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ADHERENCE TO ANTI-TUBERCULOSIS TREATMENT AMONG TUBERCULOSIS PATIENTS AT AGARO HOSPITAL AND ITS HEALTH CENTER (*Agaro Town, Jimma Zone, Oromia Region, Ethiopia*)

PRIDRŽAVANJE ANTITUBERKULOZNOG LEČENJA BOLESNIKA SA TUBERKULOZOM U BOLNICI I ZDRAVSTVENOM CENTRU AGARO (*Agaro Town, Jimma Zone, Oromia Region, Ethiopia*)

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TB, adherence, treatment, Agaro Hospital, Ethiopia

Ključne reči
TB, pridržavanje, lečenje, Agaro bolnica, Etiopija

Abstract

Background: Tuberculosis is an important re-emerging disease with increased morbidity and mortality. Tuberculosis control is hindered by patient non-adherence with treatment regimens. The poor adherence to anti-tuberculosis treatment among patients with tuberculosis is a major problem in Ethiopia. The purpose of this study was, therefore, to assess level of adherence to anti-tuberculosis treatment at Agaro hospital and its health center.
Method: Cross sectional study design was conducted to determine the level of adherence to anti-tuberculosis treatment among tuberculosis patients at Agaro hospital and its health center, using structured questioner, from February 9 up to 20, 2015. Data was collected, compiled and analyzed to determine the level of adherence
Result: Total of 137 patients included in this study. Among them 68 (49.6%) are females and 69 (50.4%) are males. Fifty three (38.7%) were in the age group of 25-46 and only 17(12.4%) were on age above 66. Total of interviewed patients, 79 (57.6%) were from urban area. The overall proportion of adherent patients was 91.2%. The main reasons for being non- adherent were forgetting to take medication (58.3%), being away from home (33.3%), and failure to go to the health facilities (8.3%) on their right appointment.
Conclusion: The level of adherence (91.2%) observed in this study is relatively high. The main reasons for being non-adherent were forgetting to take medication, being away from home, failure to go to the health facilities on their right appointment. Health education on TB treatment and control must be continued in strengthened manner. Special emphasis should be made with regard to TB patients who are HIV positive to improve adherence to TB treatment by the health care provider of the health center.

INTRODUCTION

Tuberculosis (TB) continues to be an important public health problem worldwide, in terms of both mortality and morbidity among the adult population (1). The appearance of micro epidemics of the tuberculosis has been increased in many parts of the world. As a result, the world health organization in (1993) declared tuberculosis as an emergency (2). It is a highly infectious disease which is caused by acid-fast bacilli (AFB), belonging to the *Mycobacterium tuberculosis complex (Tuberculosis, M.bovis, M.africanum, M. microti, M. caprae, M. Canettiand M. pednpenii)*(2). The emergence of drug resistant strains of TB is considered a global threat to the control of the disease (3). In spite of the fact that TB is preventable, treatable and curable; it is estimated that one-third of the world's population is infected with latent TB (LTB), about eight million new cases arise each year and about two million people die from TB each year (3).

The World Health Organization (WHO) estimates that almost 9 million new patients develop TB each year, and that 1.8 million people died from TB globally in 2008. TB has a huge impact on patients, families and their communities

through spending on diagnosis, treatment, transport to and from the health facilities and time lost from work. However, if TB is detected early and fully treated, people with the disease quickly become non-infectious and are eventually cured [4]. The WHO, in its global plan to stop TB, reports that poor treatment has resulted in evolution of mycobacterium TB strains that do not respond to treatment with standard first line combination of anti-tuberculosis medicines, resulting in the emergence of multi-drug resistance tuberculosis (MDR-TB) in almost every country of the world [5]. Without the implementation of proper control measures, WHO estimates that between 2000 and 2020, nearly one billion people will be newly affected, 200 million will get sick and 35 million will die from TB [5].

