ADDIS ABABA UNIVERSTY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

KNOWLEDGE, RISK PERCEPTION AND PREVENTION PRACTICE ABOUT COVID -19 AMONG PATIENTS ATTENDING ONCOLOGY CLINIC AT TIKUR ANBESSA SPECIALIZED HOSPITAL,ADDIS ABABA,ETHIOPIA.

BY: ANIMUT ALEMAGEGN (BSC)

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EXAMINER:

NAME	RANK	SIGNITURE	DATE
Tigistu Gebreyohannis	BSc, MSc, Ass.Professor	_____	_____

RESEARCH ADVISORS:

NAME	RANK	SIGNITURE	DATE
Dr. Amsale Cherie	Ph.D. Associate. Professor	_____	_____
Mr. Ketema Bizuwork	MSC, Lecturer	_____	_____

DEPARTMENT HEAD

NAME	RANK	SIGNITURE	DATE
Niguse Tadele	BSc, MSc, Ass.Professor	_____	_____

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STUDENT:

Animut Alemagegn (BSc) _____ _____

Name Rank Signature Date

RESEARCH ADVISORS:

1. Dr. Amsale Cherie (PhD, Associate professor) _____ _____

Name Rank Signature Date:

2. Mr. Ketema Bizuwork (MSc, Lecture) _____ _____

Name Rank Signature Date

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ABBRIVATION AND ACRONMYS

AAU	Addis Ababa University
CDC	Centers for Disease Control
COVID-19	Corona Virus Disease
DM	Diabetes Militias
HTN	Hypertension
IP	Infection Prevention
KAP	Knowledge, Attitude and Practice
PPE	Personal Protective Equipment
SARS	Sever Acute Reparatory syndrome
SD	Standard Division
TASH	Tikur Anbessa Specialized Hospital
WHO	World Health Organization

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ABSTRACT

Background: Coronavirus infection is a highly contagious disease and affected a large number of people throughout the globe. The total number of deaths caused due to this virus has exceeded any of its predecessors. The disease is more intense in immune-compromised individuals.

Objective: To assess the knowledge, risk perception, and prevention practice about COVID-19 among patients attending oncology clinic at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2021.

Methods and materials: Institution- based cross -sectional study design was conducted among adult cancer patients at, Addis Ababa, Ethiopia, from February-March/2021. A systematic random sampling technique was used to recruit 420 participants. A structured and pretested questionnaire was used to collect the data. The data was entered into Epi_data version 4.2 and analyzed by SPSS version 25 software. Descriptive statistics were used to describe the variables. The magnitude of the association between the different independent variables in relation to dependent variables was first measured using bivariate logistic regression. Then, those variables below 0.05 on bivariate logistic regression were a candidate for multivariate logistic regression. Multivariate logistic regression analysis, AOR 95% CI and P-value<0.05 were used to identify variables that have significant association with the dependent variables.

Result: Four hundred twenty study subjects were participated in this study. Of these, the majority 243 (57.9%) were female, 220 (52.4%) were now the age between 35_51 years and 103 (24.5%) were exceeding the age 52years old. In overall, 240(57.1%) of participants had a good knowledge about COVID-19. 180(42.9%) of participants had a poor knowledge. Overall, a poor risk perception and a poor prevention practice towards coronavirus disease were 180(42.9%) and 244 (58.1%), respectively. Age AOR= 1.793, (95%CI=1.058-3.039)], *{P=0.03}* and duration of cancer {[AOR=1.967, (95%CI=1.130-3.424, *P=0.01}* were significantly associated by knowledge towards COVID-19. Similarly, age [AOR= 1.793, (95%CI= 1.058-3.039), *P*=0.03] and duration of cancer {[AOR= 1.967, (95%CI= 1.130-

3.424), *P*= 0.01]} were significantly associated with risk perception towards COVID-19. Duration with the cancer {[AOR= 2.392, (95%CI = 1.426-4.012), *P*=0.01} and knowledge {[AOR= 0.459, (95%CI= 0.303-0.694), *P*=0.01)} were associated with prevention practice towards COVID-19.

Conclusion: The study found high levels of knowledge towards COVID-19, however; risk perception and prevention practice measures towards COVID-19 were low. Age and duration of cancer were associated with knowledge and risk perception of COVID-19, and duration of cancer was associated with prevention practice measures towards COVID-19. The hospital can provide health education programs targeted at assembling and successful COVID-19 pandemic preventive practice are wanted for those cancer patients.

Keyword: Coronavirus, COVID-19, cancer, knowledge, perception, prevention practice

1. INTRODUCTION

1.1. Background

Coronaviruses (CoVs) are a group of viruses belonging to the *Coronaviridae* family in the order *Nidovirales.* CoVs are enveloped single-stranded positive-sense RNA viruses. The current COVID-19 (coronavirus disease 2019) is caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2)(1). SARS-CoV-2 is one strain of the severe acute respiratory syndrome-related coronavirus species (SARSr-CoV) in the genus *Beta coronavirus(1)*. The SARSr-CoV strains include SARSCoV that was responsible for the SARS outbreak in 2002 and numerous other strains that cause diseases in bats and certain other mammals. Another related Beta coronavirus member, MERS-CoV, caused the outbreak of Middle East respiratory syndrome disease in 2012(1, 2).

In December 2019, a cluster of cases of "pneumonia of unknown origin" has been reported in Wuhan, China. Only a few days later, Chinese health authorities confirmed that this cluster was associated with coronavirus(3) and the disease caused by it was named coronavirus disease 2019 (COVID-19) by WHO. The spread of COVID-19 was relatively quick and reported that it had spread to several other countries after its outbreak in China. On 30, January 2020, the WHO declared COVID-19 as a public health crisis of global concern (4). In March 2020, the WHO declared the COVID-19 outbreak as a pandemic (5-7). Nowadays this disease is challenging for both developed and developing nations (8).

In current situation, the disease affected a large population; the total number of deaths caused by this virus has exceeded that caused by any of its predecessors. Furthermost people infected with the COVID-19 virus were practice mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with other medical disorder such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illnesses(9).

The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes (9). The best method to prevent and slow down spread to be well learned about the COVID-19 virus, how the disease would

be caused and spreads. further, hand washing, alcohol based rub reduce the transmission efficiently(9).

The infection rate of severe acute respiratory syndrome coronavirus 2 in patients with cancer was higher than the general population, cancer patients with COVID-19 showed deteriorating conditions and poor outcomes (10). Cancer patients with COVID-19 suffer from worse outcomes compared to their non-cancer patient counterparts (11). In patients with cancer, the tumor itself and anti-cancer treatments weaken immune function, leading to increased susceptibility and vulnerability to COVID-19. The prevalence of COVID-19 is 2–3% in patients with cancer, showing higher rates of severe events, including admission to the intensive care unit, invasive ventilation, and death, than those in patients without cancer (12). Active chemotherapy appears to be associated with a higher risk of death in cancer patients with COVID-19 (11).

The patients' adherence to control measures is affected by their knowledge, attitudes, and practices towards COVID-19. Cancer patients need to adhere to the recommended preventive measures. Adherence to these preventive measures is directly affected by their knowledge, attitude, and practice towards COVID-19. An awareness of the preventive measures of COVID-19 is critical to reducing the infection (13, 14).

The magnitude of risk among adults with cancer is still unknown; however, early reports suggest a substantial risk of death associated with COVID-19 infection, perhaps highest among those older than 60 years and those with compromised lung function (15). Because of the high risk among cancer survivors, preventive behaviors are critical to reducing the risk of developing COVID-19. However, data on adherence to recommended preventive behaviors among cancer survivors are limited.

1.2. Statement of the problem

COVID-19 is among the most important public health problem for a global population. Globally, on May 20, 2021, there have been 164,523,894 confirmed cases of COVID-19 and 3,412,032 deaths, reported to WHO(16). As of May 20, 2021, Africa recorded more than 3,380,687 cases of COVID-19(16). By the same date, the total number of deaths in Africa caused by the coronavirus (COVID-19) 85,192 people were reached (17).

The state of lock-down in many parts of the world, which is contributing largely to the global economy, has led to the halting of services and products. This has led to a break in the global supply chains and thus; affected the global economy brutally (18).

According to the Africa Center for Strategic Studies, much remains unknown about the trajectory of the transmission of COVID-19 in Africa. Many fear that with its high levels of poverty, weak health systems, and crowded urban areas, the virus could be particularly devastating. Different risk factors increase vulnerability across the continent including, international exposure, public health systems, the density of urban areas, the total population in urban areas, population age, government transparency, press freedom, conflict magnitude, and displaced population (19).

In Ethiopia, the first case of COVID-19 was verified on the 13thof March 2020. The government has proclaimed a state of emergency on April 8, 2020, to control the pandemic. According to the latest data by World meter on May 20, 2021, the total number of coronavirus cases in Ethiopia was 267,597, from these 4,038 were died and 222,560 were recovered (20).

