KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING TUBERCULOSIS AMONG ADULT POPULATION IN WAJIR EAST DISTRICT, WAJIR COUNTY, KENYA

BY

AHMED SAHAL OMAR

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DECLARATION

I declare that this research thesis is my original work and has not been presented for an academic award in any other University or Institution of higher learning.

Information from other sources has been duly acknowledged.

Signature…… Date……..…

AHMED SAHAL OMAR Registration Number: SPH/PGH/1030/10

APPROVAL

This research thesis has been submitted for examination with our approval as University Supervisors.

DR. LAMECK O. DIERO

HEAD OF DEPARTMENT

SCHOOL OF MEDICINE

MOI UNIVERSITY

P.O. BOX4606, ELDORET, Kenya.

Signature……..… Date……

DR. JOSEPH K. SITIENEI
THE HEAD, DIVISION OF LEPROSY, TUBERCULOSIS & LUNG DISEASE.

P.O. BOX 20781-00202, Nairobi, Kenya.

Signature……..… Date……

DEDICATION

This research thesis is dedicated to the pillar of my success, my father without whose strength I would not have come this far. Finally I would like to thank my dear wife Farhiya for her unwavering support and my children Abdi Nasir, Amina, Sumaiya and Hanan who have persevered with my long absence from home during the study period.

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ABSTRACT

Tuberculosis (TB) is a major public concern in the world today and it is estimated that one third of World's Population is infected with TB.The aim of the study was to assess knowledge, attitude and practices towards TB among the adult populations in Wajir East District. The study was conducted in Wajir East District, Wajir County. A cross-sectional study was undertaken among adults in Wajir District and the study population was selected using multi stage stratified sampling procedure. Households formed the sampling strata. Descriptive statistics of the population in relation to socio-demographic characteristics, knowledge, attitude and practices on TB infection and prevention was presented using proportions and means for categorical and continuous variables respectively. Questions were scored in order to obtain overall assessment on knowledge, attitude and practices on TB. Attitude towards tuberculosis was scored using a 5-point likert scale of (1-5).Factors associated with knowledge; attitude and practices were analyzed using chi-square test and logistic regression analysis. Three hundred and eighty four (384) residents were sampled in the district, 49.6% were males, 59.6% married, and 48.8% had no education and 31.8% unemployed. Awareness on TB was high (97.4%), 41.1% having learnt from family and friends. 86.8% knew that TB was treatable. Formal education was associated with knowing that TB can be treated. In relation to attitude, 54% knew TB was a serious disease,(62.1%) perceived that they were vulnerable to TB. (68.8%) disagreed that TB was a serious disease, (43.3%) said that TB cases were discriminated against and 29.6% strongly agreed that TB was associated with HIV/AIDS. Respondents' perception was significantly associated with marital status ($P = 0.009$) and the awareness on TB ($P < 0.05$). Majority of participants (76.1%) knew the practices that can protect one from being infected with TB,(66.5%) said they would visit health facility after one month, (2.3%) would go to the pharmacy if symptoms of TB appear, (19.7%)would admit their relative in TB Manyatta while (29.3%) do not know what to do incase of TB. Knowing the correct practices was influenced by having formal education and gender ($P < 0.05$).The level of knowledge on and attitude towards TB were both low among the study participants. However, half of the study participant's demonstrated incorrect practices towards TB. There is need for intense health education to improve on knowledge, health seeking behavior and practices on TB.

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

ACSM	Advocacy Communication Social Mobilization
AIDS	Acquired Immune Deficiency Syndrome
AMREF	Africa Medical Research foundation
ASAL	Arid and Semi-Arid Lands
DC	District Commissioner
DHMT	District Health Management Team
DLTLD	Division of Leprosy, Tuberculosis and Lungs Diseases
DOTS	Directly Observed Treatment
DSC	District Security committee
EPTB	Extra Pulmonary Tuberculosis
FBO	Faith Based Organization
BCG	Bacilus Calmette Guerin
GOK	Government of Kenya
HIV	Human Immunodeficiency Syndrome
IEC	Information Education Communication
IREC	Institutional Research and Ethics Committee
KAIS	Kenya Aids Indicator Survey
KAP	Knowledge, Attitudes and Practices
KDHS	Kenya Demographic Health Survey
KNBS	Kenya National Bureau of Statistics
KEMRI	Kenya Medical Research Institute
KIHS	Kenya Integrated Household Survey
KM	Kilometer
KNBS	Kenya National Bureau of Statistics
MDR	Multi-resistant Drugs TB

