanfii nama guddaa lama ni eeggattuu 1. Eeyyee   2. Lakki

52. Meeshaalee namoota biro kanneen akka bilbila harkaa, fi kkf ni fayyadamtuu? 1. Eeyyee
    2. Lakki

53. Wal-tuttuqqii kanneen akka harka walfuudhuu fa'aa irraa of ni qusattuu?      1. Eeyyee
    2. Lakki

50

54. Yeroo qufaatan/axxiffattan afaanii fi funyaan keessan ciqilee keessaniin ni haguugduu?
1. Eeyyee   2. Lakki

55. Yeroo dhibeen akka utaalloo fa'aa isin qabu mana keessan keessatti adda of baastanii ni turtuu?            1. Eeyyee    2. Lakki

56. Qajeelfamoota Dhibee vaayirasii Koronaa (COVID-190 ittisuuf bahaan ni hordoftuu?  1. Eeyyee   2. Lakki

*Fayyaan Faaya!*
*Galatoomaa!!!!!*

**Assurance of Principal Investigator**

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the Faculty of Public Health in effect at the time of grant is forwarded as the result of this application.

Name of the student: _____ Date, _____

Signature _____

**Approval of the First Advisor Name of the first advisor:**_____

Date, _____     Signature _____

**Approval of the Second Advisor Name of the first advisor:** _____

Date, _____ Signature _____