The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to public health, food systems, and the world of work. The economic and social disruption caused by the pandemic is devastating: tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, currently estimated at nearly 690 million, could increases to 132 million by the end of the year (21). This could be due to lock-down implemented in many parts of the world, which is contributing largely to the global economy, has led to the halting of services and products. This has led to a break in the global supply chains and thus; affected the global economy brutally (18)

At current levels of infection, public health measures still hold promise to slow and ultimately comprise the spread of COVID-19, if effective preventive measures are implemented(22, 23). Further, due to being a highly contagious disease, COVID-19 has enforced authorities to take a wide range of restrictive measures such as social distancing, avoiding crowded public places, travel restriction, imposing quarantine of all arrivals in the country (24). Like many other countries, the Ethiopian government has also taken many measures for the prevention and control of the pandemic including closing schools, restricting the use of public transportation, banning large meetings, and suspending sporting and religious gatherings (25). A state of emergency has been put in effect and staying at home and working from there has been strongly advised (26).

WHO has made it clear that there are currently no known effective treatments for COVID-19 and does not recommend the use of antiviral drugs, antibiotics, glucocorticoids, or traditional (27). The best prevention is to avoid being exposed to the virus. To guarantee final success, they must adhere to prevention and control methods, which are significantly influenced via their knowledge, attitudes, and practices (KAP) towards COVID-19. Therefore, knowledge about COVID-19, risk perception, and the practice of control measures greatly contribute to reducing its devastating effect.

The immunosuppressed status of patients (whether caused by the disease itself or the treatment) increases their risk of infection compared with the general population. Immunosuppression may also expose patients to serious complications from any infection, which may result in delayed recovery and unnecessary hospitalizations that could negatively affect disease prognosis. Therefore, cancer patients are among more susceptible populations to severe complications of COVID-19 which can be attributed to the immunosuppressed status caused by the malignancy and anticancer treatments, such as chemotherapy or surgery (28). Therefore, assessing the level of knowledge, risk perception and prevention practice towards COVID-19 among cancer patients is important to reduce possible complications related to COVID-19.

1.3. Significance of study

This study was planned to determine the knowledge, risk perception, and prevention practice towards COVID-19 and its associated factor among adult cancer patients. To prevent and control the COVID-19 outbreak in Ethiopia, there is a necessity to enhance patient awareness of COVID-19 at this life-threatening moment. This study investigated the knowledge, risk perception, and prevention practice towards COVID-19 among cancer patients at TASH. This study served as a baseline for further future research direction on the COVID-19 outbreak which provided a piece of essential information for the researchers, policymakers, and health professionals to guide and come up with new researches, policies, and practices.

2. LITERATURE REVIEW

This literature review is composed of four subsections. The first subsection deals with knowledge towards COVID-19, the second risk perception about COVID 19, the third prevention practice towards COVID 19, and the fourth about factors associated with Knowledge, risk perception, and practice towards COVID-19.

The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have published recommendations for the prevention, and control of COVID-19 infection in health care settings. These include hand hygiene, wearing personal protective equipment, social distancing, avoiding mass-gathering and, also quick development of therapeutics that can inhibit viral infection. Africa including Ethiopia has a weak health care system, which predisposes them to the highest burden of pandemics. A proactive campaign to prevent the spread of the virus should be practiced. This includes large-scale health education, hygiene, social distancing, and proper ways of reporting. Discouraging public gatherings by education and legal framework should also be practiced (29). However, these effective prevention and control strategies rely on population awareness and compliance at all levels. A poor level of knowledge has been implicated in the rapid spread of the virus in the population (30).

2.1. Knowledge of COVID-19

A study conducted on Malaysian residents showed that the knowledge questionnaire had an overall accuracy percentage of 80.5 percent. A study conducted in Nepal shown, the overall range of correct answers for the knowledge questionnaires was 60.0-98.7%(31). A study conducted in Nepal among cancer patients showed that the overall correct response rate of the knowledge component of the questionnaire was 79.4% (13).

A study conducted in Ethiopia Addis Zemen hospital among chronic patients found that the mean age of the study subjects was 56.5±13.5. The prevalence of poor knowledge was 33.9% (32). A study conducted in Ambo University referral Hospital among HTN and/or DM patients showed that 159(37.59%) of the participants had good Knowledge (33).

A study conducted in Gondar, among religious clerics and traditional healers. 60.7 percent (95 percent: CI (56–65 percent) of the total participants had good knowledge (34). A study done among the community of Mizan-Aman found that the overall correct rate of the knowledge questionnaire was 74.75%. More than 85% of respondents were well aware of the main clinical symptoms of COVID-19, its transmission by close contact, its prevention by not going to crowded places, and isolation of infected persons (35).

A community-based study in Geadio Zone southern Ethiopia showed that 60.5% have a strong understanding of COVID-19 and how to prevent it. Internet, family/peer, religious and health-care professionals provide less than.05 percent about COVID-19 and its prevention (30). According to a cross-sectional study conducted in Jimma Hospital visitors, COVID-19's key clinical signs were well-known. 72.0 percent were aware that elderly adults with chronic illnesses are more likely to have a severe form of COVID-19. About 95.1 percent of respondents were aware that the COVID-19 virus spreads through infected people's respiratory droplets, while 77 (31.2 percent) were aware of the opportunity of asymptomatic transmission. Only 15 (6.1%) of those asked were alert that children and young adults had to involve preventive measures. Overall, 41.3% of the people had high knowledge. The majority, 170(68.8%), felt self-efficacious to controlling COVID-19. 207(83.3%) supposed that COVID-19 is a stigmatized disease (36). A study conducted in Dessie showed that 34.6% had good knowledge while 35.1% had moderate knowledge towards COVID-19(37).

2.2. Risk perception about COVID-19

To adhere to the recommended protective measures, individuals' risk perception is one of the major factors that need to be considered. The effectiveness of outbreak control was mainly depending on the behavioral response of the society and adherence level to the recommended precautionary measures. Poor understanding and risk perception of the disease among health care workers may result in delayed recognition and treatment, resulting in the rapid spread of the infection(29).

A study conducted in Nepal showed overall positive attitude questions were 77.9-96.4%(31). According to a study conducted in Ambo-Ethiopia on hypertension and

diabetes patients, found that 335 (79.2%) have strongly agreed that DM and HTN patients were more at risk of death because of COVID-19 (33). A study conducted in Nepal among cancer patients showed that the majority of the subjects (89.7%) were willing to accept isolation if they were infected with COVID-19 (13).

A cross-sectional study conducted in Gondar town, Northwest Ethiopia showed that the prevalence of coronavirus high-risk perceptions of the respondents was found to be 23.11% (95% CI; 19.80%–26.43%) (38). A study was conducted in Addis Zemen hospital-Ethiopia among chronic patients showed that 41% of the participants supposed that escaping or joining a crowded population is very challenging(32). A study was conducted in the Tigrai region, Ethiopia, among quarantined adult patients. The majority of the participants were men (70%) with an average age of 30.5 (SD=11) years. Three-quarters of those polled said they had a positive outlook that Ethiopia was control and combating the COVID-19 epidemic(39). A study was conducted in Dessie showed that 81.4% had a good attitude while 12.1% had a poor attitude towards COVID-19(37).

2.3. Prevention Practice towards COVID-19

A study was conducted in Malaysia showed, in the week leading up to the movement control order; the majority of individuals took precautions such as avoiding crowds (83.4%) and exercising proper hand hygiene (87.8%). Face masks, on the other hand, were less frequent (51.2 percent) (40). A study was conducted in Nepal showed the overall range of prevention practice towards COVID 19 was 78.2-95.0 % (31). A study was conducted in Nepal among cancer patients showed that only 4.5 percent of people said they had recently visited busy venues. More than 98 percent of the patients followed the recommended preventive behaviors, such as wearing a face masks, avoiding touching the eyes, nose, and mouth, washing hands more frequently than normal, and avoiding close contact with other patients or caregivers who were not wearing face masks. 21.9 percent of respondents said they have been wearing the same face masks for more than three days. Knowledge of COVID-19 was positively predicted by male gender, younger age group, and higher education(13).

According to a study conducted in Ambo, Ethiopia on hypertension and diabetes patients, merely 44 (10.4%) of them had a good level of COVID-19 prevention practice

measures (33). A cross-sectional study was conducted in Jimma Hospital visitors. Repeated hand washing (77.3%) and avoidance of shaking hands (53.8%) were the dominant practices (36). A study was conducted in Addis Zemen Hospital-Ethiopia among chronic patients showed that a poor practice towards the prevention of COVID 19 was 47.3%(32). A study was conducted in Dessie showed that 40.7% was good practice, while 24.7% had the moderate towards COVID-19 pandemic(37).

2.4. Factors associated with knowledge, risk perception, and prevention practice towards COVID-19

Different factors were identified towards Knowledge, risk perception, and prevention practice towards COVID-19. Among this age, sex, educational statuses are the most predominant factors associated with KAP. Study subjects who use the source of information daily were 54.4% less likely to have a poor knowledge about COVID-19 than those who use it weekly. Study subjects with no formal education were 3 times more likely to have poor COVID-19 prevention practice than those who were by formal education, and study subjects who have a poor knowledge about COVID-19 were 2 times more likely to have poor COVID19 prevention practice than those who know(33). The final multiple linear regression analysis shown a positive association between knowledge of the source of infection, incubation period, and way of disease transmission with recommended behavioral practice (29). Factors associated with proper utilization of face mask were educational status (AOR = 10.4, 95% CI: 2.51, 43.32), police rank (AOR=0.2. CI: 0.05, 0.41), profession (AOR = 7.7, 95% CI: 2.63, 22.65), and knowledge about face mask use (AOR = 0.01, 95% CI: 0.003, 0.023) (41).In multivariate logistic regression, age, educational status, and marital status were significantly associated with knowledge score. Likewise, age and marital status were significantly associated with the positive attitude score. In addition, age, educational status, and the presence of underlying disease were significantly associated with the good practice score (34).

