

**WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND
HEALTH SCIENCE DEPARTMENT OF NURSING**



**ASSESSMENT OF ANTI TB DRUG NON ADHERENCE AND
ASSOCIATED FACTOR AMONG TB PATIENT ATTENDING TB
CLINIC IN GURAGE ZONE GOVERNMENTAL HOSPITAL
ETHIOPIA**

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A RESEARCH THESIS SUBMITTED TO DEPARTMENT OF
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**ASSESSMENT OF ANTTB DRUG NON-ADHERENCE
AND ITS ASSOCIATED FACTOR AMONG TB PATIENT
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ETHIOPIA, 2022.**

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Abstract

Background: Tuberculosis is an infectious diseases caused by bacillus mycobacterium tuberculosis. It typically affect the lung (pulmonary TB). But can also affect other site (extra pulmonary TB).The best estimate is that where 1.4 million tuberculosis death in 2017 and it was one the top 10 case of death Worldwide. According to recent estimate Ethiopia stands 7th in list of high TB burden countries. Non-adherence to ant-TB treatment may result in the emergency of multi-drug resistance (MDR) TB, prolonged infectious and poor tuberculosis treatment outcome.

Objective: The objective of this study was to assess anti-TB drug non- adherence and it is associated factor among TB patient in Gurage Zone Governmental Hospital.

Methods: Institutional based cross sectional study design was conducted to March 08 to March 25, 2022. was employed to select the study subjects. A total 281 TB patient were participated in the study. Data were conducted using semi-structured questionnaire with morisky medication adherence scale (MMAS). Data were entered and cleaned using statistical package for social science SPSS multiple logistic regression were fitted to identify all action and control potential confounding variable. Adjusted odd ratio with 95% confidence interval was calculated and P value < 0.05 where considered statistically significant.

Results: A total 281 Tuberculosis patients were interviewed with response rate of 97.6% were male 144(44.4%) and 129(39.8) were Gurage by Ethnicity. The overall no-adherence was 33(11.8). Non-adherence was prolonged waiting time of get medical science (AOR =1.904, 1.768-4.721) taking beside TB medication (AOR =2.592, 1.189-5.648); inform family and you your friends on TB treatment (AOR = 0.919, 1.316-2.673) and HIV status (4.355, 1.606-11.811).

Conclusion:

The of non adherence TB patient was good 33(11.8%) prolonged waiting time of get medical service co-morbidity, disclosure and HIV status was associated to medication non adherence.

The proportion of TB patient who non-adhered was made to organize and implement community based information education and communication on anti-TB drug adhere and its associated factors at all level.

Key Words: Medication non- Adherence Gurage Zone Wolkite

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List of abbreviation and acronyms

AOR = Adjusted Odd Ratio

COR = Cured Odds Ratio

DOTS = Directly Observed Treatment

ETB = Ethiopian Birr

HIV = Human Immune Virus

MDR TB = multiple drug resistance tuberculosis

MMAS = Morisky Medication Adherence Scale

SPSS =Statistical Package of Social Science

TB = Tuberculosis

WHO = World Health Organization

XDR TB = Extensive Drug Resistance Tuberculosis

CHAPTER ONE

1. INTRODUCTION

1.1 Back Ground

Tuberculosis is an infectious diseases caused by bacillus mycobacterium tuberculosis. It typically affect the lung (pulmonary TB). But can also affect other site (extra pulmonary TB) (1).

In medicine, compliance (also adherence,) describes the degree to which a patient correctly follows medical advice. Most commonly, it refers to medication or drug compliance, but it can also apply to other situations such as medical device use, self-care, self-directed exercises, or therapy sessions. Both the patient and the health-care provider affect compliance, and a positive physician-patient relationship is the most important factor in improving compliance, (1) although the high cost of prescription medication also plays a major role (2,3) Medication non-adherence is does not take irregular dosing and discontinuation of the medication (4,5). In Ethiopia, the proportion of non-adherence was ranged from 21.8-25.4% [6,7]

The WHO in it is global plan to stop TB report that poor treatment has resulted in evolution of mycobacterium TB strains that do not respond to treatment with standard first line combination of anti-TB medicines, resulting in the emergency of multi –drug resistance TB in almost every country of the World [6].

Poor adherence to treatment of chronic disease including TB is a World-wide problem of striking magnitude [8].However patient with TB are expected to have adherence level greater than 90% in order to facilitate cure. Failure for cure increase the risk of development of drug resistant strains, spread of TB in the community and this is turn increase morbidity and mortality [9,10]. health problem approximately one third of the World population is infected by tubercle bacilli and risk of developing active disease[2]. In 2019 globally

there where an estimated 10.4 million new case of tuberculosis and 600,000 new case with resistance to Rifampicin the (most best 1st line drug)[3].

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In Ethiopia different studies have been conducted to determine the prevalence and the determinants of non-adherence to TB medication [9-13]. Those studies reported that the prevalence of non-adherence among TB patients ranging from 8.4% to 55.8%. This is higher than the WHO recommendation of less than 10% [14,15]. Variable and inconsistent prevalence and determinants of non-adherence were observed in the studies. In developing countries particularly there are many factors affecting adherence to TB treatment as evidenced from a variety of literature.

1.2 Statement of the problem

Tuberculosis (TB) is an infectious disease that is one of the major causes of death, being in the top ten causes of death worldwide and the leading cause of death from infectious disease, ranking above HIV/AIDS in 2018. Globally, one-fourth of the population is either infected with TB or at risk of developing the disease, with an estimated 10 million people infected with TB worldwide in 2018 [1]. Ethiopia has achieved a 50% reduction of TB through the Millennium Development Goals (MDGs) [2]. However, Ethiopia remains one of 14 high-burden TB countries for TB, TB-HIV, and Multi-drug-resistant tuberculosis (MDR-TB). An estimated 165,000 cases of TB incidence were reported for Ethiopia in 2018 [1].

Despite implementation of internationally recommended strategy (DOTS) in almost all parts of who regions and many national and international efforts exerted against TB prevention and control Still the patient are falling to complete their treatment to declare cure or complete the treatment [12-14]. Current who report shows considerable TB cause are failed after several treatment. Many are interviewed to re treatment after completion of treatment and many cause are developing MDR TB among re treatment cause (20%) throughout the World [15]. For this most probability treatment non-adherence and lost to follow up are the main probability treatment non-adherence and lost to follow up are the responsible [16].

here to anti-TB treatment may result in the emergency of multi-drug resistance TB (MDR-TB) prolonged infectious and poor TB treatment out come. [17,18].Adherence to TB treatment is crucial to achieve cure and avoid emergency of drug resistance [10]. In sub Saharan African there is high rate of losses follow up of TB patients that ranged from 11.3% to 29.6% [19]. Ethiopia is one of the seven countries that reported lower rate of treatment success (84%) [4].

Various studies have been done to identify factors may influencing non-adhere in other setting, factor may differ depending unique population setting and characteristics. It is unclear which factors locally are associated to tuberculosis

patients non-adherence in Gurage Zone Ethiopia. If no efforts are put to determine the factor influencing non-adherence. It will be difficult to have regular supervision and support of TB patients in developing countries like Ethiopia. Hence this study will assess the level of non-adherence to anti-TB therapy and associated factors among TB patients in Gurage Zone Ethiopia.

