WOLKITE UNIVERSITY COLLAGE OF MEDICINE AND HEALTH SCIENCE

ASSESSMENT OF KONWLEDGE, ATTIUDE AND ACCEPTABILITY OF COVID-19 VACCINE AMONG HEALTH CARE WORKERS INWOLKITE TOWN HEALTH INSTITUTIONS ,WOLKITE,SOUTH WEST ETHIOPIA, *2022* CROSS SECTIONAL STUDY DESIGN

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WOLKITE, ETHIOPIA

WOLKITE UNIVERSITY

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APPROVAL SHEET

This is to certify that the research paper entitled "ASSESSMENT OF KONWLEDGE, ATTIUDE ACCEPTABILITY OF COVID-19 VACCINE AMONG HEALTH CARE WORKERS IN WOLKITE TOWN HEALTH INSTITUTIONS,WOLKITE, SOUTH WEST, ETHIOPIA, 2022" submitted to Wolkite university College of Medicine and Health science department of public health as original work carried out by **Tewodros zerihun ,Foziya Mohamed,Abrham yeshambel.** The assistance and help received during the course of this work have been duly acknowledged. Therefore, I, recommends that it has been accepted as fulfilling the requirements.

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Lastly our classmates and friends have made valuable comment suggestions on our paper which gave us an inspiration to improve the quality of research proposal.

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Acronyms

COVID-19……. Corona Virus 2019

EDHS …… Ethiopian demographic and health survey

FMOH …… Federal Ministry of Health

HCWs ……Health Care Workers

KSA ……Kingdom of Saudi Arabia

SPSS ……statistical package for social science software

USA ……United States of America

WHO ……. World health organization

ABSTRACT

Background:

Corona virus or COVID-19 is the today's world pandemic that has been caused by novel corona virus. Healthcare workers who have knowledge gap and negative attitude towards the vaccine haven't accept the vaccines or are hesitant about vaccinations and share these unfavorable attitudes .

Objective

To assess knowledge, attitude, acceptability of a COVID-19 vaccine among healthcare workers in wolkite town health institutions ,wolkite south west, Ethiopia 2022.

Method

Institutional based descriptive cross-sectional study was conducted among health care workers of wolikte town health institutions. A total of 231 health professionals was selected by simple random sampling method from 490 health professionals. pretest will be carried out at non selected health institution before the formal use of the questionnaire. Data was checked for completeness manually exported and analyzed by SPSS version 20. Descriptive analysis was done for socio demographic characteristics for participants and knowledge, attitude, acceptance of COVID 19 vaccination among health care workers in wolkite town.

Result: A total of 231 health care workers were participated in this study, 95.5% giving response rate. With 130(56.3%) male and 101(43.7 %%) were females. The level of good knowledge towards COVID 19 vaccination among health care workers were 75.3 %(n=174). The level of favorable attitude towards COVID 19 vaccination among health care workers were 59.3% (n=137). From the total study participants, those accepted COVID 19 vaccination without hesitate were 64.9 %(n=150).

Conclusion and recommendation: based on our study most of health care workers had good knowledge, favorable attitude and acceptability towards COVID -19 vaccinations. Therefore, greater efforts need to be made through educational programs and panels to inform the necessity for proper vaccination and practices in controlling this disease

Keywords: COVID-19, healthcare worker, acceptability, Vaccine

1 INTRODUCTION

1.1 Background

Corona virus disease 2019 (COVID-19) is a serious and lethal contagious disease caused by infection with severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), which is mainly transmitted from human to human through respiratory droplets(2). The clinical picture of COVID-19 is dominated by the presence of fever, fatigue, cough, headache, diarrhea, hemoptysis and dyspnea (2). COVID-19 was first identified in December 2019 in Wuhan , Hubei Province , China , and quickly spread to other countries before being declared a pandemic on March 11,2020(3).

COVID-19 vaccines are mRNA vaccine. mRNA vaccines teach our cells how to make a harmless piece of the "spike protein" for SARS-CoV-2. After the protein piece is made, the cell breaks down the instructions (the mRNA) and gets rid of them. Cells display this piece of spike protein on their surface, and an immune response is triggered inside our bodies. This produces antibodies to protect us from getting infected if the SARS-CoV-2 virus enters our bodies. mRNA vaccines do not use the live virus that causes COVID-19 so They cannot give someone COVID-19 and also mRNA vaccines do not affect or interact with our DNA in any way. But these mRNA vaccines are new, but the technology is not new and they have been studied for other infections. Generally two shots are needed to provide the best protection against COVID-19 for both mRNA vaccines. The first shot primes the immune system, helping it recognize the virus and Second shot strengthens the immune response. Side effects are commonly seen in these mRNA vaccines, especially after the 2nd dose. The Side effects may include: – fever, headache muscle aches. Getting a COVID-19 vaccine will help create an immune response in your body against the virus, May help keep you from getting severely ill, even if you do get COVID-19, May protect your family, your coworkers, and patients. the vaccine types include AstraZeneca, Moderna, Pfizer, Johonson,Sputnik V. their efficacy is 62-90%, 95%, 95%, 92% respectively(4).

As of recent WHO report caused about more than 5 million 8 thousand deaths and morbidities globally and above 395,000 confirmed cases and 6894 deaths nationally. Corona virus is mainly

transmitted through respiratory droplets. It also possible to acquire infection by touching surface or object that has the virus on it and then touching our mouth, nose, and probably eyes. The virus has now affected virtually every country across the world and the number of deaths continues to rapidly increase(6).

. The Centres for Disease Control and Prevention (CDC) reported that symptoms of corona virus may appear in as few as two days, or as long as 14 days after exposure. People with certain health conditions have higher risk of severe complications if they acquire the infection. These health conditions include Chronic Obstructive Pulmonary Disease (COPD), asthma, heart conditions, and immune system conditions such as HIV, cancer, obesity, diabetes, kidney disease, liver disease and old aged people (7)

The world is witnessing a major global humanitarian disaster due to the spread of this virus. This has affected all aspects of life across the planet. Countries around the world have implemented strict precautions and controls to contain the outbreak which include social distancing and mandatory use of face coverings. The vaccine's development and deployment is one of the most promising health intervention strategies to mitigate the spread of COVID-19(1)

Ethiopia has received above 5 million doses of the AstraZeneca COVID-19 vaccine and has given above 3 million nine hundred thousand doses. The success of any vaccination program depends on high vaccine acceptance and uptake, and the main challenge that now lies ahead is building public confidence in an emergency-released vaccine(8).