MOMS	Ministry of Medical Services
MOP 2030	Ministry of Planning and Vision 2030
MOPHS	Ministry of Public Health and Sanitation
NACC	National AIDS Control Council
NASCOP	National AIDS and STI Control Program
NCPD	National Council of Population Development
NEP	North Eastern province
NGO	Non-Governmental Organization
NPPS	National Population Policy and Sustainability
PLWHA	People Living with HIV/AIDS
PPS	Probability proportional Sampling
PTB	Pulmonary Tuberculosis
PWLD	People with Disabilities
SPSS	Statistical Package for Social Sciences
SSP	Sputum Smear Positive
TB	Tuberculosis
UK	United Kingdom
WCC	Wajir, County Council
WHO	World Health Organization
DR	Doctor
SPH	School of public Health
PGH	Post Graduate in Health
LMD	Livestock Marketing Department
OR	Odds Ration
BCC	Behavior Change Communication

OPERATIONAL DEFINITION OF TERMS

Knowledge The facts, information, understanding and skills that a person acquired through experience or education. This is in relation to tuberculosis.

Attitude A way of perception/opinion about somebody or something or a Way of behaving towards somebody or something. In this study an assessment of attitude in relation to tuberculosis.

Practices A way of doing something that is common, habitual and expected by individuals, family and/or community.

Tuberculosis: A highly contagious infection caused by bacteria called *Mycobacterium tuberculosis.*

Mycobacterium tuberculosis: The bacterium that causes tuberculosis

CHAPTER ONE

1.0 INTRODUCTION

This chapter presents definition of tuberculosis, causes of tuberculosis, epidemiology of tuberculosis and other factors that have hampered tuberculosis control. It also gives a brief statement regarding problem statement, justification, objectives and research question of the study.

Tuberculosis (TB) is an infectious disease that primarily affects the lungs. It is caused by *Mycobacterium tuberculosis* and is transmitted through inhalation of bacteria (WHO, 2009).

Tuberculosis (TB) remains a major public health concern worldwide. Each year an individual with active TB infects an average of ten to fifteen people and in a population with low levels of awareness about the cause, mode of transmission and preventive methods, the spreading of the disease could be high (Auer*et al*. ,2000).

A KAP study of TB in Ethiopia found that (33%) of respondents believed that TB patients must be admitted in hospital, traditional medicine and use of holy water were mentioned by (20.8%)and (22.6 %) of the respondents respectively. The knowledge level regarding the causes of TB was known to (31%) and (14.7%) knew that one way of preventing TBwas living in a well-ventilated room (Tura*et al.*, 2010).

Findings done in Ghana about myths and misconceptions about TB indicate that males (66.75%) and females (66.13) did not hold myths and misconceptions about TB transmissions (Joshua*et al*., 2013).

TB remains a major cause of morbidity and mortality in Kenya and has the greatest toll in the most reproductive age groups of 15-44 years. HIV/AIDS is a major factor

responsible for high TB burden in Kenya, however, poverty, social deprivation, increased rural-urban migration has resulted in congestion in urban slums, prisons and limited access to general health care services may be factors that explain the high cases of TB (MOPHS, 2009).

TB case notification rates have changed over the years in Kenya and 1991 there were 54 cases of TB per 100,000. In 2009 Kenya had 132,000 new infections and the infection rates rose to 142 per 100,000, however, TB accounts for 48% of new infections in Kenya with the most difficult strain being extreme drug resistant TB(XDR – TB)(WHO,2009).

Prevention and control of Tuberculosis

Tuberculosis treatment (DOTS)

The mainstay of TB control is organizing and administering standardized treatment across the world for all TB cases. The WHO guidelines emphasize use of the most effective standardized treatment which is the direct observed treatment (WHO, 2013).