In Ethiopia different studies have been conducted to determine the prevalence and the determinants of non-adherence to TB medication [9-13]. Those studies reported that the prevalence of non-adherence among TB patients ranging from 8.4% to 55.8%. This is higher than the WHO recommendation of less than 10% [14,15]. Variable and inconsistent prevalence and determinants of non-adherence when observed in the studies. In developing countries particularly there are many factors affecting adherence to TB treatment as evidenced from variety of literature

1.3 Significance of the study

The result of this study was identified the prevalence and major problem that affect TB patient's adherence of ant-TB drug. Finding of this study also give on insight to health professional about major factor affecting patient drug adherence to their anti-TB drug treatment schedule. Once the factor are identifying then target strategies to addresses them can be formulated. The finding may also be used to formulate strategies to improve quality of care for TB patient and it was give some recommendation for local administers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Prevalence of Non-adherence to anti-TB drug

The study conducted in metropolitan areas Buenos Aires Argentina suggested that out of 193 patient severity eight (40%) did not adhere to TB treatment and 123 (64%) patient where surveyed 38 non adherents, 40 non-adherent patient 51% could not be reaching due to death[20].

In study came out in Faisalabad and Riphah International University of Pakistan from 80 participants. 40% of under study subject showed no- adhere with therapy. Highest Percentage of non- adherent case has noted in the first month of therapy and 94% non-adherent case where appeared in first three month of therapy [21].

As study conduct in Ndola Zambia revealed that most TB patient respondents to be order and more educated than the female TB patient respondents over all 29.8% of the patients stopped taking their medication. There where 39.1% of the female and 33.9% of the male who reported that TB patients stopped taking their medication with in the first 2 month of commencing treatment [22]

.In the study carried out Mbarara Hospital Uganda the prevalence of non-adherence to anti-TB was 25%. In addition 15% of those not adhering to treatment (42.9%) had adherent level of 0% having not taken any drug in the five days prior to the interview [23].

In study carried out North West Ethiopia in 2018 total 314 participant where include with the response rate of 97.5% the main age of participant was 35.94(SD±13.83) years. The overall rate of non-adherence to anti- TB treatment was 21.2% (95% CI 17.2, 17.48), poor knowledge about TB and anti-TB therapy.

2.2 Factors associated with anti- TB drug non-adherence socio demographic factors

South West Ethiopia studies shows that socio demographic factors like age, sex, residence religion has some studies was shows is no significant association between anti-TB drug adherence [26-28]. However other studies have shown an association between socio demographic factor and ant-TB medication non-adherence [20,29,30]. Study carried out in South West Ethiopia also indicated educational status was associated anti-TB medication adherence[25].

Patient related factor

Knowledge shortage about TB treatment; feeling better after few week of treatment, lack of food; lack of social and family support; tobacco smoking and alcohol consumption where associated with TB treatment non-adherence [31-34]. In other studies conduct in Kavango, Lahore, Pakistan the major case of non-adherence to ward DOTS with less awareness 34.38 [21]. In other studies cared out in Ndola, Zambia and Andara Kavango Namibia the common reason given for stopping anti-TB treatment where when patient beginning to feel better[11,12]. In study carried out in south west Ethiopia for getting to take medication (17.4) was the one reason for missed doses[25]. One study conducted in Addis Ababa also found that being on Anti-retro Viral Therapy (ART) was factor for non-adherence to TB medication.

This study is was be conduct with the aim of to prevent TB burden in our country by effective assessment and to manage TB medication properly.

Health System Factors

Poor healthcare provider–patient relationship with communication gaps was a major factor that influenced non-adherence to TB medication [14,31,]. For example, one study conducted in Addis Ababa among loss-to-follow-up patients reported that the healthcare providers were seen as disrespectful of their patients and less committed to their profession [32]. The quality of healthcare service and a patient's satisfaction with healthcare service affect non-adherence to TB medication [16,30,]. When

patients perceived that they received less professional care and less time spent with the healthcare providers, and waited a long time to get healthcare service, they were more likely to be non-adherent [16,32,]. Health information/education is also crucial for adherence: a few studies showed that the patients who did not receive health information/education from health facilities were more likely to be non-adherent[15,18,22]. Additionally, one study done in Addis Ababa found that cues to action were reported as a factor for non-adherence [28]. Lack of supervision and healthcare providers incapable of managing the patient's illness were also reported as influencing factors for interruption and default from TB treatment [35].

Therapy Factors

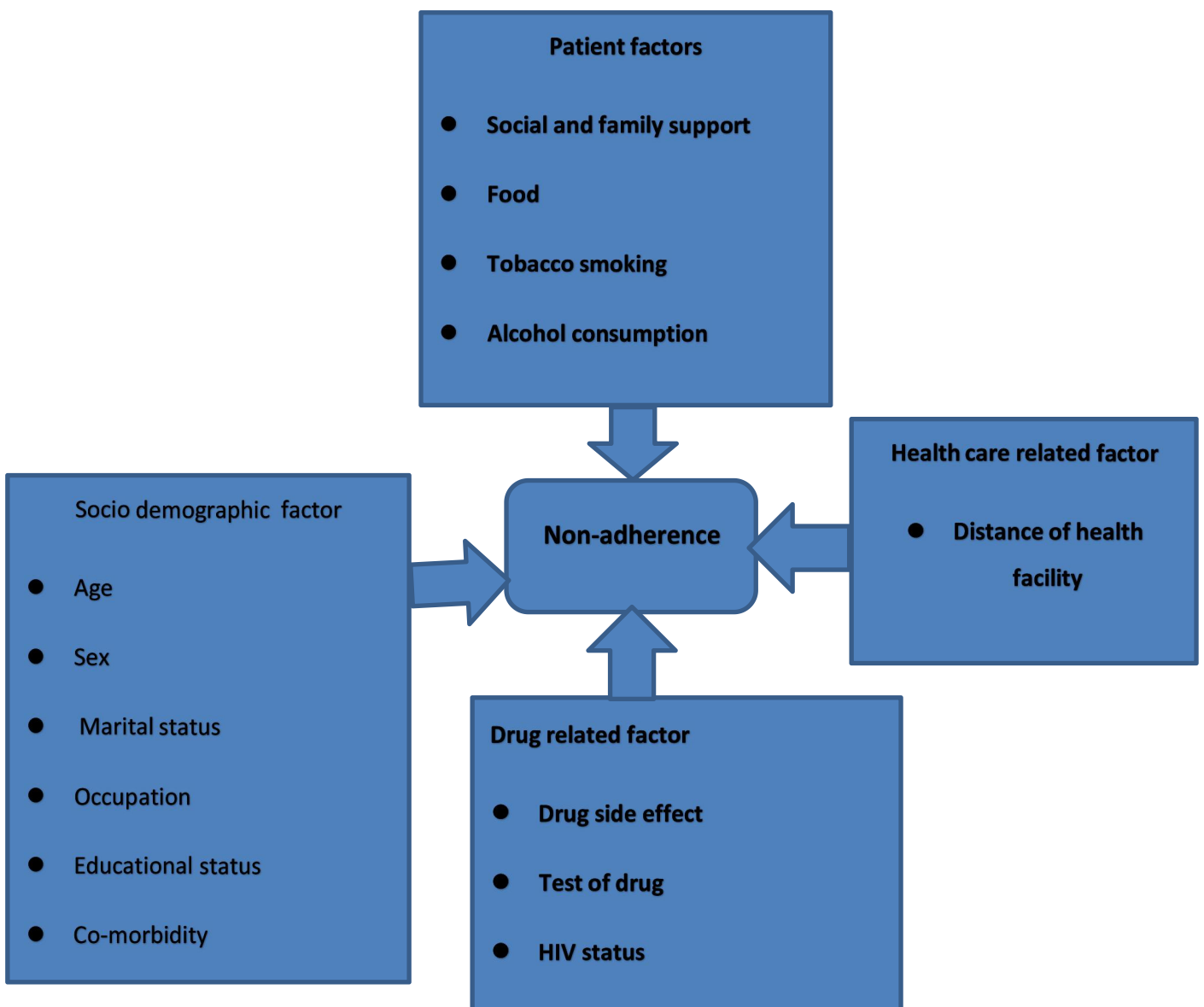
Studies in North East Ethiopia in Alamata District reported that drug side effect where the major therapy related reason for no- adherence to TB medication[15,16]. Pill burden was also reported as factor for non-adherence to TB medication among active TB and TB HIV co infected patient [31,35]. The presence of more than one co-morbidity including TB HIV co-infection was also reported as a factor for no-adherence to TB medication[14,16]. One study conducted in Addis Ababa also found that being on anti-retroviral therapy was a factor for non-adherence to TB medication[29].