Health workers understanding about COVID-19 is good but the acceptance of COVID-19 vaccine is low in previous researches. The majority of health care workers choosing to wait and to review more data before deciding. The research done in Malaysia states that total of thirteen questions were used to measure knowledge on the COVID-19 virus. The average knowledge score for participants was 10.5. The overall correct answer rate of the knowledge questionnaire was 80.5%. The range of correct answer rates for all participants was between 46.2 to 100%. About 77.2% of participants were able to obtain scores above 10, representing an acceptable level of knowledge on COVID-19(9).

1.2 Statement of the problem

Health workers understanding about COVID-19 is good but the acceptance of COVID-19 vaccine is low in previous researches. The majority of health care workers choosing to wait and to review more data before deciding to take vaccine. The research done in Malaysia states that total of thirteen questions were used to measure knowledge on the COVID-19 virus. The average knowledge score for participants was 10.5. The overall correct answer rate of the knowledge questionnaire was 80.5%. The range of correct answer rates for all participants was between 46.2 to 100%. About 77.2% of participants were able to obtain scores above 10, representing an acceptable level of knowledge on COVID-19(10) .

In worldwide like the counties Saudi Arabia, America, France the level of knowledge is higher than in our counties. And also the study conducted in Africa especially in Uganda Sudan the level of good knowledge is lower in comparison to European countries.

Survey studies on COVID-19 vaccine acceptance rates were found from 33 different countries. In a majority of survey studies among the general public (62%), the acceptance of COVID-19 vaccination showed a level of ≥ 70%, Low rates of COVID-19 vaccine acceptance were reported in the Middle East, Russia, Africa and several European countries (11).

Despite the huge efforts made to achieve successful COVID-19 vaccines, a major hindrance can be related to vaccine hesitancy towards the approved and prospective COVID-19 vaccination. Studies in our country determining the acceptability of the COVID 19 vaccine is limited, so this study will be an input in filling this gap. This study aims to determine the knowledge, attitudes and acceptability of a COVID-19 vaccine among healthcare workers in wolkite town, health institutions. This will provide as an input as we proceed with the vaccination of healthcare workers.

1.3 Significance of the study

Healthcare workers knowledge ,attitude, acceptability play an important role in immunization program success, as well as mitigating this pandemic and research has shown that their knowledge and attitudes in relation to vaccines determine their intentions for vaccine uptake and their recommendation of the vaccine so this research is important for next researches on these similar studies. This study also for government to know the status of HCWS towards covid -19 vaccine and to provide intervention it. this study is important for the zonal and town health bureaus to give an encouragement for health care workers knowledge ,attiude,aceeptabilty towards covid- 19 vaccine.

This study also important for health care workers knows about the status of HCWS response towards covid 19 vaccine and to reduce misunderstanding to the vaccine by reading this study.

This study also important for the community to give information about HCWS response covid 19 vaccine

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2 LITERATURE REVIEW

Promoting the uptake of an emergency-released vaccine across a targeted population can pose significant challenges to public health authorities. Thus, identifying the knowledge, attiude and acceptability of COVID 19 among HCW is crucial.

2.1 Knowledge of COVID 19 vaccination among health care workers

According to study conducted in Saudi Arabia results revealed that mean scores for knowledge of COVID 19 vaccination was 20.793 ± 2.436. More than 88% of participants displayed positive knowledge. Knowledge data showed that social media and the workplace were the main sources of information for the majority of respondents. Approximately 99.12% of respondents were aware of the viral pandemic, and the causative agent(12)

Research conducted in Primary Healthcare Centres in Dubai, results revealed 57.4% (101/176) of participants had a sufficient overall level of knowledge. Moreover, knowledge regarding signs, symptoms, and at-risk groups was generally satisfactory(4).

Research conducted on health care workers in Uganda of the 581 HCWs approached, 136 (23%) responded, among them 69% (n = 94) had sufficient knowledge(13).

Across sectional based study which is co ducted on tikur anbesa specialized hospital so from 261 HCW 81.11% of them have good knowledge about covid 19 vaccine(14).

An institution-based cross-sectional study was employed among 404 HCWs in Dessie City, north eastern Ethiopia in May, 2021.in this study 62.5% of respondents have good knowledge(15)

2.2 Attitude of COVID 19 vaccination among health care workers

Research conducted in Saudi Arabia results revealed that mean scores for attitude 4.744 ± 0.297. More than 88% of participants displayed positive attitude towards COVID-19 vaccination (12)
A study conducted on Knowledge, Attitude, and Practices Associated With COVID-19 vaccination among Healthcare Workers in Indian Hospitals results revealed that 84% of the participants had positive attitude(16) .
Research conducted on health care workers in Uganda of the 581 HCWs approached, 136 (23%) responded. 21% (n = 29) had positive attitude(13).
Across sectional based study which is co ducted on tikur anbesa specialized hospital so from 261 HCW 68% have good attitude(14).
An institution-based cross-sectional study was employed among 404 HCWs in Dessie City, north eastern Ethiopia in May, 2021.in this study 60.5%.

2.3 Acceptance of covid-19 vaccine among health care workers

Delay to accept COVID 19 vaccine is also a pattern which is observed in different surveys like in the USA, majority of the HCW were not sure or would wait to review safety data before getting vaccinated (1953, 56%). Among the respondents who want to wait, 11% will like to wait for 3 months, 10% will like to wait for 6 months, and 20% will like to wait at least 1 year.(17)From the study done in KSA 50.29% from half of the respondents who are willing to take the vaccine would delay until the vaccine's safety is confirmed(3)

There has been a monthly improvement in acceptance of the COVID 19 as seen from monthly surveys done in westerns, Far East and European countries. In the UK, the vaccine acceptance rate was 79.0% in April, 64.0% in July and 71.7% in September/October. In France, the vaccine acceptance rate ranged from 62.0% to 77.1% in March/April and was 58.9% in June. In Italy, the vaccine acceptance rate was 77.3% in April, 70.8% in June and it reached 53.7% in September. For the vaccine acceptance rates in the US, it was 56.9% in April, and ranged from 67.0% to 75.0% in May, and reached 75.4% in June(3).