Tuberculosis vaccination (BCG)

In many parts of the world where TB is common infants receive (BCG) vaccine for prevention of severe forms of TB such as pulmonary tuberculosis disease from spreading within the human body thus prevent TB from developing (Zwerling *et al.*, 2011)

Improved Health System Management

Improved health system management and well managed health information systems are important in tuberculosis prevention and control. Advanced disease control and health system strengthening are complimentary in terms of TB preventive measures.

TB prevention measures require documentation of already existing TB prevention guidelines for optimal control of TB epidemics (Mwakyusa *et al.*, 2010).

Involvement of all health care workers

In order to prevent tuberculosis it is important to involve all health care providers. Failure to involve them has hampered TB case detection, delayed diagnoses and has led to inappropriate and incomplete treatment compliance. This contributes to increasing drug resistance and places an unnecessary financial burden on patients. Engaging all health care providers in TB care and control is an important factor in the prevention of Tuberculosis (WHO, 2006)

Address TB/HIV, MDR/XDR- Infections

Co-infection with mycobacterium TB and HIV (TB/HIV), Multi-Drug resistant TB (MDR) and Extensively- drug resistant (XDR) Tuberculosis in all regions particularly in Africa have made TB control complex and difficult, thus addressing HIV epidemics is one way of preventing and controlling tuberculosis (WHO, 2011).

Empowerment of people with TB and communities

It is necessary to engage and involve the community as partners in rolling out TB control strategy. This participation may identify TB cases and upon diagnosis receive treatment with minimal stigmatization and thus improves treatment outcomes. People with TB may get an opportunity to make decisions concerning type of health care that best suits them and by extension the community through public private mix (WHO, 2008).

Promotion of research

Continuous research related to TB prevention and control aids in addressing Tuberculosis control and prevention Globally (*Lienhardt*et al., 2011).

Factors that hamper the control of TB

HIV/AIDs Epidemic

The HIV/AIDS epidemic in the world and especially in Africa has hampered the prevention of TB disease. HIV/AIDS infection is the greatest single factor that has made TB prevention and control difficult (Afework *et al.*, 2007).

Culture and social stigma

Culture and stigma associated with TB in many African communities have hampered the control of TB as well as its treatment. The believe that witchcrafts have the power to treat and cure TB which is passed through familial lines has created abandonment of treatment and has caused lengthy delays in seeking treatment hence resulting to remarkably high rate of default cases (Ndetei, 1972).

Drug resistant Tuberculosis (MDR/XDR)

MDR/XDR TB threatens to undermine the gains made worldwide regarding TB control programs. The global TB control is hindered by lack of quick diagnosis, long treatment regimes and non-compliance on TB treatment hence rising MDR/XDR rates (WHO, 2011).

Noncompliance of DOTS strategy

Failure to observe directly observed treatment has led to low compliance on TB therapy and may be cited as a major obstacle to the prevention of TB. A successful TB

control and prevention program can be achieved through compliance with directly observed treatment strategy (Erhabor *et al.*, 2000).

Lack of trained health personnel

The absence of highly trained health experts on TB has hampered Tuberculosis prevention particularly in Africa. Poorly trained health personnel in information systems and TB prevention strategies compromise the reliability of Data on TB and therefore ideal training on TB management needs to be integrated into the health system in order to control tuberculosis adequately (Fugeueroa *et al.,* 2005).

1.2 Problems Statement

Limited access to health care from cross border immigrants and ongoing new arrivals in and outside Wajir East district has brought in new TB infections and decreased treatment compliance. Wajir East district has social classes characterized by poverty and difficulties in accessing health care services compounded with low literacy levels. These social challenges in this population are associated with knowledge deficiency on TB as well as other diseases. Failure tohave adequate information about TB increases the likelihood of self-stigmatization. Cultural and religious values discourage persons infected with TB from seeking care early for fear of being diagnosed with TB. Stigma associated with TB has resulted into attitudeswhich make many populations to conceal their TB status hence delayed treatment and eventually death.