2.3 Non conceptual frame work of the study

This conceptual frame work is developed from different literature based on Mosely and Chen conceptual frame work. That was proposed in 2016 for the study of **determinants of Adult Survival in developing countries**. Incorporating both social and biological variables and designed to integrate research methods from demography and epidemiology. The frame work has was improve and use in range of cross-sectional studies of Adult Survival in developing countries.

[25]: Source

Figure 1. Conceptual frame work on anti-TB non-adherence and it is associated factor developed based on literature review.



CHAPTER THREE

OBJECTIVE THE RESEARCH

3.1 General objective

To assess anti-TB drug non-adherence and its associated factors among TB patients attending TB clinics in Gurage Zone Governmental Hospitals, south west Ethiopia, 2022.

3.2 Specific objectives

1. To determine the prevalence of anti-TB drug non-adherence among patients attending Gurage Zone Governmental Hospitals.
2. To identify factors associated with anti-TB drug non-adherence in TB patients attending Gurage Zone Governmental Hospitals.

CHAPTER FOUR

METHODS AND MATERIALS

4.1 The Study Area And Period

The study was conducted in Gurage Zone Southern Ethiopia. The capital city of Gurage Zone Wolkite town is located at 184.6 km from Addis Ababa and 178 km from Hawassa capital city of Southern Ethiopia which is located between 7°76 and 8° 45. North Latitude and 37°40 and 35°71. East Longitude. The Zone is divided into districts and two town administrations (at Butajara and Wolkite).

Gurage Zone is home for the Gurage people. Gurage is bordered on the South East by Hadiya and Yem Special Woreda on West North and East by Oromia Region and on South East by Siltye.

Wolkite is the administrative centre of the region. Butajara is the largest city in this zone and the former administrative centre.

According to 2013 CSA Projection report the total population of Gurage Zone was estimated to reach 1,523,229 in 2014.

The zone has General Hospital and Primary Hospital. The hospital and health centre including TB treatment program for the community. The study was conducted from March 8 – March 25, 2022.

4.2 Study Design

Institutional based cross sectional study design was used.

4.3 Source of Population

All TB patients who started anti-TB drug in Gurage Zone Governmental Hospitals.

4.4 Study Population

All TB patients on anti-TB medication follow up in Gurage Zone Governmental hospitals the study population for this study.

4.5 Inclusion and Exclusion Criteria

Inclusion Criteria:- All TB patient of aged 15 years old and above regardless of the smear status of their TB and have taken anti TB medication at least for a month.

Exclusion criteria:- All TB patients who is unable to communicate and mentally unstable.

4.6. Sample size Determination

Sample size was calculated based on single population proportion formula.

$$n=Z^2P(1-p)/d^2$$

Where,

$$Z^2(\text{Standard value for 95\% confidence interval})= 1.96$$

$$\text{CI (confidence interval) }=95\%$$

$$d (\text{marginal error}) =0.05$$

$$P =21\%(\text{population proportion })$$

We use $p=0.21$ according to previous similar study from south west Ethiopia.

$$10\% = \text{Non-response rate}$$

Therefore, our sample size to be;

$$n= (1.96)^2 0.21(1-0.21)/ (0.05)^2$$

$$n=255$$

Then we add 10% of the result for non-response rate up on 255.

$$\text{➤ } 255(0.1) =25.5$$

$$\text{➤ } 255+25.5=280.5$$

So, our estimated sample size to be 281.

4.7 Variables

Dependent variable

- Non-adherence to anti-TB treatment

Independent variable

A. Socio demographic factor

- ✓ Age
- ✓ Sex
- ✓ Marital status
- ✓ Educational status
- ✓ Religion
- ✓ Ethnicity
- ✓ Occupation

B. Behavioural risk factor

- ✓ Smoking
- ✓ Alcohol drinking

C. Health care related factor

- ✓ Knowledge of TB
- ✓ Distance of health facility

D. Socio-economic status

- ✓ Employment status
- ✓ Income
- ✓ Food availability during taking medication

E. Disease and Medicine related

- ✓ Side effect of drug
- ✓ HIV status
- ✓ Co-morbidity

4.8 Data Collection Procedure

4.8.1 Method of Data Collection

Data collection tool

The data collection used a questionnaire using face to face interview. Morisky medication adherence scale the questionnaire was contain eight item: the seventh item contain two variable and other contain five variable to assess prevalence of Anti-TB drug Non-adherence during admission to Gurage Zone Governmental Hospitals and associated factor.

4.8.2 Sampling Technique and procedure

Systematic random sampling method was used to select sampling procedure in Gurage Zone Governmental Hospitals.

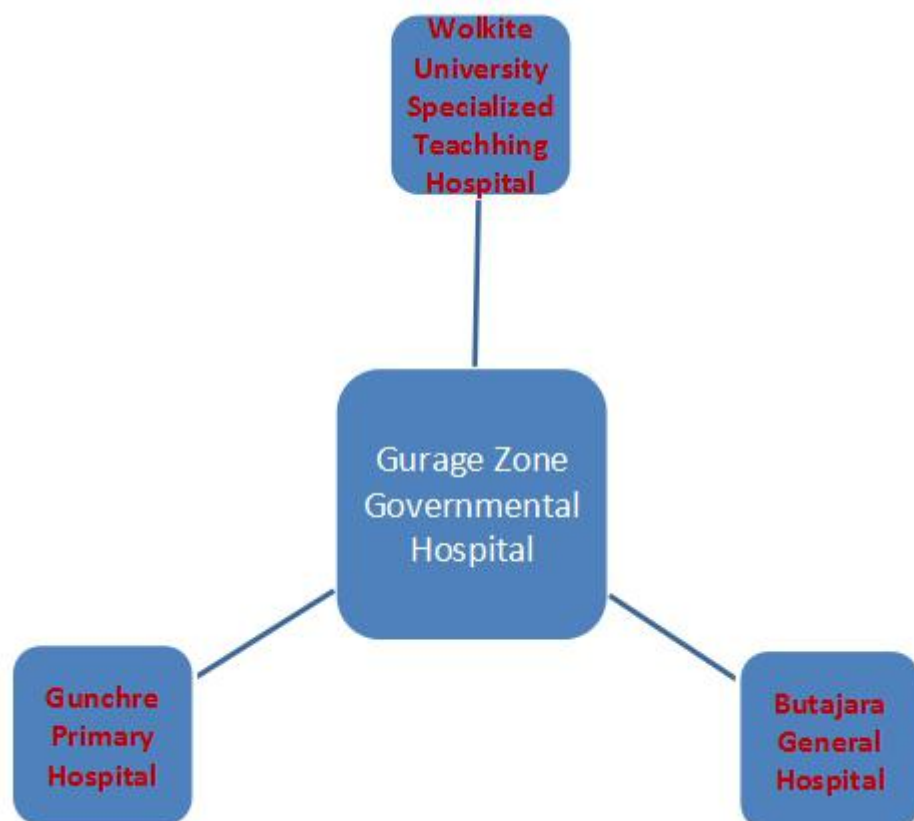


Figure 2. Sampling procedures that performed in Gurage Zone Governmental Hospital.