Survey conducted on the acceptability of a COVID-19 vaccine among the public and healthcare practitioners in the Saudi Arabia reveal that almost half of the 673 healthcare worker respondents in this study were unwilling to be vaccinated against COVID-19 (4)

In the United States among 3479 HCWs 8% of Respondents do not plan to get vaccine. In France 76.9% of Two-thousand and forty-seven HCWs, would accept a COVID-19 vaccine.(3)

The cross sectional based study that is conducted in Carrabin countries shows that total 51% (1181/2302) of the study participants had received a vaccine for COVID-19, whereas 49% (1121/2302) did not receive a vaccine for COVID-19. Among those who are unvaccinated, 46% (515/2302) reported that they "would get the vaccine if available(18).

A cross-sectional online survey conducted in 1574 healthcare professionals consisting of physicians, nurses, dentists, pharmacists, and healthcare personnel in Turkey in December 2020 so the study shows about 84.6% of healthcare professionals declared willingness to accept the COVID-19 vaccine whenever possible. Most physicians (90.4%) stated to receive the COVID-19 vaccine, while 66.5% of nurses, 73.9% of healthcare personnel, also preferred to have it as soon as the vaccine was available.(5)

multi-center cross-sectional study used non-probability convenience sampling to enroll 1,470 hospital workers was conducted in Nigeria which shows that Only 53.5% of the health workers had positive perceptions of the COVID-19 vaccine, and only slightly more than half (55.5%) were willing to receive vaccination.(19)

Institutional based cross sectional study was conducted the result shows that of the surveyed HCWs, 82.5% had received the first COVID-19 vaccine dose. Motivation (eagerness to be vaccinated) was strongly associated with confidence in vaccine benefits (adjusted OR [aOR] 9.85, 95% CI 5.50 to 17.61) and with vaccine safety (aOR 4.60, 95% CI 2.92 to 7.23), but not with perceived COVID-19 infection risk (aOR 1.38, 95% CI 0.88 to 2.16). Of all the information sources about COVID-19 vaccination, 37.5% were reportedly negative in tone(20).

study done in Ghana showed that 39.3% of 234 health care workers who responded had the intention of receiving the COVID-19 vaccine, concerns about the safety of vaccines and the adverse side effects of the vaccine were identified as the main reasons why health care workers would decline uptake of the COVID 19 vaccine (21).

A study which conducted in Mozambique shows that of all the study participants, 1340 (71.4%) would agree to take the SARS-CoV-2 vaccine. Acceptance was higher among healthcare workers (86.6%) compared to the general population (64.9%)(22)

A total of 576 HCWs have responded to the survey with mean age of 35 years. The majority were females (53.3%), Medical Doctors (55.4%), and located in the capital state; Khartoum (76.0%). The absolute refusal of COVID-19 vaccine was expressed by 16% of the respondents while 57% were willing to get vaccinated

Surveys conducted in Africa showed very low acceptance rate compared to the westerns and European countries, in Congo the willingness of healthcare workers to be vaccinated against COVID-19 virus is very low (28%) when compared with a comparable study done in France which found that 77.6% of participants agreed to get vaccinated against COVID-19, this low acceptance may be explained by the h arm of social networks, lack of knowledge, Attitude and spread of misinformation. Similarly study done in Ghana showed that 39.3% of 234 health care workers who responded had the intention of receiving the COVID-19 vaccine, concerns about the safety of vaccines and the adverse side effects of the vaccine were identified as the main reasons why health care workers would decline uptake of the COVID-19 vaccine.(3)

Similarly survey conducted in Ethiopia on acceptance of vaccine against covid 19 and perceived barriers; from the total study participants 293 were willing to the vaccine against COVID 19 . The main reasons for participants' unwillingness to be vaccinated were perceived less individual risk 58%; the uncertainty of vaccine effectiveness 52%; had concern on side effects 68%; had a need to know more about the vaccine 48% and perceived the vaccine only for those who are at risk 44% . (23)

Institutional-based cross-sectional study was performed among 422 health professionals working in Hospitals of South Gondar Zone, Northwest Ethiopia, from March 1 to 30, 2021. Study participants were selected through simple random sampling techniques so Overall, 45.3% of health professionals accepted COVID-19 vaccine. (23)

A study conducted in werabe comprehensive specialized hospital shows the response rate was 60.2%. Out of the 668 respondents, substantial majority were physicians 49.4% and nurses 32.9 %. The vaccine acceptance rate was 72.2% (482/668). Only about 64 % reported that they would

encourage their patients or families to get vaccinated. Those who reported they would accept the vaccination were highly likely to encourage their family members to be vaccinated (OR 58.13, 95 % CI 9.7 – 348.32, P 0.001) over those who reported they would not encourage their family to be vaccinated.(8)

3 OBJECTIVES OF THE STUDY

3.1 General Objectives

- To assess knowledge, attitudes and acceptability of a COVID-19 vaccine among healthcare workers in wolkite town health institution ,wolkite, south west, Ethiopia, 2022

3.2 Specific Objectives

- To assess the knowledge of health care workers about COVID-19 in wolkite town health institutions, wolkite, south west, Ethiopia, 2022.
- To describe attitude of health care workers towards the acceptability of COVID-19 vaccine, in wolkite town health institutions, wolkite, south west Ethiopia, 2022.
- To determine the acceptability of COVID-19 vaccine by health care workers, in wolkite town health institutions, wolkite, south west Ethiopia,2022.

4 METHODS AND MATERIALS

4.1 Study Area

Wolkite is a town located in guragae zone, one of the south region and far away 153 kilometers Addis Ababa .This city has latitude and longitude of 8° 17′N 37°47′E and elevation of 1935 meter from above sea level.

The 2007 national census reported a total population of 28,866 for wolkite of whom 15,074 were men and 13,792 were women. Majority of the inhabitants were Orthodox Christianity 48.17% whereas 42.31%, 7.86%and 1.34% of the population rest were Muslim, protestant and catholic respectively.