The disease affects the lungs in approximately two thirds of cases, but almost all other organs can be the site of TB infection. Its clinical presentation, therefore, depends on the site of infection, the organ affected and its severity [6, 7]. The main source of infection is untreated smear-positive pulmonary TB (SPPTB) patient discharging the bacilli. TB mainly spreads by airborne route when the infectious patient expels droplets containing the bacilli. It is also transmitted by consumption of raw milk containing *M. bovis* [8, 9]. The risk of infection depends on the susceptibility of the host, the extent of the exposure and the degree of infectiousness of the index case [10].

A complex interaction exists between TB and HIV infection[11]. HIV increases the risk of infection, as it reactivates LTB and increases the progression to active disease [12]. TB-HIV co-infection has fatal consequences as TB becomes the leading cause of death in HIV infected individuals and patients with AIDS [12]. HIV weakens the immune systems; it increases vulnerability to TB[12]. The highest rates of TB cases are found in countries where poverty, crowding and insufficient health care programs are common problems. Ethiopia is among the 22 high burden countries (HBCs), in the world [13]. According to hospital statistics data, TB is the leading cause of morbidity, the third cause of hospital admission and the second cause of death in Ethiopia [14]. Efforts to control the tuberculosis epidemic depend largely on patient's adherence to tuberculosis treatment [14].

Although, the correct treatment of TB aims at curing the patient, poor treatment outcomes are the main challenges in TB control in many regions of the world resulting in increased risk of morbidity, drug resistance and transmission [15]. According to WHO report on the topic emphasizes adherence is simultaneously influenced by several factors such as individual patient characteristics, socio-economic factors, the structure and nature of health care services offered, the quality of patient- provider communication and the nature of social support that patients receive [16]. Patient-related factors including socio-demographic factors, knowledge, beliefs and attitude about TB and its treatment have been associated with poor treatment adherence [17]. Patients' life style such as alcoholism and substance abuse were also shown to be risk factors [18]. Adherence can influence the emergence of new disease strains, individual health outcomes and the overall cost of health care. Non-adherence to treatment may also lead to the emergence of TB that is more difficult to cure with existing drugs. Multidrug resistant TB (MDR-TB) has emerged largely because of non-adherence to anti-TB treatment. Non-adherence to anti- TB treatment may result in prolonged infectiousness, drug resistance, relapse and death. Treatment interruption thus poses a serious risk both for the individual and the community[19].

In many countries globally, the adoption of Directly Observed Treatment (DOT) has been associated with reduced rate of treatment failure, relapse and drug resistance. However, its impact in reducing TB incidence has been limited by non-adherence to DOT, which occurs when patients do not turn up for treatment at the health facility or community DOT point. In countries where DOT has had little impact on TB control, poor or non-adherence to self-administered TB treatment is common and has been identified as an important cause of failure of initial treatment, leading to relapse [20].

One of the main barriers to adherence to TB treatment programme is the limited social and economic resources that TB patients endure [21]. According to a study conducted to illustrate health care practitioner's responses to TB patient's understanding, many of the focus group members often report that they are not able to meet their basic needs for food and adequate shelter [22]. Inadequate knowledge about the illness, also, has a negative impact on adherence [22].

Several studies have been done on the factors associated with, compliance and adherence issues for anti-TB treatment [23-34].

Once the factors are identified then targeted strategies to address them can be designed. The study should benefit the TB patients as the findings may be used to develop strategies to improve the quality of care. The objective of this study was to assess the level of adherence to anti-TB treatment among TB patients at Agaro hospital and its health center Agaro town, Jimma zone, Oromia region, Ethiopia.