4.9 Operational Definitions

Non-adherence anti-TB drug :- means when an individual score > 2 in Morisky medication adherence scale.

4.10. Data Quality Control

The questionnaire was prepared in English and translated in to Amharic. It was be then translated back in to English by the principal investigators. The questionnaire was one pretested before the actual study was conducted to verify the validity and reliability the questionnaire. The appropriate technique of the collection was used.

4.11. Data Processing and Analysis

The collected data was processed manually and analysed after collecting the questionnaire . The completeness and consistency was checked daily the main finding of the study was interpreted in the form of appropriate figure line. Tables percentage proportions frequently and then. The results was compared and discussed by bi-variant and multi-variant discussed with data .

4.12. Ethical Consideration

Ethical clearance was obtained from the institutional review board of Wolkite University College of Medicine and Health Sciences. A formal letter was submitted to selected Gurage zone governmental hospital, at the initial stage of data collection and interview, informed consent was taken from respondents and the participants was assured and confidentiality of response was maintained throughout the study. Finally data was e collect in the way in which we was not inflict right to other culture; norm and other ethical issues was respected.

Results

Socio Demographic characteristic of the study participant

From 281 selected participant, two 270 them where involved in the study and this would have response rate of these 133(47.5%) where aged 19-25 with mean age years. The participants 144(44.4) male and 146[52.1%) where Islam. The majority 113(40.4%) of participant where married and 129(46.1%) where Gurage by ethnicity

and 111(39.6%) of study participant informal (can read and write) half of study participant 127(39.2%) where self employed. And 130(46.4%) where earned 2001-3000 ETB.

Table.1 Socio demographic characteristic of the TB patient who attend TB clinics at Gurage Zone Governmental Hospital Southern Ethiopia 2022.

Variable	Frequency	Percent
Age		
1-18	78	27.9
19-25	133	47.5
30-50	69	24.6
Sex		
Male	144	51.4
Female	136	48.6
Marital status		
Married	113	40.4
Single	81	28.9
Divorced	42	15.0
Windowed	44	15.7
Religion		
Islam	146	52.1
Orthodox	83	29..6
Protestant	40	14.3
Other	11	3.9
Ethnicity		
Gurage	129	46.1
Woliota	96	34.3
Oromo	37	13.2
Other	18	6.4
Educational status		
Cannot read and write	60	21.4
Informal(can read and write)	111	39.6
Grade 1-8	37	13.2
Grade 9-12	48	17.1
Diploma and above	24	8.6

Employment status		
Employed	72	25.7
Self Employed	127	45.4
No job	81	28.9
Monthly income		
<1000	36	12.9
1001-2000	51	18.2
2001-3000	130	46.4
>3000	53	18.9
No income	10	3.6

Behavioural Risk factor of the study participant

215(76.8%) participant where not smoking habitant and 192(68.6%) where not drank alcohol before. 190(40.1) of study participants were not have treatment supporter table 2.

Table 2 Behavioural characteristic of TB patients who attend TB clinic at Gurage Zone Governmental Hospital Southern Ethiopia. 2022

Variable	Frequency	Percent
Smoking		
Yes	65	23.2
No	215	76.8
Alcohol		
Yes	88	31.4
No	192	68.6
Treatment supporter		
Yes	150	53.6
No	130	46.4

Health Care System Characteristic Of Study Participant

More than half of study participant 189(67.5) were answered their preferable TB clinic opening time was from 2:00AM -6:00AM at local time and majority study participant 143(51.1%) of participant reported that it took them 1-2Km and 20-50 ET. birr to reach the near by health facility providing them the anti-TB drug. 132(47.1) of study participant were answered family member is supervised when taking their TB medication. Most of participant 140(50.0%) reported that the health workers were friendly to them.

Most of 233(91.2%) participant had good knowledge about TB but 47(9.8%) of participant did not know the symptom of TB at all. 123(38.0%) do not stop taking their- anti TB medication and 98(30.2%) of participant reported that they stopped taking their anti-TB medication when they fell better most of TB patient 43(13.3%) in the study disclosed their illness to their relatives and all of those who had not disclosed where due to fear of stigma and discrimination.

Table 3. Health Care System related Characteristics Of The TB Patient in who attend Gurage Zone Governmental Hospital Southern Ethiopia 2022.

Variable	Frequency	Percent
Preferable time for TB clinic		
2:00-6:00 AM	189	67.5
8:00-11:00 AM	41	14.6
After 2 :00 PM	50	17.9
Waiting time at health facility		
<1hr	55	19.6
1-2hr	145	51.8
>2hr	80	28.6
Distance to health		

facility		
<1km	59	21.1
1-2km	143	51.1
>3Km	78	27.8
Cost		
< 25	110	39.3
26-50	149	53.2
51-100	21	7.5
Supervision		
None	86	30.8
Family member	132	47.1

Health worker	56	20.0
Community member	6	2.1
Relationship with health worker		
Very friendly	50	17.9
Friendly	140	50.0
Indifferently	71	25.4
Unfriendly	2	0.7
Time to stop TB medication		
To take other drug	98	35.0
No stop	123	43.9
Relief symptom	47	16.8
Not remember	12	4.3
TB status disclosure		
Yes	237	84.6
No	43	15.4
Reason For not disclosed		
Fear of isolation	43	15.4
Name of hospitals data collection		
Butajara General Hospital	117	41.8
WKU Specialized teaching Hospital	104	37.1
Gunchre Primary Hospital	59	21.1

Disease and Medicine Related Factors

One hundred seventy two 172 (61.4%) of the study participants reported some kind of anti-TB medication adverse effects from these 112(40.0%) developed diarrhoea, 29(10.4%) develop headache and dizziness, 67(23.9%) skin rashes and Numbness of feet and hand 58(20.7).

Majority 220 (80.5%) of the TB patients were screened for HIV and 25(6.2%) of them are positive and 6.2% of TB patients were taken drug other anti-TB medication from those HIV 19%, DM drug 20(0.2%), HTN drug 5(1.5%), Typhoid drug 97(11.4%) , for kidney disease 5(1.5%) and other 2(6%) take the other drug rather than anti-TB treatment.

Table 4: Disease and Medicine related characteristics of the TB patients in who attended TB treatment at Gurage Zone Governmental Hospital of Southern Ethiopia, 2022 .(N= 281)

Variable	Frequency	Percent
Experience of side effects		
Yes	172	61.4
No	108	38.6
Type of side effects		
Vomiting and Diarrhoea	112	40.0
Headache and Dizziness	29	10.4
Skin rash	67	23.9
Numbness of feet and hand	58	20.7
other	14	5.0
Discontinued TB		

treatment		
Yes	89	31.8
No	191	68.2
HIV status		
Positive	25	8.9
Negative	181	64.6
unknown	74	26.4
Taking drugs other than anti-Tb medication		
Yes	78	27.9
No	202	72.1

Prevalence of non-adherence to anti-TB medication

The over all non-adherence in this study was 33(11.8%) .