The study was conducted among health care workers in wolkite. town. The town has 3 governmental health centers which are wolkite, gubrye and edget ber health center with 120, 42, and 44 health care workers respectively and serves 39331,17723,1027 populations respectively. There is also 1 teaching and referral hospital which serves for 110,088 population of town and contain 284 health care workers

4.2 Study Period

The study was conducted from May 16 to June 17.

4.3 Study Design

A cross sectional study design was employed to assess knowledge, attitude and acceptability of COVID-19 vaccine among health care workers in Wolkite town health institution.

4.4 Populations

4.4.1 Source population

The source population for this study was all Health care workers, working in wolkite town health institutions Study Population

The study population for this research was randomly sampled health care workers, working in wolkite town at the time of data collection.

4.5 Eligibility criteria

4.5.1 Inclusion criteria

- All health care workers who are working in the study facilities.

4.5.2 Exclusion Criteria.

- health care workers who are severely ill
- staffs on annual leave during study period
- female workers on delivery leave and not have a chance to return work during study period

4.6 Sample size Determination

The actual sample size for the study determined by using single population proportion formula for single proportion population,

$$ni= (Z\ \alpha/2)^2 \quad x \quad p\ (1-p)\ /d^2$$

Where ni = Initial estimated sample size

Z = Confidence level (alpha, α)

P = prevalence

d = marginal error

Sample size for knowledge at p=0.63 (16) which is taken from the study in Debre Berhan University is

$$n_{\circ} = (Z\alpha/2)2*P(1-P)) / d^2$$

=3.8416*0.63*0.37\0.0025

=358

Sample size for attitude at p=0.61 (16) is which is taken from the study in Debre Berhan University

$$n_{\circ} = (Z\alpha/2)2*P(1-P)) / W^2$$

=3.8416*0.61*0.39\0.0025

=365

Sample size for acceptance at p=0.65 (16) which is taken from the study in Debre Berhan University

$$n_{\circ} = (Z\alpha/2)2*P(1-P)) / W^2$$

=3.8416*0.65*0.35\0.0025

=350

From the above we use the initial sample size with the highst value that is $n_{\circ}$=365 ,N =490 number of health care workers in wolkite teaching and referral hospital wolkite

and eddiget ber health center Since the value of N which is the total population is <10,000 we use the reduction formula .that is calculated as follows ;

$$nf = n_o / [1 + (n_o/N)]$$

$$=365\backslash[1+365\backslash490$$

$$=365/1.7449$$

$$Nf=210$$

Where

no=initial sample size

nf=final sample size desired to be calculated normal

z=standard deviation corresponding to the specific CI (95%)

w= maximum acceptable difference

When we add 10 % non-response rate which is 21 then it becomes 231.

Final sample size will be 231

4.7 Sampling technique and procedure

From one teaching and referral hospital and 3 health centres, by using Simple random sampling technique(lottery). We had selected wolkite teaching and referral hospital, and wolkite and Edget ber health centre with staff number of 284, 120 and 44 respectively and we have done proportional allocation and questionnaire will be distributed to wolkite teaching and referral hospital and wolkite and Edget ber health centre respectively.

$Q = \frac{n}{N} * S$ N- total staff n-one institution staff

Wolkite teaching and referral hospital =284/490×231=134

Wolkite health center 120/490×231=57

Edget ber health center=44/490×231=21

4.8 Operational definition

- Health care worker- Doctors, Nurses, Midwives, public health officers, Laboratory Technicians, pharmacist, radiographers, environmental health, psychiatrist, Dentists etc. (21).
- Good Knowledge: Participants who scored ≥ mean(24)
- Poor knowledge: participants who scored < mean(24)
- Good Attitude. Participants who scored ≥ mean(24)
- Poor Attitude. Participants who scored < mean(24)
- Good acceptance: HCWS who says yes to get vaccinated without hesitation
- Poor acceptance: HCWS who says no to get vaccinated.

4.9 Study variables

4.9.1 Dependent Variables

- Knowledge(Good Knowledge, Poor knowledge)
- Attitude(favorable Attitude, un favorable Attitude)
- Acceptance (good acceptance , poor acceptance)

4.9.2 Independent variables

- Socio demographic characteristics; gender, age, marital status, occupation, previous history of COVID 19, chronic illness status.

4.10 Data collection procedure and data collection tool

We adopt the questionnaires from fonder university to assess knowledge, attitude and acceptability of covid 19 vaccine.

The data collection was carried out by all members of the group. This data collection process was taken one week's duration and the data was collected in their healthcare workers working area. First, the data collectors was greet with the respondents, introduce them self and they was asked the respondents to answer questions from the questionnaire. The questionnaires was self-administered questionnaires filled by HCWs by circling the best alternatives out of the given alternatives and the questionnaires were take maximum of 10 minutes to complete. Our data collection technique was self aadminstered.

4.11 Data Analysis procedure

After we collect the data and check for completeness, then the questionnaires were coded so that all the variables in the questionnaire were followed by coding. Checked data was entered and was analyzed by using SPSS version-20 statistical software package. Descriptive statistics such as percent, frequency and median were conducted and the results are presented by using tables, text and charts.

4.12 Data quality assurance

The data collectors were trained before data collection and there was daily meeting during data collection. About 5% sample size pretest will be carried out at non selected health institution before the formal use of the questionnaire to ensure that the statement of each question was clear and understandable. Data was cleaned on daily basis. The questionnaire was checked for its completeness to assure the quality of data.

4.13 Ethical consideration

The study was approved by institutional review board of health sciences. An official letter of co-operation was having written to concerned body from wolkite university public health department. A letter from the research ethics committee will be submit to the wolkite town health office and to health institution found in the town to get permission for conducting the study in health facility. Respondents was got the information about the objective and purpose of the study and verbal consent was obtained from respondents before administrating and also confidentiality will be maintained throughout the study.

4.14 Result dissemination plan

The final finding of this study will be directly reported to wolkite University College of Health Science department of public health, wolkite teaching and referral hospital, wolkite health center.

5 RESULT

5.1 Socio demographic characteristics

A total of 231 health care workers were interviewed with a response rate of 95.5%. The majority of HCWS age ranges between 25-29 which accounts 109(47.2%).

