

ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE

**NON-ADHERENCE TO ANTI-TUBERCULOSIS TREATMENT
AND ASSOCIATED FACTORS IN AKAKI KALITY SUBCITY,
ADDIS ABABA, ETHIOPIA, 2017**



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**ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL
COLLEGE**

**NON-ADHERENCE TO ANTI-TUBERCULOSIS TREATMENT AND
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ABABA, ETHIOPIA, 2017**

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FINAL RESEARCH THESIS

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ABBREVIATION AND ACRONYMS

AFB	Acid Fast Bacilli
ART	Anti-retroviral Therapy
EPHI	Ethiopia Public Health Institution
EPTB-	Extra pulmonary TB
EXTB	Extra pulmonary TB
CPT	Cotrimoxazole
DM	Diabetes Miletus
DOT	Direct Observe therapy
FMOH-	Federal Minister of health
HAART	Highly Active Anti-retroviral Therapy
HBCS	High Burden countries
HIV	Human Immune Deficiency Virus
HMIS	Health Management Information System
HSDP	Health sector Development Plan
M.TB	Mycobacterium Tuberculosis Bacilli
MDR-TB	Multi Drug Resistance Tuberculosis Bacilli
OIs	Opportunistic Infections
PTB+	Pulmonary TB Positive
PTB ⁻	Pulmonary TB Negative
SPPTB	Sputum positive pulmonary TB
SPNTB	Sputum Negative pulmonary TB
SS+v	Sputum smears positive
TB	Tuberculosis Bacilli
WHO	World Health Organization

SUMMERY

Back ground: Non-adherence to anti-TB treatment may result in the emergence of multidrug resistant tuberculosis bacilli, prolonged infectiousness and poor TB treatment outcomes. The present study is intended to contribute to bridging the information gap, adequate knowledge & understanding barrier to adherence, understanding barrier to adherence and further reinforces the absolute necessity of helping TB patients that do not miss any doses of anti TB in Akaki kality sub city.

Objective: The aim of this study is to assess the level of non-adherence to tuberculosis bacilli treatment and associated factors among adult TB Patients who attend in public health centre in Akaki Kality, Addis Ababa, Ethiopia 2017.

Method: A facility based cross –sectional study design was conducted among adult tuberculosis patients who were following ant tuberculosis treatment in health centers of Akaki kality sub city from October 22 – December 8/2017. Data were collected by trained data collectors using a structured and pre-tested questionnaire. The sample size was 268 & selected by systematic random sampling method. Data were entered to EPI.Inf.7 and analyzed using SPSS ver. 20. Multiple logistic regressions were fitted to identify potential predictor and to control potential confounding variables. Odds ratio (OR) with 95% confidence interval was presented and p-value < 0.05 were considered statistically significant.

Results: A total of 268 tuberculosis patients were interviewed; 57.1% were males and the overall non-adherence for the last four days, seven days and the last 30 days before the survey were (11%, 13.8%, and 17.9%,) respectively. Non-adherence to anti-TB medication were significantly associated such as Anti-TB drugs side effect (AOR: 1.27 95% CI 1.107-3.80), OIs other than TB diseases (AOR: 6.43 95% CI 1.33-31.1), Urine discoloration (AOR: 8.5 95% CI 1.92-9.67), ART drugs taken (AOR: 3.01 95% CI 1.45-5.35), Pyridoxine drugs taken (AOR: 3.9 95% CI 1.66-9.19) and continuation phase of chemotherapy (AOR: 2.8 95% CI 1.39-5.39)

Conclusions: Non-adherence to anti-TB treatment due to, Anti-TB drugs side effect, OIs other than TB diseases, having Urine discoloration, TB/HIV co-infected, Pyridoxine drugs and continuation phase of chemotherapy were significantly associated with non-adherence to anti-TB treatment.

Recommendation: Special attention on adherence counseling should be given to symptomatic patients, TB/HIV co-infected patients, and those in the continuation phase of the tuberculosis therapy.

Key words: Non- Adherence, TB, AkakiKality sub city, Addis Ababa, Ethiopia

1. INTRODUCTION

1.1 Background

TB is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV negative people (down from 1.7 million in 2000) and an additional 374 000 deaths among HIV-positive people [1]. TB cases occurred in Africa in the same year about 28% of the incident. The proportion of TB cases co-infected with HIV is highest in countries in the African region; overall, 32% of TB cases were estimated to be co-infected with HIV in this region, which accounted for 74% of TB cases among people living with HIV worldwide. In 2014, there were 1.5 million TB deaths (1.1 million among HIV-negative people and 0.4 million among HIV-positive people), of which approximately 890 000 were men, 480 000 were women and 140 000 were children. TB High Burden Countries (HBCs) accounted for 80% of all estimated TB cases worldwide. [1, 2]

Ethiopia is one of the 30 TB, TB/HIV and MDR-TB HBCs. The national population based TB prevalence survey conducted in 2016 revealed that the prevalence of smear positive TB among adults and all age group was found to be 108 and 63 per 100,000 populations, respectively. The prevalence of bacteriological confirmed TB was found to be 156/100,000 populations and by extrapolations, the prevalence of all forms of TB in Ethiopia is estimated to be 240/100,000 populations [1, 4]. According to WHO global TB report 2015, there were an estimate of 200,790 (207/100000 populations) incident cases of TB in Ethiopia in 2014. DR-TB sentinel report in 2013 shows the MDR-TB prevalence of 2.3% among new and 17.8% among previously retreated TB cases in Ethiopia [2,3].

Poor adherence to treatment of chronic diseases including TB is a worldwide problem of striking magnitude. The failure for cure increases the risk of development of drug resistant strains and further spread of TB in the community, which in turn increases morbidity and mortality. Adherence to TB treatment is crucial to achieve cure and avoid emergence of drug resistance [7]. Many tuberculosis (TB) patients do not complete their six-month course of anti-tuberculosis medications and are not aware of the importance of sputum re-examinations, thereby putting themselves at risk of developing multidrug-resistant and extensively drug-resistant forms of tuberculosis and relapse. However, there is a dearth of publications about non-adherence towards anti-TB medication in these settings, especially in Addis Ababa. [27]

Poor adherence contributes to worsening of TB situation not only by increasing incidence but also by initiating drug resistance. Resistance to anti-TB drugs has become a serious obstacle in the control of the disease. Patients' poor adherence to anti-TB treatment, with an estimate of as low as 40% in developing countries, remains the principal cause of treatment failure globally [28]. Non-adherence to tuberculosis (TB) treatment can result in an emergence of new strains, prolonged infectiousness, drug resistance and poor treatment outcomes. Thus, assessment of the level of non-adherence to anti-TB treatment, treatment outcomes and identifying factors associated with non-adherence and poor treatment outcomes are vital for improving TB treatment adherence and treatment outcomes in the study area [26].

1.2 Statement of the problem

Poor adherence to treatment of chronic diseases including TB is a worldwide problem of striking magnitude. However, patients with TB are expected to have adherence levels greater than 90% in order to facilitate cure. On the other hand non-adherence to anti-TB treatment must be <10% to improve cure rate [5, 6]. In the world an estimated 480 000 people developed MDR-TB in 2014 and 190 000 people died as a result of non-adherence of anti TB treatment drug Resistance [9]. In sub Saharan Africa, there is high rate of losses to follow up of TB patients that ranged from 11.3% to 29.6% [12]. Ethiopia is one of the thirty countries that reported lower rates of treatment success (84%) [3, 7].

Different studies have shown that poor treatment adherence was a risk factor for MDR-TB [10]. However, Tigray Regional State Public Hospitals, North Ethiopia study showed that individuals who were incomplete the treatment for previous TB infection (history) had no increased risk of developing Treatment failure. In Ethiopia, the previous guideline for first-line anti-TB treatment was 8 months' duration, but the standard has been changed to 6 months. TB therapy requires more than 90% adherence to facilitate cure [13]. As it is known, coming early to health institutions to make TB diagnosis at the start of the symptoms has strong relationship with the success fullness of any treatment rather than coming after becoming severely complications [14].

Non-adherence to anti-TB treatment can adversely affect treatment success rate. Studies show that poor adherence to anti-TB treatment leads to treatment failure and death, while strict adherence helps to achieve the desired treatment success rate [15, 16]. Patients who take their TB treatment in an irregular and unreliable way are at greatly increased risk of treatment failure, relapse and the development of drug-resistant TB strains. Furthermore, the emergence and spread of multi drug resistant (MDR) and extensive drug resistant (XDR) TB. This study further reinforces the absolute necessity of helping TB patients that do not miss any doses of anti TB.

In akaki kaliti sub city there are overcrowded, congested living and high residence area, in case of this in 2017 large number smear positive TB reported from other 10 sub city of annual TB/HIV report of the sub city [30]. There are no studies that have factors of non adherence to anti TB treatment despite high TB coverage service in Akaki kaliti even in Addis Ababa. Many health centres attempt to improve the situation through the informed health extension worker and community mobilization activities. However, these efforts are not based on systematic evidence into possible determinants of the prevailing practice. The present study is intended to contribute to bridging the information gap,

understanding barrier to adherence and further reinforces the absolute necessity of helping TB patients that do not miss any doses of anti TB in the sub city. The aim this studies to assess the level of non-adherence to anti-TB therapy and associated factors among TB patients in Akaki Kality, Addis Ababa, Ethiopia.

1.3. Significance of the study

This study is primarily helpful for patients taking TB medication providing adequate knowledge and understanding barriers to adherence. This gives them to have optimal adherence and prevent of the disease from changing to MDR, XDR & TDR resulting better survival and minimize transmission. In addition, it also makes available information on non-adherence to health professionals and health facilities to achieve maximum effort in providing the service for patients infected with TB. A little bit helpful for that limited studies and interventions on the level of non- adherence and associated factors among patients living with TB in Akaki kality sub city. Clear understanding on the level of non-adherence and determinant factors profoundly helpful for Policy makers in program implementation and evidence based intervention.

2. LITERATURE REVIEW

2.1 Prevalence of non-adherence

Non-adherence to anti-TB treatment have adversely affect on treatment success rate and cure rate. Hence, this study assessed the level and association factors of non-adherence to anti-TB medications. Though a self-reported level of non-adherence is assumed to be under-estimated, a high proportion (10%) of non-adherence in the last one month before the survey was found South West Ethiopia study. Similarly, a higher proportion of non-adherence (13.6%) in the four days prior to the survey was reported in Sudan 2012 [17]. This finding is more than twice that reported from Kenya (4.8%). However, the present non-adherence over one month was lower than the previous reports from Southern Ethiopia (20.8%), Uganda (25%), Kolkata, India (40.5%), and the Jiangsu Province of China (12.2%) [18, 19] .

