

Factors associated to non-adherence in Tuberculosis treatment, Baringo County, Kenya

Ronald Omenge Obwoye¹

Lead Authors email: obwoyeo@yahoo.com

Richard Arap Sang¹

Authors email: drsangrich@yahoo.com

Aurelius Wataka Wakube²

Authors email: awataka@yahoo.com

¹Egerton University, Faculty of Health, Community Health Department

²Egerton University, Faculty of Health sciences, Medical Department

P.O Box 536, 20115 Egerton, Kenya

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ACRONYMS and ABBREVIATIONS

AIDS – Acquired Immunodeficiency Syndrome
CHV - Community health volunteers
CTLIC - County Tuberculosis and Leprosy Coordinator
HBCs - High burden countries
HIV - Human Immunodeficiency virus
MDR - Multi drug resistant tuberculosis
SCTLICs - Sub county Tuberculosis coordinators
SPSS – Statistical Package for Social scientists
TB – Tuberculosis

ABSTRACT

The study was to determine the factors associated to non-adherence to TB treatment at individual, health care provider, facility and community levels.

A cross sectional descriptive survey study was conducted in Baringo County (urban and rural areas), Kenya. Data collection was done using developed self-administered questionnaire and interview schedules and checklist. Respondents were be traced through TB patient defaulters registers and health workers. Convenience sampling was employed. Data was analysed using SPSS version 20.

The study found that non adherence to treatment was both at treatment phases as; intensive (46%) and continuation (54%). Amongst the smoking patients 45% associate it with non-adherence, 58% associated their drinking habit with non-adherence. 53% of patients who walk, 41% of defaulters associated symptoms relieve during treatment with non-adherence, 52% associated their non-adherence with their forgetfulness or carelessness. Defaulting was associated with both patient, health care delivery patterns and socio-cultural factors.

Keywords: *non adherence, treatment interrupters, non-adherence factors*

CHAPTER ONE: INTRODUCTION

1.0: Introduction

This chapter in detail discusses the study background; statement of the problem, study objectives, research questions and justification of the study. The study's purpose was to determine the factors associated to non-adherence to Tuberculosis treatment among Tuberculosis patients at individual, health care provider, facility and community levels within Baringo County.

1.1: Background information of the study

Tuberculosis (TB) continues to be a major cause of high morbidity and mortality in Kenya. Kenya is among the 22 countries contributing 80% of global TB burden. The country has improved from number 13th to 15th among the 22 countries. The Kenya TB treatment defaulter rate is 15%. (GLOBAL TUBERCULOSIS REPORT 2013, 2013).

Adherence to TB treatment is one of the factors that lead to increase in cure rate. This reduces mortality and emergence of multi drug resistant tuberculosis (MDR) and lowers the high cost of treatment resulting. Tuberculosis does not discriminate on age, sex or education level. Previous research in different contexts has shown that there exist many factors influencing non compliance. They range from individual patient, health care provider, health care delivery patterns and socio-economic related factors influencing non adherence to TB treatment (Munro SA, et al (2007).

Tuberculosis (TB) is a major contributor to the global burden of disease. Poor adherence to treatment is common despite various interventions aimed at improving treatment completion. Currently, posed is a challenge of non-adherence to treatment despite efforts with patient centred approach which allows home-based treatment supervised by a treatment supporter of their own choice, and health facility-based treatment observed by a health professional.

Lack of a comprehensive and holistic understanding of local and community based barriers can be a hindrance to achieving success in STOP TB interventions. New infections, TB drug resistance, high treatments costs and mortalities have been associated with non-adherence. The aim of the study was to explore the issues surrounding the Tuberculosis patients in order to determine the factors associated with their non-adherence at various levels; this was done at individual (patient), health care provider, facility and community.

1.2: Statement of the Problem

In the management of Tuberculosis (TB), treatment adherence leads to successful cure rate. It's expected that if successful treatment of tuberculosis is to be achieved the patient must comply by taking anti-tuberculosis drugs for at least six months. Non adherence to tuberculosis treatment leads to high increase in mortality, Multi drug resistant tuberculosis (MDR) cases and high cost of TB treatment. These increase the Tuberculosis burden to the nation, partners and community populations. Various Studies have been done to identify factors influencing non adherence in other settings. Factors may differ depending on unique population settings and its characteristics: cultural practices, lifestyle, and economic status among others. It's unclear which factors locally are associated to Tuberculosis patients' non adherence in Baringo County community, Kenya. Baringo County has Low Case notification rate, Low treatment success (<88%), high poverty prevalence (National strategic Plan and Tuberculosis, Leprosy and Lung Health, 2015-2018). If no efforts are put to determine the factors locally influencing non adherence, the STOP TB programs will continue using strategies that are standardized, which might not yield effective results as per the context. Also the local and national

Tuberculosis burden will be on the increase in terms of Multi-Drug Resistance (MDR), mortality and treatment cost.