Male gender (AOR=3.74, CI: 1.87–7.49), age (35–54 years) (AOR=3.81, CI: 1.35–10.70), age ≥55 (AOR=2.97, CI: 1.16–7.62), lack of formal education (AOR=6.0, CI:

1.54–23.40), farmer (AOR=8.72, CI: 2.08–35.53), daily worker (AOR=7.57, CI: 2.28–25.15), merchant (AOR=6.34, CI: 2.06–19.43), housewife (AOR=11.59, CI: 2.91–46.23) were significantly associated with a poor knowledge, whereas single marital status was less likely associated with poor knowledge of COVID-19 (35).

Nearly one-third of the participants replied that the Ethiopian government is handling this pandemic health crisis well. About half of the study participants reported that they had gone to crowded places in recent days, did not wear face masks when leaving home, and practiced preventive measures given by local health authorities. Knowledge score was statistically significantly associated with gender, age, and educational status of the study participants, whereas attitude and practices were significantly associated with educational status and knowledge of participants (39).

Age above 45 years (AOR = 1.41, 95%CI; 1.19–2.66), college and above educational level (AOR = 0.28, 95%CI; 0.21–0.98), and poor knowledge towards COVID-19 virus (AOR = 1.57, 95%CI; 1.09–2.23) were significantly associated with perceived high risk about COVID-19 (38).

Concerning sources of information about COVID-19 and its prevention; the internet, family/peer, religious and health workers contributes less < 20% whereas telecommunication and television/radio contribute the largest 56.1% and 85.8% as a source of information, respectively. The Internet as a source of information AOR: 1.99 (CI: 1.05–3.78, p ¼ .034), information from health worker AOR: 2.324 (CI: 1.228–4.397, p ¼ .010) and information from television or radio AOR: 2.737 (CI: 1.471–5.092, p ¼ .001) has been significantly associated with good knowledge with $p<0.05$ (30).

Master's degree level of education (AOR = 2.85; 95% CI: 1.25, 6.00) was associated with the knowledge of the participants. Similarly, having a good knowledge (AOR = 3.17; 95%CI: 1.97, 5.06) was positively associated with the attitude of health care providers towards COVID-19 (42).

Young age, urban residency, attainment of secondary education, and the presence of additional co-morbidity were predictors of the moderate knowledge whereas urban residency, not attended formal education, and presence of additional co-morbidity were predictors of a good knowledge about COVID-19. The presence of additional co-

morbidity was factors significantly associated with the moderate practice of COVID-19 prevention methods. Furthermore, male sex, knowledge of COVID-19, and attitude towards COVID-19 were factors significantly associated with good practice of COVID-19 prevention methods (37)

2.5. Conceptual framework

This conceptual framework is developed after searching different kinds of literatures (31, 32, 37, 40, 43-47). A factor that affects the knowledge, risk perception, and preventive practice towards COVID-19 are socio-demographic characteristics of study participants, use of preventive materials, source of information, and clinical characteristics.

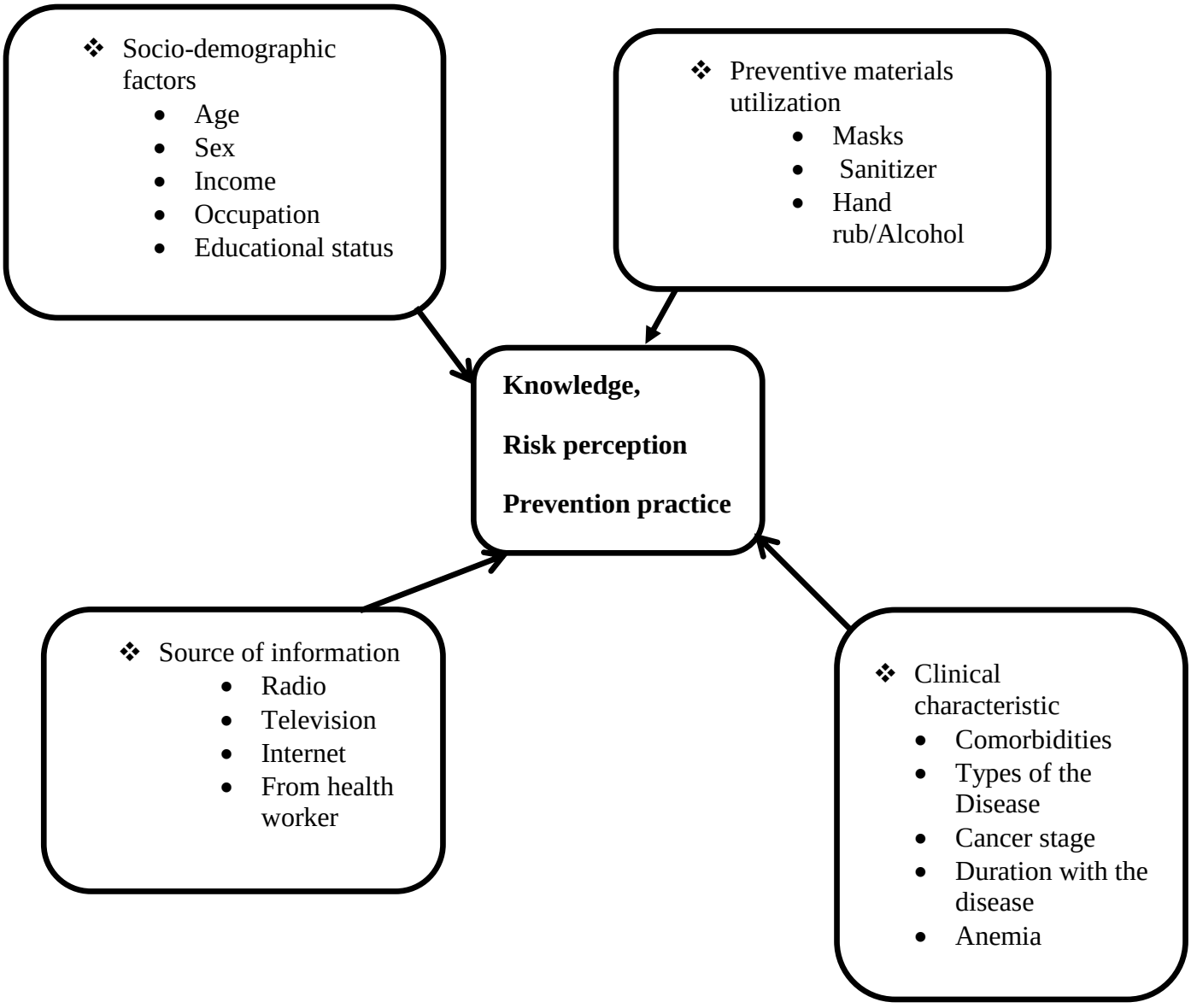

Figure 1: a conceptual framework of knowledge, risk perception and prevention practice towards COVID-19 adapted from different literature.

3. OBJECTIVES

3.1 General Objectives

- To assess knowledge, risk perception, and preventive practice about COVID-19 among patients attending oncology clinic at Tikur Anbessa Specialized Hospital (TASH), Addis Ababa, Ethiopia, 2021.

3.2 Specific Objectives

- To determine knowledge level about COVID-19 among cancer patients at TASH
- To assess risk perception level about COVID-19 among cancer patients at TASH
- To determine prevention practice level towards COVID-19 among cancer patients at TASH
- To identify associated factors of Knowledge, risk perception, and preventive practice towards COVID-19 among cancer patients at TASH.

4. METHODS

4.1. Study area and period

The study was conducted at TASH, the largest teaching hospital under the administration of Addis Ababa University in Ethiopia. The hospital was established in 1972 and has more than 800 beds providing diagnostic and treatment services for about 370,000 to 400,000 patients per year. The oncology unit at TASH is the largest referral site in the country, providing services for over 60,000 patients annually. It is the sole oncology referral and radiotherapy center in the entire country (52)

TASH oncology unit was established in 2015 under the Federal Minister of Health. It is located at Addis Ababa, Lideta Sub –City. According to December/ 2020 G.c., data obtained from the human resource office of TASH showed that 379 nurses, among these 15 were the oncology nurses; 200 doctors, out of these 8 were clinical oncologists; and 115 other health professionals. The hospital also has 950 permanent and contract administration staff to support the hospital activities.

TASH is the largest tertiary hospital and the only radiation therapy center in Ethiopia. The oncology unit gives health services for all cancer patients attending TASH from Addis Ababa city, and different regional states of Ethiopia. It provides cancer diagnosis and treatment services. The study was conducted in adult cancer patients who had to follow up in the oncology center of TASH. The hospital was selected purposefully since this was the only hospital with all services for cancer patients**.** This study was conducted from February-March to/2021.

4.2. Study design

An institutional-based cross -sectional study design was conducted.

4.3. Source population

All cancer patients who were on follow-up in the oncology clinics at TASH

4.4. Study population

All adult cancer patients who were on follow- up in the oncology clinic at TASH.

4.5. Eligibility criteria

4.5.1. Inclusion criteria

A patient was included in the study if he or she is 18 years of age or older and those cancer patients who were available during the data collection period and willing to participate.

4.5.2. Exclusion criteria

Patients with mental health problems, hearing impairments, or any other serious health problems were excluded.