The proportion of patients who had missed one dose and more than one dose of medication within two weeks were 11.71% and 21.03% respectively. In Ethiopia, North West Gonder study had shown non-adherence over one month and the last four days before the survey were 10% and 13.6% respectively. The study in sidma zone, south Ethiopia the prevalence of non-adherence to anti TB treatment was highest (26.6 %) in 2013 [31]. In Alamata district, north Ethiopia the over-all non-adherence was lowest(11.2%) and within the last 30 days was highest(44.4 % among smokers, 40.0 % among khat chewers, 26.9 % among those HIV- sero-positive and 22.2 % among frequent alcohol consumers in 2015 [26].

2. 2 Factors Associated of non-adherence TB

Socio -demographic factors

Patients with lower education level, single, employed and male gender were significantly associated with non-adherence to an anti-TB treatment [21, 22, 23]. Other study showed that in Ethiopia 2015 non adherence anti TB treatment and lost to follow up were distance from health center, financial burdens, , lack of food, lack of transportation, lack of job, communication with HCW and social support [25].

Anti-TB therapy & Co- diseases related factor

In this study we included both HIV-positive and HIV-negative patients. The former studies included only TB-HIV co-infected patients. HIV co-infected patients are much more likely to be non-adherent for

several reasons. On the other hand, this variation may be attributable to the duration in which the adherence was calculated. In the case of the Ugandan study, adherence was estimated over the last five days and it was over the whole intensive phase in the case of Kolkata India [20]. Non-adherence among TB patients having symptoms of TB during the interview, and HIV co-infection were significantly associated with anti-TB medication non-adherence. Thus, special attention and adherence counseling should be given for those who remained symptomatic, those who are co-infected with HIV, and those in the continuation phase of the chemotherapy [25]. The main reasons for the non-adherent patients were drug side effects in south east Ethiopia [26]. Shortage of drug was significant association non-adherence to anti TB treatments in Namibia, India study [32].

Health care giver and Supporter related factor

Patients with newly diagnosed, on the benefits of completing a treatment course, running out of drugs at home, distance to the health facility were related factors [21,22, 23]. Many studies have illustrated a positive effect of health education on improving treatment adherence. A cluster randomized trial in Senegal showed that intensive strategy of treatment monitoring and education led to improved adherence to medications and improved outcomes among TB patients [24]. In Alamata district, north Ethiopia 2015 the main reasons for the non-adherent patients were away from home, drug side effects, being unable to go to the health facilities on the date of appointment [26].

Client related factors

Forgetfulness (34%), and traveling to other places (17%) were the most frequent reasons for missing the anti-TB pills; lack of knowledge about anti-TB treatment was also associated with higher non-adherence rates [21]. Other study showed that in Ethiopia 2015 non adherence anti TB treatment and lost to follow up were, use of traditional healer, alcohol abuse, use of herbal medication influence on non-adherence [22, 23,25]. In south Ethiopia, a cross-sectional study distance, lack of awareness about importance of treatment completion and cost of transportation were the major barriers for adherence [27]. In Alamata district, north Ethiopia the main reasons for the non-adherence patients were forgetting to take medication [26]. Smoking cigarette on treatment, traveling to other place and alcohol consumption was significant association non-adherence to anti TB treatments in Namibia, India study [32].

3. CONCEPTUAL FRAME WORKS

This Schematic diagram showed the relationships between independent and dependent variables

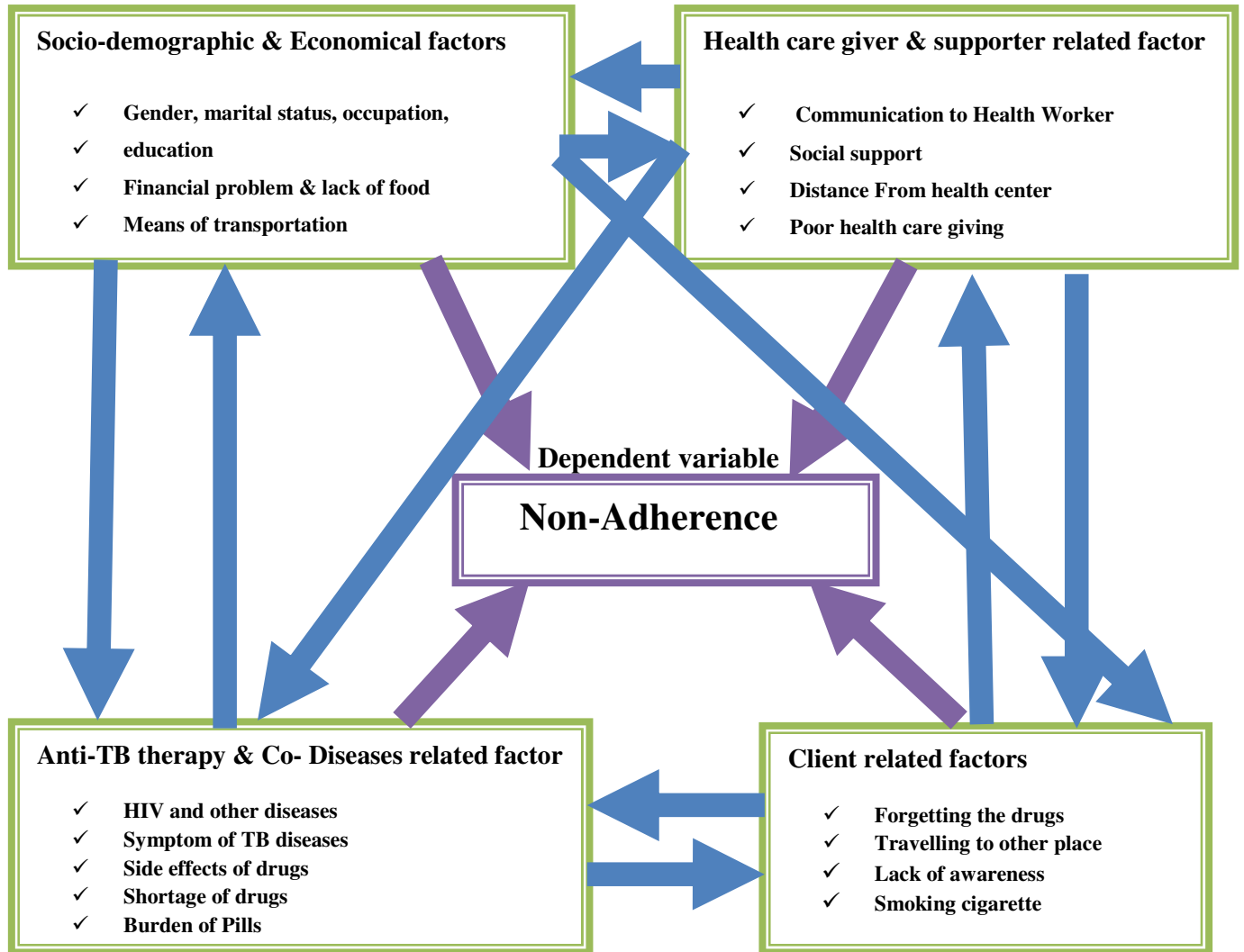


Figure 1 conceptual frame work showed relationships between independent and dependent Variables

4. OBJECTIVE OF THE STUDY

4.1. General objective

- ❖ To assess the level of non-adherence to anti-TB treatment and associated factors among adult TB Patients who attend in public health center of Akak Kality, Addis Ababa, Ethiopia 2017.

4.2 .Specific objective

- ❖ To determine the level of non- adherence to anti TB treatment among adult TB patients
- ❖ To assess associated factor of non-adherence to anti TB treatment among adult TB patients.

5. METHIOD AND MATERIAL

5.1 Study area

Akaki –Kality is one of the ten sub cities of Addis Ababa and industrial zone of Addis Ababa as well as the country and most of the woredas are found at the out skirts of the city. It is located in the southern parts of the city and 20 kms far from the city’s center [29]. The district is the southernmost suburb of the city and borders with the districts of Nifas Silk-Lafto and Bole. Close to it is located district of Oromia Region, part of the Oromia Special Zone Surrounding Finfinne. The sub city has 11 district out of this 3 are rural type the rest 8 is Urban type. The total population is estimated 220,740 with 114,095 female and 106,645 male (20015 Ethiopian Central Statistics Authority).

The residents of the sub city are factory workers, daily laborers, civil servants, military personnel, commercial sex workers, unemployed youth & women. The majority of the factory workers and the rest of the inhabitants earn below US\$ 1 a day. The high urbanization associated with population flow to the sub city. There are large numbers of vulnerable children found like street and working children; orphan and other vulnerable children and trafficked and sexually abused and exploited children [29]. The sub city has 1 government, 1 private Hospital, 9 governments and 1 NGO health center. Of them eight are functional and 2 are under construction, there are around 95 private health institutions in urban wereda of the sub city.

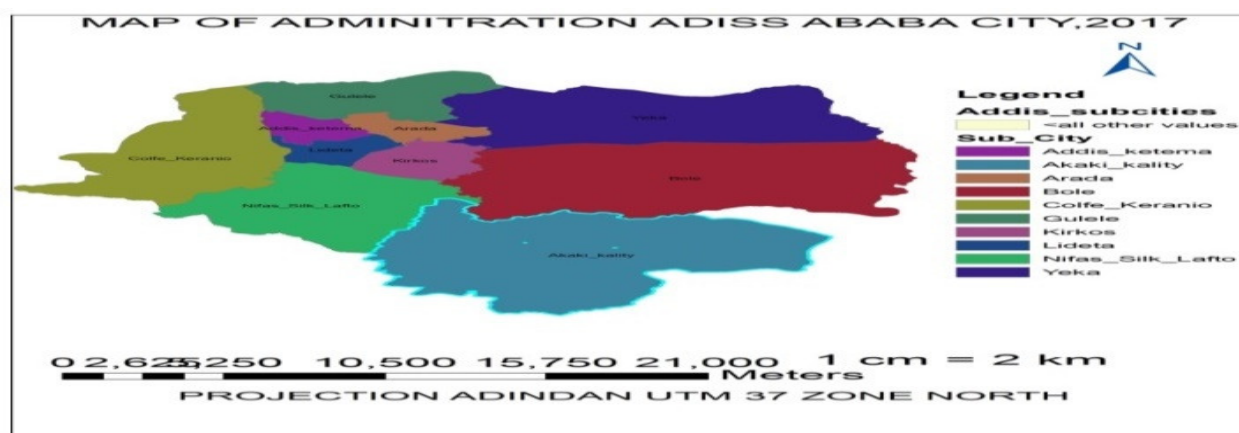


Figure 2 Map of Akakikality sub city A.A, Ethiopia, 2017

5.2 Study design

A facility based cross –sectional study design was conducted.