Some of the stigmatized population may take long period of time to seek care, even after the signs and symptoms suggestive of TB are evident. This has made many people with TB to report to health facilities when the disease is at its advanced stage hence results in untimely death. Poor practices such as living in unventilated and

congested houses with too many persons in single household may explain the high cases of tuberculosis in the area too. The district had 695 notified cases, 64 were extra-pulmonary TB and 212 were pulmonary TB, 41 of them were smear positive and 31 were retreatment (MOPHS, 2010). The area being arid and marginalized region with poor infrastructure and communication channels has made TB awareness campaigns unachievable.

1.3Justification

Patients' education plays a major role in the prevention of TB and its control.Wajir district was chosen as the study site owing to its high TB notification cases. Inadequate knowledge, negative attitudeand incorrectpractices on prevention and control of TB have immenselycontributed tohigh transmission rates and deaths in the population. The findings of this study maycontribute to formulation of strategies that may improve TB awareness among the population. This study will inform Wajir district hospital behaviour change communication (BCC) strategies forTB treatment, prevention and control. The information generated could hopefully provide baseline data that would stimulate community-based studies. The results of the study may also be used by policy- makers and other stakeholders to come up with interventions that may improve health status of the population, especially, reduction of TB infections and deaths in the district.

1.4 Research Questions

(i) What is the level of knowledge on TB among the adult population of Wajir East District?

(ii) What is the attitude of the population of Wajir East District towards TB?

(iii) What are the practices that hinder TB prevention among the adult population in Wajir East District?

1.5 Objectives

1.4.1 General Objective

The objective of the study is to assess the Knowledge, Attitude and Practices (KAP) regarding Tuberculosis among the adult population in Wajir East District.

1.4.2 Specific Objectives

(i) To determine the level of knowledge on Tuberculosis among the adult population in Wajir East District.

(ii) To determine the attitudes towards TB among the adult population in Wajir East District.

(iii) To determine the practices that hinder TB prevention among study participants.

1.6 Scope of the Study

The study seeks to establish the Knowledge, Attitude and Practices (KAP) among the adult population in Wajir East District regarding tuberculosis.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section reviews the literature on studies which have been undertaken on knowledge, attitude and practices regarding tuberculosis. Aconceptual framework diagram is also given.

2.1 Background information

Tuberculosis (TB) is one of the most challenging communicable diseases for developing countries particularly in sub Saharan Africa, the developing HIV/AIDS situation in Kenya may prove to be exacerbating factor in the control of TB.

TB is a major global health problem. Each year, there are around one million new cases of Tuberculosis and close to 2 million people die from the disease. All countries are affected, but most cases (85%) occur in Africa (30%), Asia (55%), with India and China alone accounting for (35%) of all cases. There are 22 so called high burden countries that account for about (80%) of the world's Tuberculosis cases which have been given particular attention since the year 2000. Tuberculosis ranks as the eighth leading cause of death in low and middle income countries (seventh for men and ninth for women among adults aged between (15-59 years). It ranks as the third cause of death after HIV/AIDS and Ischemic heart disease. Generally tuberculosis (TB) is a public health threat and for thousands of years remains a top killer worldwide despite the discovery of 50 years ago of drugs that cure this infectious disease. Africa faces the highest TB rates per population, but Asia carries the greatest absolute burden and the epidemic is worsening in other regions as well, as the case may be in the former Soviet Republics. Poor people are especially vulnerable to TB because of their

underlying health status, adverse living conditions and limited access to treatment (WHO, 2009).

2.2 Epidemiology of Tuberculosis

WHO reported more than 8 million new cases of TB and 2 million deaths and that (80%) of new cases live in 22 high burden countries, however review of literature on the epidemiology of tuberculosis shows that among the factors contributing to the spread of tuberculosis are among others the HIV epidemic. TB accounts for about (11%) of AIDS related deaths worldwide. In Africa, HIV/AIDS is the single most important factor determining increased incidence of TB in the last 10 years. (*WHO, 2006- 2015).*

Knowledge and health seeking study about understanding tuberculosis perspective and experiences done in Malaysia found that 96% of the study participants did not know the cause of tuberculosis and 98% of the study participants believed that tuberculosis was an infectious disease. The study also found that tuberculosis was a stigmatizing disease as perceived by many and had psychological and social effect to those who got TB infection (Rundi, 2010).