4.6. Sample size

The size of study participants that were recruited into the research is calculated using the single population proportion formula.

$$N = \frac{Za/_2^2 (p\ (1-p)}{d^2}$$

The Sample size was calculated by considering a level of confidence of 95%, and a margin error of 5%.

Where p- Proportion of patients (47.3%) who had a poor practice on COVID-19 by considering the previous studies conducted among chronic patients at Addis Zemen Hospital, Ethiopia (32). From those studies, the prevalence of a poor knowledge was 33.9% and poor practice was 47.3%.

q- Proportion of patients (52.7%) who have a good practice,

d^2 - margin of error,

N- Minimum sample size.

Substituting the values (that prevalence for each of these variables in the above formula, the sample size is to be 344. Whereas using the prevalence of a poor practice (47.3%) then the sample is to be 382. To get a large sample size used the prevalence of a poor

practice towards COVID-19 to determine the required sample size. Therefore, the sample size was 382. Adding a non-response rate of 10%, the final sample size was 420.

4.7. Sampling procedure and techniques

A systematic random sampling method was carried out based on the number of patients attending the clinic per month. Monthly the number of cancer patients coming to TASH is 900/420=2. Therefore, the K value became 2. The first patient was selected by using a lottery method and then every 2nd patient was included in the study. TASH was selected purposefully.

4.8. Study variable

4.8.1. Dependent variable

- Knowledge,
- Risk perception and
- Prevention practice towards COVID-19.

4.8.2. Independent variable

Socio-demographic variables (age, sex, marital status, income, educational status, and Occupation).

Clinical characteristics like disease/cancer stage, WBC, Hgb, duration with the disease, types of the disease.

4.9. Operational definition

- Alcohol-based (hand) rub: An alcohol-containing preparation (liquid, gel, or foam) designed for application to the hands to inactivate microorganisms and/or temporarily suppress their growth. Such preparations may contain one or more types of alcohol, other active ingredients with excipients, and humectants (according to WHO Hand Hygiene Technical References Manual).
- Poor knowledge: knowledge score ≤11 (below 75%) out of 15 items(48).
- Good Knowledge: knowledge score ≥12 (75% and above) out of 15 items(48).
- Good practice: greater than the mean score out of the given practice questions(32)

- Poor practice: less than the mean score out of the given questions(32)
- Good Risk perception: greater than the mean score out of the given risk perception questions(49)
- Poor risk perception: less than the mean score out of the given risk perception questions(49)
- Anemia: Patients hemoglobin level below 12.0 g/dL was classified as anemic

4.10. Data Collection Tool

Interviewer administered structured questionnaire was used, which was adopted from a WHO survey tool for COVID-19 (50) and previously published data (32). Survey questions were tested for content validity and internal validity (reliability). The content validity of the questionnaire was evaluated by nursing expertise. First, questions were developed after searching different pieces of literature then those questions were evaluated by senior staff of the nursing department of Addis Ababa University. Based on their endorsements, modification to the questionnaires toll was made**.** The questionnaire was prepared first in English and translated to Amharic and back- translated to English before the data collection process. The questionnaire had four parts: socio-demographics variables, knowledge of cancer patients towards COVID-19, risk perception of cancer patients towards COVID-19, and prevention practice of cancer patients towards COVID-19. The knowledge section of the questionnaire consisted of 15 items. These questions are answered on a yes/no basis with an additional "I don't know" option. A correct response to the question was awarded 1 point, while an incorrect and not sure response was allocated 0 points. The entire knowledge score ranged from 0 to 15. Participants' overall knowledge was categorized, as good if the score was between 75 and 100% (12–15 points), and poor if the score was less than 60% (≤11) (48).

Regarding risk perception towards COVID-19, 5 items were used to assess participants´ risk perception towards COVID-19, using a five-point Likert scale; i.e. 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree) and 5 (Strongly Agree). Then, during analysis strongly disagree and disagree merged to disagree and strongly agree and agree merged to agree. The prevention practice questions consisted of 5 items, with yes/no answers.

4.11. Data collection procedure and quality control

The data was collected from the study hospital in one month by 3 BSc nurses and controlled by one supervisor who had MSc nursing. The data collectors introduced themselves to the participants to make rapport with patients. They interviewed participants without wearing the gown to reduce bias. Both the data collectors and supervisor were trained for half day on the objectives and methodology of the research, and data collection approach. The questionnaire was translated to Amharic language and back-translated into English by another person to check for consistency. Pre-test was conducted in 5% (12) of the samples in St. Paul's hospital to see the completeness, consistency, and applicability of the instruments and was ratifying accordingly. This was used because patients in each facility share many similarities. This also gave feedback to me on whether the intended study objectives captured well, any omissions and any need for additional items so that appropriate modification was made after viewing the pre-test result. The data was cleaned manually and double-checked.

4.12. Data processing and analysis

Data were checked, cleaned, and entered into EPI info software, and then exported to SPSS version 25.0 software for analysis. Descriptive statistics were used to describe the sample. The results of the descriptive statistics were expressed as percentage and frequency. Continuous variables were presented as mean and standard deviation. Associations between independent variables and dependent variables were analyzed first using bivariate analysis to identify factors that are significantly associated with the outcome variable. The magnitude of the association between the different independent variables about dependent variables was first measured using bivariate logistic regression. Then, those variables below 0.05 on bivariate logistic regression were a candidate for multivariate logistic regression. P-values below 0.05 were considered statistically significant.

4.13. Ethical consideration

Ethical clearance and the official letter were obtained from the research and ethics committee of the department of nursing and midwifery of AAU. Then, a permission letter was obtained from the Oncology center of TASH. Written consent was obtained

for the willingness of patients to participate. The patient's privacy was maintained by conducting the interview in a private place. They were informed that there is no incentive or harm for their participation in this study.

4.14. Dissemination plan

The final result of this research was presented to the School of nursing and midwifery of AAU and disseminated to the school library of AAU and the oncology center of TASH. Finally, it was published in peer-reviewed journals for further utilization.

5. RESULT

5.1. General characteristics of the study subjects

A 420 study subjects have participated in this study. Of these, the majority 243 (57.9%) were female, 220 (52.4%) were in the age between 35-51 years and about 103 (24.5%) were above the age of 52 years old. The mean age of the study subjects was 43.6 (SD±12.37) years. Over 297 (69%) were married, 119 (28.3%) completed secondary school (table 1).

Table 1: Sociodemographic characteristics of study participants at oncology clinic of TASH, Addis Ababa, Ethiopia, 2021, N=420

Variables	Category	Frequency	Percent
Sex	Female	243	57.9
	Male	177	42.1
Age	18-34	97	23.1
	35-51	220	52.4
	>52	103	24.5.5
	Mean (SD)	43.69 ± 12.37	
Education	Illiterate	45	10.7
	Read and write only	77	18.3
	Primary school	94	22.4
	Secondary school	119	28.3
	Collage/university	85	20.2
Marital status	Single	47	11.2
	Married	290	69
	Divorced	16	3.8
	Windowed/r	67	16
Occupation	Private work	106	25.2
	Civil servant	90	21.4
	Housewife	116	27.6
	Others	108	25.7
Income in ETB	Low	60	14.3
	Medium	113	26.9
	High	247	58.8
	Mean (SD)	3536.34+-1762.52	

Income in Ethiopian birr: Low= ≤1000 ETB; Medium= 1001-3000 ETB; High= ≥3001ETB

Abbreviations: SD= standard deviation, ETB=Ethiopian Birr

The clinical characteristics of the study participants indicate that 142(33.8%) have breast cancer, 120 (28.6%) were on stage 2 and the mean level of hemoglobin was 13.35±14.9 (table 2).

Table 2: Clinical characteristics of study participants at TASH, Addis Ababa, Ethiopia, 2021

Variables	Category	Frequency	Percent
Presence of comorbidities	Yes	17	4
	No	403	96
Stage of cancer	Stage 1	28	6.7
	Stage 2	99	23.6
	Stage 3	120	28.6
	Stage 4	173	41.6
Type of cancer	Breast cancer	142	33.8
	Lung cancer	15	3.5
	Rectal	15	3.5
	Gall bladder	12	2.8
	NHL	13	3
	STS	9	2.1
	Hematologic	6	1.4
	Vulva	12	2.8
	Ewing sarcoma	14	3.8
	Cervical cancer	33	7.9
	Prostate cancer	32	7.6
	NPC	29	6.9
	Colon cancer	21	5
	Other	67	15.9
Duration with the disease in the month	1-12	203	48.3
	12-24	113	26.9
	>24	104	24.8
	Mean (SD)	17.0 ±14.6	
Hemoglobin	Mean (SD)	13.35±14.9	

Note: the presence of comorbidities= include hypertension, diabetes mellitus, and kidney disease

Abbreviation: SD: Standard Deviation, NPC= Nasopharyngeal carcinoma

5.2. Participants response to knowledge questions towards COVID-19

Source of information about COVID-19: from the total participants, 310 (73.8%) of them received information about COVID-19 from mass media (TV, Magazines, Newspaper, Radio), 17 (4%) from social media (Facebook, Instagram, what's up and Telegram), 75 (17.9%) from the Ethiopian Federal Ministry of Health Announcement, 15(3.6%) heard from official international health organization sites and media e.g. WHO, CDC and 3(0.7%) heard from other sources.