1. METHODS AND MATERIALS

1.1 Study design

A cross-sectional descriptive study was conducted on patients following tuberculosis follow up clinic at Agaro hospital and its health center, Agaro town, Jimma zone, Oromia region, Ethiopia, from February 9 up to 20,2015. The required sample size for study was calculated by using the simple population proportion formula. Sample size was determined to estimate level of adherence to anti-TB treatment with reasonable degree of accuracy (i.e. margin of error will be taken as 5% with 95% confidence) assuming 90% for the level of adherence of the patient to anti- TB treatment. Based on a previous study conducted in northern part of Ethiopia, the adherence prevalence rate was 78% [23], with confidence interval of 95% and taking a margin of error of 5%. This prevalence rate is with the assumption that 90% of the interviewed patients will adhere to their medication. The final sample size was 137. The inclusion criteria for this study were age above 15 years, Patients who have no communication problem, Patient who have been on anti-TB drugs for more than one month, Patients who have no mental problems and volunteer to participate in the study were included in the study. The exclusion criteria were children below the age of 15 years, patients with obvious psychiatric problems and prisoner patients.

1.2 Data collection and analysis

Data collectors were selected from staffs from Agaro hospital and its health center and well trained on how to collect data and the data collectors used structured questioners to interview the patient. For better precision of the result of the study, data collectors were briefed on terms, variable and how to record the data .The questioner was tested before the actual data collection period. After data was collected, it was analyzed manually by tallying and tabulation of collected data.

1.3 Ethical consideration

Tuberculosis, like HIV/AIDS, becomes difficult to discuss in public looking at the sensitive nature of the study. All patients were assured of confidentiality. Respondent was informed that this information would not be made available to persons outside the study team. Furthermore, for the collection of the data a formal letter was written from the department of pharmacy, college of public health and medical science, Jimma University. The data was then collected after permission from the head of both Agaro hospital and its health center and Verbal consent with patient was done for permission.

2. RESULT

2.1. Socio-demographic characteristics

A total of 137 patients were included in the study, among them 69(50.4%) were males and 68(49.6%) were females, 11.6% from males and 5.9% from females were non-adherent. Out of patients interviewed, 48(35%) have family members less than 4 with non-adherence rate of 6.3%. Based on patient's lifestyle, smokers were 21(15.3%), khat chewers were 46 (33.6%), and alcohol users were 28 (15.3%). Among patients interviewed, majority 84(61.3%) % have monthly income above 500, of this 9.5% were non-adherent. Regarding marital status, the majority 80(58.4%) are married and 42(30.6%) are single, 7(5%) are widowed and 8(6%) are divorced. Ten percent from the married and 9.5% from single are non-adherent. From the total of interviewed patients majority, 67(49%), have secondary and above educational status; 45 (32.8%) were illiterate and the rest are primary and those can only read and write. Majority, 79(57.6%), of the interviewed patients were from urban residence. From total of the interviewed, 132(96.3%) were new cases and 5(3.7%) were re-treatment cases. Out of 137 patients interviewed, all of them knew their HIV status, of these 29(21%) were positive for HIV status. With regards to religion, majority of them were Muslims, 68(49.6%), orthodox were 36(26.3%), protestant were 29(21.2%) and catholic were 4(2.9%). From total of patients interviewed, 53(38.7%) are age range 25-46, 39(28.5%) are at age range 47-66 and the rest are 15-24 and above 66. Majority 93(68%) of interviewed patients use vehicle to come to Agaro hospital and its health center. Of this, 8(8.6%) were non adherent to their medication.

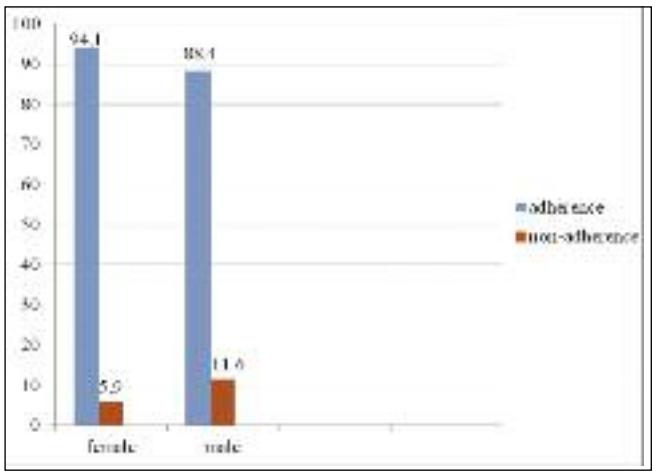
Table 1. *Socio-demographic characteristics of the study participant's at Agaro hospital and its health center, Agaro town, Jimma zone, Oromia region, Ethiopia, from February 9 up to 20, 2015.*