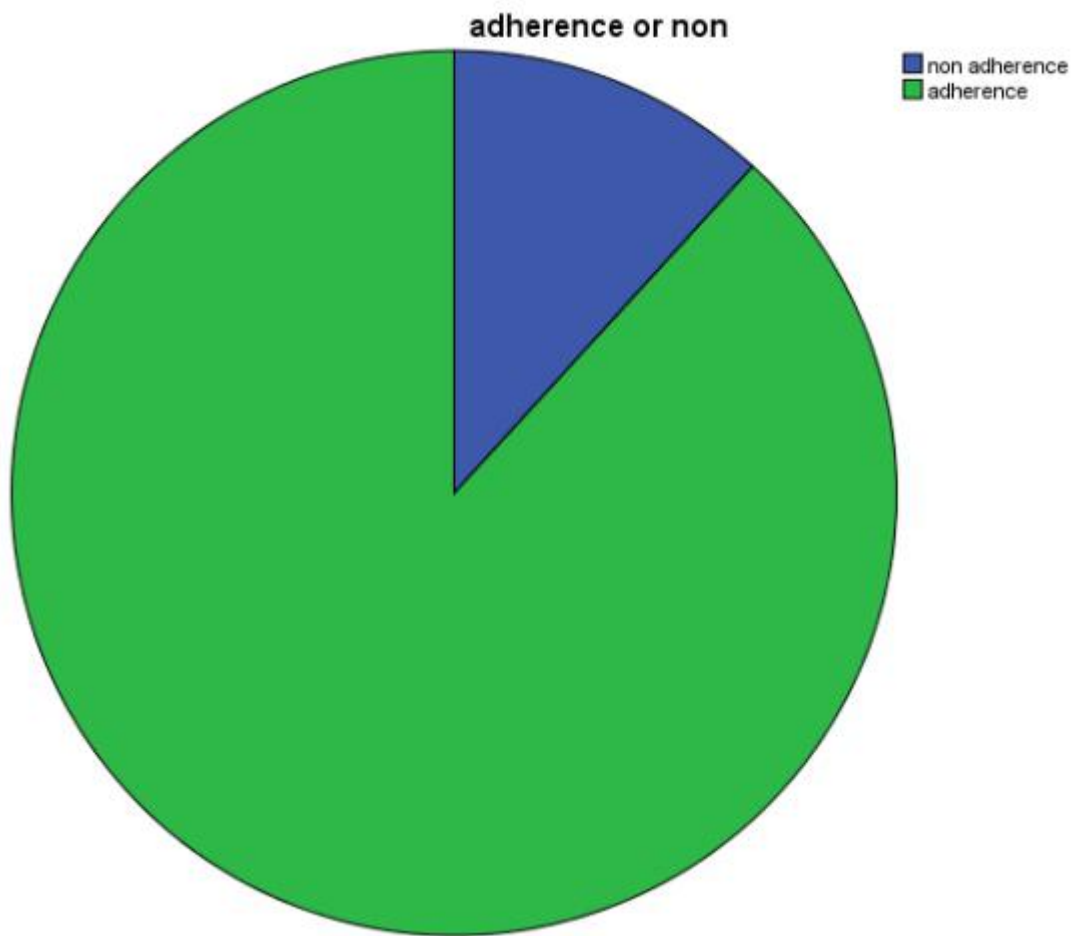


Figure 3: Prevalence of non adherence status of the TB patient who attend TB at Gurage Zone Governmental Hospital.

Factors associated with non-adherence to anti-TB treatment

The patient who had prolonged waiting time to get medical service, HIV status, disclosure family and your friend on TB treatment and taking beside TB medication were remained significantly and independently associated with anti-TB medication non-adherence.

Those patient who had prolonged waiting time to get medical service (AOR=1.904, 168-4.721) to be non-adherence.

Inform family and your friend on TB treatment (AOR= 0.919, 1.316-2.673); HIV status (AOR= 4.355,1.606-11.811) and taking beside TB medication (AOR= 2.592, 1.189-5.648) were also at higher risk of non-adherence than prolonged waiting time to get medical service.

Table 5: Logistic regression analysis of factors Associated with non-adherence of anti-TB drug treatment among TB patients who attended TB treatment at Gurage Zone Governmental Hospital Southern Ethiopia, 2022 (N = 281).

Variable	category	Frequency		COD,95%CI	AOR,95%CI	P value
		Non adherence	adherence			
How much time	<1hr	10	45	1	1	
	1-2hr	15	128	0.486,(0.179-1.323)	1.904(1.768, 4.721)	0.023
	>2hr	8	7	0.923,(0.373-2.279)	2.65(1.45, 3.85)	0.015
Disclosure	Yes	28	209	1.018(0.370-2.802)	1.919(1.316, 2.673)	0.02
	No	5	38	1	1	
HIV status	Positive	8	17	1	1	
	Negative	20	161	6.494(1.885, 22.373)	2.67(1.05, 3.56)	0.004
	Unknown	5	69	3.788(1.450, 9.896)	4.355(1.606, 11.811)	0.034
Have You taking beside TB medication	Yes	15	63	2.434(1.158, 5.114)	2.592(1.189, 5.648)	0.017
	No	18	184	1	1	

6 Discussion.

Recommend that every TB patient should adhere anti TB medication following strategy [1], the finding in this study shows that 11.8% Non-Adherence. Thus, in this study, the proportion of TB patients who adhere to anti-TB is high compared with the finding from North West Ethiopia and South west Ethiopia [24, 25]. This discrepancy could be due to the difference in socio cultural status of the study participants, time gap at which study was conducted and data collection methods which is used. In the same instance with our study, some studies showed that there is no significant association between anti-TB drug Adherence scores and Age, gender, educational level, marital status, religion and occupation [26-28]. Likewise finding of non-adherence in this study is lower than the finding from similar study conducted in some African countries [11, 16]. This discrepancy could be explained by socio cultural difference of the study population and difference in study period.

In this study, the main reasons for non-adherence were experience of side effect, far distance to health facility and prolonged waiting time to get medical service were significantly associated with non-adherence to anti-TB treatment. This finding in line with study conducted in North West Ethiopia [24] and South west Ethiopia [25] and other African countries [11, 16] in identifying factors for anti-TB non-adherence.

As previously reported from other studies [11, 21, 33], side effects of the drug were associated to anti-TB medication Non-adherence in the same manner with our study this may be due to poor awareness on side effect of the drug.

Distance to health facility [11, 31-33] and prolonged patient waiting times at TB clinic [22] were associated with TB treatment Non-adherence in the same instances with our study. This may be due to lack of money for transport, poor health worker relationship and feeling of stigma and discrimination.

Contrary to previous study [25, 34], Educational status, HIV disease status and taking drugs other than anti-TB did not play in to factors that influence adherence in our study.

Strength and limitations of the study

In the anti-TB treatment adherence component of the current study, we attempted to ascertain the level of TB treatment adherence in all forms of TB patients who received their treatment at different health facilities in the study area and this could be considered as one of the strengths of the study. However, the study was limited in that patient self-reports were used which usually overestimate adherence levels. Some study participants also not willing respond this made our study result difficult to generalize for all TB patients.

7. Conclusions and Recommendations

7.1 Conclusions

The level of Non-adherence was good 33[11.8] observed in the current study area relatively high with a response rate of 97.6. HIV states , prolonged waiting time to get medical service taking beside TB medication and disclosure were significantly associated with non-adherence to anti-TB treatment.