1.3: Study Objectives

1.3.1: Broad objectives

The study aimed to determine the factors associated to non-adherence of medication among TB patients at both urban and rural areas of Baringo County.

1.3.2: Specific objectives

1. Determine the patient factors which contribute to non adherence of TB treatment
2. Determine the health provider-patient relationships both at the TB clinic and at home
3. Determine the pattern of health care delivery influencing non adherence of TB treatment
4. Determine the socio-cultural factors influencing the non adherence to TB treatment

1.4: Research questions

1. What are the patient-related factors that contribute to non adherence to TB treatment?
2. What are patient-health workers factors in effecting TB treatment adherence issues?
3. What are the health care deliveries Patterns that influence non adherence of TB treatment?
4. What are the socio-cultural factors that influence non adherence to TB treatment?

1.5: Justification

Kenya is among the 22 countries that are contributing to 80% of global TB burden. Kenya is globally recognized as a **pathfinder for TB and leprosy control**. Within Africa, Kenya was the first country to achieve World Health Organization (WHO) targets for case detection and treatment success of new smear-positive pulmonary TB cases. Devolution presents opportunities for local prioritization and adaptation of TB and leprosy control activities that are targeted and patient-centred (National strategic Plan and Tuberculosis, Leprosy and Lung Health, 2015-2018). The non adherence among TB patients has contributed to high rate of new cases, TB related mortality, Multi drug Resistant Tuberculosis (MDR) cases, and treatment costs.

The impact targets for National strategic Plan and Tuberculosis, Leprosy and Lung Health, 2015-2018 at the end of 5 years are:

1. Reduce the incidence of TB by 5%, compared to 2014
 - i. Reduce the prevalence of MDR-TB among new patients by 15%
 - ii. Reduce the incidence of TB among PLHIV by 60%
2. Reduce **mortality** due to TB by 3%
3. Reduce the proportion of affected families who face **catastrophic costs** due to TB, Leprosy and lung diseases
4. Reduce by 50%, the proportion of cases with **grade 2 disability** due to leprosy
5. Reduce **mortality** due to chronic lung diseases e.g. COPD, asthma

Baringo County's contribution is thwarted by the high default rate and current situation of Low Case notification rate, Low treatment success (<88%) and High poverty prevalence. Non adherence to TB treatment is among major hindrances to the achievement of the priorities for 2015-2018 period to ensure treatment

success rate of at least 90% nationally among all drug-susceptible (DS) forms of TB centred (National strategic Plan and Tuberculosis, Leprosy and Lung Health, 2015-2018).

The purpose of this study was to determine the various factors that are associated to defaulting of TB patient during treatment comprising both urban and rural areas of Baringo County. The study has given recommendations for possible future tuberculosis treatment and management interventions within Baringo and other similar counties. This is within the Ministry of Health “*A nation free from preventable diseases and ill health through primary healthcare interventions at individual, household, community and primary healthcare facility levels*”

CHAPTER TWO: LITERATURE REVIEW

2.0: Introduction

This chapter discusses the various reviewed studies in relation to tuberculosis treatment and the various factors that are associated to defaulting in various contexts.

2.1: Literature Review

Kenya is among the 11 High Burden Countries (HBCs) that are not on track to reaching one or more of the three targets for reductions in incidence, prevalence and mortality (GLOBAL TUBERCULOSIS REPORT 2013 www.who.int/tb/data). Studies have been done at various contexts determining the factors influencing non adherence of tuberculosis treatment. Mohamed et al. (2013) found that existence of human resource gaps and TB staff inadequately prepared to deal with complex issues of TB patients influence the non adherence. They concluded that reducing travelling and waiting times for TB patients may improve compliance rates.

Bagoes et al. (2009) also found that more patients take TB treatment according to prescription if they are clearly informed and costs for treatment are reduced. They concluded that non adherence is a result of developed negative image towards the health care staff, treatment, and quality of medication. Munro et al., 2007 indicated in their study that ‘patients and providers’ personal character, abuse of substance, and religion influence treatment adherence. Female patients adhered most despite cultural practice of seeking permission for treatment from their spouses’.