Characteristics	Classification	Treatment status		Total
		Adhered	non-adhered	
Sex	Male	61(88.4%)	8(11.6%)	69
	Female	64(94.1%)	4(5.9%)	68
Total		125(91.2%)	12(8.8%)	137
Age (years)	15-24	25 (89.3%)	3(10.7%)	28
	25-46	52(98.1%)	1(1.9%)	53
	47-66	34(87.2%)	5(12.8%)	39
	66+	14(82.3%)	3(17.6%)	17
Total		125(91.2%)	12(8.8%)	137
Religion	Orthodox	32(88.8%)	4(11.2%)	36
	protestant	28(96.5%)	1(3.5%)	29
	Muslim	61(89.7%)	7(10.3%)	68
	Catholic	4(100%)	0(0%)	4
Marital status	Married	72(90%)	8(10%)	80
	single	38(90.5%)	4(9.5%)	42
	widowed	7(100%)	0(0%)	7
	divorced	8(100%)	0(%)	8
Treatment History	New cases	120(90.9%)	12(9.1%)	132
	Re-treatment	5(100%)	0(%)	5
Table 1 cont'd.				
Education	Illiterate	40(88.8%)	5(11.2%)	45
	Read and Write	10(100%)	0(%)	10
	Primary	15(100%)	(0%)	15
	Secondary and above	60(89.5%)	7(10.5%)	67
Residence area	Urban	75(94.9%)	4(5.1%)	79
	Rural	50(86.2%)	8(13.8%)	58
Family size	1-4	45(93.7%)	3(6.3%)	48
	>4	80(89.9%)	9(10.1%)	89
Means of transportation	Foot	40(90.9%)	4(9.1%)	44
	Vehicle	85(91.4%)	8(8.6%)	93
Occupational status	Employed	30(90.9%)	3(9.1%)	33
	farmer	35(94.6%)	2(5.4%)	37
	Housewife	5(100%)	0(0%)	5
	student	10(100%)	0(0%)	10
	Merchant	45(86%)	7(13.5%)	52
HIV status	Positive	26(89.6%)	3(10.4%)	29
	Negative	99(91.6%)	9(8.4%)	108
Alcohol use	Yes	27(96%)	1(3.6%)	28
	No	98(89.9%)	11(10.1%)	109
Family income(Birr)	<500	49(92.4%)	4(7.6%)	53
	>501	76(90.5%)	8(9.5%)	84
Chewing of chat	Yes	44(95.6%)	2(4.4%)	46
	No	81(89%)	10(11%)	91
Smoking	Yes	21(100%)	0(0%)	21
	No	104(89.6%)	12(10.4%)	116

2.2 Sex and Adherence level

From total of interviewed patients, the majority of female patients 94.1% were adherent and 5.9% were non-adherent for their medication and 88.4% of male patients were adherent and 11.6% of them were non-adherent (In figure 1, below).

Figure 1*: Sex and adherence level of respondents at Agaro hospi-*



tal and it's health center, Agaro town ,Jimma zone, Oromia region, Ethiopia from February 9 up to 20,2015.