Most of the study participants 417(99.3%) reported correctly that people who have contact with someone infected with the COVID-19 virus would be immediately quarantined in a proper place. 417(99.3%) correctly reported that quarantine and treatment of people who are infected with the COVID-19 virus are effective methods to decrease the spread of the virus. 368(87.6) correctly answered that the COVID-19 virus spreads via respiratory droplets of infected individuals, To prevent the infection by COVID-19, 350(83.3) correctly answered that individuals should cover their mouth and nose with a disposable tissue when they cough/sneeze, 412(98.1) correctly answer that perform handwashing with soap and water or alcohol- based hand rub for 20-30 seconds is required to protect from getting the infected (Table 3).

Table 3: Knowledge of participants towards COVID-19 at oncology clinic of TASH, Addis Ababa, Ethiopia, 2021, N=420

No	**Knowledge Questions**	**Frequency (%)**		
		Yes (N, %)	**No (N, %)**	**I do not know (N, %)**
1.	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and myalgia	401(95.5)	10(2.4)	9(2.1)
2.	Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.	156(37.1)	242(57.6)	22(5.2)
3.	There presently is no effective cure for COVID-2019, but timely symptomatic and supportive treatment can help most patients recover from the infection.	384(91.4)	29(6.9)	7(1.7)
4.	Not all persons with COVID-2019 were developing to severe cases. Only those who are elderly, have chronic illnesses, and are obese are more likely to be severe cases.	386(91.9)	28(6.7)	6(1.4)
5.	Eating or contacting wild animals would result in infection via the COVID-19 virus.	227(54)	94(22.4)	99(23.6)
6.	Persons with COVID-2019 cannot infect the virus to others when a fever is not present.	176(41.9)	204(48.6)	40(9.5)
7.	The COVID-19 virus spreads via respiratory droplets of infected individuals	368(87.6)	43(10.2)	9(2.1)
8.	Ordinary residents can wear general medical masks to prevent the infection by the COVID-19 virus.	396(94.3)	23(5.5)	1(.2)

9.	Children and young adults don't need to take Measures to prevent the infection by the COVID-19 virus.	148(35.2)	248(59)	24(5.7)
10.	To prevent the infection by COVID-19, individuals should go to crowded places such as train stations and taking public transportations.	283(67.4)	123(29.3)	14(3.3)
11.	To prevent the infection by COVID-19, individuals should cover their mouth and nose with a disposable tissue when they cough/sneeze.	350(83.3)	68(16.2)	2(0.5)
12.	Avoid touching, shaking hands, or kissing, and keep a distance of at least one meter to protect individuals from getting infected.	397(94.5)	22(5.2)	1(0.2)
13.	Perform handwashing with soap and water or alcohol-based hand rub for 20-30 seconds is required to protect from getting infected.	412(98.1)	7(1.7)	1(0.2)
14.	Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	417(99.3)	3(0.7)	
15	People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place.	417(99.3)	3(0.7)	

Abbreviation: N= number, %= percent

5.3. Participants response to prevention practice questions towards COVID-19

In the present study, 341(81.2%) of the study participants used masks when leaving home. 416(99%) of the study participants practiced hand washing (Table 4).

Table 4: Prevention practice of study subjects towards COVID-19 at TASH, Addis Ababa, Ethiopia, 2021, N=420

No	**Practices Question**	**Frequency**		
		Yes	No	I don't know
		(N, %)	(N, %)	(N,%)
1	Recently has gone to crowded place?	210(50)	189(45)	21(5)
2	Recently has worn out a mask when leaving home?	341(81.2)	73(17.4)	6(1.4)
3	Recently has washed with soap and Water or alcohol-bath?	416(99)	4(1)	
4	Recently did you avoid touching your eyes, nose, or mouth with an unwashed hand or after touching the surface?	199(47.4)	196(46.7)	25(6)
5	Recently did you keep yourself 1 meter away from others?	197(46.9)	187(44.5)	36(8.6)

5.5. Overall knowledge, risk perception, and prevention practice

Overall, 240(57.1%) of participants had a good knowledge about COVID-19. 180(42.9%) of participants had a poor knowledge. In overall risk perception is calculated based on the mean score. So, the mean risk perception of the participants towards COVID-19 was 11.9 with (SD ±1.56). 180 (42.9%) of participants had a poor risk perception towards COVID-19. The mean prevention practice of participants towards COVID-19 was 3.24 with (SD ±1.14). 244 (58.1%) of participants had a poor practice towards COVID-19 and 176(41.9%) had a good practice (figure 2).

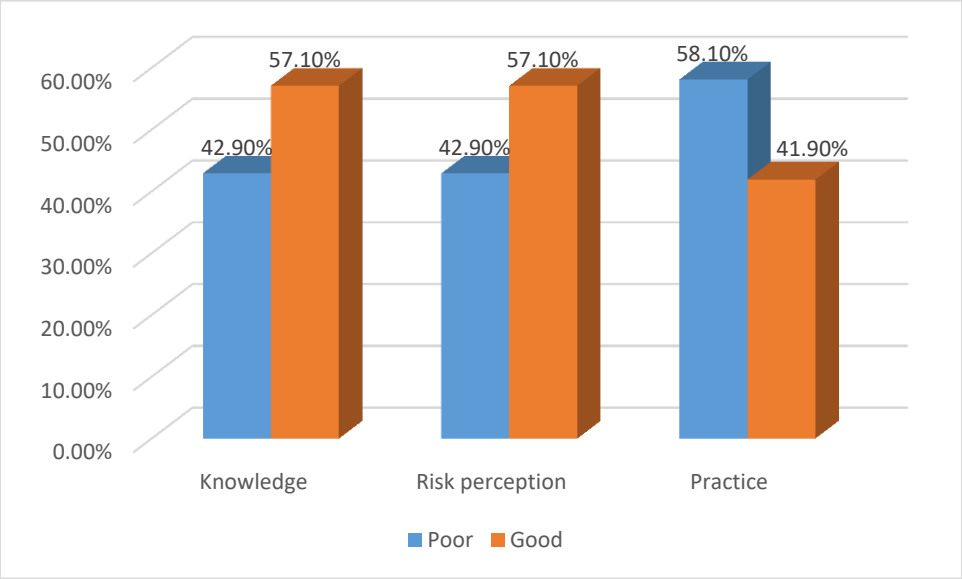

Figure 2: Overall, knowledge, risk perception, and prevention practice of cancer patients towards COVID-19 at oncology clinic of TASH, Addis Ababa, Ethiopia, 2021

5.6. Associated factors of knowledge towards COVID-19

Independent variables which were entered to bivariate logistic regression were sex, age, marital status, education, occupation, income, duration of the disease, and hemoglobin level. Among them, sex, age, and duration of the disease were significantly associated with a good knowledge. However, in multivariate logistic regression analysis, only age and duration of the disease are significantly associated with knowledge. Multivariate analysis revealed that age is significantly associated with knowledge. The age between 35-51 years, is more likely to have a good knowledge than at age greater than or equal to 52 [AOR= 1.793, (95%CI = 1.058-3.039), *P*=0.03)]. Study participants who had 12-24

months of duration with the disease had more likely to have a good knowledge as compared to study participants who had greater than or equal to 24 months of duration with the disease [AOR=1.967, (95%CI= 1.130-3.424), *P*=0.01)] (table 5).

Table 5: Binary and multivariate logistic regression analysis of knowledge towards COVID-19 with independent variable

Variable	**Category**	**Knowledge**		**COR (95%, CI)**	**p-value**	**AOR (95%, CI)**	**p-value**
		Poor, n (%)	**Good, n (%)**				
Sex	Male	87(48.3)	90(37.5)	0.641(0.433-0.949)	0.026		
	Female	93(51.7)	150(62.5)	1			
Age	18-34	38(21.1)	59(24.6)	1.711(0.976-3.001)	0.06		
	35-51	88(48.9)	132(55)	1.653(1.032-2.649)	0.03		
	≥52	54(30)	49(20.4)	1			
Marital status	Single	20(11.1)	27(11.3)	0.614(0.184-2.047)	0.42		
	Married	122(67.8)	168(70)	0.626(0.212-1.848)	0.39		
	Divorced	33)18.3)	34(14.2)	0.468(0.147-1.495)	0.2		
	Widowed	5(2.8)	11(4.6)	1			
Education	Illiterate	16(8.9)	29(12.1)	1.269(0.601-2.680)	0.53		
	Read and write only	39(21.7)	38(15.8)	0.682(0.366-1.270)	0.22		
	Primary	40(22.2)	54(22.5)	0.945(0.521-1.713)	0.85		
	Secondary	50(27.8)	69(28.7)	0.966(0.549-1.699)	0.9		
	Collage/university	35(19.4)	50(20.8)	1			
Occupation	private	47(26.1)	59(24.6)	1			
	Civil servant	42(23.3)	48(20)	1.082(0.632-1.854)	0.7		
	Housewife	41(22.8)	75(31.3)	0.985(0.562-1.726)	0.9		
	Others	50(27.8)	58(24.2)	1.577(0.922-2.697)	0.09		
Income	Low	19(10.6)	41(17.1)	1.622(0.891-2.954)	0.114		
	Medium	55(30.6)	58(24.2)	0.793(0.507-1.239)	0.308		
	High	106(58.9)	141(58.8)	1			
Duration of illness	1-12 month	84(46.7)	119(49.6)	1.653(1.027-2.661)	0.039	1.449(0.888-2.365)	0.13
	12-24 month	40(22.2)	73(30.4)	2.129(1.234-3.673)	0.007	1.967(1.130-3.424)	0.01
	>24 month	56(31.1)	48(20)	1		1	
Anemia	anemic	25(14)	42(17.5)	1.307(0.763-2.238)	0.3		
	Not anemic	154(86)	198(82.5)	1			

5.7. Associated factors of risk perception towards COVID-19

Independent variables which were entered to bivariate logistic regression were sex, age, marital status, education, occupation, income, duration of the disease and hemoglobin level. Among them, sex, age, and duration of the disease were significantly associated with a good knowledge. However, in multivariate logistic regression analysis, only age, and duration with the disease are associated with risk perception. Age between 35-51 years was more likely have a good risk perception towards COVID-19 than age ≥ 52 [AOR= 1.793, (95%CI = 1.058-3.039), *P*=0.03)]. Duration of the disease between 12-24 months is more likely to have a good risk perception towards COVID-19 than those cancer patients >24 months of duration with the disease [AOR=1.967, (95%CI) = (1.130-3.424), *P*=0.01)] (table 6).