Sathiakumar et al. (2010) reported that other non adherence issues besides smoking and travel-related concerns, number of household members, tobacco chewing, and treatment period, relief of symptoms, alcohol consumption and lack of adequate drugs. Also study indicates that 16% non-compliance rate was due to factors like place of residence, literacy, travelling time, waiting time, employment, living status, family support, stigma, khat chewing and patients' knowledge of TB.

Culqui (2012) found that patients’ compliance is associated with patient sex usually male, treatment experience especially feeling malaise, or past history of previous non-compliance, use of recreational drugs, dissatisfaction with the information received and presence of poverty. “This Tuberculosis is known to have a strong association with poverty” (National strategic Plan and Tuberculosis, Leprosy and Lung Health, 2015-2018).

Mutare et al indicated that most frequent reasons for default cited by patients who did not complete the treatment course included ignorance about need for treatment compliance coupled with inadequate knowledge

about TB and travelling outside treatment areas, consequently missing clinic appointment and running out of drugs. Predictive factors for default were inadequate knowledge about TB, herbal medication use, low income, alcohol abuse, previous default, HIV co-infection and the male sex.

CHAPTER THREE: METHODOLOGY

3.0: Introduction

This chapter discusses the research methodology including study area, population, design, sample size, sample frame and sampling technique, Data collection tools and procedures for data collection, : Inclusion and exclusion criteria, Proposal Ethical approval and Data handling and analysis

3.1: Study Area

The study was conducted in Baringo County, covering both urban and rural areas of the county. Baringo County neighbours Nakuru, Keiyo, West Pokot, Kericho and Laikipia counties. It has attractive tourist Lakes of Bogoria and Baringo. The community is majority of nomads. Interviews were done at four centres; Kabarnet, Marigat, Mogotio, and Ravine.

3.2: Study Population

The study population was all enrolled tuberculosis patients in Baringo county health facilities. All registered and traced TB drug interrupter patients within the six months prior to commencement date of the study were interviewed.

3.3: Study Design

The study utilized a retrospective cohort (drug interrupters) with a mixed method approach comprising both interviews and focus group discussions. Interviews was done to all traced treatment interrupters and a focus group discussion by the Sub county tuberculosis and leprosy coordinators and community health Volunteers.

3.4: Sample size

Treatment interrupter patients were accessed through convenience sampling method, this were Treatment interrupter/defaulters within six months prior to commencement date of the study. One focus group discussion was done comprising 1 County Tuberculosis and Leprosy Coordinator, 6 Sub County Tuberculosis and Leprosy Coordinators and 6 Community Health Volunteers.

3.5: Sample frame and sampling technique

Traced treatment interrupters (defaulters) conveniently selected from hospital records in urban and rural health facilities were interviewed. The treatment interrupters were reached through the assistance of Sub County Tuberculosis and Leprosy Coordinators and 6 Community Health Volunteers. Interviews were conducted using structured and semi-structured interview schedule. In addition Key informant focus group discussion was done with community health volunteers, County Tuberculosis and Leprosy Coordinator and Sub county Tuberculosis coordinators.

3.5: Data collection tools and procedures for data collection

Data was collected using developed observation checklists, interview schedule and questions for focus group discussion questions. Respondents were traced treatment interrupters, health workers (SCTLCs) and Community health volunteers.

3.6: Inclusion and exclusion criteria

All registered and traced treatment interrupters were recruited for study. Transfers in and out were not considered.

3.7: Proposal Ethical approval

The study was submitted to Egerton University Research Ethics committee for ethical consideration and approval. Incentives were given to respondents as compensation for waiting time and inconveniences caused (Fare and lunch).

3.8: Data handling and analysis

All data captured was coded, entered and analysed using SPSS package version 20.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.0: Introduction

This chapter discusses the study results as per the analysis of data captured from the treatment interrupters (defaulters) who were traced within the last six months prior to commencement date of the study and outcomes of informant focus group discussion.

4.1: Characteristics of study Sample

The study conducted interview to a total of 46 drug interrupters across Baringo County spread over its sub counties (coverage sub counties of Kabarnet, Marigat, Mogotio and koibatek).

The interviewee's (defaulters) mean age was 36 years with range 51 years (11 to 62). Among interviewee (defaulters) were male 33(72%) and 13(28%) female. In addition were 13 members Key informant who participated in focus group discussion (1 CTLC, 6 SCTLCS and 6 CHVs).

The interviewee's marital status was; Single (35%), Married (54%) and separated (11%). Their education levels were; none (9%), Primary (59%), Secondary (24%) and Tertiary (9%). The interviewee's monthly income levels were; less KSH 3500/(63%), 3500/= to 5000/=(17%), 5000/= to 10000/=(9%), 10000/= and above(11%).