2.3 Marital and adherence

Patients who are married are more non-adhered 10% than patients who are single 9.5% and those divorced and widowed are completely adhered to their medications(In figure 2 below

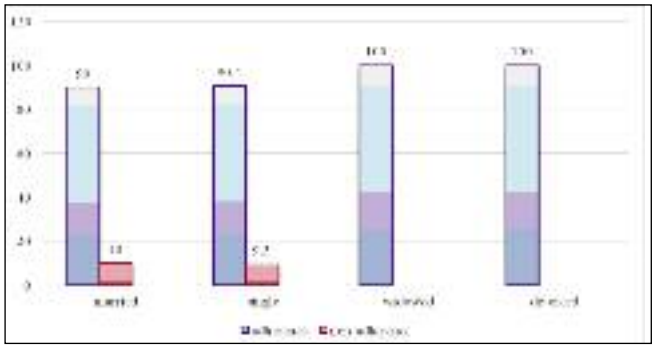


Figure 2. *Marital and adherence status of the patients at Agaro hospital and it's health center ,Agaro town, Jimma zone, Oromia region, Ethiopia from February 9 up to 20,2015.*

2.4 Age and adherence level

Total of patients interviewed most non-adherent patients are at age range of above 66 years of age ,second non-adherent groups are from age range 47-66,then thirdly non-adherent patients are at age range 25-46 and finally patients who are at age range15-24 lowest non-adherent.

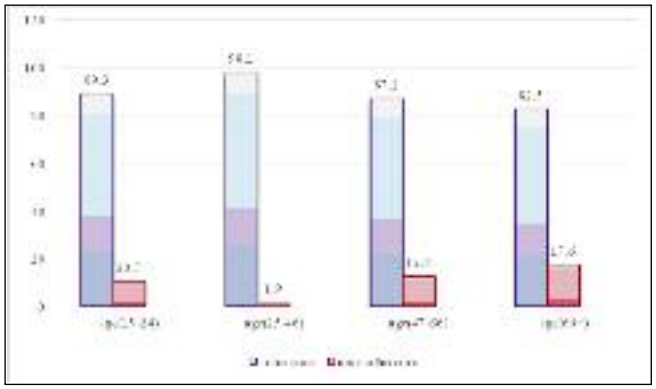


Figure 3. *Age and adherence level at Agaro hospital and its health center, Agaro town, Jimma zone, Oromia region, Ethiopia, from February 9 up to 20,2015.*

2.5 Reasons for non-adherence

The top reason for non-adherence of patients to their medication is forgetting to take medication (58.3%), secondly patients being away from home (33.3%) and finally failure to go health institution (8.3%).

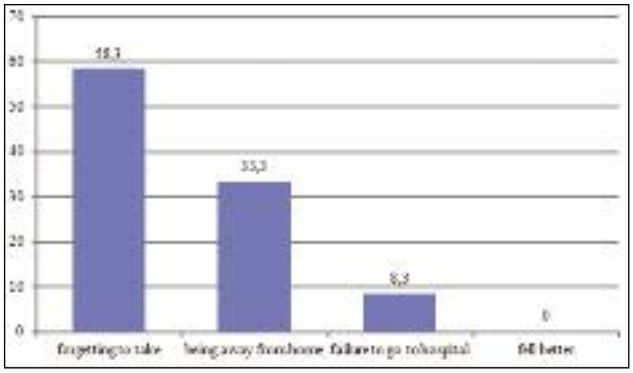


Figure 4*. Reasons for non-adherence for TB patients at Agaro hospital and its health center, Agaro town, Jimma zone, Oromia region, Ethiopia, from February 9 to 20, 2015.*

2.6 Phase of treatment

From total of interviewed patients 61% are in continuous phase and 39% are in intensive phase, from these, 9(75%) are non-adhered from continuous phase and 3(25%) are non-adhered from intensive phase.

