WOLKITE UNIVERSITY`

COLLEGE OF HEALTH SCIENCE AND MEDICINE

DEPARTMENT OF PUBLIC HEALTH

TRENDS OF TUBERCULOSIS TREATMENT OUTCOME AT BUTAJIRA HEALTH CENTER, FIVE YEAR RETROSPECTIVE STUDY

BY;

YODIT AKLILU

SARA SOLOMON

FANTAYE FIKRE

RESEARCH REPORT TO BE SUBMITTED TO WOLKITE UNIVERSITY COLLEGE OF HEALTH SCIENCE AND MEDICINE, DEPARTMENT OF PUBLIC HEALTH; IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS OF BACHELOR OF SCIENCE DEGREE IN PUBLIC HEALTH

ADVISORS:

Mrs. KEBEBUSH Z. (BSC, MPH)

Mrs .FEDILA Y. (BSC, MPH)

OCTOBER, 2021

WOLKITE UNIVERSITY

TABLE OF CONTENTS

LIST OF ABREVATIONS AND ACRONYM

AFB	Acid fast bacilli
CBE	Community based education
CNR	Case notification rate
DOTS	Direct observed therapy short case strategy
EPTB	Extra pulmonary TB
HBC	High burden country
HIV	Human immunodeficiency virus
ID	Identification
MDG	Millennium development goal
MDR	Multi drug resistance
MTB	Mycobacterium tuberculosis
NTLCP	National Tuberculosis and Leprosy Control Program
NTP	National TB program
PTB-	Smear negative
PTB+	Smear positive TB
SNNPR	South Nation Nationalities and Peoples Region
TB	Tuberculosis
TDR	Treatment default rate
TSR	Treatment Success Rate
WHO	World health organization
Rx	Treatment

Multiple studies conducted on southern and northern part of Ethiopia indicates identifying trends of tuberculosis treatment outcome and understanding the specific reasons for unsuccessful treatment are important in the effectiveness of TB treatment (Estifanos B et al, 2014). Therefore, this research was conducted to identify trends of tuberculosis treatment outcome

1.2 STATEMENT OF THE PROBLEM

Globally In the year 2019, an estimated 10 million people fell ill with tuberculosis(TB) worldwide, equivalent to 140 cases per 10,0000 population. The 30 high TB burden countries accounted for 87% of all estimated incident cases worldwide [WHO 2019]. An estimated 10% (range, 8±12%) of the incident TB cases in 2018 were among people living with HIV Consistent with previous global TB reports in 2019 , the number of incident cases is falling slowly [WHO 2019]. Over 25% of TB deaths occur in the African Region. The emergence of multidrug-resistant TB (MDR-TB) poses a major health security threat and could risk gains made in the fight against TB (WHO Africa 2019).

According to the Ethiopian Ministry of Health report, TB is the leading cause of morbidity, the third leading cause of hospital admission, and the second cause of death in Ethiopia. [EMH 2017]. Ethiopia is one of the high burden countries that reported lower rates of treatment success rate. Accordingly Research done by Wondale, B et al2017 also indicate the treatment defaulter, failure, and death rates in Ethiopia ranged from 5.6% to 18.3% [6, 15 ,18 , 24-26], 9.2% to 18.6% [6 , 15 ,18 , 24-25] and 5.6% to 10.1% [6 , 15-16 , 18 , 22 , 24 , 27] respectively.

Poor treatment outcomes, poor adherence and poor quality of drugs results in MDR- TB. Ethiopia is one of the high burden countries for MDR-TB. Successful TB treatment outcomes were below the 85% threshold suggested by the WHO. The estimate of 74.4% found is coherent with those from WHO surveillance. Unsuccessful outcomes, such as treatment failure, defaulter and interruption, are strong predictors of MDR- TB but, other outcomes, such as death, loss to follow-up, and those for whom the outcome is unknown, contribute to the low threshold level of treatment success

Moreover, the prevalence of poor TB treatment outcomes varied substantially across districts and zones in Ethiopia. This variability was significantly associated with underlying differences in zone±level socioeconomic status, knowledge about TB, and mean annual temperature. Hot spots

CHAPTER TWO; LITRETURE REVIEW

2.1 TRENDS OF TREATMENT OUTCOME

TB present in all regions of the world, the average rate of decline in the TB incidence rate was 1.4% per year in 2000 F2016, and 1.9% between 2015 and 2016.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 374000 deaths among HIV-positive people [WHO, 2017]. Moreover, WHO latest Global TB Report says that 2018 also saw a reduction in the number of TB deaths: 1.5 million people died from TB in 2018, down from 1.6 million in 2017. The number of new cases of TB has been declining steadily in recent years. However, the burden remains high among low-income and marginalized populations: around 10 million people developed TB in 2018 (WHO GTR, 2019). The global reduction in the number of TB deaths between 2015 and 2019 was 14%(WHO GTR 2020).