A KAP survey done in Bilhar in India showed that (24%) of the respondents had learnt tuberculosis through community health workers, (14%) of the respondents knew the cause of tuberculosis , (12%) of the study participants had the correct transmission mechanism, (32%) of the respondents had knowledge of how to prevent tuberculosis, (33%) of the respondents had adequate knowledge on tuberculosis and said that the best way to control tuberculosis was treatment, covering one's mouth when coughing and disposing off sputum properly. The study also found that incidents of insufficient knowledge were slightly higher in men (25%) than amongst

women (18%), (16%) of those with low economic status had sufficient knowledge on tuberculosis, (32%) of those of high economic status had sufficient knowledge on tuberculosis, (64.8%) found TB as a big problem (24.8%) said it was not and (3.2%) did not respond (Chadha, 2009).

A study about knowledge, attitude and practices of Somalia Nationals in Nairobi found that (68.1%) of study cases had average knowledge, (27.8%) had good knowledge and (4.1%) had poor knowledge. The study found that (57.3%) were aware about tuberculosis (24.7%) were not aware about tuberculosis. The study further found that (93.1%) had good attitude while (6.9%) had poor attitude. The majority (87.1%) had good practices regarding tuberculosis (Marabu, 2012).

A KAP study regarding tuberculosis in two districts of Punjab in Pakistan found that (67%) of study cases were knowledgeable about tuberculosis, (80%) knew the symptoms, (82.2%) knew about correct treatment, (48.8%) were aware that tuberculosis treatment was free, (69.4%) have heard tuberculosis from television and (43.6%) have heard from health workers (Mushtaq *et al.,* 2010).

A study about the prevalence of tuberculosis suspects and their health seeking behavior in urban and rural Jordan indicated that (92%) of those who lived in urban areas have attributed TB to smoking and compared to rural areas (18.8%). Cough was reported by the entire respondent followed by chest pain (57.7%) and (59%) of urban and rural tuberculosis suspects respectively. There was no significant difference between the two groups (70.6%) and (70.9%) in urban and rural area respectively. Adequate knowledge was reported from more than (75%) of the study participants and the level of stigma was (70%). The study further found that a lower awareness of the suspects about the disease and lack of knowledge has delayed health care seeking

behavior and has made tuberculosis control efforts unsuccessfully (Khalid et al., 2008).

A study about knowledge, attitude and practices about TB in Addis Ababa in Ethiopia found that (50%) of the study cases had adequate knowledge about etiological agent of the disease and (60%) had some idea of the mode of transmission and (97%) had no knowledge about the causes of tuberculosis. The study found that (20.1%) were ashamed when they were informed that they had TB, (46.9%) thought that it is not necessary to talk about TB, (17.3%) of patients mentioned that the chances of getting TB from infected persons was high while (75.5%) believed that TB was treatable. The study also found that (55.9%) of study cases who were employed had demonstrated positive attitude towards tuberculosis while (44.1%) have shown negative attitude towards tuberculosis, however, (57.2%) were employed and had positive attitude towards tuberculosis while (42.8%) of those employed have shown a negative attitude towards tuberculosis (Senait, 2011).

A study about knowledge, attitude and practices of tuberculosis done in Sudan showed that (54.9%) of the respondents knew when one gets TB infection. The microbial causes of Tuberculosis infection was only known to (1.9%) of the respondents, (57.8%)had the correct knowledge about Tuberculosis infectivity, (40.2%) knew that Tuberculosis was an airborne disease and (58.7%) knew that there were different prevalence rate about Tuberculosis (Sheikh, *et al.*, 1999).

Knowledge, attitude and practices (KAP) survey of Sudanese communities towards tuberculosis found that more than (15%) of the study participants didn’t know that tuberculosis was an infectious disease. The study also found that (33.3%) of the population under study were unaware of the proper time of vaccination with BCG.

Almost (40%) of the respondents found it shameful to have tuberculosis and (13%) thought that it is best to hide if one had tuberculosis. The study found that lack of information and understanding of tuberculosis myths and misconceptions were found to be barriers to tuberculosis control, resulting in low immunization coverage, treatment compliance and high defaulter rates (Mohamed et al., 2010).