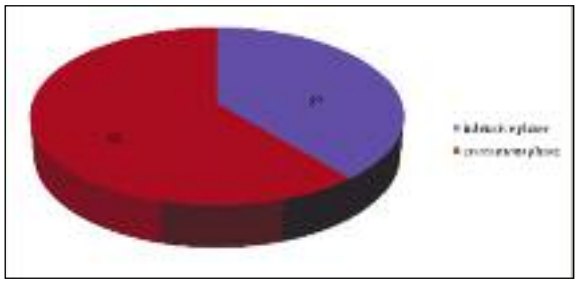


Figure 5: *Proportion of adhered and non-adhered in the continuous and intensive phase of anti-TB treatment*

2.7 Reasons for non-adherence

The first top reason for non-adherence reported was forgetting to take medication (58.3%) the another are being away from home (33.3%) and the final reason was failure to go hospital (8.3%). About (33.4%) of non-adherent patients are females and (66.6%) of non-adherent patients are males.

2.8 Patients satisfaction by health services

Total of patients interviewed 121 (88.3%) were satisfied, from them 9.1% were non-adherent, whereas 16 (11.7%) were un satisfied with non-adherence rate of 1 (6.6%) by the hospital and health center service. Most 132 (96.3%) of patients counseled on each visit, among which 12 (9.1%) are non-adherent.23 (100%) were counseled in the first visit none of which are non-adherent. Five (100%) of patients were never counseled. Majority 136 (99.3%) of the study participants had open communication with the health care providers and 133 (97%) of the study participants said that the care providers provided privacy for them, while attending at both hospital and health centers. The majority 125 (91.2%) obtained health education during their follow up period, from them 12 (9.6%) were non-adherent and all the

***Table2**. Reasons for non-adherence among participants at Agaro hospital and it's health center, Agaro town, Jimma zone, Oromia region, Ethiopia, from February 9 up to 20,2015.*

Characteristic		Reasons for non-adherence				Total
		Failure to go to hospital	Being away from home	Forgetting to take	Feel better	
Sex	Male	1(12.5)	3(37.5%)	4(50%)	0(0%)	8
	Female	0(0%)	1(25%)	3(75%)	0(0%)	4
Total		1(8.3%)	4(33.3%)	7(58.3%)	0(0%)	12
Marital status	Married	0(0%)	3(42.8%)	4(57.2%)	0(0%)	7
	single	0(0%)	1(20%)	4(80%)	0(0%)	5
	Divorced	0(0%)	0(0%)	0(0%)	0(0%)	0
	Widowed	0(0%)	0(0%)	0(0%)	0(0%)	0
Residence	Urban	0(0%)	3(75%)	1(25%)	0(0%)	4
	Rural	0(0%)	4(50%)	4(50%)	0(0%)	8
HIV status	Positive	0(0%)	0(0%)	3(100%)	0(0%)	3
	Negative	0(0%)	4(44.4%)	5(55.6%)	0(0)	9
Consumption of alcohol	Yes	0(0%)	1(100%)	0(0%)	00%)	1
	No	0(0%)	4(36.6%)	7(63.4%)	0(0%)	11
Smoking	Yes	0(0%)	0(0%)	0(0%)	0(0%)	0
	No	1(8.3%)	4(33.3%)	7(58.3%)	0(0%)	12
Treatment	New cases	2(16.6%)	3(25%)	7(58.3%)	0(0%)	12
	Re-treatment	0(0%)	0(0%)	0(0%)	0(0%)	0
Aga(years)	15-24	1(33.3%)	0(0%)	2(66.6%)	(0%)	3
	25-46	0(0%)	0(0%)	1(100%)	0(%)	1
	47-66	1(20%)	2(40%)	2(40%)	0(0%)	5
	66+	1(33.3%)	2(66.6%)	0(0%)	0(0%)	3
Occupational status	Employed	0(0%)	1(33.3%)	2(66.7%)	0(0%)	3
	Student	0(0%)	0(0%)	0(0%)	0(0%)	0
	Housewife	0(0%)	0(0%)	0(0%)	0(0%)	0
	Farmer	0(0%)	0(0%)	2(100%)	0(0%)	0
	Merchant	0(0%)	5(71.4%)	2(28.6%)	0(0%)	7
Education	Illiterate	0(0%)	2(40%)	3(60%)	0(0%)	5
	Read and write	0(0%)	0(0%)	0(0%)	0(0%)	0
	Primary(1-8)	0(0%)	0(0%)	0(0%)	0(0%)	0
	Secondary and above	1(14.2%)	2(28.6%)	4(57%)	0(0%)	7