Table 6: Binary and Multivariate logistic regression analysis of risk perception towards COVID-19 with independent variable

Variable	**Category**	**Risk perception**		**COR (95%, CI)**	**p-value**	**AOR (95%, CI)**	**p-value**
		Poor n(%)	**Good n(%)**				
Sex	Male	87(48.3)	90(37.5)	0.641(0.433-0.949)	0.02	0.728(0.485-1.094)	0.12
	Female	93(51.7)	150(62.5)	1		1	
Age	18-34	38(21.1)	59(24.6)	2.085(1.146-3.792)	0.01	1.855(0.998-3.447)	0.051
	35-51	88(48.9)	132(55)	2.064(1.242-3.430)	0.05	1.793(1.058-3.039)	0.03
	≥52	54(30)	49(20.4)	1		1	
Marital status	Single	20(11.1)	27(11.3)	0.614(0.184-2.047)	0.4		
	Married	122(67.8)	168(70)	0.626(0.212-1.848)	0.3		
	Divorced	33(18.3)	34(14.2)	0.468(0.147-1.495)	0.2		
	Widowed	5(2.8)	11(4.6)	1			
Education	Illiterate	16(8.9)	29(12.1)	1.269(0.601-2.680)	0.5		
	Read and write only	39(21.7)	38(15.8)	0.682(0.366-1.270)	0.2		
	Primary	40(22.2)	54(22.5)	0.945(0.521-	0.8		

				1.713)			
	Secondary	50(27.8)	69(28.7)	0.966(0.549-1.699)	0.9		
	Collage/university	35(19.4)	50(20.8)	1			
Occupation	Private	47(26.1)	59(24.6)	1			
	Civil servant	42(23.3)	48(20)	1.082(0.632-1.854)	0.7		
	House wife	41(22.8)	75(31.3)	0.985(0.562-1.726)	0.9		
	Other	50(27.8)	58(24.2)	1.577(0.922-2.697)	0.09		
Income	Low	19(10.6)	41(17.1)	1.622(0.891-2.9054)	0.1		
	Medium	55(30.6)	58(24.2)	0.793(0.507-1.239)	0.3		
	High	106(58.9)	141(58.8)	1			
Duration with the illness	1-12 month	84(46.7)	119(49.6)	1.653(1.027-2.661)	0.039	1.449(0.888-2.368)	0.13
	12-24 month	40(22.2)	73(30.4)	2.129(1.234-3.673)	0.007	1.967(1.130-3.424)	0.01
	>24 month	56(31.1)	48(20)	1		1	
Anemia	anemic	25(14)	42(17.5)	0.106(0.687-1.783)	0.6		
	Not anemic	154(86)	198(82.5)	1			

Note 1= is a reference

5.8. Associated factors of prevention practice towards COVID-19

Independent variables which were entered to bivariate logistic regression were sex, age, marital status, education, occupation, income, duration with the disease, and hemoglobin level. Among them, duration of the disease and hemoglobin level is associated with prevention practice. In multivariate logistic regression analysis, only duration of the disease is associated with prevention practice towards COVID-19. Patients between 1-12 and 12-24 months on disease is more likely have a good prevention practice towards COVID-19 than patients longer 24 months on the disease {[AOR=2.392, (95%CI= 1.426-4.012), *P*=0.01); AOR= 1.87, (95%CI= 1.052-3.324), *P*=0.03}, respectively (table 7).

Table 7: Factors associated with prevention practice among cancer patients towards COVID-19 at oncology clinic of TASH, Addis Ababa, Ethiopia, 2021

Variable	Category	Prevention practice		COR (95%, CI)	p-value	AOR (95%, CI)	p-value
		Poor n (%)	Good n (%)				
Sex	Male	101(41.4)	76(43.2)	1.076(0.727-1.593)	0.7		
	Female	143(58.6)	100(56.8)	1			
Age	18-34	63(25.8)	34(19.3)	0.801(0.437-1.471)	0.47		
	35-51	123(50.4)	97(55.1)	1.226(0.737-2.040)	0.43		
	≥52	58(23.8)	45(25.6)	1			
Marital status	Single	31(12.7)	16(9.1)	0.664(0.209-2.111)	0.4		
	Married	165(67.6)	125(71)	0.974(0.353-2.687)	0.9		
	Divorced	39(16)	25(15.9)	0.923(0.307-2.775)	0.8		
	Widowed	9(3.7)	7(4)	1			
Education	Illiterate	27(11.1)	18(10.2)	0.786(0.378-1.637)	0.5		
	Read and write only	49(20.1)	28(15.9)	0.674(0.359-1.266)	0.2		
	Primary	53(21.7)	41(23.3)	0.912(0.506-1.646)	0.7		
	Secondary	69(28.3)	50(28.4)	0.855(0.488-1.498)	0.5		
	Collage/university	46(18.9)	39(22.2)	1			
Occupation	Private	72(29.5)	34(19.3)	1			
	Civil servant	45(18.4)	45(25.6)	0.636(0.364-1.112)	0.1		
	Housewife	65(26.6)	51(29)	1.348(0.768-2.365)	0.2		
	Other	62(25.4)	46(26.1)	1.058(0.623-1.795)	0.8		
Income	Low	30(12.3)	30(17)	1.396(0.794-2.462)	0.2		
	Medium	70(28.7)	43(24.4)	0.859(0.544-1.355)	0.5		
	High	144(59)	103(58.5)	1			
Knowledge towards COVID-19	Poor	124(50.8)	56(31.8)	0.452(0.301-0.677)	0.001	0.459(0.303-0.694)	0.01
	Good	120(49.2)	120(68.2)	1		1	
Duration of the illness	1-12 month	105(43)	98(55.7)	2.302(1.388-3.817)	0.001	2.033(1.21-3.416)	0.007
	12-24 month	65(26.6)	48(27.3)	1.822(1.035-3.205)	0.037	1.593(0.891-2.849)	0.011
	>24 month	74(30.3)	30(17)	1		1	
Anemia	Anemic	45(18.5)	22(12.5)	0.629(0.362-1.091)	0.9		
	Not anemic	198(81.5)	154(87.5)	1			

6. DISCUSSION

COVID-19 is a newly emerging, rapidly changing infectious disease that poses a significant burden to public health(51). Currently no known effective treatments for COVID-19. The best prevention measure is to avoid being exposed to the virus. To guarantee the final success, people's adherence to the prevention and control measures is important, which is mostly affected by their knowledge, attitudes, and practices of COVID-19(49).

In this study, 42.9% of cancer patients had a poor knowledge of COVID-19. This study was higher than the study conducted in Nepal (21.6%) (13), Addis Zemen hospital (33.9%)(32), Jimma University medical visitors (17%) (36), and Dessie (33.3%) (37). This difference might be due to variation in the socio-demographic characteristics of the study participants. Additionally, the difference in the time of the data collection period across various studies.

Regarding risk perception of cancer patients to COVID-19, 42.9% of study subjects had a poor attitude towards COVID-19. This result was higher than the study conducted in Dessie (18.6%)(37). This difference might be due to the time of the data collection period. 66.7% of them agree that wearing a well-fitting face masks are effective in preventing COVID-19. This result was lower than the study reported in Nepal (99.6%)(13). This discrepancy might be due to the difference in the educational background and availability of information sources about the COVID-19.

In the current study, 58.1% of participants had a poor practice towards COVID-19. This finding was higher than the study reported in Addis Zemen (47.3%) (32) and Dessie (34.6%)(37). But lower than the study conducted in Ambo hospital (89.6%) (33). The difference might be, in those study, the study was conducted in the most active state of disease which is the government also strictly follow the WHO guideline, lockdown and schools also closed. But now all things are open and gathering.

In the present study, age and duration with cancer have shown significant association with the good knowledge towards COVID-19. The age between 35-51 years, is more likely to have a good knowledge than at age greater than or equal to 52. Other studies also found that there is a significant association between age and knowledge (34, 35, 38,

48). This might be due to they use a different sources of information, like television, social media, internet; they can read magazines regarding COVID-19. Study participants who had 12-24 months of duration with cancer had more likely to have a good knowledge as compared to study participants who had greater than or equal to 24 months of duration with the disease. This might be as a result of those patients with the longer duration of the disease is more likely to care about their health.