4.2: *What are the patient-related factors that contribute to non-adherence to TB treatment?*

Treatment non adherence was both at treatment phases as; intensive (46%) and continuation (54%). Among defaulters 24% smoke and 76% don't smoke. But amongst the smoking patients 45% associate it with non adherence while 55% don't associate smoking with non adherence. Also among defaulters 41% drink, 59% don't drink. Among those who drink 58% associated their drinking habit with non-adherence.

Defaulters to access health facilities used various means of transport as; walking 26%, Vehicle 54% and Motor Bike 20%. In relation to use of various means to access the clinics; 53% of patients who walk, 86% of vehicles(matatu)users, while 55% of the motorbike users felt that financial challenges would hinder them from attending the clinic.

Only 41% of defaulters associated symptoms relieve during treatment with non-adherence. Defaulter patients' housing during treatments was; Own house (43%), Rental (33%), and with Parents (20%). Among the

defaulter patients 82% understood that they were suffering from Tuberculosis disease, and 94% felt Tuberculosis disease was curable. Only 33% of defaulter patients had a history of never complying with previous medication of other disease during TB treatment. While taking the tuberculosis medication 56% of defaulter patients experienced drug side effects. Among defaulter patients 76% had experienced other sickness during tuberculosis treatment.

Defaulter patients associated their occupation to non-adherence at 41%, while among the casuals workers 85% directly associated it with their non adherence.

Among the TB defaulters 52% associated their non-adherence to their forgetfulness or carelessness.

4.3: What are patient-health workers factors in effecting TB treatment adherence issues?

In seeking clarification for more detailed explanation on TB treatment 80% of TB non-adherents were comfortable asking health provider's questions. Still 52% associated their non-adherence with their forgetfulness and carelessness. Among the TB defaulters 58% associated non adherence to the stressful events experienced during treatment.

4.4: What are the health care deliveries Patterns that influence non adherence of TB treatment?

Support of defaulter during treatment was by; family (56%), Community health worker (2%), Health worker (20%) and none (22%). Family support was experienced to all despite whom they lived with. Health workers support was ranging 22% to 27%. TB defaulters lived with a distance of 46 % (less 10km), 22 % (11km to 20km), 7 % (21km to 30km) and 26 % (above 40km) away from the health facility. Most (59%) treatment interruption was done among TB defaulters with primary level of education

4.5: What are the socio-cultural factors that influence non adherence to TB treatment?

The study found several socio economic factors ranging from: initiation ceremonies for example circumcision exclusion, Believe that TB is witchcraft and inherited in some families, Believe in the effectiveness of injection over oral drugs of 6-8 months, Migration practices due to nomadism, Practice cattle rustling displaces population, Regional low economic status (poverty), Religious believe of prayers for healing During treatment 76% of defaulters never experienced unstable living condition so it's not directly influencing defaulting. Also 61% of defaulters never associated their defaulting with immediate benefit of the therapy. It seems there is social stigma associated with defaulting because 43% of defaulters believe so, while 56% of defaulters have some religious believe against western medication.

4.6: Summary of factors associated with TB non adherence

The study found several factors that were associated with patient non-adherence to TB treatment within Baringo County. The study farther categorized the these factors into; patient related, health provider-patient relationships, pattern of health care delivery and socio-cultural factors influencing the non-adherence to TB treatment.

1. Patient related factors

The study indicates the following findings:

- a) Defaulting is across all the age groups of TB patients.
- b) Patient's marital status is not associated to non-adherence.
- c) Treatment non adherence common at both treatment phases (intensive and continuation)
- d) Older people fear hospital due to association of likely death outcome
- e) The following are factors associated to non-adherence of tuberculosis treatment
 - i. educational levels and income levels of patients
 - ii. Smoking and Drinking habits
 - iii. Financial challenges to support means of transport to access health facility
 - iv. Experiencing symptoms relieve during treatment.
 - v. History of not complying with medication of other diseases.
 - vi. Experiencing drug side effects.
 - vii. Presence of other sickness during tuberculosis treatment
 - viii. Distance to health facilities
 - ix. Preference to use traditional herbs instead of convectional(western) medicine
 - x. Alcoholism habits
 - xi. Commitment to cattle(wealth) caring than attending clinic days
 - xii. Length of treatment (seem to be too long)
 - xiii. Feeling of relieve after starting the initial dose
 - xiv. Association with HIV(fear that they may be tested for HIV at the clinic)
 - xv. Stigma associated from friends and relatives, if they attend near health facilities
 - xvi. Drug/Pill burden
 - xvii. Taste of drugs
 - xviii. Experiencing drug side effects
 - xix. Believe that TB is inherited