5.3 Study period

The study period was from October 22/2017 up to December 8/2017.

5.4 Source population

All adult TB patients who are taking TB medication in public health centers in Akaki Kality sub city during the study period.

5.5 Study population

All adult selected TB patients taking TB medication in Akaki Kality sub city of public health centers during the study period.

5.6 sample size determination

The sample size was calculated using the previous prevalence of the overall non adherence rate to anti-TB treatment rate was 53.3 % [32] with 95 % level of certainty and a maximum discrepancy of 5%. For non-response rate 10% of the calculated sample size will be considered and the following single population proportion formula used to calculate the sample size.

$$n = \frac{(Z^{\alpha} / 2)^2 P(1 - P)}{d^2}$$

Where n= sample size Z= Standard proportion population at 95% confidence interval (1.96) P= Estimated proportion of non-adherence, d= Margin of error 5% (0.05). Sample size (n) = $(1.96)^2 \cdot 0.533(1-0.533)/(0.05)^2$. Give as **383** we deducted the sample size by finite population correction formula Where nf = finite population correction formula, N = source of population $nf = n/1+n/N$ $383/1+383/632=242$. Considering non response rate 10%, the final sample size will be $242 \cdot 10/100=26$ then $26+242=$ **268**. Because our source of population were 632 reports all form of TB patents in 2017 [30]. For the 2nd objective using Epi-info v. 7 Stat-Calc by taking statistically significant & pertinent factors with the consideration of 1:1 unexposed to exposed ratio (see on table 1). Finally the largest sample size was selected which is **268** with comparing other difference variable of the sample size.

Table 1: Describe sample size based on previous studies considered different variables (associated factor) and estimated prevalence of non-adherence used by Epi.Info7 software statcalc.

Different considered variables	Non-Adherence		CI 95 %	Pooled 80 %	Ratio 1	OR	Sample Size		Total sample size	Reference
	Out-come in exposed	Out-come unexposed					Exposed	Un-exposed		
Experience side effects of the drugs	25 %	7.8%	95	80	1	4.29	44	131	175	[20]
Co-infected with HIV	21.9%	6.7%	95	80	1	4.06	54	161	215	[20]
Patient satisfaction by health service	9.6%	38.5%	95	80	1	5.9	22	88	110	[26]
Health information at every visit	11.6%	41.2%	95	80	1	3.00	39	153	192	[27]
Pill burden	50%	23.8%	95	80	1	6.1	26	26	52	[27]
Cost medication other than TB	49.5 %	7.1 %	95	80	1	4.07	47	186	233	[27]
Prevalence of non-adherence	53.3%	46.7%	-	-	-	-	-	-	268	[32]

So we selected the largest sample size which is 268 for this study

5.7 Sampling technique

The study was conducted in eight public health centers purposively because in the sub city there are only eight functional public health center working on TB treatment program and systematic random sampling technique was used to select respondents. The number of respondents for each health center was proportionally allocated depending on number of anti TB user and the final sample size of the study. Then all patients taking anti TB medication in the eight public health institution listed out average daily takes medication within a month and know daily sampling frame patients selected by systematic random sampling technique every day with k^{th} value. The first patient was selected by the lottery method.

In 2017 AkakiKalitysubcity have 8 functional Health centers & 632 TB cases reported annually [30]

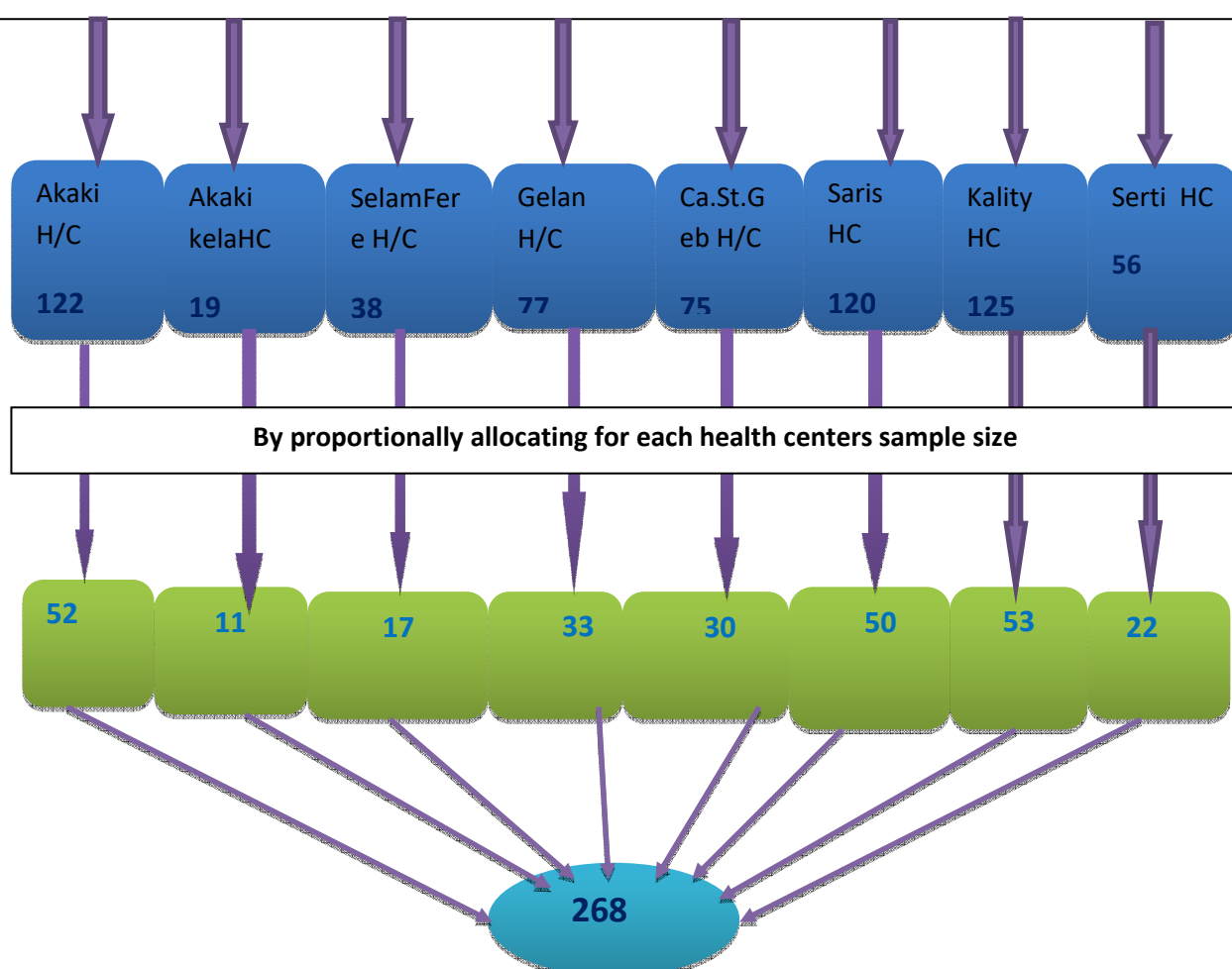


Figure 3: sampling technique by proportionally allocating for each health centers, Akaki kality sample, 2017

5.8 Inclusion criteria

Age greater than or equal to 15 years old taking Anti-TB medication was included in the study.

5.9 Exclusion criteria

Critically ill TB patient, transferred TB (less than 2 weeks), and new started anti-TB less than 2 weeks during the interview was not included in the study because we cannot get enough information about reason of missed drugs.

5.10 Variables

5.10.1 Dependent variables

- ✓ Non-adherence status

5.10.2 Independent variables

- ✓ Age
- ✓ sex
- ✓ Marital status
- ✓ Educational Status
- ✓ Residence area
- ✓ Occupation
- ✓ Care and support
- ✓ Knowledge status on TB
- ✓ Monthly Income
- ✓ Pill burden
- ✓ drug side effects
- ✓ Cost other than anti-TB drugs
- ✓ Distance and transportation
- ✓ Phase of chemotherapy
- ✓ Co-infected (TB with HIV)
- ✓ Opportunistic infection
- ✓ Forgetfulness
- ✓ traveling to other places
- ✓ Cigarette smoking, Alcohol drinking, and Chewing chat.

5.10.3 Variable and its measurement

Variables in the study and its measurement Anti-TB treatment adherence status will the response variable dichotomized as non-adherent and adherent. Over the past two weeks, how many doses of anti-TB medication did you miss?" A patient belonging to either intensive or continuation phase under new or retreatment regimen who had missed at least one prescribed dose of TB drug were deemed as non-adherence because adherence support should start from the time of preparing the patient for treatment and continue throughout the course till end of the treatment [27]. There were cross check and evaluated how many days missed their drugs in TB clinic from the registration books, count the pills and assure from focal person of the TB. Moreover, non-adherence was evaluated as the doses of medication missed in the past 4(4- 6) days, 7(7- 29) days and in the past 1 month (30-end) before the interview.

5.11 Data collection procedure

The study data were collected by investigator administered from the participant's interview with questioner who has degree health back ground such as five BSC nurse and five Public health officers and out of them two were assigned as supervisor according to their experience. Both the data collector as well as supervisor was recruited out-side the study health facilities. The purpose of this study was minimized information bias during data collection. The supervisor and data collectors was trained using lecture and field practice method for two day on basic principles of data collection, on the questionnaire and how to do other related procedures during data collection by the principal investigator for one day. An additional training on data completeness, cross-checking and correction actions was given to the supervisor. Accordingly the supervisor continuously followed and supervised data collectors. He collected and cross-checked the completeness of questionnaires received from data collectors and was took corrective measures accordingly. And he reported and discussed with the principal investigator on a daily basis throughout the data collection period.

A pretest was given for 14(5%) of the participants to ensure for the accuracy of responses, language clarity, and appropriateness of data collection tools, estimate the time required and the necessary amendment will be considered. The pretest was done out-side the actual study site to prevent information bias. The questioner was prepared using semi-structured and customized from different literature questionnaire and adopted from EDHS modified structure questioner [20, 25, 27, 32] The patients were interviewed based on the questionnaire. Non-adherence was measured using patients' self-

reports of how they had been taking their drugs in the four, seven and thirty days before the interview & we used secondary data review for some variables by observing registration books, asking TB focal person & count TB drugs each patients pills. The questionnaire was contained all parts dependent variables and also was prepared in English language and translated to Amharic language.