A study about knowledge, health seeking behavior and perceived stigma towards tuberculosis suspects in a rural community in South West Ethiopia, revealed that (83%) of the study participants had ever heard of tuberculosis, (50.4%) have mentioned that tuberculosis was caused by evil eye, (95%) of those who had basic education have said that a micro-organism was the causative agent of tuberculosis, (51.3%) of the tuberculosis suspect perceived that other people would consider them inferior if they had tuberculosis, (46.2%) did not seek help for their illness in any health facility. A large proportion of suspects (51.3%) perceived that other people would think less of them if they knew that they had tuberculosis, (39.5%) would be embarrassed if they had tuberculosis, (30.3%) thought people would avoid them if they had tuberculosis, (15.1%) wanted to conceal their tuberculosis status if confirmed as tuberculosis case and (51.2%) study participants reported high stigma towards tuberculosis *(Abebe et al., 2010*).

A study about the causes of tuberculosis, inappropriate health seeking behavior and stigma towards tuberculosis found that (83%) of the tuberculosis suspects had heard of tuberculosis. Traditional beliefs such as evil eye and witchcraft were assumed to be the common causes of tuberculosis. Those study participants with such beliefs did not visit any health facilities. The study also found that (46%) of the patients seeking care at the health facilities did so after a formal treatment failed,(57.9%) of those who

could read or write had adequate knowledge about TB causes , transmission and treatment (51.3%) of TB suspects said that people would consider them inferior if they had TB (*Gemeda et al.*,2010).

A study done in Ethiopia found that lack of knowledge and distance from the health institutions were found to be the reasons for patients delayed treatment. The study also found that little was known about the level of knowledge on tuberculosis at the community level. The study further found that (86%) had heard of tuberculosis from health professionals, (41%) friends, (34.3%) relatives, (14.5%) public radio and (3.2%) from television, (33%) did not knew the actual causes of tuberculosis while (67%) attributed it to transmission from a diseased person to a healthy individual through cough, (62.5%) drinking raw milk, (35.7%) eating together, (40.3%) sleeping together, (54.4%) touching each other and (38.8%) inheritance (Shetty *et al.*, 2005).

A study about knowledge and perceptions about tuberculosis carried out in North Eastern Ethiopia revealed that (95.6%) of the study participants have heard of tuberculosis which was popularly known as (Labadore) however, the participants associated the causes of tuberculosis with exposure to cold air (45.9%), starvation (38%), dust (21.8%) and chewing of Miraa (Catheus Endulis) (53.8%). The study participants also reported that persistent cough as the main symptoms of tuberculosis (74.3%) and about (87.7%) of persons in the study suggested that tuberculosis was treatable with modern drugs, (95%) of the study participants mentioned that tuberculosis could be transmitted from one person to another. Others thought that there are other social cultural practices that cause tuberculosis infection such as sharing of cups (87.6%), house type (59.8%) and (20.0%) of the respondents

suggested that men were highest risk group in getting tuberculosis infection than women (*Mengista, 2009*).

An assessment about the level of knowledge and attitude of Tehran high school student regarding TB showed that less than (10%) of the student had high knowledge and more than (50%) of them had low level of knowledge about signs and symptoms, routes of transmission, prevention and treatment of TB. (35%) of study participants had positive attitudes (43%) were neutral and (22%) had negative attitude. This indicated inadequate awareness about TB and wrong beliefs that resulted in such negative attitudes on the other hand participants with strong positive attitude toward TB had higher knowledge levels on TB (*Mohammad et a*l., 2006).

A cross sectional study about patient knowledge regarding TB and its treatment suggests that only (36.2%) of study cases had satisfactory knowledge about the disease .The level of knowledge about the disease was found to be inversely proportional with respondent age. Males (38.7%) were more knowledgeable than females (34.1%). The level of knowledge increased with increasing educational levels (*Mohamed et al*., 2007).

An attitude and social consequences of TB study in Ethiopia showed that (83%) of the respondents were aware that TB victims and social consequences of being a TB victim. (80.1%) perceived TB as an extremely severe disease, (81.5%) thought it was caused by cold, (69%) felt that TB patients are not acceptable in the community and (78.3%) fear physical contact with TB patients. The attitude of respondents had social consequences particularly stigmatization and social isolation of TB patients, (80.6%) of those who were married feared physical contact with TB patients (*Gelawet al*., 2001).