In our study from 231 health care workers most of them are male 130(56.3%),the number of nurse professionals which is greater 66(28.6%) in comparison to other HCW and also majority of them their income level ranges from 4500-7500 which covers 52%,and also majority of the educated up to degree 186(80.5%),and also from the study participants 19(3.2%)have chronic illness like diabetes mellitus and hypertension,64(27.7%) are infected with covid 19.

Table-1: Socio-demographic characteristics of the study subjects, at wolkite university specialized hospital, wolkite and Edget ber health center ,wolkite town, SNNP Ethiopia, 2022 (n=231).

Variable		frequency	Percent
Age	20-24	17	7.3%
	25-29	109	47.2%
	30-34	48	20.7%
	>35	57	24.8%
	Total	231	100%
Marital status	Married	134	58
	Single	97	42
	Total	231	100%
gender	Male	130	56.3%
	Female	101	43.7%
	Total	231	100%

Relligion	Orthodox	150	64.9%
	Muslim	56	24.2%
	Protestant	12	5.2%
	Other	13	5.6%
	Total	231	100%
Educational status	Diploma	28	12.1%
	Degree	186	80.5%
	Master	6	2.6%
	Specialist	4	1.7%
	Other	7	3%
	Total	231	100%

Type of profession	Medical doctor	40	17.3%
	Health officer	35	15.2%
	Anesthesia	2	0.9%
	Nurse	66	28.6%
	Midwifery	43	18.6%
	Medical lab	25	10,8%
	Optometry	5	2.2%
	Pharmacist	15	6.5%
	Total	231	100%
Ethnicity	Amhara	74	32%

	Guragae	121	52.4%
	Oromo	25	10.8%
	Gambela	3	1,3%
	Other	2	0.9%
	Total	231	100%
Do you have children in the house	Yes	92	39.8%
	No	139	60.2%
	Total	231	100%
Average monthly income	4500-7500	121	52%
	7550-8900	47	18.5%
	>8900	63	29.5%
	Total	231	100%
Working experiance	1-5	177	76.6%
	5-10	49	21.3%
	>10	5	2.1%
	Total	231	100%
Ever infected with covid 19	Yes	64	27.7%
	No	167	72.3%
	Total	231	100%

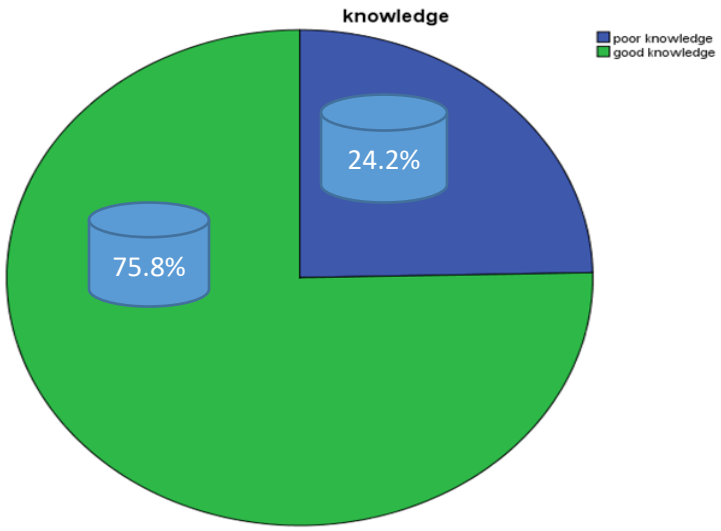
Do you have any chronic illness (copd,cardiac arrest,htn,etC)	Yes	19	8.2%
	No	212	91.8%
	Total	231	100%

5.2 Knowledge of health care workers about COVID 19 vaccination

The level of good knowledge towards COVID 19 vaccination among health care workers were 75.8% (n=175).

Table 2 knowledge of health care workers about COVID 19 vaccination at wolkite university specialized hospital, wolkite and Edget ber health center ,wolkite town, SNNP Ethiopia, 2022 (n=231).

Knowledge outcome	Frequency	Percent
Good knowledge	175	75.8
Poor knowledge	56	24.2
Total	231	100.0



Pie.1 knowledge of health care workers about COVID 19 vaccination

The average mean score for knowledge is 6.844 with standard deviations of 1.195.

5.3 Attitude of health care workers about COVID 19 vaccination

The level of favorable attitude towards COVID 19 vaccination among health care workers were 59.3% (n=137).

Table 3 attitude of health care workers about COVID 19 vaccination at wolkite university specialized hospital, wolkite and Edget ber health center ,wolkite town, SNNP Ethiopia, 2022 (n=231).

Attitude outcome	Frequency	Percent
Unfavorable attitude	94	40.7%
Favorable attitude	137	59.3%
Total	231	100%

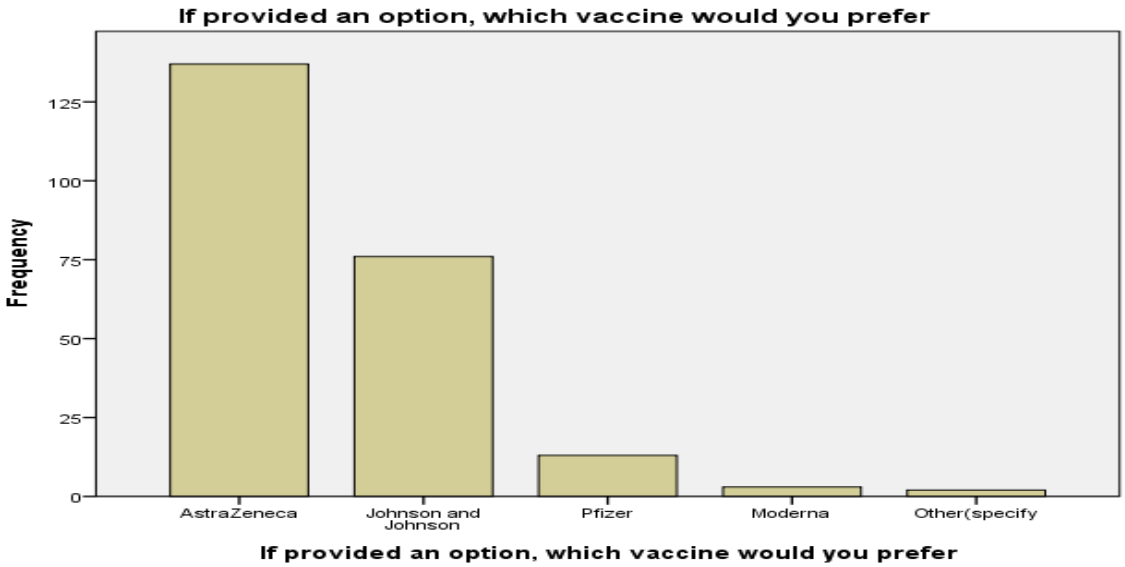
The average mean score for attitude is 49.55 with standard deviations of 7.045.