Regarding factors associated with risk perception towards COVID-19, age and duration with cancer have shown that a significant association. Age between 35 and 51 years was to have more likely had a good risk perception towards COVID-19 than age ≥ 52. This finding is also comparable with other studies(38). Duration of the illness between 12-24 months are more likely to have a good risk perception towards COVID-19 than those cancer patients >24 months of duration with the illness. Even if there is no study to compare this finding, the possible reason is that patients having longer with the illness have more perceived to disease susceptibility and having perceived risk to gate the disease.

In this study, duration with the illness and knowledge were associated with prevention practice towards COVID-19. Patients between 1-12 and 12-24 months on disease are more likely have a good prevention practice towards COVID-19 than patients longer 24 months on the disease. The reason behind that might be those patients with longer on disease may have fear of getting COVID-19. Those study participants who had a good knowledge were further likely to have a good prevention practice towards COVID-19 as compared to participants who had poor knowledge. This finding was comparable with another study (37). This might be because having a good knowledge of the disease is more careful about its safety measure.

7. Limitation of the study

Because the data are cross-sectional, the direction of a causal relationship between variables can’t be determined. The prevention practice measures were taken based on the reported it lacks observation**.** The limitation of related literature to compare and discuss some of the findings with others, and makes our discussion narrow. Despite these limitations, the study finding provides valuable information about the knowledge, risk perception, and prevention practice of cancer patients towards COVID 19.

8. CONCLUSION

In the present study, high levels of a good knowledge towards COVID-19 in all parameters like transmission mode, prevention measures, and significant symptoms. The risk perception towards COVID-19 was low. The prevention practice safety measures towards COVID-19 like maintaining physical distance, use of masks, and going to a crowded place were poor. The present study also assesses associated factors of knowledge, risk perception, and prevention practice towards COVID-19. So, age and the duration of cancer were associated with knowledge and risk perception towards COVID-19. Additionally, the duration of cancer was associated with prevention practice measures towards COVID-19.

9. RECOMMENDATION

- The ministry of health can do awareness creation programs on cancer patients to improve their risk perception and prevention practice measures.
- It is better the hospital can provide health education programs intended at mobilizing and improving COVID-19 virus preventive practice are required for those cancer patients.
- That health professional who works with cancer patients teaches prevention practice measurement towards COVID-19.
- Leaflets should be prepared and given to patients in oncology clinics with detailed information about COVID-19 and its preventive measures.

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APPNDEX: A ENGLISH VERSION INFORMATION SHEET

You are being invited to take part in this research. There are 420 individuals taking part in this research. Before you decide, it is important for you to understand why the research is being done and what was involved. Please read through the following information carefully and feel free to ask if it is not clear or to discuss it with anyone you wish.

The title of the study is Knowledge, risk perception, and prevention towards COVID-19 among adult cancer patients at TASH, Addis Ababa, Ethiopia, 2021. The purpose of this study was to identify gaps in specific aspects of knowledge, risk perception and prevention practice that might help to implement different preventive measures that can help the community to tackle the outbreak. The study was needed one- month duration.

APPNDEX B: CONSENT SHEET

English Version Consent Form

Please take time to decide whether or not you want to take part in this research. We would like to stress that taking part in this study is entirely voluntary. You can refuse to take part in this study. You can withdraw your participation from the study at any time. Data collected from the study will be kept confidential.

Advisors: **Dr. Amsale Cherie (Ph.D, Associate professor)**

Mr. Ketema Bizuwork (MSc, lecturer)

If you have any questions related to the study you can consult the contact person listed below.

Name: Animut Alemagegn, Tel. +251944076039/+251918293145

Emil. animutalmagegn@gmail.com

APPNDEX C: STRUCTURED ENGLISH QUESTIONNAIRES

English Version Questionnaire

Part-1 Socio-demographic questions.

No	Variables	Options
1.	Sex	1. Male 2. Female
2.	Age in years	
3.	Educational level	1. Illiterate 2. Read and Write 3. Primary School 4. Secondary School 5. College/ University
4.	Marital Status	1. Single 2. Married 3. Widowed 4. Divorced
5.	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others
6.	Occupation	1. Private work 2. Civil servant 3. Housewife 4. Others
7.	Monthly Income in birr	---------- ETB
8.	Source of information on COVID-19. Tick all that apply	1. Official international health organization sites and media e.g. WHO, CDC. 2. Official government sites and media e.g. Ethiopian Ministry of Health 3. News Media e.g. TVs, radios, Magazines, Newspapers 4. Social Media e.g. What's App, Facebook, Twitter,Instagram 5. Journals 6. Others

Part-2: Questionnaire of knowledge Towards Covid-19

No	Questions	Options		
		1.Yes	2.No	3.I don't know
1.	The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and myalgia.			
2.	Unlike the common cold, stuffy nose, runny nose, and sneezing are less common in persons infected with the COVID-19 virus.			
3.	There currently is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from the infection.			
4.	Not all persons with COVID-2019 will develop to severe cases. Only those who are elderly, have chronic illnesses, and are obese are more likely to be severe cases.			
5.	Eating or contacting wild animals would result in infection by the COVID-19 virus.			
6.	Persons with COVID-2019 cannot infect the virus to others when a fever is not present.			
7.	The COVID-19 virus spreads via the respiratory droplets of infected individuals.			
8.	Ordinary residents can wear general medical masks to prevent the infection by the COVID-19 virus.			
9.	Children and young adults don't need to take measures to prevent the infection by the COVID-19 virus.			
10.	To prevent the infection by COVID-19, individuals should go to crowded places such as train stations and taking public transportations.			

11.	To prevent the infection by COVID-19, individuals should cover their mouth and nose with a disposable tissue when they cough/sneeze.			
12.	Avoid touching, shaking hands or kissing, and keep a distance of at least one meter to protect individuals from getting infected.			
13.	Perform handwashing with soap and water or alcohol-based hand rubs for 20-30 seconds are required to protect from getting infected.			
14.	Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.			
15.	People who have contact with someone infected with the COVID-19 virus should be immediately isolated in a proper place. In general, the observation period is 14 days.			

Part-3 Questionnaire of risk perception towards Covid-19 Part-3

No	**Questions**	**Options**				
		1. Strongly disagree	**2. Disagree**	**3. Neutral**	**4. Agree**	**5. Strongly agree**
1.	Do you agree that the black race is protective towards COVID-19 disease?					
2.	Do you agree that wearing a well-fitting face mask is effective in preventing COVID-19?					
3.	Do you agree that using a hand wash can prevent you from getting COVID-19?					
4.	Do you agree that COVID-19 will finally be successfully controlled?					
5.	Do you have confidence that Ethiopia can win the battle against the COVID-19 virus?					

Part-4 Questionnaire of Practice towards Covid-19 Part-4

No	Questions	Options		
		1.Yes	2.No	3.I don't know
1.	In recent days, have you gone to any crowded place?			
2.	In recent days, have you worn a mask when leaving home?			
3.	In recent days, have you washed your hand with soap and water or alcohol-based hand rub for 20-30 seconds?			
4.	In recent days, did you avoid touching your eyes, nose, or mouth with unwashed hand or after touching surface?			
5.	in recent days, did you keep yourself at least 1 meter from others?			

አባሪ A የተጠያቂው / መላሾች የመረጃ ቅፅ

<u>ስለኮረናቫይረስእዉቀት፣አመለካከት ና ክህሎትቃለመጠይቅ</u>

ይህመጠይቅየተዘጋጀዉበ2013ዓ.ምበአንሙትለምአገኝሲሆን፡፡የዚህጥናትአላማውስለኮሮናቫይረስያላቸዉ ንእዉቀትናአመለካካት ና ክህሎት ደረጃ ለማወቅ እንዲሁም የዚህን በሽታ መንስኤዎችን ለመለየትነዉ፡፡

ስሜ_____ ይባላል፡፡የኮሮና ቫይረስ ጥናት መረጃ ሰብሳቢነኝ፡፡ ይህምርምርዋናአላማዉበጥቁርአንበሳስፔሻላዝድሆስፒታልካንሰርህሙማንታካሚዎችውስጥስለኮቪድ-19በሽታያላቸዉንእዉቀትናግንዛቤደረጃለማወቅእንዲሁምየዚህንበሽታመንስኤዎችንለመለየትነዉ፡፡ነዋሪዋ ችስለኮቪድበሽታያላቸዉየእዉቀትእናግንዛቤደረጃየተለያየሊሆንይችላል፡፡ይህሁኔታደግሞበጥናትመረጋገጥ ይፈልጋል፡፡የዚህጥናትዉጤትየኮቪድበሽታንለመከላከልየሚያግዙሃሳቦችንለማመንጨትያግዛል፡፡ጥናቱንስና ከናውንየጤናሚንስተርባስተላለፈውየጥንቃቄመንገዶችንበመጠቀምሲሆን፤ በዚህ ጥናት ከአንተ/ቺ የሚጠበቀዉ ያለህን/ሽን ሃሳብ ማካፈልነዉ፡፡ከ 20 ደቂቃበላይአይወስድም፡፡የሰጠኸዉ/ሽዉሃሳብሚስጢራዊነቱየተጠበቀእናማንሃሳብእንደሰጠየማይታወቅነ ዉ፡፡የተሰጠዉንሃሳብየማየትእድልያላቸዉየምርምሩቡድንአባላትብቻናቸዉ፡፡ጥናቱበአንተ/አንቺላይምን ምዓይነትጉዳትአያመጣም፡፡ጥናቱንበማንኛዉምሰዓትማቋረጥትችላለህ/ሽ፡፡