7.2 Recommendation

firstly it is the government and policy makers to engage themselves more on formulating effective strategy and activity to increase non-adherence rate on TB patients that fond in gurage zone governmental hospital .it is better the manger at health institution to increase way of communication between health worker and TB patient .it also betters the staff members to give special consideration for TB patient and monitoring adequately. The health office and health extension workers better to strength and maintain local information dissemination network On anti-TB medication non-adherence and its right time to commencement community based information education and communication on anti-TB drug adherence and its associated factors should be organized and implemented.

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ANNEXES

ANNEX 1: Declaration

We will like to declare that this BSC thesis our original work and it has not been presented for a degree in any other University. Any attempt to copy or modify this thesis without consent of the investigator. We have confirmed this declaration our signature

ANNEX 2: CONSENT FORM

Date-----Time-----

Good morning/afternoon? We are nursing fourth year student at Wolkite University College of medicine and health science and department of nursing. We are here to conduct proposal on Anti-TB drug adherence and its associated factors among TB patients in Gurage Zone Governmental Hospital. The purpose of this study will to know how TB patients use their medication and to identify factors associated with non-adherence to drugs then find a solution for it and by the finding result help hospital administrative and health professional in order to enhance patient health status. You have been selected at random (by chance) to participate in our study. The information gathered here will remain confidential and we will not write down your name or any information that can identify who you are.

Signature

ANNEX 3: Questionnaire, English Version

Instruction: The questionnaire contains close ended and open-ended questions and it is divided in to seven parts. So, circle the letter of your choice for multiple choices questions and write your answers for open ended questions and also you can ask the modulators who facilitate this questionnaire if there is an ambiguity.

To all respondents: All your answers will be kept strictly confidential. It will be put together with other people we are asking to, to get an overall picture. It will be impossible to pick you out from what you say, so please write your answer honestly.

Part I. Demographic Information

1. Age-----

2. Sex

- A. Male B. Female
3. Religion
 A. Islam B. Orthodox C. Protestant D. Other (specify) -----

4. Ethnicity
 A. Gurage B. Wolaita C. Oromo D. Other (specify) -----

5. Marital Status
 A. Single B. Married C. Divorced D. Widowed
6. Education status
 A. Cannot read and write B. Informal (can read and write) C. Grade 1-6
 D. Grade 7-12 E. Diploma and above

Part II. Behavioural Risk Factors

7. Have you smoked cigarette for the last 6 months?
 A. Yes B. No
8. Did you drink Alcohol for the last 6 months?
 A. Yes B. No
9. Do you have treatment supporter?
 A. Yes B. No

Part III. Socio economic Status

10. Employment status

- A. Employed C. Self-employed C. No job
11. What is your income per month in birr-----?
12. During the time you were taking TB medicines, what would say was your situation

In terms of food availability?

- A. Always available to take with medicines
 B. Available most of the time
 C. Not always available
 D. Never available

Part IV. Health care related factors

13. What would be the most convenient TB clinic opening times for you?
 A. 2:00-6:00 AM B. 8:00-11:00 AM C. After 2:00 PM
14. How much time do you usually wait at the TB clinic before being attended?
 A. <1 hour B. 1-2 hour C. >2 hour
15. Where do you normally collect your TB medicines? Specify the health institution-----
16. How much distance do you travel to collect TB medicines? Specify-----

17. How much does it cost you to get the health facility? Express in birr-----

18. Who supervised you when you were taking your TB medicines?
 A. None B. Family member C. Health worker D. Community member
19. How would you rate the attitude of staff who attended you at the health facility?
 A. Very Friendly B. Friendly C. Indifferent D. Unfriendly
 E. Very unfriendly
20. What are the major symptoms of TB-----
 -----?
21. When to stop TB medications? -----

Part V. Stigma and Discrimination

22. Did you inform your family and friends that you were on TB treatment?
 A. Yes B. No
23. If your answer is yes, skip [Q 25]
24. If your answer is No, give your reasons-----

Part VI. Disease and Medicine Related Factors

25. Did you experience any side effects when you were taking TB treatment?
 A. Yes B. No
26. If your answer is No, skip [Q 28]
27. If your answer is yes, which side effects did you experience?
 A. Diarrhea and vomiting B. Headache and Dizziness C. Skin rashes
 D. Numbness of feet and hand E. Other (specify) -----

28. From the day you started taking your TB medicines, how long did it take you before you felt better? (Months)
 A. <2 B. 2-4 C. 5-6 D. Did not feel better
29. Did you discontinued your TB treatment?
 A. Yes B. No
30. If your answer is No, skip [Q 32]
31. If your answer is Yes, why? -----

32. HIV status
 A. Positive B. Negative C. Unknown
33. Have you taking drug besides TB medications?
 A. Yes B. No
34. If your answer is No, skip [Q 36]

35. If your answer is yes, for what purpose did you take? -----

Part VII Assessment of Adherence by using MMAS-8

36. Did you sometimes forget to take your pills?

- A. Yes B. No

37. People sometimes miss taking their medications for reasons other than forgetting.

Thinking over the past 2 weeks, were there any days when you did not take your

Medicine?

- A. Yes B. No

39. Have you ever cut back or stopped taking your medicine without telling your doctor because you felt worse when you took it?

- A. Yes B. No

39. When you travel or leave home, do you sometimes forget to bring along your medicine?

- A. Yes B. No

40. Did you take all your medicine yesterday?

- A. Yes B. No

41. When you feel like your symptoms are under control, do you sometimes stop taking your medicine?

- A. Yes B. No

42. Taking medicine every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?

- A. Yes B. No

43. How often do you have difficulty remembering to take all your medicine?

- A. Never/rarely B. Once in a while C. Sometimes D. Usually E. Always

Part VIII. Social Support Scale

S.NO	Questions	Response	Remark
	How many people are you so close to that you can count on them you have great personal problems?	1. None 2. 1-2 3. 3-5 4. >5	
45	How much interest and concern do people show in what you do?	1. None 2. Little 3. Uncertain 4. Some 5. A lot	
46	How easy it is to get practical help from a neighbour if	1. Very difficult	

	you should need it?	2. Difficult 3. Possible 4. Easy 5. Very easy	
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Annex 4 Questionnaire, Amharic Version (የ አ ማር ሻ መጠይቅ ቅጽ)

ቅጽ 1 በ ቃለ መጠይቅ ለ መሳተፍ የ ፍቃድ ሻነት ቃል መቀበያ ቅጽ ቀን ----- ሰዓት -----

እንደ ምን አደሩ / ዋሉ እኛ የ ወልቂጤ ደኅንነት ስር ስቲ ጤና ሳይንስ ኮሌጅ አራተኛ ዓመት ነርሲንግ ተማሪዎችን ፡ ፡ ስለሆነ ም እዚህ የተገኘው በጉራጌ ዞን በሳንባ ነቀርሳ በሽታ ታካሚዎች ዙሪያ የሳንባ ነቀርሳ መድኃኒት በታዘዘው መሰረት በአግባቡ ስለመወሰድ እና አጠቃቀም ሁኔታ ቅድመ ምረቃ ጥናት ለማካሄድ ነው ፡ ፡