5.12 Data analysis and interpretation of results

The data were entered using Epi-Info version 7, exported to SPSS version 21.0 to be cleaned and analyzed. Uni-variable analysis was made to describe and summarize basic characteristics of the participants such as percentages, means, median and cross tabulation was made for most selected variables. Multivariable logistic regression analysis was used to assess the association between the dependent variable and each independent variable. Variables with p-values less than 0.2 in bi-variable analysis fitted in the final multivariable logistic regression models to assess the strength of association and control confounding effects. Both Crude Odds Ratio (COR) and Adjusted Odds Ratio (AOR) with 95% confidence interval (CI) used to show an association between selected variables and dependent variables. Variables having p-value less than 0.05 in the final model will be taken as significant determinants.

5.13 Dissemination of results

After completion of this research, the results of the study will be presented during thesis defense and the final result will be submitted St. Paul's Hospital Millennium medical college department of public health. In addition to this the final result document will be presented to Addis Ababa health bureau, Akaki kality sub city health office and other responsible bodies. And also, the findings of the study will be published and disseminated through different journals and scientific publication.

5.14 Ethical consideration

Ethical clearance was obtained from Ethical review committee of St. Paul's Hospital Millennium Medical College Department of Public Health and Addis Ababa health bureau. Permission letter was obtained from Akaki Kality sub city health office accordingly it was presented to respective health facilities. Then the selected patients informed about the purpose of the study, all the benefits and risks. The benefit of this study of result was helpful to the study population as well as the study participants by identifying the level of adherence to anti TB treatment. Accordingly the results were providing an

important input in addressing the problems of adherence to anti TB medication. Otherwise there was no payment in cash or in kind to the study participants. At the end of each data collection there was orientation/education regarding the prevention of non-adherence provided to all TB patients and any question related to adherence to anti TB treatment was entertained. The risk of the study, participating in this study did not have any risk or harm. They have the right to discontinue the interview or to refuse at any time during data collection period. Data was collected ethical consent from patients also be obtained. Confidentiality of information given for each client was kept appropriately and names of respondents were not been registered. The interview totally had taken 25 minutes.

5.15 Operational Definition & indicators

- ❖ **Adherence:** Over the past two weeks, how many doses of anti-TB medication did you miss?" Patients who had missed at least one prescribed dose of TB drug were deemed as **non-adherence** because adherence support should start from the time of preparing the patient for treatment and continue throughout the course till end of the treatment [1, 2].
- ❖ **TB all forms:** All types of Tuberculosis; i.e. pulmonary positive, pulmonary negative & extra pulmonary tuberculosis. [1,2]
- ❖ **New case (N):** A patient who had never treatment for TB, or has been on previous anti-TB treatment for less than four weeks. [1,4]
- ❖ **Knowledge of TB:** - when a participant is able to mention at least two TB mode of transmission and one TB prevention method by her/ him-self or know after description of any method [32].
- ❖ **Pill burden:** is a term that refers to tablets or capsules the most common dosage forms that patient takes on regular bases.
- ❖ **Opportunistic infection-** Is an infection occurred by virus, bacteria or fungus the body due to weakened immune systems such as oral thrush, TB, herpes zoster, etc
- ❖ **Non-adherence:** Not taking anti TB treatment drugs (medication) as prescribed interview with questioner, here were cross check and evaluated how many days missed their drugs in TB clinic from the registration books, count the pills from the shelf and assure from focal person of the TB department [1,2,38].

6. RESULT

6.1 Socio-demographic& economic Characteristics

A total 268 patients (with response rate is 100 %) were interviewed. The study sample consisted of 153(57.1%) were men and 115(42.9%) were women. The age of the median is 30 and 137(51.1 %) were below median while the rest are above. This study showed that 82 (30.6%) participants were Secondary (grade 9-12) educated and married 127 (47.4%) slightly over from others. The majority 52 (19.4%) of the respondents were house wife. Monthly income greater than 2000 Ethiopian Birr (ETB) were 77 (28.8%) participants. The study participant 100(37.4%) was economically depending on family & supporter. (See all Table 2)

Table 2: Socio economic and demographic Characteristics, Akaki kality, Addis Ababa Ethiopia, January 2018

CHARACTERISTICS		FREQUENCY	PERCENT
GENDER	Male	153	57.1
	Female	115	42.9
AGE	15-30	137	51.1
	>30	131	48.9
EDUCATION	Can't read & write	44	16.4
	Can read and write	21	7.8
	Primary (grade 1-8th)	79	29.5
	Secondary (grade 9-12)	82	30.6
	college and above	42	15.7
MARITAL STATUS	Married	127	47.4
	Divorce	19	7.1
	Widowed	30	11.2
	Single	92	34.3
RESIDENCE OF REGION	AA	247	92.2
	SNNP	1	0.4
	Oromo	18	6.7
	Tigre	2	0.7
CURRENTLY OCCUPATION	House wife	52	19.4
	Government Employee	45	16.8

	Private Employee	38	14.2
	Self -Employee	39	14.5
	Farmer	15	5.6
	Daily Laborer	21	7.8
	Student	28	10.4
	Jobless	22	8.2
	pension	6	2.2
	Religious leader	2	0.7
MONTHLY INCOME	<1000 Birr	26	9.7
	1000-2000 Birr	65	24.3
	>2000 Birr	76	28.4
	Depend to family/Supporter	100	37.4

6.2 Health care giver & supporter related characteristics TB patients

All most all about 253(94.4%) respondents disclosed TB status for their family and 163(60.8%) treatment supported by the family. 217(81%) the respondents were ≤ 5 km distance from the health center and also 143(53.3%) participants go to the health centers on foot only. A very good Adherence care and supporting service were gotten 209 (78%) participants by health worker. Clients reached ≤ 30 minutes to health center on foot to take their medication were 173(64.6 %). And waiting time ≤ 5 minutes to the health center to take their medications were the same rank 173 (64.6%). All most all 265 (98.1 %) clients had gotten health education about TB before starting drugs. (See all Table 3)

Table 3: Health care giver & supporter related characteristics TB patients, Akaki kaliti, Addis Ababa Ethiopia, January 2018

Characteristics			Frequency	Percent
TB status disclosure to the family	Yes		253	94.4
	No		6	2.2
	Don't know		9	3.4
Treatment supporter	A family member		163	60.8
	Health facility worker		3	1.1
	Religious leaders		8	3.0
	Health extension worker		59	22.0
Transportation	On Foot	Yes	143	53.3
		No	70	26.1

Vehicle	Yes	69	25.7
	NO	144	53.7
Both used (Foot +Taxi)		50	18.7
Other used		5	1.9
Adherence care & supporting by health worker	Very good	209	78.0
	Good	55	20.5
	Enough	3	1.1
	Week	1	.4
Distance from the H/C	<=5 KM	217	81.0
	>5 KM	51	19.0
Time to reach to the H/C by vehicle	<=10 min.	76	28.4
	>10 min.	48	17.9
Time to reach to the health center on foot	<=30 min.	173	64.6
	>30 min.	21	7.8
Waiting time in the health facilities	<=5 min.	173	64.6
	>5 min.	95	35.4
Health education before starting anti TB treatment	Yes	265	98.9
	No	3	1.1
satisfy by health worker during service	Yes	261	97.4
	No	3	1.1
	Don't know	4	1.5

6.3 TB Disease and Treatment Related Characteristics

The proportion of TB patients 184 (68.7%) reported some kind of adverse effects of anti-TB medication. The participants complained of minor adverse effects were urine discolorations, skin rash and headache or dizziness 165(61.6%), 72(26.9%) and 42(15.7 %) respectively. Most TB patients 219 (81.7%) were new category TB treatment. Near to three quarter 197(73.5) were intensive phase follow up while the rest were continuation phase of TB treatment. TB patients 262 (97.8%) tasted for HIV and out of them 51 (19.9%) respondents were HIV positive (co-infected). All positive HIV (co-infected) patients had started ART drugs. During the interview Opportunistic infection (OI) other than TB having said that 48(17.9%) were participants. Almost all 266 (99.6%) clients said always available of anti-TB drugs. (See all Table 4)

Table 4: Anti-TB therapy and diseases related characteristics of TB patients Akaki kality, Addis Ababa Ethiopia, January 2018

Characteristics		Frequency	Percent
Experience of Anti-TB drugs side effect	No	84	31.3
	Yes	184	68.7
Additional drugs other than Anti-TB	No	174	64.9
	Yes	94	35.1
OI other than TB	No	220	82.1
	Yes	48	17.9
Skin Rash	No	196	73.1
	Yes	72	26.9
Headache & Dizziness	No	226	84.3
	Yes	42	15.7
Yellow color	No	250	93.3
	Yes	18	6.7
Vomiting	No	227	84.7
	Yes	41	15.3
Urine discoloration	No	103	38.4
	Yes	165	61.6
HAART	No	217	81.0
	Yes	51	19.0
CPT	No	224	83.6
	Yes	44	16.4
Pyridoxine	No	242	90.3
	Yes	26	9.7
Types of TB	PTB-SM+	183	68.3
	PTB-SM	2	.7
	EPTB	83	31.0
Phase of chemotherapy(including MDR)	Intensive phase(0-8 month)	197	73.5
	Continuation phase (2-24mo)	71	26.5
Availability of Drugs	No	2	0.8
	Yes	266	99.2

HIV Test	Tasted	262	97.8
	Not Tasted	4	1.5
	Don't know	2	0.7
HIV Test result	Positive	51	19.0
	Negative	211	78.7
	Don't know	6	2.2
Treatment category of TB	New	219	81.7
	Previously treated	24	9.0
	transfer in	7	2.6
	MDR-TB	5	1.9
	Other	13	4.9

6.4 Client Related Characteristics

In this study the participants 67(25%) were non adherence to anti-TB treatment, among them 36(53.7%) male and 31(46.3%) female. Three quarter 201 (75%) participants were adherence to anti TB treatment, out of them 117(58%) male and 84 (41.8%) female. Felt depressed overwhelmed taking medication orally too many pills were 47(17.5%) participants. About 4.9% of TB patients reported that they had a problem of forgetfulness. From this study participants had a habit of drinking alcohol, chewing chat, cigarette smoking previously 50%, 22% and 21% respectively. Almost 230 (85.9%) participants had known about TB transmitted by air droplet bacilli. TB transmitted during sneezing said half 134 (50%) of the participants but TB prevents by covering mouth & nose during sneezing, coughing said that more than three quarters 206 (76.9%). The interruption of TB medication may reach to death said 203 (75.5%) participants. (See all on Table 5)

Table 5 Client related factors non adherence TB patient in Akaki kaliti, Addis Ababa Ethiopia, January, 2018