አባሪB የስምምነትዉል

ከላይየተጠቀሰዉየምርምር አላማበጥቁርአንበሳ ካንሰር ህሙማን ታካሚወች መካከል ስለኮቨድ -19በሽታያላቸዉንእዉቀት፣አመለካከትና

ክህሎትደረጃለማወቅእንዲሁምየዚህንበሽታመንስኤዎችንለመለየትመሆኑ፤በጥናቱለመሳተፍበሙሉፈቃደኝነትላይየተመሰረተመሆኑን፣የሰጠሁትሃሳብሚስጥራዊነቱየተጠበቀ፣

በእኔላይምንምዓይነትጉዳትእንደማይደርስብኝተነግሮኝናተረድቼበጥናቱተሳትፊያለሁ።

የመልስሰጪዉሬርማ_____ቀን _____

መጠይቁየሞላበትቀን : _____ሰዓት: _____ያለቀበትሰዓት: _____

የመረጃሰብሳቢውስም _____ፊርማ _____

ለማንኛውምአይነትጥያቄ።

አንሙት አለምአገኝ

ሞባይልቁጥር: +251918293145/094407603

ኢሜል animutalemagegn@gmail.com

አባሪ C የአማርኛመጠይቅ

እባክዎመላሹየሚሰጠዉንመልስከጥያቄዎችፊትለፊትካሉትአማራጮቹመካከልያክብቡወይምመ

ላሹየሚገልፀዉንሀሳብበቀኝበኩልባለዉክፍትቦታላይይፃፉ።።

ክፍል፡1

ተ.ቁ	ጥያቄዋች	ምርጫ
1.	ፆታ	1. ወንድ 2. ሴት
2.	ዕድሜ	
3.	የትምህርትደረጃ	1. ያልተማረ 2. ማንበብናመፃፍየሚችል 3. አንደኛደረጃ 4. ሁለተኛ ደረጃ ና መሰናዶ 5. ኮሌጅ/ዩንቨርስቲ
4.	የጋብቻሁኔታ	1. ያላገባ 2. ያገባ 3. ባል/ሚስት የሞተባት/በት 4. የፈታ/ች
5.	የስራሁኔታ	1. የቀን ሰራተኛ 2. የመንግስት 3. የቤት እመቤት 4. ሌላ ካለ ይገለፅ
6.	የወርገቢመጠንስንትነው	
7.	ስለ ኮሮና ቫይረስ የመረጃ ምንጭ ምንድ ነዉ፣ የሚመለከትክን አክብብ	1. የዓለም አቀፍ ድርጅቶች ድረገፅ ና ተቋሞች (የዓለም ጤና ድርጅት፣ የተላላፊ በሽታ ቁጥጥር) 2. የኢትዮጵያጤናሚኒስተር 3. የመንግስትየመረጃመረብ (ቴሌቪዥን፣ ሬድዮ፣ ጋዜጣ) 4. ማህበራዊየመረጃመረብ (ፌስቡክ፣ ቴሌግራም፣ ኢንሰታግራም) 5. የጥናትውጤቶች 6. ሌላ

ክፍል 2፡እውቀትንየሚመለከቱጥያቄዎች

ተ.ቁ	ጥያቄዎች	ምርጫ		
		1. እውነት	2. ሀሰት	3. አላውቅም
1.	ከፍተኛ ትኩሳት፣ ራስምታት፣ ደረቅ ሳል ና አጠቃላይ የሰዉነት ህመም የኮቪድ -19 ቫይረስ ዋና የህመሙ ምልክት ናቸው			
2.	ከጉንፋን በተለያ ሁኔታ አፍንጫን ማፈን፣ ከአፍንጫ ፈሳሽ መውጣት እንዲሁም ማስነጠስ በኮቪድ የተያዘ ሰው ላይ አይስተዋልም			
3.	ምንም እንኳን እስከዚህ ሰዓት ድረስ ኮቪድ-19 ቫይረስን የሚፈዉስ መድሐኒት ባይኖርም ፣ነገር ግን ቅድመ ምርመራ ና እንክብካቤ በማድረግ ብዙ በሽተኞችን እንዲያገግሙ ማድረግ ይቻላል			
4.	ኮቪድ-19 ሁሉንም ሰው የከፋ በሽታ ደረጃ ላይ አያደርስም ነገር ግን አዛውንቶችና ሌላ ተጓዳኝ በሽታ ያለባቸውን ሰዎችን በተለየ መልኩ የከፋ ደረጃ ሊያደርስባቸው ይችላል።.			
5.	የዱር እንስሳትን መመገብም ሆነ ንክኪ ማድረግ ኮቪድ -19 በሽታ ያስተላልፋል።			
6.	አንድ ሰው ከፍተኛ ሙቀት ከሌለው ኮቪድ-19 በሽታን ወደ ሌላ ስዉ አያሰተላልፍም			
7.	ኮቪድ-19 ቫይረስ በበሽታው ከተያዘ ሰው በትንፋሽ ይተላለፋል።			
8.	ማንኛውም ነዋሪ ሰው የኮቪድ -19 በሽታን ስርጭት ለመቀነስ/ ለመከላከል የፊት ጭንብል ማድረግ አለበት			
9.	ህጻናትና ወጣቶች የኮቪድ-19 በሽታን ለመከላከል ምንም አይነት ጥንቃቄ ማድረግ አይጠበቅባቸዉም			
10.	የኮቪድ-19 በሽታን ስርጭት ለመቀነስ ግለሰቦች ወደ ተጨናነቀ ቦታ ለምሳሌ ወደ ባቡር ጣቢያ እና የህዝብ ትራንስፖት መሄድ የለባቸዉም.			
11.	የኮቪድ-19 በሽታን ስርጭት ለመከላከል ግለሰቦች በሚያስሉበት ጊዜ አፍና አፍንጫቸውን መሸፈን አለባቸው			
12.	ግለሰቦች በኮቪድ-19 በሽታ እንዳይያዙ መነካካትን፣ መጨባበትን ማስወገድ አለባቸው እንዲሁም ርቀታቸውን ቢያንስ በአንድ ሜትር ያህል መጠበቅ አለባቸው			
13.	እጅን በሳሙናና በውሃ ወይም በ አልኮል ከ 20-30 ሰከንዶች መታጠብ በኮቪድ-19 በሽታ እንዳይያዙ ይረዳል			
14.	በኮቪድ-19 የተያዙ ሰዎችን በመነጠል እና አስፈላጊዉን እንክብካቤ በማድረግ የበሽታዉን ስርጭት መቀነስ ይቻላል.			
15.	በኮቪድ-19 ከተያዙ ሰዎች ጋር ንክኪ ያላቸው ሰዋች በቶሎ ተለይተው በተዘጋጁ ማቆያ ቦታዋች ለ 14 ቀናቶች መታየት አለባቸው			

ክፍል 3፡አመለካከትንየሚመለከቱጥያቄዎች

ተ.ቁ	ጥያቄዎች	ምርጫ				
		1. በጣምአል ስማማም	2. አልስማ ማም	3. ምንምአሳ ብየለኝም	4. እስማ ማለሁ	5. በጣምእስ ማማለሁ
1.	የጥቁርዘርሀረግመሆን በኮቪድ-19 በሽታላለመያዝይረዳልብለውያስባሉ					
2.	የፊትጭንብልንበተገቢውሁኔታማድረግ ኮቪድንለመከላከልይረዳልብለውያስባሉ					
3.	እጅንበሳሙናእናበዉሀመታጠብየኮርና ንበሽታይከላከላልብለውያስባሉ					
4.	የኮቪድ-19 በሽታንስርጭትበስተመጨረሻመቆጣ ጠርእንደሚቻልእምነትአሎት					
5.	ኢትዮጵያ የኮቪድ-19 በሽታንስርጭትልትቆጣጠርእንደምትች ልሙሉእምነትአሎት					

ክፍል 4፡ ክህሎትንየሚመለከቱጥያቄዎች

ተ.ቁ	ጥያቄዎች	ምርጫ		
		1. እውነት	2. ሀሰት	3. አላውቅም
1.	በቅርብቀን (ባለፉት 7 ቀንውሰጥ) ወደተጨናነቀቦታሄደውነበር			
2.	በቅርብቀን (ባለፉት 7 ቀንውስጥ) ከቤትዎሲወጡየፊትጭንብልአጥልቀውነበር			
3.	የጤናሚኒስተርበሚያዘውመሰረትእጅዎንበንጹህዉሀናሳሙና፣ እንዲሁምበአልኮል ከ 20-30 ሰከንዶችታጥበዋል			
4.	ባልታጠበእጅዎትፊትዋን ፣አይንዋን፣ አፍንጫዋን ና አፍዎንከመንካትተቆጥበዋል			
5.	በቅርብቀን (ባለፈው 7 ቀንውስጥ) በእርስዎና ሌላ በሚያስል ወይም በሚያስነጥስሰው መካከልቢያንስ 1 ሜትር/ 2 የአዋቂእርምጃ/ ልዩነትእንዲኖርአድርገዋል			

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Niguse Tadele; Assistant Professor(Bsc, MSN)
Addis Ababa University
College of Health Sciences
School of Nursing and Midwifery
Phone: + 251913163130
P.o.box 100686
Addis Ababa,Ethiopia