የዚህ ጥናት አላማ የሳንባ ነቀርሳን መድሀኒት እንዴት እንደ መጠቀም ፣ በታዘዘው መሰረት በአግባቡ እንዴት መድሀኒትዎን እንደ መወሰድ እና መድኃኒትዎን ሁል ጊዜ አንዳይወስዱ የሚያደርጉ ዋና ዋና ክፍተቶችን በመለየት ፣ የመፍትሄ ሀሳቦችን ማቅረብ ነው ፡ ፡ እና ም በተገኘው ወጪዎች የታካሚዎችን የጤና ሁኔታ ለማሻሻል ለሆስፒታል አስተዳደሮች እና ለጤና ባለሙያዎች እጅጉን ጠቀሜታ አለው ፡ ፡

በዚህ ጥናት ለመሳተፍ የተመረጡት በእጣ ነው ፡ ፡ እዚህ የተሰበሰበው መረጃ በሚስጥር የተጠበቀ እና የእርሶዎ ስምምሆነ እርሶዎን የሚገለጽ ምንም አይነት ነገር አይገለጽም ፡ ፡ በዚህ ጥናት ላይ የርስዎ ተሳትፎ በፍቃድ ሻነት ላይ የተመሰረተ በመሆኑ በየትኛውም መንገድ አለመሳተፍ ከፈለጉ አይገደዱም ፡ ፡ መመለስ ያልፈለጉትን ጥያቄዎች አለመመለስ ይችላሉ ፡ ፡ በየትኛውም ስድስት ቃለ መጠይቁን መመለስ ወይም መተው ይችላሉ ፡ ፡ ለዚህ ጥናት መሳካት የእርሶዎ ትክክለኛ መልሶች የጎላ ሚና አላቸው ለመሳተፍ ፈቃደኛ ከሆኑ ጥያቄዎችን ለመመለስ የሚፈጅዉ ጊዜ 20 ደቂቃ ብቻ ነው ፡ ፡ ጥናቱ ላይ ለመሳተፍ ፈቃደኛ ነዎት ገንዘብ መጀመርዎ በፊት ያልገባዎት ወይም ግልጽ ያልሆነ ለዎት አለገ የእርሶዎ ምላሽ የለም ከሆነ ፈርማዎትን ያስቀምጡ ፡ ፡

ፈርማ

ቅጽ 2 መጠይቅ

ትክክል ፡ መጠይቁ የተለያዩ ጥያቄዎችን ሲይዝ እና ምላሳ ባት የተለያዩ ክፍሎች ተከፍላል ፡ ፡ እርሶዎ ምላሽ ምርጫዎች የመረጡትን ፊደል ያክብሩ እና የእርሶዎን ሀሳብ ለሚፈልጉ ጥያቄዎች አስተያየትዎን ያስፍሩ ፡ ፡ ምንም አይነት ቅርፅ ያሳዎትን ነገር ከሌለ መጠይቁን የሚያስተባብረውን ሰው ይጠይቁ ፡ ፡

ለ ሁሉም

መላ ሾች፤ ሁሉም መልሶ ሾች ሁን ማለት ጥር የተጠበቁ ናቸው፡፡ የእርሶዎ መልስ ከሌሎች መላ ሾች ጋር አንድ ላይ በማድረግ ስለምናሰባስብ የእርሶዎን መርጠን ምን አለሉ ማለት ስለማይቻል እባክዎትን ትክክለኛ ምላሽ በመስጠት ይተባበሩን፡፡

ክፍል 1 ስለ ታካ ሚዲ አጠቃላይ መግለጫዎች

1 እድሜ-----

2 ጾታ

U) ሴት ለ) ወንድ

3 እምነት

U) መስሊም ለ) ኦርቶዶክስ ሐ) ፕሮቴስታንት መ) ሌሎች

4 ብሄር

U) ጉራጌ ለ) ወላይታ ሐ) ኦሮሞ

5 የትዳር ሁኔታ

U) ያገባ ለ) ያላገባ ሐ) አግብቶ የፈታ መ) ባል/ሚስት የሞተበት

7 የትምህርት ሁኔታ /ደረጃ

U) ማንበብ እና መጻፍ አልችልም ለ) በመሰረተ ትምህርት ማንበብ እና መጻፍ እችላለሁ ሐ) 1-6

መ) 7-12 ሰ) ዲፕሎማ እና ከዛ በላይ

ክፍል 2 ባህሪ ያደረገች ለችግር አጋላጭች

8 ላለፉት 6 ወራት አጭሮ ህ/ሽ ታቃለህ/ሽ

U) አዎ ለ) አላወቅም

9 ላለፉት 6 ወራት አስከሬ መጠጦች ጠጥተዋል

U) አዎ ለ) አላወቅም

10 ለህክምና የሚያግዘዎት ሰው አለ

U) አለ ለ) የለም

ክፍል 3 ማህበረሰባዊ እና ኢኮኖሚያዊ ሁኔታ

11 የስራ ሁኔታ

U) ተቀጣሪ ለ) እራስን ተቀጣሪ ሐ) ሰራ አጥ

12 የወር ገቢዎ በብር ስንት ነው.....

13 የሰንባ ነቀርሳ መዳኒቱን በሚያስዱበት ጊዜ የምግብ አወሳሰድ ሁኔታ እና አቅርቦቱስ

U) ሁሌ መዳኒት በሚወስዱበት ጊዜ አለ

ለ) አብዛሁኛው ጊዜ አለ

ሐ) ሁሌም የለም

መ) መቼም ተገኝቶ አያቅም

ክፍል አራት፡ ከህክምና አገልግሎት ጋር የተያያዙ ጉዳዮች
14 የሳንባ ነቀርሳ ከሊኒኩ በየትኛው ስድስት ቢከፈት ለርሳዎ አመች
ነዉ

ሀ) ከጡዋቱ 2: 00-6: 00 ለ) 8: 00-11: 00 ሐ) ከምሽቱ 2: 00 በኋላ
15 በሳንባ ነቀርሳ ክሊኒክ ለመሰተናገድ ምን ያክል ስድስት
ይጠብቃሉ

ሀ) ከ1: 00 ስድስት በታች ለ) 1-2: 00 ስድስት ሐ) ከ2: 00 ስድስት በላይ
16 የሳንባ ነቀርሳ መድሀኒት ከየት ነዉ የሚያገኙት/የጤና ተቆመን
ይግለጹ.....

17 ሳንባ ነቀርሳ መድሃኒቱን ለመወሰድ ምን ያህል ርቀት ይጋዛሉ
/ይገለጹ.....

18 ወደ ጤና ተቆሙ ለመሄድ ምን ያክል ወጭ ያዎጣሉ /በብር
ይገለጹ.....

19 መድሃኒቱን በሚወስዱበት ጊዜ ማን ነዉ የሚከታተልዎት
ሀ) ማንም ለ) ቤተሰብ ሐ) የጤና ባለሙያ መ) ማህበረሰቡ

20 በሳንባ ነቀርሳ ክሊኒክ ካሉ የጤና ባለሙያዎች ጋር ያለዎትን
ቅርርብ እንዴት ይገልጹታል

ሀ) በጣም የሚወደዱ ለ) የሚወደዱ ሐ) ግድየለሽ መ) የማይወደዱ ሰ)
በጣም የማይወደዱ

21 ዋና ዋና የሳንባ ነቀርሳ በሽታ ምልክቶች ምን ምን
ናቸዉ.....

22 የሳንባ ነቀርሳ መድሀኒቱን መቼ ነዉ
የሚያቆሙት.....

ክፍል አምስት፤ አድሎ እና መገለል
23 ለቤተሰቦችህ እና ለጋደኞች ህየሳንባ ነቀርሳ መድሀኒት
አንደምትወስድ አሳዉቀሁቸዋል

ሀ) አዎ ለ) አላሳወቁም
24 መልሰዎ አዎ ከሆነ 25ኛ ጥያቄን ይዝላሉ

25 መልሰዎ አላሳወቁም ከሆነ
ምክንያት.....