***Table 3**. Factors related to service provider and health facility at Agaro hospital and it's health center, Agaro town, Jimma zone, Oromia region Ethiopia, from February 9 up to 20, 2015.*

Characteristic		Treatment adherence status.		Total
		Adhered	Non adhered	
Patient satisfaction.	Yes	110(90.9%)	11(9.1%)	121
	No	15(93.4%)	1(6.6%)	16
Total		125	12	137
Health Education	Yes	113(90.4%)	12(9.6%)	125
	No	12(100%)	0(0%)	12
Taking monthly appointment	Yes	125(91.24%)	12(8.8%)	137
	No	0(0%)	0(0%)	0
Open communication	Yes	124(91.2%)	12(8.8%)	136
	No	1(100%)	0(0%)	1
Counseling to TB	First visit	23(100%)	0(0%)	23
	On each visit	97(90.9%)	12(9.1%)	109
	Never counseled	5(100%)	0(0%)	5
Number of dose His/her takes	Daily	125(91.2%)	12(8.8%)	137
	Weekly	0(0%)	0(0%)	0
Privacy by HP	Yes	121(91%)	12(9%)	133
	No	4(100%)	0(0%)	4

study participants were taking their monthly appointments, among them 12(8.8%) were non-adherent.

3. DISCUSSION

Non-adherence to TB treatment might lead to an increased risk of drug resistance and a prolonged infectiousness, in addition to relapse and death [15]. The total adherence obtained from study launched at Agaro hospital and its health center was 91.2% and this is somewhat higher than the findings reported from north Ethiopia [23], Zambia [24] and south India [25], about level of adherence. The difference might be explained by the difference in the characteristics of study participants as their study participants were only HIV positive patients while the current study participants were mixture.

As for non-adherence, comparison of the findings of this study (8.8%) with the results of studies from Siberia (8.8%) shows that they are almost comparable [26]. However, these findings are lower

when compared with studies in India [25], Zambia [24], south west Ethiopia [27] and north Ethiopia [23], 33%, 22%, 20.8% and 26% respectively.

The present study disproves the argument of adherence patterns of patients of different ages. In this study patients in the age range of above 66 years were more non- adherent, this result is different from previous studies which reported patients aged 25 years or older are more likely to be non-adherent compared to the other age groups [28].

Those TB patients who were in the continuation phase of the chemotherapy were more likely to be non-adherent than those who were in the intensive/directly observed treatment short-course strategy (DOTS). This finding is similar with studies done on similar areas. In the current study, the majority of non-adherence occurred during continuation phase of the TB treatment. This is consistent with previous study in which most treatment interruptions occurred in the continuation phase of the treatment [29]. This finding is also comparable with another study, where most of non-adhered 9(75%) are from continuous phase [30].

In the adherent group, there were more females (94.1%) than males (88.4%). On the contrary, there are more males (11.6%) in the non-adherent group. Males are thought to be more non-adhered than females because males are having paid work more frequently than females[31]. The other reason for non-adherence of males may be the fact that men are the main contributors to the family income and cannot afford to take time out for medical visit to a clinic.

Marital status has also been explored and is strongly believed to have an influence on the degree of adherence to TB Treatment. In this study, majority of non-adherence were married (66.7%) patients and 33.3% were unmarried patients which is comparable with the study conducted in Pakistan. This study in Pakistan shows that out of the 100 non-adherent TB patients, 72% were married and 28% unmarried [32].