Characteristics		Frequency	Percent
Non-adherence to Anti-TB treatment	Male	36	53.7
	Female	31	46.3
Drugs Forget/didn't remember it	No	255	95.1
	Yes	13	4.9
Faraway from health facility	No	260	97.0
	Yes	8	3.0

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Overlap time to take medication within their daily routine activity	No	248	92.5
	Yes	20	7.5
Felt depressed taking medication orally too many pills	No	221	82.5
	Yes	47	17.5
Due to fasting and holly-water used	No	260	97.0
	Yes	8	3.0
Alcohol drinking			
	Previously used	134	50.0
	Currently used	22	8.2
	Never used	112	41.8
chewing chat			
	Previously used	60	22.4
	Currently used	9	3.4
	Never used	199	74.3
smoking cigarettes			
	Previously used	57	21.3
	Currently used	15	5.6
	Never used	196	73.1
TB mode transmission Air born			
	No	38	14.2
	Yes	230	85.8
TB transmission sneezing			
	No	135	50.4
	Yes	133	49.6
TB transmission cold weather			
	No	193	72.0
	Yes	75	28.0
TB prevent by covering mouth during coughing, sneezing			
	No	62	23.1
	Yes	206	76.9
Interruption of TB drugs develop MDR-TB			
	No	104	38.8
	Yes	164	61.2
Interruption of TB drugs may occurs death			
	No	65	24.3
	Yes	203	75.7

6.5 Non-adherence to Anti-TB Treatment and Reasons of Pill Missing

The proportion of non-adherence to anti TB treatment four days, seven days and thirty days before the interview were 11%, 13.8%, 17.9%, respectively. Various reasons for non-adherence to anti-TB treatment are listed from the participants for missing the pills. The most common reasons cited by the study participants for missing doses were felt depressed when taken too many pills orally(70%),overlap the time of taking medication to the routine daily activities (29.9%) and others reason (37.7%) among non-adherence participants 67(25%), see figure 4

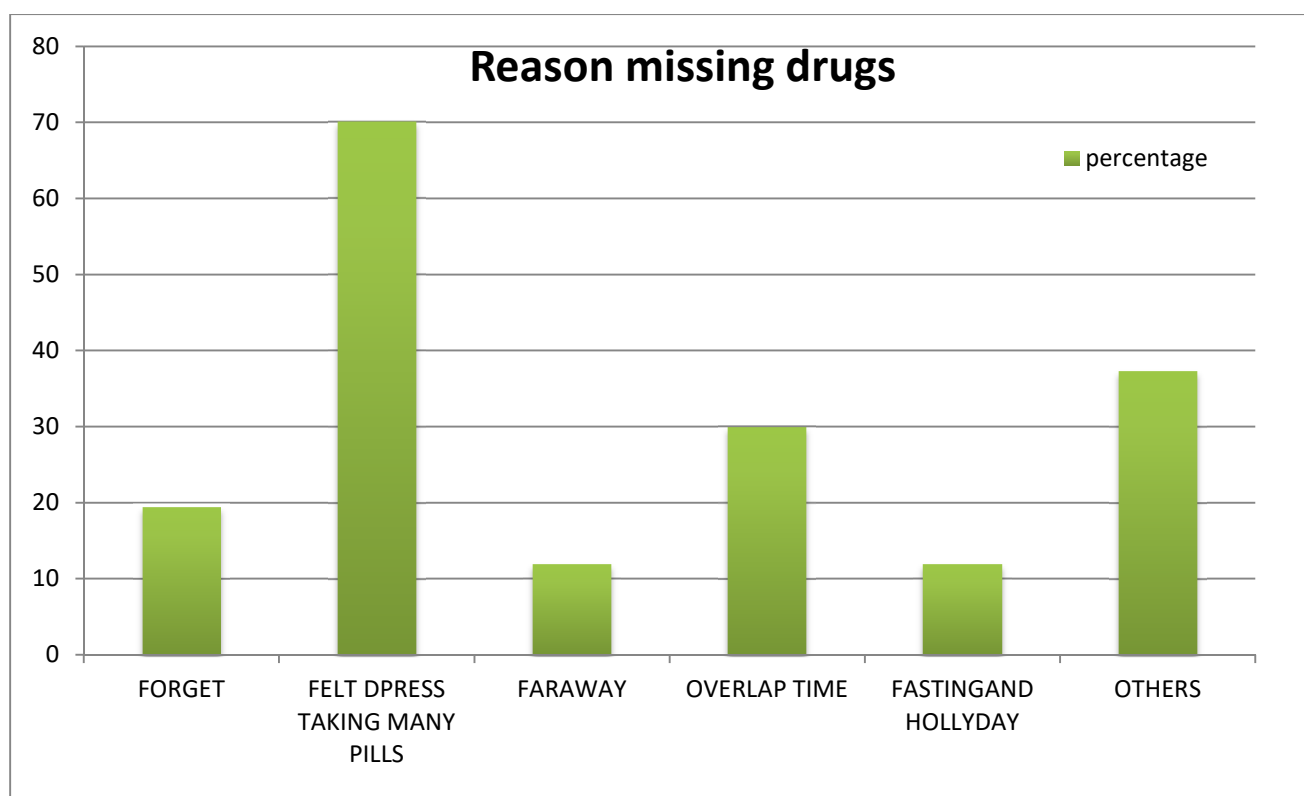


Figure 4:Non-adherence to Anti-TB Treatment and Reasons of Pill Missing, Akaki kality, Addis Ababa Ethiopia, January 2018.

6.6 Factors Associated with Non-adherence to Anti-TB Treatment

In the bivariate analysis, No Monthly income, Anti-TB drugs side effect, OIs other than TB diseases, Skin rash, Vomiting, Urine discoloration, HAART, CPT, Pyridoxine, and continuation phase of anti TB treatments were p-value less than 0.2 and considered multivariate logistic regression model. (See all Table 6).

Table 6: Bivariate analysis with non- adherence to anti-TB treatment in Akaki kality, Addis Ababa Ethiopia, January, 2018

Characteristics	Non-Adherence			P-value	Crude odds ratio(95% CI)
		Yes	No		
Gender	Male	36	117	0.522	1.19(.688-2.09)
	Female	31	84		
Age in years	15-30	33	104	0.724	1.105(0.635-1.92)
	>30	34	97		
Distance from health center in KM	<5	54	163	0.928	1.033(6.52-2.08)
	>5	13	38		
Waiting time in the health center in minute	<5	39	134	0.211	1.436(.844-2.53)
	>5	28	67		
No Monthly income	No	31	170	0.038	2.01(1.04-3.91)*
	Yes	18	49		
Having Experience of Anti-TB drugs side effect	No	131	70	0.035.	2.02(1.05-3.95)*
	Yes	53	14		
OIs other than TB diseases	No	26	180	0.000	5.79(2.97-11.3)*
	Yes	27	40		
Skin rash	No	46	155	0.012	2.137(1.18-3.9)*
	Yes	26	41		
Vomiting	No	23	178	0.003	2.85(1.42-5.69)*
	Yes	18	49		

Urine discoloration	No	116	85		
	Yes	49	18	0.026	2.99(1.85-6.67)*
HAART	No	27	174		
	Yes	14	43	0.000	3.59(1.89-6.84)*
Cost price other than TB drugs used for treatment TB infection	No	8	29		
	Yes	59	172	0.610	0.804(0.34-1.85)
CPT	No	22	179		
	Yes	22	45	0.000	3.98(2.03-7.82)*
pyridoxine	No	13	188		
	Yes	13	54	0.003	3.48(1.53-7.95)*
Phase of chemotherapy (continuation phase)	No	45	152		
	Yes	26	41	0.009	2.19(1.22-3.97)*
Transport used by Taxi	No	17	58		
	Yes	50	143	0.581	1.19(.630-2.23)
Transport used on foot	No	26	63		
	Yes	41	108	0.288	0.736(.419-1.295)

However, in the adjusted analysis Anti-TB drugs side effect, OIs other than TB diseases, Urine discoloration, HAART, Pyridoxine, and continuation phase of chemotherapy were significantly associated with non-adherence to anti-TB treatment. TB patients who had opportunistic infections (OIs) other than TB were 6 times (AOR: 6.43;95% CI 1.33-31.1) more likely to be non-adherent to anti-TB medications than who have no opportunistic infections (OIs) other than TB. Having Experience of Anti-TB drugs side effect 1.7 times (AOR: 1.72 95% CI 1.107-3.80) the probability of non-adherent to anti-TB medications than don not have drug side effects.

Those patients who had urine discoloration on the TB treatments 8.5 times (AOR: 8.5 95% CI 1.92-9.67) more likely to non-adherence to anti-TB drugs than who have no urine discoloration. Patients who had taken both ART and Anti-TB drugs 3 times (AOR: 3.01 95% CI 1.45-5.35) more likely to non - adherence to anti TB drugs than who had not taken both medications together. Those patients who had taken pyridoxine and Anti-TB drugs 3.9 times (AOR: 3.9 95% CI 1.66-9.19) more likely to non-

adherence for anti TB drugs than who had not taken both pyridoxine and anti TB medication together. Those patients who were taken Anti-TB drugs on continuation phase of chemotherapy 2.8 times (AOR: 2.8 95% CI 1.39-5.39) more likely to non -adherence for anti TB drugs than those who were intensive phase of chemotherapy. (See all on Table 7)

Table 7: Logistic regression analysis of factors associated with non- adherence to anti-TB treatment in Akaki kality, Addis Ababa Ethiopia, January, 2018

Characteristics	Non Adherence			P-value	Crude odds ratio(95% CI)	Adjusted odds ratio (95% CI)
	Yes	No				
Monthly No income	No	31	170	0.038	2.01(1.04-3.91)	2.75(1.03-2.85)
	Yes	18	49			
Having Experience of Anti-TB drugs side effect	No	131	70	0.035.	2.02(1.05-3.95)	1.72(1.11-3.80)*
	Yes	53	14			
OIs other than TB diseases	No	26	180	0.000	5.79(2.97-11.3)	6.43(1.33-31.1)*
	Yes	27	40			
Skin rash	No	46	155	0.012	2.137(1.18-3.9)	.250(.053-1.18)
	Yes	26	41			
Vomiting	No	23	178	0.003	2.85(1.42-5.69)	3.81(.916-15.9)
	Yes	18	49			
Urine discoloration	No	116	85	0.026	2.99(1.85-6.67)	8.53(1.92-9.67)*
	Yes	49	18			
HAART	No	27	174	0.000	3.59(1.89-6.84)	3.01(1.45 - 5.4)*
	Yes	14	43			
CPT	No	22	179	0.000	3.98(2.03-7.82)	1.51(.024-95.8)
	Yes	22	45			
pyridoxine	No	13	188	0.003	3.48(1.53-7.95)	3.9 (1.66-9.19)*
	Yes	13	54			
Phase of chemotherapy (continuation phase)	No	45	152	0.009	2.19(1.22-3.97)	2.81(1.39-5.69)*
	Yes	26	41			

7. DISCUSSION

In the present work, the general prevalence of non-adherence to anti TB treatment is 25% among the study population. This finding was similar to the levels of non-adherence reported from other studies conducted in Southern Ethiopia, sidma zone, south Ethiopia, Uganda (24.5%, 25, 25%, and 26.6%). When coming to level of non-adherence to the anti-TB therapy in the four days, seven days and 30 days before the interview were 11%, 13.8%, 17.9%, respectively the study that was done in Northern Ethiopia (10%, 13.6%, 20.8%) consistent with in our study [18, 21, 32, 27, 34, 35]. But this is dissimilar to the study results (16%) that were done in Mumbai, India, and China (33.3%) [21, 32]. The possible explanation for greater non-adherence in this study might be attributable to the differences in sample size, study populations and period of time over which adherence was assessed.