5.4 Acceptance of COVID 19 vaccination among health care workers

From the total study participants, those accepted COVID 19 vaccination without hesitate were 64.9% (n=150).

Table 4 acceptance of COVID 19 vaccination among health care workers at wolkite university specialized hospital, wolkite and Edget ber health center ,wolkite town, SNNP Ethiopia, 2022 (n=231).

Acceptance sum	Frequency	Percent %
Poor acceptance	81	35.1
Good acceptance	150	64.9
Total	231	100.0



Bar 1: shows the preferable option of covid-19 vaccine.

6 DISSCCUSION

COVID-19 is a relatively new virus that has had devastating effects within the short time since it was first detected in December 2019. To date, there has been limited published data on health workers knowledge, attitudes and vaccine acceptability towards COVID-19, specifically in Ethiopia. The novelty of this disease, along with its uncertainties, makes it critical for health authorities to plan appropriate strategies to prepare and manage it.

It is therefore of at most importance that the knowledge, attitudes and acceptability of the health care workers studied to guide these efforts. This study was interested in ascertaining the knowledge, attitude and acceptability of Vaccine in health workers in gurage zone at wolkite town towards COVID-19 vaccination among health care workers.

6.1 Knowledge of health care workers about COVID 19 vaccination

In our study the level of good knowledge towards COVID 19 vaccination among health care workers was 75.8%.This finding was lower than the study in Saudi Arabia (88%)(12).this is due to lower sample size and it is higher than and Dubai(57.4%)(4), Uganda(69%)(13) and also

which is lower than the study conducted in tikur anibesa specialized hospital the percent of good knowledge was 81.11% this variation is might be due to some differences in the questionnaire, setup, source of information, and training.

An institution-based cross-sectional study was employed among 404 HCWs in Dessie City, north eastern Ethiopia in May, 2021.in this study 62.5% of respondents have good knowledge(15).but in our study the level of good knowledge was 75.8%.

6.2 Attitude of health care workers about COVID 19 vaccination

In our study the level of favorable attitude towards COVID 19 vaccination among health care workers was59.3% .However lower than the study done Saudi Arabia (88%) (12). this difference inconsistency may be due to the difference in socio-demographic characteristics among the population. This finding was higher than the study done in Uganda (21%)(13).

Our result of study that we found is 59.3% which is lower than the study which is conducted in tikur anbesa specialized hospital in percent 68% this difference might be due to the study setting we conduct our study on health centers and referral hospital but the tikur anbesa study conducted on referral specialized teaching hospital(14).the study conducted on 404 HCW in dessie town was 60.5% but in our study the level good attitude was 59.3% which is almost similar this small difference may be due to sample size.

6.3 Acceptance of COVID 19 vaccination among health care workers

In our study from the total study participants, those accepted COVID 19 vaccination without hesitate 64.9%. Only about 71.4% % reported that they would encourage their friends or families to get vaccinated. This finding was higher than Saudi Arabia(50%), Congo(28%)(3), but lower than study done in USA(92%) and France(76.9%) (4). A study which conducted in Mozambique shows that of all the study participants, 1340 (71.4%) would agree to take the SARS-CoV-2 vaccine but in our study 64.9% HCW they take the vaccine without hesitation but the difference may be due to the sample size. werabe specialized hospital 72.2%(8) this is may be due to lower sample size and also the time of the availability of vaccine.. and also From 231 respondents 123(55.2%) take both first and second round vaccine but 99(44.4%) only take the first round due to ,they believe the first round is enough to prevent the diseases, due the side effect of the diseases and some them state that second round is not available ,75(63%),24(10.4%),9(7.6%) respectively. And also in our study most of health professional preferably takes Astra zenica

,jonson,pifizer and moderna which is 59.3%,32.%,5.6%,1.3% respectively. HCWS who are now not vaccinated they said they do not accept the vaccination when it is available most of them claim that I belive that I have adequate natural immunity 60(26%).

6.4 Limitation

This study was an institutional-based study; thus it may not explain the level of knowledge, Attitude and vaccine acceptability at the community level. On the other hand only individual level that may be associated with knowledge, Attitude and vaccine Acceptability to practice toward COVID 19 were identified, there were limited numbers of variables to assess knowledge compared to Attitude.

6.5 Strength

Despite these limitations our study had some prominent strength. The present study was at the time when coronavirus infection disease was at its peak in Ethiopia; so it can be used as baseline data for those who are working on the problem. Moreover, the gap between knowledge, attitude and Acceptability of vaccine to practice of COVID-19 among health workers were identified so it gives a direction to follow during health intervention.

7 CONCLUSION AND RECOMMENDATION

7.1 Conclusion

Our study demonstrated the knowledge, attitudes, and vaccine acceptability pertaining to the COVID-19 pandemic and COVID-19 vaccine-related knowledge, attitudes, and acceptance in the health care worker's during the on-going pandemic. The current study was able to provide a thorough review of Health professionals understanding, attitudes, and acceptability regarding COVID-19. According to the results, more than half of participants have good degree of knowledge and most of them have favorable attitude about COVID-19 and high acceptance of COVID 19 vaccination.

7.2 Recommendation

Therefore, an increased effort must be made to improve the knowledge and of regarding COVID-19 vaccination. This could be achieved through educational campaigns that target the health care workers and the wider population.

Guragae zone health bureau better to give information and encouraging health workers about the vaccine to prevent vaccine hesitancy.

Wolkite University specialized hospital that should have to support the health centers found around it in terms of preparing seminars on covid-19 vaccination to increase knowledge, attitude, and acceptability.

Trust in the vaccine is vital and is critically dependent on the ability of governments to communicate the benefit of vaccination and to deliver the vaccine safely and effectively.