Two out of six WHO regions have achieved all three 2015 targets for reductions in TB disease burden (incidence, prevalence, mortality): the Region of the Americas and the Western Pacific Region. The South-East Asia Region appears on track to meet all three targets. Incidence, prevalence and mortality rates are all falling in the African, Eastern Mediterranean and European Regions but not fast enough to meet targets. The treatment success rate among new cases of TB continues to be high. In 2013, the treatment success rate continued to be high at 86% among all new TB cases [WHO 2013].

According WHO report on global tuberculosis control, the treatment success rate among 22-high burden countries varied from 60% in Uganda to 93% in China, with an average of 83%. [WHO, 2016]. The numbers of household contacts provided with TB preventive treatment in 2018 and 2019 fall far short of those required to achieve the targets for 2018±2022 set at the UN high-level meeting on TB.

The Ethiopian TB control program has currently achieved 100 percent geographical coverage and 92% of public hospitals and health centers offer DOTS [EMH 2017]. A retrospective study at CollaDiba health center shows, among 827 study participant default rate was steadily decreased across years from 13 (8.7%) to 8 (5.4%) in (July 2009-June 2010), 2 (1.4%) in (July

CHAPTER THREE; OBJECTIVES OF THE STUDY

3.1. GENERAL OBJECTIVE

To identify trends of tuberculosis treatment out come in Butajira health center TB clinic Guragae zone, South Nation Nationalities and Peoples Region Ethiopia.2021

3.2. SPECIFIC OBJECTIVES

1 To determine trends of tuberculosis treatment outcome in Butajira health center, Guragae zone, Ethiopia.

2 To determine prevalence of TB treatment success rate in Butajira health center, Guragae zone Ethiopia.

3. METHOD AND MATERIAL

3.1 Study Design

A retrospective study was conduct on trends of TB treatment outcomes of TB patients who registered and start DOTS from January, 2015 to December, 2020.EC at TB clinic.

3.2 Study area and period.

3.2.1 Study area

The study was conducted in Butajira health centre which is found in Butajira town ,Gurage zone, SNNP regional state, Ethiopia. Butajira is located on the 132 km from Addis Ababa, 90 km from wolkite (east). The health center give DOTS service for the people living in and around Butajira ,patient were diagnosed ,register, treated and referred to other DOTS clinics following the national tuberculosis and leprosy control program guideline .

The health center provides service for approximately 23,500 attendance per year both in and out patient ,

There total number of health center in guraga zone is 70 and 6 hospitals 414 health post and 92 clinics of them provide DOTS service

3.3 Population

3.3.1 Source Population

Our population was all TB patients who registered in Butajira health center.

3.3.2 Study population

All TB patients registered and start DOTs from January, 2015 to December, 2020 GC Was our study population.

3.3.3 Study unit

Each selected individual card of tuberculosis patient in the clinic which was included in the study.

K =Total population /Sample size

Total population =1726

Sample size = 328

K=5

3.6 DATA COLLECTION AND ANALYSIS.

3.6.1 Data collection instrument

Structured check list was used, which is developed by referring different literatures and National TB and leprosy control program guide lines. The check list contains socio-demographic data, treatment outcome TB type, HIV status, treatment success, treatment start date and year.

3.7.2 Data collection plan

After obtaining the permission from chief director and medical record department, data collection were done by group member. The collected data was cleaned and checked on a daily base.

3.7.3 Data quality control measures

The check list was developed from the TB treatment registration book to specific settings in order to standardize the data collection tool. The check list was modified according to the study variables include Butajira health center. A necessary correction on the check list was made before applying to the main study subjects to check the quality.

3.7.4 Data analysis

The collected data were entered and analyzed using SPSS version 21 software, and descriptive statistics was formulated and presented by using frequency tables,

3.8 Standard case definitions and treatment outcomes

Clinical case and treatment outcome definitions were used according to the standard definitions of NTLCP, and WHO guidelines [EMH, 2017 and WHO, 2013].