The proportion of non-adherence (11%) in the four days prior to the survey was reported. This finding is similar to that reported from Southern Ethiopia (11%) and higher than Kenya (4%). The proportion of non-adherence to anti TB drugs (13.8%) in 7 days prior to the review was reported. This result is higher than reported from North east Ethiopia (2 %) [26]. However, the present working of non-adherence over one month (20.8%) was similar to the previous reports from Southern Ethiopia (20.8%) and higher than to the study Northern east Ethiopia (11.5%), the Jiangsu Province of China (12.2%) ; lower than to the study Uganda (25%), Kolkata, India (40.5%).[12–15, 26]

We argue that, these differences in findings could be due to variations in definitions of anti-TB non adherence or adherence calculation. No gold standard definition of adherence towards ant-TB treatment is yet available although quantity and timing of missed medication or hospital appointments were recommended by WHO. In our study, patients who missed at list one dose or more of their prescribed doses of anti-TB drugs were considered as non-adherence as mention earlier in the operational definition while others measured non-adherence if patients discontinued medication for 6 days or 10% from the total prescribed drugs [18, 21, 27].

In the adjusted analysis, Anti-TB drugs side effect, OIs other than TB diseases, Urine discoloration, HAART, Pyridoxine, and continuation phase of chemotherapy were significantly associated with non-adherence to anti-TB treatment. Those patients who have Anti-TB drugs side effect 1.7 times the probability of non-adherent to anti-TB medications than who were not have drug side effects. This is near to similar to India study [20] inversely the presenting result is decreased by 4 times from the study north west Ethiopia result. This difference may be the health worker giving education about drug side

effects and early manage the side effects by different drugs like pyridoxine. TB patients who had opportunistic infections (OIs) other than TB were 6 times more likely to be non-adherent to anti-TB medications than who have no opportunistic infections (OIs) other than TB. OIs other than TB infection like HIV, Ulcer, cancer, oral thrush, herpes zoster etc. may be weakened to adherence to anti TB treatments. Patients who have urine discoloration were on the TB treatment 8.5 times more likely to be non-adherence to anti-TB drugs than who did not have urine discoloration. This is one of the anti-TB drug side effects due to rifampicin drugs change the color of urine more associated from other side effects of TB drugs [1, 2]. Those patients who had taken both ART and Anti-TB drugs 3 times more likely to non-adherence to anti TB drugs than who had not taken both medications together. Because of pill burden; HIV/AIDS co-infected patients have many pills to take and the adverse effects of anti-TB medication are more common for HIV co-infected patients [7]. Similarly, HIV/AIDS co-infected patients may be less motivated to take their medication. This finding supported with other study in northwest, Ethiopia, Malaysia and Argentina [20, 36, 37].

Those patients who had taken pyridoxine and Anti-TB drugs 3.9 times more likely to non-adherence for anti TB drugs than who had not taken both pyridoxine and anti TB medication together. This one of pill burden because it was given as treatment of burning sensation anti TB drug side effects in case of isoniazid medication that may be the reason to non-adherence [1, 2]. Those patients who had taken Anti-TB drugs on continuation phase of chemotherapy 2.8 times more likely to non-adherence for anti TB drugs than intensive phase of chemotherapy. This study is decreased by three folds from North West Ethiopia previous study [20]. The reason for this difference in the previous study may be poor follow up and observation in continuation phase patients just like intensive phase. In other way in the presenting study area was better to follow patients in continuation phase anti TB treatment.

8. LIMITATIONS

The study had some limitations, institutional based nature of the study might not infer for other TB patients who didn't visit the institution. Similarly, the nature of cross-sectional study design does not indicate temporal relationship or causality. Self-report of adherence to medications could also be affected by recall bias. Health workers collected data through direct interview of patients and this may subject to social desirability bias. Respondents came from other neighbor or sub city didn't exclude in the study that may be affected external validity.

9. CONCLUSIONS

Twenty five percent's patients from study sample were non-adherence to anti-TB treatment. The levels of non-adherence to anti TB treatments were four days 11%, seven days 13.8%, and thirty days 17.9% before the interview. The main significantly associated factors of non-adherence to anti-TB treatment were Anti-TB drugs side effect, OIs other than TB diseases, Urine discoloration, HAART (co-infected both TB and HIV Positive who had taken ART drugs), Pyridoxine, and continuation phase of chemotherapy.

10. RECOMMENDATION

- ❖ We recommended to Akaki kality sub city health office, health center strictly follow for co-infected patients, and continuation phase treatments, to be give a special attention, education on missing anti-TB drugs problem and regularly adherence counseling
- ❖ We recommended to the health worker of health center give health education of the drug side effects and follow attentively.
- ❖ Further research is also recommended to researchers since the issue of non- adherence is a crucial challenge of TB treatment outcome.

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ANNEX

ENGLISH VERSION TB QUESTIONER

Semi-Structured questionnaires English version

I- Information sheet

Greeting: Good morning/afternoon!

Hello. My name is _____. I am a data collector for master of public health student project in Addis Ababa st. paul's hospital millennium medical collage department of public health. I am conducting a survey with the aim of identifying the level of non-adherence and factors associated to anti TB treatment among TB patients who are attending in your health center. The information I collect will help to your health center and the government at large to plan health services. Now you are systematic randomly selected for the survey. The questions usually take about 15 to 20 minutes. The objective of the study: To assess the level of non-adherence and association factors among TB patients in eight government health center of Akaki kaliti sub city

The benefit of the study: there is no direct benefit to the participant of the study The benefit of this study of the result was helpful to the study population as well as the study participants by identifying the level of adherence & association factors to anti TB treatment. and contributes an input in considering a convenient programmatic approach to solve the problem. The result of the study will be disseminated to concerned bodies, including to akaki kaliti sub city.

The risk of the study: Participating in this study will not have any risk or harm.

Rights of Participants: You have full right either to Participate or decline participation in this study as a participant. You may respond to all the questions or you may not answer to questions you don't want to and you may end the interview at any time you want. You can ask any question which is not clear for you.

Confidentiality: Any information forwarded will be kept confidential and names will not be written or specified.

II-Informed Consent

As to the information given ahead, Participating in this study has no any risk. Your name will not be written on this form and the information you give will never be shared to others.

Now I would like to tell you that you are selected randomly to be a participant of the study. Your genuine response to the interviews will be very important for the purpose of the study. At the same time we would like to appreciate your voluntary participation in the survey after a thorough understanding of the information given to you.

I have read this form or it has been read to me in the language I comprehend and understand all conditions stated above.

Are you willing to participate in this study?

1- No (say thank you) 2- Yes (continue interviewing)

Name of principal investigator: Getye Getaneh

Cell phone No - 0923282445

E-mail: getanegetye@gmail.com

Name of health facility.....

Name of interviewer_____ signature_____

Date of interview (Ethiopian calendar) ____/____/____

Result of interview:

1- Completed..... 2- Refused.....

3- Respondent not available..... 4- Partially completed.....

Checked by supervisor;

Name..... Signature..... Date.....

Part I: Socio-economic and demographic variables		
Q. Code	Question	Interview response choice
Q101	How old are you? (age in years)	_____years
Q102	Gender	1. Male 2. Female
Q103	Ethnicity	1. Amhara 2. Oromo 3. Tigrie 4. Gurag 5. Welyta 6. Sidama Other.....
Q104	What is your religion?	1. Orthodox 2. protestant 3. Muslim 4. Catholic Other specify.....
Q105	What is your current marital/relation status?	1. Married 3. Widowed 2. Divorced 4. Single Other Specify.....
Q106	What is your highest educational level you completed?	1. Can't read & write 4. Secondary (grade 9-12) 2. Can read and write 3. Primary (grade 1-8 th) 5. college and above
Q107	What is your region & place of residence?	1. Region..... 2. S/C or Zone..... 3. Wereda/kebele..... 4. Urban/rural.....

Q108	What is your current occupation	1. House wife 5. Farmer 2. Government employee 6. Daily laborer 3. Private employee 7. Student 4. Self-employee 8. Unemployed Other specify.....
Q109	Monthly income ETB	1. 2. Nothing any income 3. Depend on family/supporter
Part II. Health care giver & supporter related characteristics of respondents		
Q110	Distance from the health center	K.M
Q111	Type of transport to go to health center	1. On foot 3. Taxi /Bus 2. By bicycle/ motor 4. Self-car
Q112	Transportation cost go to health center (Ethiopia Birr)	1. ETB BIRR
Q113	Time to reach to the health center by vehicle	1. Minutes
Q114	Time to reach to the health center by foot(	1. minutes
Q115	Waiting time in the health facilities	1. minutes
Q116	Have you get health education before starting anti-TB treatment	1. Yes 3. Not remember 2. .No
Q117	How did you get adherence care supporting by health worker on your attitude	1. Very good 3. Enough 2. Good 4. Week
Q118	Are you satisfy by health worker in the serving time	1. Yes 2. No

Q119	TB status disclosure to the family	1. Yes 2. No
Q120	Treatment supporter	1. Health facility worker 4. A family member 2. Health extension worker 5. Religious leaders 3. No treatment supporter
Part III. Anti-TB therapy and diseases related characteristics of TB patients		
Q121	Availability of anti TB drugs	1. Always available 2. sometimes available 3. Not available
Q122	Experience of Anti TB drugs side effects	1. Yes 2. No
Q123	If yes, List the side effect of the drugs	1. Skin rash 3. Yellow eye 2. Headache & dizziness 4. Vomiting, 5. Urine discoloration Others.....
Q124	Did take Additional drugs other than Anti TB?	1. Yes 2. No
Q125	If yes, List Drugs taken other than anti-TB (you can mention more than one)	1. HAART 6. Asthma 2. CPT 7. DM 3. HPT 8. Kidney problem 4. Heart problem 9. Anti -psychotic 5. Pyridoxine Other.....
Q126	Having a Cost price other than TB drugs used for treatment TB infection during the treatment time. (Clue anti-pain, Vit. B 6,...)	1. Yes 2. No
Q127	OIs other than TB diseases	1. Yes 2. No