Majority (99%) of the study participants has good communication with health providers and 91.2 % of the study participants have health education during their medication course. Previous evidence showed that good counseling and good communication have positive effect on patient's adherence to their medication regimen [33]. Patient with TB/HIV co infection are non-adherence to TB treatment, as compared with the patient without HIV (34). This may be due to poly pharmacy. Since all HIV patients are on highly active antiretroviral therapy (HAART), this may decrease the level of adherence [34, 14].

This study showed level of adherence (91.2%), is relatively high. According to WHO standard, patients with TB are expected to have adherence levels greater than 90% in order to facilitate cure which indicate that the current study is good when compared with WHO (16). The main reasons for non-adherence were forgetting to take medication, being away from home, failure to go to hospital on their right appointment.

Based on the result of this study the following recommendations are made: Combination of behavioral intervention providing educational information about patient's condition and the treatment and other forms of supervision should be done in order to achieve 100% adherence by health care provider and administrative body. Health education on TB treatment and control must be continued in strengthened manner. Special emphasis should be made with regard to TB patients who are HIV positive to improve adherence to TB treatment by the health care provider of hospital and health center. For those patients who are non-adherent to their treatment, tracing is necessary by health workers or health extension workers to reduce non-adherence. Further study should be done on more patients with wider time coverage so as to more understand the adherence problems in health center.

Conflict of Interest

The authors would like to declare that they have no competing/ conflict of interest.

Acknowledgments

The authors would like to express sincere thanks to the management of Jimma University (College of Health Sciences) for providing some of the necessary facilities in carrying out this work.

Sažetak

Uvod: Tuberkuloza je značajna bolest koja se javlja iznova sa povećanim morbiditetom i mortalitetom. Kontrola tuberkuloze može biti sprečena ako se pacijenti ne pridržavaju protokola lečenja. Nedovoljno pridržavanje protokolima lečenja tuberkuloze pacijenata sa tuberkulozom je glavni problem u Etiopiji. Stoga je svrha ove studije bila da proceni stepen pridržavanja antituberkuloznog lečenja u Agaro bolnici i zdravstvenom centru.
Metod: Studija preseka je korišćena da se odredi stepen pridržavanja protokola lečenja tuberkuloze pacijenata sa tuberkulozom u bolnici i zdravstvenom centru Agaro, koristeći sastavljeni upitnik, od 9. do 20. februara 2015. Podaci su sakupljeni, obradjeni i analizirani da bi se procenio stepen pridržavanja.
Rezultati: U studiju je uključeno ukupno 137 pacijenta, od toga 68 (49,6%) žena i 69 (50,4%) muškaraca. Pedeset troje (38,7%) su iz starosne grupe 25-46 godina, a samo 17 (12,4%) su stariji od 66 godina. Od svih intervjuisanih pacijenata 79 (57,6%) su bili iz urbanih podrucja. Ukupno se 91,2% pacijenata pridržavalo terapije. Glavni razlozi za nepridržavanje terapiji su bili: zaboravljanje da se uzme lek (58,3%), odsustvovanje od kuće (33,3%) i nemogućnost da se u zakazano vreme dođe u zdravstvenu ustanovu (8,3%).
Zaključak: Stepen pridržavanja (91,2%) zapažen u ovoj studiji je relativno visok. Glavni razlog za nepridržavanje protokola lečenja je zaboravljanje da se uzme lek, udaljenost od kuće, nemogućnost da se dođe u zakazano vreme u bolnicu u kojoj pacijent treba da primi lek. Zdravstveno obrazovanje o lečenju tuberkuloze i kontrolu treba pojačano i trajno sprovoditi. Lekar iz zdravstvenog centra treba da posebno naglasi tuberkuloznim pacijentima koji su istovremeno i HIV-pozitivni da se striktno pridržavaju anti-TB terapije.

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