- ‡ **Smear-Positive Pulmonary TB Case**

Smear-positive pulmonary TB is the case of a patient with Two or more initial sputum smear examinations (direct smear microscopy) AFB-positive or one sputum examination AFB-positive plus radiographic abnormalities consistent with active pulmonary TB as determined by a clinician.

CHAPTER FIVE: RESULT

5.1. Socio-demographic characteristics

A total of 361 TB patients were included in our study; of which 251(69.5%) were males and the rest 110(30.5%). While, 90(24.9%) were in the age group 25-34 years and 270(74.8%) were from urban in terms of residence.

Table 1. Socio-demographic characteristics of the study subjects (n=361**); BUTAJIRA healthcenter,TB clinic DEC 2020 GC.**

Characteristic		Frequency	%
Age	0-14	45	12.4
	15-24	75	20.7
	25-34	90	24.9
	35-44	56	15.5
	45-54	60	16.6
	>65	35	9.7
	Total	361	100
Sex	Male	251	69.5
	Female	110	30.5
	Total	361	100
Residence	Urban	270	74.8
	Rural	91	25.2
	Total	361	100

5.2 Clinical case trend

Among a total of 361 study subjects who start DOT during the study period 145(40.1%) were SNPTB case and the rest, 85 (23.5%) and 131(36.2%) were SPPTB and EPTB cases respectively. Out of the total TB cases, 60 (16.5%) were HIV positive; with 25% of males and 75% were female. In terms of disease status, 207(54.3%) were new cases and the rest, 20 (5.5%) were Defaulter. Moreover, 21% were died. There are consistently more SNPTB cases reported each year than SPPTB or EXPTB cases. The least and highest number of annually reported SPPTB cases among the study subjects over the period were 15 cases in 2015 and 25 cases in 2020, respectively. Moreover, The least and highest number of annually reported SNPTB cases among the study subjects over the period were 21 cases in 2015 and 28 cases in 2020, respectively. The cases of all forms of TB were higher among male TB patients.

Table 2. Trends of all forms of TB cases across the study period; Butajira health center ,TB clinic; 2015-2020GC.

No	Year	Pulmonary TB			Extra Pulmonary TB	Total
		Smear Positive	Smear negative	Total		
1	Jan2015- Decb2016	15	21	36	16	52
2	Jan2016- Decb2017	20	50	70	19	89
3	Jan2017- Decb2018	15	25	40	26	66
4	Jan2018- Decb2019	20	19	39	28	67
5	Jan2019- Decb2020	25	27	52	35	87
	Total	85	145	230	131	361

Table 3.TB-HIV-co-infection rate at Butajira health center TB-clinic Dec 2020 GC

HIV status 2016-2020	Quantity	Male (%)	Female (%)
+	60	25	75
-	301	78.3	21.7

CHAPTER SIX; DISCUSSION

In this health institution based retrospective study, information on the overall trend of TB and treatment outcome across the year during the study period were assessed in Butajira health center, Gurage Zone, southern Ethiopia. The trends in all types of TB in this study showed a fluctuating pattern from year to year, which might be as the result of inconsistency in prevention and control program and health professional turnover. The proportions of the different types of TB recorded were similar with those reported in colladiba health center [Beza M., et al 2013],but different proportions were reported from Enfranz health center where there is high proportion of extra pulmonary TB cases [Endrs M. et al 2014].

In this study, the proportion of HIV co-infection among TB patients was 16.5%; higher than the study conducted in colladiba health center (10.9%) [Beza.M et al 2013], and that of 2013 WHO report for Ethiopia (9.6%)[WHO 2013]. This high prevalence of HIV co-infection among TB patients in the study area signifies the urgent need for staff capacity building and increasing public awareness.

The present study found that the successful treatment rate of all TB cases treated at Butajira health center was 65.7% this was unsatisfactory when compared to the 2011 WHO report on global TB control, were the TSR among 22-high burden countries varied from 65% in the Russian Federation to 95% in China [Beza .m et al 2013]. Likewise, the target set by WHO for the prevention and control of TB was to achieve 85% TSR [WHO2006] that was slightly higher compared to our finding.

The low TSR observed in this study might be due to poor adherence and high transferred rate (10.5%), were treatment outcome of patients who were transferred out were unknown. The higher proportion of treatment success rate among TB patients is observed in the year 2016-2017 which is 76.4% in this study.

The default rate in this study 33 (9.1%) was lower than the average 11.7% observed among the 22 HBCs [Beza.m et al 2013], and other studies conducted in the country; 5.1%, 26.5% and 3.5% in adiss Ababa , Arsi and Colladiba health center, respectively [M.G Betel WHO et al 2013]. This lower defaulter rate in this study might be due to proper supervision and health

education in the study area. In contrast to the study conducted in Arsi zone, this study also found a significant decrease in death rate of TB patients.