Part IV. Client related factors		
Q128	Did you miss the prescribed anti TB drugs at list one dose anti TB drugs	1. Yes 2. No
Q129	If yes, How many days missed previously 4 days before the interview	1 days
Q130	How many days missed previously 7 days before the interview	1 days
Q131	How many days missed previously 1 months before the interview	1 days
Q132	What is the reason missing the drugs of anti TB	1. Forget it (didn't' remember it) 2. Felt sick when take the medication 3. Far away from health facility 4. Overlap time to take medication with in their daily routine activity 5. Felt depressed/overwhelmed taking medication orally too many pills to take 6. Due to fasting and holly water used Other reasons.....
Q133	Having you a habit of Alcohol used	1. Previously used 2. Currently used 3. Never used
Q134	Having you a habit of Smoking cigarettes	1. Previously used 2. Currently used 3. Never used
Q135	Having you a habit of chewing chate	1. Previously used 2. Currently used 3. Never used

Q136	list mode of transmission of TB at list two of them	1..... 2.....
Q137	How TB prevent? list at list one	1.....
Q138	Knowledge of TB spread and prevention	1. Have Knowledge 3. Don't know 2. Have some knowledge
PART V: TB related Clinical information from TB clinic(from secondary data)		
Q139	Types of TB (can get from document)	1. PTB-SM+ 2. PTB-SM 3. EPTB
Q140	Phases of chemotherapy (can get from document)	1. Intensive phase(0-8 month) 2. Continuation phase (2-24 month)
Q141	Testing for HIV (can get from document)	1. Tasted 2. Not Tasted
Q142	Result for HIV (can get from document)	1. Positive 2. Negative
Q143	Are they Started ART drugs? (can get from document)	1. Yes 2. No
Q144	Treatment category of TB (can get from document)	1. New 4. MDR-TB 2. Previously treated 5. Other 3. transfer in

THANK YOU FOR YOUR COORPORATE

□□□□□□□□□□□□□□□□□□

**ቅዱስ ጳውሎስ ሚሊኒዬም ሜዲካል ጤና ሳይንስ ኮሌጅ
ድህረ ምረቃ ክፍል ለተሳታፊዎች የሚነገር መረጃ እና ስምምነት ቅጽ**

ለተሳታፊዎች የሚነገር መረጃ /ትውውቅ

ጤና ይስጥልኝ እኔ-----እባላለሁ፡፡ በሙያዊ ደግሪ ነረስ ስሆን የ ጥናቱ ዓላማ ቲቢ በሽታ መድሃኒት በታዘዘው አግባብ መሰረት እዳንወሰድ የሚያደርጉን ምክንያቶች ለማወቅ መረጃ ለመሰብሰብ ሲሆኑ በዚህ ጥናት የሚካተቱ ቲቢ በሽታ መድሃኒት እየወሰዱ ያሉ እድሜያቸው 15 አመትና ከዚያ በላይ የሆናቸው ናቸው፡፡በመሆኑም የሚሰጡን መረጃ መንግስትና ሌሎች ጉዳዩ የሚመለከታቸው አካላት ለማሸሻል ና የመፍትሄ መንገዶችን እንዲቀይሱ ይረዳቸዋል ስለሆነም በጥናቱ ላይ በመሳተፍዎ ምንም አይነት ጉዳት አይደርስብዎትም፡፡በጥናቱ ላይ የሚሳተፉት በፍላጎትዎ ሲሆን በሙሉም ሆነ በከፊል ያለመሳተፍ መብትዎ የተጠበቀ ነው፡፡ጥናቱ ላይ ያለመሳተፍ ውሳኔዎ የተከበረ ከመሆኑም በላይ ሚስጥረው እንደማይባክን እርግጠኛ ይሁኑ፡፡ቃለመጠይቁ 25 ደቂቃዎችን ያህል የሚወስድ ሲሆን በማንኛውም ጊዜ ማቆም ይችላሉ፡፡እስካሁን በተነጋገርነው ጉዳዮች ላይ ያልገባዎትና ግልጽ ያልሆነ ነገር ካለ መጠየቅ ይችላሉ ፡፡ስለዚህ ለመሳተፍ ፈቃደኛ ነዎት?

(በሰዓቱ ውስጥ የ”X”ምልክት አድርግ) ፣ አዎ ☐ አይደለም ☐

ፍቃደኛ ካልሆኑ ውሳኔያቸውን አክብሮ በማመስግን ወደ ቀጣዩ፡፡

መረጃ እንዲሰበሰብ ተስማምተናል

መረጃ እንዲሰበሰብ አልተስማማንም

የመረጃ ሰብሳቢ ስም ፊርማ

መረጃው የተሰበሰበበት ቀን

ለበለጠ መረጃ ከፈለጉ ወይም ግልጽ እንዲሆንለት ከፈለጉ ዋና ተመራማሪውን ጌትዬ ጌታነህ

ስልክ :-0923282445 ወይም ኢ.ሚል:- getanehgetye@gmail.com ማግኘት ይችላሉ

የመረጃ ስምምነት ውል ቅጽ

የምርምሩ /ጥናቱ ርዕስ:- በአቃቂ ቃሊቲ ክፈለ ከተማ ባሉ ስምንት ጤና ጣቢያዎችቲቢ በሽታ መድሃኒት በታዘዘው አግባብ መሰረት እዳንወሰድ የሚያደርጉን ምክንያቶች በተመለከተ ለማጥናት፡፡

መግቢያ:- ይህ የመረጃና የስምምነት ውል የተዘጋጀው በአቃቂ ቃሊቲ ክፈለ ከተማ ባሉ ስምንት ጤና ጣቢያዎች የቲቢ በሽታ መድሃኒት እየወሰዱ እድሜያቸው 15 አመትና ከዚያ በላይ ለሆናቸው ነው፡፡

ዋና ዓላማውም:- ስለ ምርምሩ ዓላማ፣ ስለምርምሩ መረጃ አሰባሰቡ ሂደትና እንዲሁም ጥናቱን ለማካሄድ ፈቃድ ለማግኘት ከላይ የተገለፁትን አካላት ግልፅ እንዲሁንላቸው ለማድረግ ነው፡፡

አተገባበር:- የጥናቱ ዓላማ ለማሳካት በአቃቂ ቃሊቲክፈለ ከተማ ባሉ ስምንት ጤና ጣቢያዎች ቲቢ በሽታ መድሃኒት እየወሰዱ እድሜያቸው 15 አመትና ከዚያ በላይ የሆኑ 268 ሰዎች ይካተታሉ፡፡

ሊያጋጥም የሚችል ችግር /አለመመቸት/ :- መረጃ በመስጠትዎ ምክንያት የሚያጋጥምዎት ችግር የለም ባንዳንድ ጥያቄዎች ላይ ብዙ ያለመመቸት ችግር ሊያጋጥምዎት ቢችልም በማነኛዉም ሁኔታ ላይ ሊሰማዎት ከሚችል ችግር ግን አይበልጥም፡፡ በዚህ ጥናት በመሳተፍዎም ስለ ተጨማሪ ቲቢ በሽታ መድሃኒት በታዘዘው አግባብ መሰረት እንዳይወስዱ የሚያድደርጉ ምክንያቶችን ለማወቅና የተሸለ ልምድ እንዲያዳብሩ የረዳዎታል፡፡ የርስዎ ትክክለኛ መረጃ መስጠት ግን ለጥናቱ ጥሩ የመረጃ ምንጭ ይሆናል፡፡

ሚስጥር ስለመጠበቅ:- ለዚህ ጥናት የሚሰበሰበውን መረጃ ሚስጥር ለመጠበቅ ሲባል መረጃ የሚሰበሰበው በሰለጠኑ ባለሙያዎች እና ከሙያዉ ጋር ጥብቅ ቁርኝት ባላቸዉ ነርሶች ሲሆን የተሰበሰበው መረጃም ከጥናቱ ዋና ተመራማሪና ረዳቶች በስተቀር ለሌላ ለማንም ሰው ግልፅ አይሆንም፡፡

ለበለጠ መረጃ : ይህ የምርምር ፕሮጀክት ቅዱስ ጳውሎስ ሚሊኒዩም ሜዲካል ጤና ሳይንስ ኮሌጅ

የሥነ-ምግባር ኮሚቴ ተልዕኮ የፀደቀ ነው። የበለጠ መረጃ ለማግኘት የሚፈልጉ ከሆነ ኮሚቴውን በሚከተሉት አድራሻዎች ማግኘት ይችላሉ። የትኛውም አይነት ጥያቄ ቢኖራችሁ ከዚህ ቀጥሎ የተጠቀሱትን ግለሰቦች ማግኘትና በማንኛውም ጊዜ መጠየቅ ይችላሉ።

ተመራማሪ፡ ጌትዬ ጌታነህ

ስልክ ቁጥር፡ 0923282445

ኢሜል፡ getanehgetye@gmail.com

የስምምነት ማረጋገጫ፡ መረጃ ለመስጠት ፈቃደኛ ነዎት

አዎ

☐

አይደለሁም

☐

መመሪያ፡ መጠይቁ ሦስት ክፍል አለው። ቃለመጠይቁን ለማጠናቀቅ 25 ደቂቃ የሚፈጅ ሲሆን ሁሉንም ጥያቄዎች ለመመለስ ይሞክሩ። ለትእግስትዎ እናመሰግናለን።

ክፍል አንድ፡ የማህበራዊ፣ ኢኮኖሚያዊ እና አኗኗር መረጃ		
ኮድ	ጥያቄዎች	የመልስ ምርጫዎች
ቁ101	እድሜዎት ስንት ነዉ	_____ ዓመት
ቁ102	ጾታ	1. ወንድ 2. ሴት
ቁ103	ብሔር	1. አማራ 2. አሮሞ 3. ወላይታ 4. ትግራይ 5. ጉራጌ 6. ሲዳማ ሌላ.....
ቁ104	ሃይማኖትዎ?	1. ኦርቶዶክስ 2. ፕሮቴስታንት 3. ሙስሊም 4. ካቶሊክ ሌላ ካለ ይገለጥ-----
ቁ105	የጋብቻ ሁኔታ?	1. ያገባህ/ች 2. የፈታ/ች 3. ባለቤቱ /ቷ /የሞተ 4. ያላገባ/ች ሌላ ካለ ይገለጥ.....
ቁ106	የትምህርት ደረጃ?	1. ማንበብና መፃፍ የማይችል / የማትችል 2. ማንበብና መፃፍ የሚችል /የምትችል 3. የመጀመሪያ ደረጃ (ከ1ኛ-8ኛ ክፍል) 4. ሁለተኛ ደረጃ (ከ9ኛ-12ኛ ደረጃ) 5. ኮሌጅ እና ከዚያ በላይ
ቁ107	ይሚኖሩበት ክልል ከተማ/ገጠር?	ክልል.....ወረዳ/ቀበሌ..... ከ/ከተማ..... ከተማ/ገጠር.....
ቁ108	በአሁኑ ሰአት ስራዎት ምንድን ነዉ?	1. የቤት እመቤት 5. አርሶ አደር 2. የመንግስት ሰራተኛ 6. የቀን ስራ 3. የግል መስሪያቤት ተቀጣሪ 7. ተማሪ 4. የግል ስራ በራስ ሌላ ካለ ይጥቀሱ.....