ክፍል ስድስት፡ በሽታ እና መድሃኒት ተያያዥ ጉዳዮች
26 የሳንባ ነቀርሳ መድሀኒቱን በሚወስዱበት ጊዜ የጋጠመዎት
የጎንዮሽ ጉዳት አለ

ሀ) አላለ) የለም
27 መልሰዎ የለም ከሆነ ጥያቄ ቀጥሮ 28 ይዝላሉ

28 መልሰዎ አለ ከሆነ የትኛዉ ጎንዮሽ ጉዳት ነበር እርሳዎን
ያጋጠመዎት

ሀ) ማስመለስ እና ማስቀመጥ ለ) እራስዎታት እና ማዘር ሐ) የእግር
እና የእጅ መደንዘዝ

መ) የ ቆዳ ሽፍታ ሠ) ሌሎች (ይጠቀስ)-----

29 የ ሰንባ ነቀርሳ መዳኒቱን ከጀመሩ በትጊዜ ጀምሮ ጥሩ የጤና ሁኔታ ላይ እስከ ሚደርሱ ድረስ ምን ያክል ጊዜ ወሰደብዎት (በወር)

U) ከ 2ወር በታች ለ) 2-4 ሐ) 5-6 መ) ምንም ጥሩ የጤና ሁኔታ አይሰማኝም

30 የ ሰንባ ነቀርሳ መድሀኒትዎን ጨርሰዋል

U) አዎ ለ) አልጨረስኩም

31 መልሰዎ አዎ ከሆነ 32ኛ ጥያቄን ይዝለሉ

32 መልሰዎ አዎ ካልሆነ

ለምን

33 የኤች አይቪ ሁኔታ

U) ፖዘቲቭ ለ) ኔጌቲቭ ሐ) አላወኩም

34 ከ ሰንባ ነቀርሳ መድኃኒት ዉጭ ሚወሰዱት መድኃኒት አለ

U) አለ ለ) የለም

35 መልሰዎ የለም ከሆነ 36ኛ ጥያቄን ይዝለሉ

36 መልሰዎ አለ ከሆነ ለምን ድን ነዉ የሚወስዱት -----

ክፍል ሰባት ሞሪስኪ መድኃኒትን በታዘዘዉ መሰረት በአግባቡ ስለመዉሰድ መለኪያ - 8

37. አንዳንድ ጊዜ መዲኃኒትዎን ረስተዉ ሳይወሰዱ ቀርተዉ ያዉቃሉ U) አዎ ለ) አላዉቅም

38. ሰዎች አንዳንድ ጊዜ ከመርሳት ዉጭባሉት የተለያዩ ምክኒያቶች መድኃኒታቸዉን ሳይወሰዱ ይቀራሉ: : ባለፉት ሁለት ሳምንታት፤ መድኃኒትዎን ሳይወስዱ የቀሩበት ቀናቶች ነበሩ

U) አዎ ለ) የለም

39. ሐኪምዎን ሳይነግሩ፤ መድኃኒትዎን እየወሰዱ ህመም ሲባባስ፤ መድኃኒትዎን አቆርጠዉ ያዉቃሉ

U) አዎ ለ) አላዉቅም

40. በጉዞ ምክንያት ወይም ከቤትዎ አርቀዉ ሲጋዙ፤ አንዳንድ ጊዜ መድኃኒትዎን (ወደጉዞዉ) ረስተዉ ሳይወስዱ ያዉቃሉ

U) አዎ ለ) አላዉቅም

41. በትላንትና ዉዕለት ሁሉንም መዳኃኒትዎን ወስደዉታል

U) አዎ ለ) አልወሰድኩም

42. ህመም ሲሻለዎት (የህመም ስሜቶች ሲጠፉ) አንዳንድ ጊዜ መድኃኒትዎን አቆርጠዉ ያዉቃሉ

U) አዎ ለ) አላዉቅም

43. በየቀኑ መድኃኒት መዉሰድ፣ ለአንዳንድ ሰዎች ምቹት አይሰጣቸዉም: : እርሶዎ በየቀኑ፣ እንዲሁም አንድም ስአት

ሰያዛንፍ መድንኒትዎን በመወሰድዎ፣ የመሰለቸት ሰሜት ተሰምቶዎት ያዉቃል

ሀ)አዎ ለ)አያዉቅም

መድሀኒትዎን አስታዉሰዉ ለመወሰድ ምን ያህል ይቸገራሉ

ሀ)በጭራሽ አልቸገርም ለ)ከእለታት አንዳንድጊዜ ሐ)አንዳንድጊዜ መ)አብዝሀኛዉን ጊዜ ሰ)ሁል ጊዜ ይቸግረኛል

ማንበራዊ ሁኔታን የተመለከቱ መጠይቆች (OSS3)

የሚከተለው መጠይቅ 3 ጥያቄዎችን ያቀፈ ነው :: እባክዎን እያንዳንዱን ጥያቄ በጥንቃቄ ያንብቡ እና ከዚያ ማህበራዊ ድጋፍዎን በተሻለ ሁኔታ የሚገልፅ በእያንዳንዱ ቡድን ውስጥ አንዱን ምርጫ ይምረጡ :: ለማንኛውም ጥያቄ ከአንድ በላይ መግለጫዎችን እንደማይመርጡ እርግጠኛ ይሁኑ

ተቁ	ጥያቄዎች	የጥያቄዎች ምርጫ
44	በህይወትዎ ዉስጥ በጣም የቅርብ የሆኑና ችግርዎችን የሚከፈሉ ስንት ሰዎች አሉ?	<ol style="list-style-type: none"> 1. ማንም 2. አንድ ወይም ሁለት 3. ከ 3-5 4. ከ 5 በላይ
45	ሌሎች ሰዎች እርስዎ በሚያደርጓቸዉ ነገሮች ላይ ምን ያህል ግድ ያለቸዉና የሚያስቡልዎት ይመስልዎታል?	<ol style="list-style-type: none"> 1. ጨርሶ ግድ የለቸዉም 2. ብዙም ግድ የለቸዉም 3. እርግጠኛ መሆን አልችልም 4. በመጠኑ ግድ ይለቸዋል <p>በጣም ግድ ይለቸዋል</p>
46	ከጎረቤትዎ እርዳታ ማግኘት ምን ያህል ቀላል ነዉ?	<ol style="list-style-type: none"> 1. በጣም ከባድ ነው 2. ከባድ ነው <p>ቀላል ባይሆንም እርዳታ ማግኘት</p>

የተከበረ ግዜዎን ስለሰጡን እጅግ በጣም እና መሰግን ዎታለን

APPROVAL SHEET

ASSESSMENT OF ANTI TB DRUG NON ADHERENCE AND ASSOCIATED FACTOR AMONG TB PATIENT ATTENDING TB CLINIC IN GURAGE ZONE GOVERNMENTAL HOSPITAL ETHIOPIA 2022

Submitted by [Students]:

1. _____

Student Name Signature
Date
2. _____

Student Name Signature
Date
3. _____

Student Name Signature
Date

Approved by [Advisor's]:

1. _____

Advisors' Name Signature
Date
2. _____

Advisors' Name Signature
Date

Approved by [Board of Examiners]:

1. _____
_____ Signature
Examiners' Name
Date

2. _____
_____ Signature
Examiners' Name
Date