8 REFERENCES

1. Yu Y, Lau JTF, She R, Chen X, Li L, Li L, et al. Prevalence and associated factors of intention of COVID-19 vaccination among healthcare workers in China : application of the Health Belief Model Prevalence and associated factors of intention of COVID-19 vaccination among. Hum Vaccin Immunother [Internet]. 2021;17(9):2894–902. Available from: https://doi.org/10.1080/21645515.2021.1909327

2. SAGE. Factors influencing COVID-19 vaccine uptake among minority ethnic groups Executive summary. Sage 73 [Internet]. 2020;1–15. Available from: https://www.healthdirect.gov.au/immunisation-for-babies

3. Sallam M. Covid-19 vaccine hesitancy worldwide: A concise systematic review of vaccine acceptance rates. Vaccines. 2021;9(2):1–15.

4. Kaadan MI, Abdulkarim J, Chaar M, Zayegh O, Keblawi MA. Determinants of COVID-19 vaccine acceptance in the Arab world: a cross-sectional study. Glob Heal Res Policy. 2021;6(1).

5. Kaplan AK, Guvenc IA, Sahin MK, Parildar H. The willingness to accept the COVID- - 19 vaccine and affecting factors among healthcare professionals : A cross- - sectional study in Turkey. 2021;(March):1–10.

6. Elhadi M, Alsoufi A, Alhadi A, Hmeida A, Alshareea E, Dokali M, et al. Knowledge , attitude , and acceptance of healthcare workers and the public regarding the COVID-19 vaccine : a cross-sectional study. 2021;1–21.

7. Shakeel CS, Mujeeb AA, Mirza MS, Chaudhry B. Global COVID-19 Vaccine Acceptance : A Systematic Review of Associated Social and Behavioral Factors. 2022;

8. Bereket A G, Georgiana G, Mensur O, Rebecca R, Zinabu D, Aliyu B, et al. Healthcare workers attitude towards SARS-COVID-2 Vaccine, Ethiopia. Glob J Infect Dis Clin Res. 2021;7:043–8.

9. Dong C, Liang Q, Ji T, Gu J, Feng J, Shuai M, et al. Determinants of vaccine acceptance against COVID-19 in China: Perspectives on knowledge and DrVac-COVID19s scale. Int J Environ Res Public Health. 2021;18(21):1–13.

10. Wen Lau JF, Woon YL, Leong CT, Teh HS. Factors influencing acceptance of the COVID-19 vaccine in Malaysia: a web-based survey. Osong Public Heal Res Perspect. 2021;12(6):361–73.

11. Akiful Haque MM, Rahman ML, Hossian M, Matin KF, Nabi MH, Saha S, et al. Acceptance of COVID-19 vaccine and its determinants: evidence from a large sample study in Bangladesh. Heliyon. 2021;7(6).

12. Barry M, Temsah M, Aljamaan F, Saddik B, Al-eyadhy A, Alenezi S, et al. COVID-19 vaccine uptake among healthcare workers in the fourth country to authorize BNT162b2 during the first month of rollout. Vaccine [Internet]. 2021;(xxxx). Available from: https://doi.org/10.1016/j.vaccine.2021.08.083

13. Otiti-sengeri J, Andrew OB, Lusobya RC, Atukunda I, Nalukenge C, Kalinaki A, et al. High COVID-19 Vaccine Acceptance among Eye Healthcare Workers in Uganda. 2022;

14. Ababa A. ADDIS ABABA UNIVERSITY , COLLEGE OF HEALTH SCIENCES , TIKUR ANBESA SPECIALIZED HOSPITAL SPECIALIZED HOSPITAL Knowledge , Attitude and Practice Regarding COVID-19 Transmission among Health Care Workers at TASH Operating Theater. 2020;(September).

15. Adane M, Ademas A, Kloos H. Knowledge, attitudes, and perceptions of COVID-19 vaccine and refusal to receive COVID-19 vaccine among healthcare workers in northeastern Ethiopia. BMC Public Health [Internet]. 2022;22(1):1–14. Available from: https://doi.org/10.1186/s12889-021-12362-8

16. Jong TR De, Tulloch O. COVID-19 VACCINE PERCEPTIONS IN AFRICA : SOCIAL AND BEHAVIOURAL SCIENCE DATA ,. 2021;(March):1–35.

17. MacDonald NE, Comeau J, Dubé È, Graham J, Greenwood M, Harmon S, et al. Enhancing COVID-19 Vaccine Acceptance in Canada: An RSC policy briefing. 2021;(April).

18. Zakar R, Momina AU, Shahzad S, Hayee M, Shahzad R, Zakar MZ. COVID-19 Vaccination Hesitancy or Acceptance and Its Associated Factors: Findings from Post-Vaccination Cross-Sectional Survey from Punjab Pakistan. Int J Environ Res Public Health. 2022;19(3).

19. Adejumo OA, Ogundele OA, Madubuko CR, Oluwafemi RO, Okoye OC, Okonkwo KC, et al. Perceptions of the COVID-19 vaccine and willingness to receive vaccination among health

workers in Nigeria. Osong Public Heal Res Perspect. 2021;12(4):236–43.

20. Moucheraud C, Phiri K, Whitehead HS, Songo J, Lungu E, Chikuse E, et al. Uptake of the COVID-19 vaccine among healthcare workers in Malawi. Int Health. 2022;1–8.

21. Mudenda S. COVID-19 Vaccine Acceptability and Hesitancy in Africa: Implications for Addressing Vaccine Hesitancy. J Biomed Res Environ Sci. 2021;2(10):999–1004.

22. Dula J, Mulhanga A, Nhanombe A, Cumbi L, Júnior A, Gwatsvaira J, et al. Covid-19 vaccine acceptability and its determinants in mozambique: An online survey. Vaccines. 2021;9(8):1–10.