ቁ109	የወር ገቢዎች ስንት ነው	1. ብር ነው 3. በቤተሰብ/በረዳቶች ጠገኛ 2. ምንም ገቢ የለኝም
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ክፍል ሁለት፡ ከህክም አገልግሎት እና ድጋፍ ሰጭ ጋር የተያያዙ ጥያቄዎች		
ቁ110	ቤትዎት ከጤና ጣቢያ ምን ያህል ኪ.ሜ. ይርቃል	1. ኪ.ሜ
ቁ111	ወደ ጤና ተቀም ሲሄዱ የሚጠቀሙት ትራንስፖርት ምንድን ነው (፡2 መምረጥ የቻላል	1. በእግር 3. ታክሲ/አውቶብስ 2. በሳይክል/በሞተር 4. በግልጽ ምኪና
ቁ112	ለትራንስፖርት ወጭዎ ስንት ይሆናል	1. ብር
ቁ113	በትራንስፖርት ወደ ጤና ተቀም ሲሄዱ የሚፈጅብዎት ሰዓት ስንት ነው;	1. ደቂቃ
ቁ114	በእግርዎ ወደ ጤና ተቀም ሲሄዱ የሚፈጅብዎት ሰዓት ስንት ነው;	1. ደቂቃ
ቁ115	ለአገልግሎት መጥተው ጤና ጣቢያ ስንት ሰዓት ይቆያሉ	1. ደቂቃ
ቁ116	በጤና ባለሙያው የምክር አገልግሎት ተስጥቶዎት ነው የቲቢ መድሃኒት የጀመሩት	1. አዎ 2. አይደለም 3. አላሰታውስም
ቁ117	በጤና ባለሙያዎች የምክር አሰጣጥ ያለዎት አመለካከት	1. በጣም ጠሩ 3. በቂ 2. ጥሩ 4. ደካማ
ቁ118	በጤና ባለሙያዎች አገልግሎት ረክተዋል	አዎ 2. አይደለም 3. አላውቅም

ቁ119	ቲቢ መታመምዋትን ለቤተሰብ አሳውቀዋል	1. አዎ 2. አይደለም
ቁ120	ቲቢ ህክምና ላይ እያሉ የሚያስታምዎት ማን ነበር	1. ቤተሰብ 2. ጤና ባለሙያ 3. የሐይማኖት አባት 4. ጤና ኤክስቴንሽን 5. ረዳት የለኝም
ክፍል ሶስት፡ ከቲቢ በሽታ እና መድሃኒቶች ጋር የቴያያዙ ጥያቄዎች		
ቁ121	የመድሃኒት አቅራቢ እንዴት ነበር	1. ሁል ጊዜ አለ 3. ጭራሽ የለም 2. አልፎ አልፎ አለ
ቁ122	የቲቢ መድሃኒት የጎንዮሽ ጉዳት ነበርዎት	1. አዎ 2. አይደለም
ቁ123	መልስዎ አዎ ከሆነ የነበርዎት የጎንዮሽ ጉዳት ምን ምን ነበር (ከ1በላይ ይቻላል)	1. የቆዳ ሽፍታ 2. ራስ ምታትና ማዞር 3. አይን ቢጫ መሆን 4. ወደላይ ማለት 5. የሽንት ክለር መቀየር ሌላ.....
ቁ124	ከቲቢ የህክምና መድሃኒት ውጭ ሌላ መድኃኒት ይወስዳሉ	1. አዎ 2. አይደለም
ቁ125	መልስዎ አዎ፣ ከሆነ የምን የምን ህክምና መድሃኒት እንደሚወስዱ ይንገሩኝ	1. የፀረ-HIV መድሃኒት 6. አስም (Asthma) 2. ፀረ-ተዋስያን (CPT) 7. የአእምሮ ህመም 3. የኩላሊት ህመም 8. ሰኮር (DM) 4. ደምግፊት (HPT) 9. የልብ ህመም 5. ቫይረታማንቢሲክስ ሌላ.....
ቁ126	በቲቢ ህክምና ጊዜዎት ለቲቢ ለህክምና የሚያገለግሉ ከቲቢ መድሃኒት ውጭ ክፍያ ያላቸው መድሃኒቶች	1. አዎ 2. አይደለም

	ወስደው ያውቃሉ	
ቁ127	ከቲቢ በሽታ ውጭ ሌላ (OI) የጎንዮሽ ጉዳት በርስዎ ላይ ተከሰተው ያውቃሉ	1. አዎ 2. አይደለም
ክፍል አራት፡ ከደነበኛ/ታካሚ/ ጋር የተያያዙ ችግሮች		
ቁ128	የታዘዘልዎትን የቲቢ መድሃኒት ቢያንስ አንድ ጊዜ አቋርጠው/ረስተው ያውቃሉ	1. አዎ 2. አይደለም
ቁ129	መልስዎ አዎ ከሆነ ከቃለ መጠይቁ አራት ቀን በፊት ስንት ቀን ረሱ?	1. አንድ ቀን 3. ሦስት ቀን 2. ሁለት ቀን 4. አራት ቀን ሌላ.....ቀን
ቁ130	መልስዎ አዎ ከሆነ ከቃለ መጠይቁ ሰዓት ቀን በፊት ስንት ቀን ረሱ?	1. አንድ ቀን 3. ሦስት ቀን 2. ሁለት ቀን 4. አራት ቀን ሌላ.....ቀን
ቁ131	ከቃለ መጠይቁ አንድ ወር በፊት ስንት ቀን ረሱ?	1. አንድ ቀን 3. ሦስት ቀን 2. ሁለት ቀን 4. አራት ቀን ሌላ.....ቀን
ቁ132	የታዘዘልዎትን የቲቢ መድሃኒት አቋርጠው/ረስተው የነበረው በምን ምክንያት ነበር	1. ረስተው/ባለማስታወስ 2. መድሃኒቱን ስዎሰድ የጎንዮሽ ህመም ስለሚስማኝ/ስለሚጨንቀኝ 3. ጤና ጣቢያው ስለሚርቀኝ 4. መድሃኒት መውሰጃውና መደበኛ ስራ ሰዓት ስለመጋጭ 5. በአፍ የሚዋጥ ብዙ መድሃኒቶች ስለምውሰድ መድሃኒቱ ምረዛማ ስለሆነ ጎንዮሽ ጉዳቱን

		ለማሰወገድለ 6. በፆም በፀበል ምክንያት ሌላ ካለ የጥቀሱ.....
ቁ133	መጠጥ የመጠጣት ልምድ አለዎት	1. ጠጥቶ የሚያውቅ/የምታውቅ 2. አሁን የሚጠጣ/የምትጠጣ 3. ፍፁም ጠጥቶ/ታ የማያውቅ/የማታውቅ
ቁ134	ሲጋራ የማጨስ ልምድ አለዎት	1. አጭሶ የሚያውቅ/የምታውቅ 2. አሁን የሚያጨስ/የምታጨስ 3. ፍፁም አጭሶ/ሳ የማያውቅ/የማታውቅ
ቁ135	ጫት የመጠቀም ልምድ አለዎት	ተጠቅሞ የሚያውቅ/የምታውቅ አሁን የሚጠቀም/የመትጠቀም ፍፁም ተጠቅሞ/ማ የማያውቅ/የማታውቅ
ቁ136	የቲቢ በሽታ በምን በምን ይተላልፋል ቢንሰ ሁለቱን ጥቀሱ	1..... 2.....
ቁ137	የቲቢ በሽታ የምንከላከልት ዜዴ ቢያንስ አንዱን ይንገሩኝ	1.....
ቁ138	ሰለ ቲቢ በሽታ ያላቸው አውቀት	1. ሙሉ 2. መካከለኛ 3. ዝቅተኛ
ክፍል አምስት፡ ከቲቢ ክፍል ዶክመንት ላይ የሚሞላ መረጃ		
ቁ139	የትያዙት የማንኛው አይነት በቲቢ በሽታ ነው?	1. ሳንባ ላይ ሆኖ በአክታ ምርመራ የተገኘ 2. ሳንባ ላይ ሆኖ በአክታ ምርመራ ያልተገኘ 3. ከሳንባ ውጭ
ቁ140	የመደበኛ ህክምና ጊዜ (ከቲቢ ክፍል መዝገብ ይላ ማግኘት ይቻላል)	1. የመጀመሪያ 0-6 ወር ህክምና ላይ ያሉ 2. ቀጣዩ 2-24 ወር ህክምና ላይ ያሉ

ቁ141	HIV ምርመራ ተደርጎልዎታል (ከቲቢ ክፍል መዝገብ ይላ ማግኘት ይቻላል)	1. ተደርጎአል 2. አልተደረገም
ቁ142	HIV ውጤትዎ ምን ነበር (ከቲቢ ክፍል መዝገብ ይላ ማግኘት ይቻላል)	1. HIV በደምዎት ውስጥ የተገኘ 2. HIV በደምዎት ውስጥ ያልተገኘ
ቁ143	ፀረ- HIV መድሃኒት ጀምረዋል?(ከቲቢ ክፍል መዝገብ ይላ ማግኘት ይቻላል)	1. አዎ 2. አልጀመሩም
ቁ144	የመድሃኒት የህክምና ምድብ አይነት (ከቲቢ ክፍል መዝገብ ይላ ማግኘት ይቻላል)	1. አዲስ 4. የተላመደ ቲቢ 2. በፊት ታክመው የነበሩ 5. ሌላ 3. በዝውውር የመጡ

ስለ ተሳትፎዎ እናመሰግናልን