2. *Health provider-patient relationships factors*

There are several patient-health worker relation factors that are associated to non-adherence. The study found the following:

- a. The patients' forgetfulness or carelessness even after seeking clarification a detailed clarification from health providers.
- b. Experience of stressful events during treatment.
- c. Unpreparedness to disclose to family members and guardians about disease
- d. Stigma at home and workplace
- e. Stigma at workplace
- f. Fear of likely denial of conjugal rights associated due to disease
- g. Inadequacy of drugs distribution
- h. Staff shortage at level 1(Tier 1) health facilities

3. *pattern of health care delivery factors*

There are several health care deliveries pattern factors that are associated to non-adherence. The study found the following:

- a) Patients ' experience less support from Health worker
- b) Staff shortage at level 1(Tier 1) health facilities
- c) Poor linkage between health facilities in service provision to encourage referrals
- d) Poor referral systems from community to health facilities
- e) Poor patient flow in standalone systems
- f) Lack of adequate room to observe and examine patients
- g) Poor relationship between private(clinics) and public facilities
- h) Inadequate nutritional support

4. *socio-cultural factors*

There are several socio-cultural factors that are associated to non-adherence. The study found the following:

- a) initiation ceremonies for example circumcision exclusion
- b) Believe that TB is witchcraft and inherited in some families

- c) Believe in the effectiveness of injection over oral drugs of 6-8 months
- d) Migration practices due to nomadism
- e) Practice cattle rustling displaces population
- f) Regional low economic status(poverty)
- g) Religious believe of prayers for healing

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1: Introduction

This chapter presents the study conclusions and Recommendations to the Baringo county Health Team.

5.2: Conclusion

Adherence to tuberculosis treatment is being faced with challenges that lead to non-adherence. The Non adherence is an issue of concern, its expensive in terms of losing life's, huge budget expenses, and deter economic and socio progress of the community. The factors that are associated to non-adherence range from: patient related, health provider-patient relationships, pattern of health care delivery and socio-cultural factors. The national health delivery system, County health team and community opinion leaders should address the recommendations below.

5.3: Recommendations

The following recommendations are made to the county health team to coordinate its implementation to achieve STOP TB aim.

- 1) Encourage health education that cuts across all ages, marital status, schools and settlements (residents). The health education messages that address the smoking and drinking habits during treatment periods, reliefs after initiation to treatment, drug side effects, stigma, preference of herbal over conventional treatment.
- 2) Consider either developing health facilities at crosser range, conducting mobile clinics, or use community health workers to deliver drugs at door step.
- 3) conduct update sessions to health workers and volunteers on medical counselling skills
- 4) maintain supply of drugs proportionate to prevalence
- 5) Seek partner support to support the inclusion of Community Health strategy in Community Health Volunteers involvement.
- 6) Seek funding to build TB clinics at health facilities.

Table 1: Association of occupation to non-adherence

		Do you associate your occupation with Total non-adherence?		
		YES	NO	
Business person	%	33.3%	66.7%	100.0%
farmer	%	31.2%	68.8%	100.0%
casual	%	85.7%	14.3%	100.0%
employed	%	25.0%	75.0%	100.0%
Primary pupil	%	0.0%	100.0%	100.0%
Secondary student	%	100.0%	0.0%	100.0%
Tertiary student	%	100.0%	0.0%	100.0%
Housewife	%	40.0%	60.0%	100.0%
Total	%	41.3%	58.7%	100.0%

Table 2: showing the default rate among quarters for TB cases for Baring county

Quarter		Smear positive	Smear Negative	ExPTB	SND	Relapse Positive	Return after default	Others	MDR
July-	Total cases	149	64	69	12	16	6	12	
Dec	Defaulters	22	9	5	1	3	2	1	
2013	Default rate	14.7	14.1	7.2	8.3	18.8	33.3	8.3	
Jan-Jun	Total cases	148	49	76	9	22	10	8	
2014	Defaulters	14	2	5	0	1	1	2	
	Default rate	9.5	4.1	6.6	0	1	4	3	
Total	Total cases	297	113	145	21	38	16	20	0
for 2	Defaulters	36	11	10	1	4	3	3	5
quarters	Default rate	12.1	9.8	6.9	4.8	10.5	18.8	15	0

Source: TIBU register, CTLC Office

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