23. Mekonnen BD, Mengistu BA. COVID-19 vaccine acceptance and its associated factors in Ethiopia: A systematic review and meta-analysis. Clin Epidemiol Glob Heal [Internet]. 2022;14(February):101001. Available from: https://doi.org/10.1016/j.cegh.2022.101001

24. Qadah T. Knowledge and attitude among healthcare workers towards COVID-19 : a cross sectional study from Jeddah city , Saudi Arabia. 2020;

9 Annexes

9.1 Annex I: Consent form

WOLKITE University College of Medicine and Health Sciences, department of public health

Greetings, good morning/ afternoon! My name is _____. I am a team member involved in the study conducted by Wolkite college of medicine and health science, department of public health students on magnitude of COVID 19 vaccine acceptance and associated factors among healthcare workers in wolkite university specialized hospital, wolkite and edget ber health center wolkite, Ethiopia, 2022. You are selected randomly to participate in this study. Your participation is purely based on your willingness. With your permission I will proceed to ask you different questions starting from your background information to specific questions regarding knowledge ,attitude, acceptability You have the right to choose not to take part in this study. If you choose to take part, you have the right to stop at any time. The questionnaire will take about 10 minutes. The information that you provide will only be used for research purposes and will be kept confidential by using only code numbers and locking the data.

Based on the understanding of the information I gave you, are you willing to participate in this study?

1) Yes ☐ 2. No ☐

9.2 **Annex II: English version of the questionnaires**

Part 1: Socio demographic information of respondents

Cod	Questions	Answer (in circle it)	Ski
101	Age	˜ _____ in yrs	
102	Gender	1. Male 2. female	
103	Marital status	1.Married/living with partner 2.Unmarried 3.Separated 4. Divorced 5.Widowed	
104	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Others……	

105	Ethnicity	1. Amhara 2. Tigray 3. Oromo 4. Guragie 5. Gambella 6. Other(specify)……	
106	Type of professi on	1. Medical doctor 2. HO 3. Ansthetesia 4. Nurse 5. Midwifery 6. Medical lab 7. Optometry 8. pharmacist 9. others(specify)…….	
107	Do you have children in your house	1. Yes 2. No	

108	Average monthly income	_____ In ETB	
109	What is your highest educational status	1. Diploma 2. Degree 3. Master 4. specialist 5. PHD 6. Subspecialist 7. Others(specify)……	
110	Working experience?	_____ In yrs	
111	ever infected with COVID 19?	1.Yes 2.No	

112	Do you have any chronic illness (COPD, cardiac arrest, hypertension ,etc)?	1.Yes 2.No	

Part2: Attitude of healthcare workers regarding COVID 19 vaccine acceptance

code	Attitude questions	Strongly disagr	Disagree	Neutral	Agree	Strongly

201	I do not believe COVID 19 vaccine are safe	1	2	3	4	5
202	I do not get vaccinated for religious reason	1	2	3	4	5
203	I am worried about side effect of COVID 19 vaccine	1	2	3	4	5
204	I am worried about the effectiveness of COVID 19 vaccine	1	2	3	4	5
205	I do not trust pharmaceutical companies making COVID 19 vaccine	1	2	3	4	5
206	Unreliable, due to short time for development	1	2	3	4	5
207	I do not trust information provided by government about COVID 19 severity	1	2	3	4	5
208	I will not be taking COVID 19 vaccine until it become compulsory by the law	1	2	3	4	5
209	COVID 19 is not such a serious disease that it does not require a vaccine	1	2	3	4	5
210	It is better to be infected by COVID 19 than taking the vaccine	1	2	3	4	5
211	Receiving an authorized vaccine will be safe and trusty	1	2	3	4	5
212	I believe that I can easily withstand the illness if infected by the disease	1	2	3	4	5
213	I believe that other non-vaccine preventive mechanisms are sufficient	1	2	3	4	5

214	May you encourage your family/friend/relative/patients to take COVID 19 vaccine	1	2	3	4	5
215	A vaccine is important to end the COVID-19 pandemic.					
216	COVID 19 vaccine is essential for us	1	2	3	4	5
217	It is not possible to reduce the incidence of COVID 19 without vaccine	1	2	3	4	5

Part3; knowledge related questions

code	Question	Response (circle it)	

301	COVID 19 can be prevented by vaccine	1. Yes 2. No	
302	AstraZeneca is the most common vaccine used in Ethiopia	**1.** Yes **2.** No	
303	The vaccine is given two times within 28 days apart	1 yes 2. No	
304	The vaccine is provided for free in Ethiopia	1. Yes 2. No	
305	The provision of the vaccine is based on voluntary not obligatory	1. Yes 2. No	
306	Healthcare professional, chronic patients and elderly persons are prioritized group for vaccine	1. Yes 2. No	
307	Do you know about the effectiveness of COVID 19 vaccine	1. Yes 2. No	
308	There vaccine effective with single dose	1. Yes 2. No	

309	The newly discovered vaccine differs from other vaccine	1. Yes 2. No	

Part4; vaccine acceptance related questions

code	Questions	Response (circle it)	
401	Have you taken COVID 19 vaccine previously	1. Yes 2. No	If no go to 404
402	If you have taken only the first round, will you take the second round COVID 19 vaccines	1. Yes 2. No	
403	If no for question number 402, what is your reason not to receive second round	1.I believe that first round is enough to prevent the pandemic 2.Due to the side effect of the vaccine 3.Second round is not available 4.Other(specify)……	
404	If not vaccinated, would you accept to receive COVID 19 vaccine	1. Yes	

	when you are approved and available eligible for the vaccine	2. No 3. Not sure	
405	If not yes for question 404, what is your reason not to receive COVID 19 vaccine	1.I am concerned about the safety and/ side effect 2.I believe that I have adequate natural immunity 3.I am concerned b/c I do not think the vaccine will be effective 4.reasons related to beliefs or religion 5. I believe that I am not exposed to the disease 6. I believe that I can withstand the illness if infected by the disease 7. I do not think I will need the vaccine due to the previous infection, health status or age 8. I believe that other non vaccine preventive mechanisms are sufficient 9.I don't trust vaccines 10. other(specify)……..	

405	If provided an option, which vaccine would you prefer	1.AstraZeneca 2.Johnson and Johnson 3.Pfizer 4.Moderna 5.Other(specify)_____	
406	At what effectiveness do you accept vaccine that you prefer	**1.** 95% **2.** 90% **3.** 80% **4.** 75% **5.** Other(specify)……	

Thank you so much for your time!!! Do you have any additional comment regarding COVID-19 vaccination which you would like to share? Please mention below. ----------

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