6.1. LIMITATION OF THE STUDY

Due to unregistered information on clinent cared like about educational status ,income and occupation of the patients because of this we are not get enough information

9. REFERENCE

Alene, K.A., Viney, K., Gray, D.J. et al. Mapping tuberculosis treatment outcomes in Ethiopia. BMC Infect Dis 19, 474 (2019). https://doi.org/10.1186/s12879-019-4099-8

B. GeWDKXQ*3HQL6%LDGJLOLJQDQG*0HGKLQ0RUWDOLWDQGDVVRFLDWHGULVNIDFWRU cohort of tuberculosis patients treated under DOTS programme in Addis Ababa, (WKLRSLDBMC Infectious Diseases, vol. 11, article 127, 2011.

B. Tessema, A. Muche, A. %HNHOH5HLVVLJ(PPULFKDQG86DFN7UHDWPHQWRXWFRPHRI tuberculosis patients at Gondar University Teaching Hospital, Northwest Ethiopia. A five² HDUUHWURSHFWLYHBMC Public Health, vol. 9, article 371, 2009.

BashaAyele and GetachewNenko: (Sep 28, 2015) terms Treatment Outcome of Tuberculosis in Selected Health Facilities of Gedeo Zone, Southern Ethiopia: A Retrospective Study.

Belete G, Gobena A, Girmay M, Sibhatu B(2012): Treatment outcome of tuberculosis patients under directly observed treatment in Addis Ababa, Ethiopia.; 10 Year retrospective study ;May 2012

D. G. Datiko and B. LinGWMJQ 0RUWDOLW\LQ VXFFHVVIXOO\WUHDWHG WXEHUFXORVLV southern Ethiopia: retrospective follow-XS VWXGLInternational Journal of Tuberculosis and Lung Disease, vol. 14, no. 7, pp. 866±871, 2010.

Dangisso MH, Datiko DG, Lindtjørn B: Trends of Tuberculosis Case Notification and Treatment Outcomes in the Sidama Zone, Southern Ethiopia: Ten-Year Retrospective Trend Analysis in Urban-Rural Settings. (2014) PLoS ONE 9(12):e114225.

Estifanos B Shargie and BerntLindtjørn : DOTS improves treatment outcomes and service coverage for tuberculosis in South Ethiopia: a retrospective trend analysis; BMC Public Health, vol. 5, 2014.

Ethiopia health and nutrition research institute: First Ethiopian national population based Survey Addis Ababa July, 2011.

Wegderese Sintayehu, Abebe Abera, Teklemichael Gebru, Temesgen Fiseha (2014). Trends of Tuberculosis Treatment Outcomes at Mizan-Aman General Hospital, Southwest Ethiopia: A Retrospective Study. International Journal of Immunology (2014).

World Health Organization .Definitions and reporting framework for tuberculosis² 2013 revision. Geneva: World Health Organization; 2013.

0*%H]D07:XELH07HIHULHWDO$LYH1HDUVWXEHUFXORVLVWUHDWPHQWRXWFRPHDW kolladiba health center, dembia district, northwest ethiopia: a retrospective cross-VHFWLRQDODQDO\VLV Journal of Infectious Diseases and Therapy, vol. 1, article 101, 2013.

Belete G, Gobena A, Girmay M, Sibhatu B(2012): Treatment outcome of tuberculosis patients under directly observed treatment in Addis Ababa, Ethiopia.; 10 Year retrospective study ;May 2012

World Health Organization (2006).Stop TB Strategy: Building on and enhancing DOTS to meet the TB-related Millennium Development Goals. Geneva: World Health Organization (2006). Chapter 3, vision, Goal, objectives, targets and indicators; P.6-16.

B5	TB type ± smear result	1. Smear positive pulmonary TB 2. Smear Negative pulmonary TB
B6	TB category	1. Pulmonary TB 2. Extra pulmonary TB
B7	HIV status of patient	1. Positive 2. Negative
B8	TB treatment outcome	1. Completed 2. Cured 3. Defaulted 4. Failed 5. Transferred 6. Death
B9	TB treatment outcome (Smear +ve)	1. Completed 2. Cured 3. Defaulted 4. Failed 5. Transferred 6. Death
B10	TB treatment success (Smear +ve)	1. Success 2. Not success