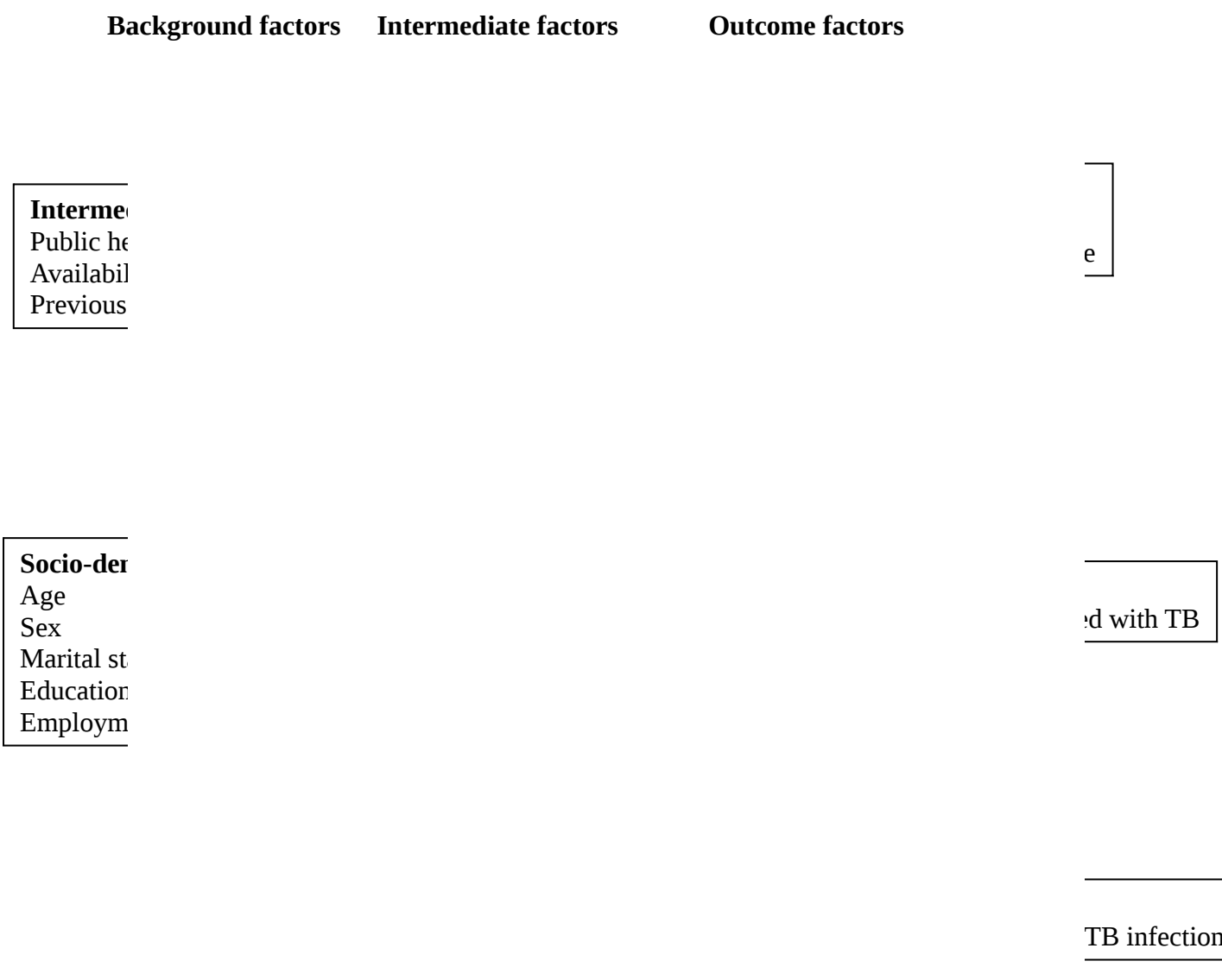
A study regarding pastoralist and delay in diagnosis of TB in Ethiopia confirms that there were occupational differences regarding TB knowledge and practices. the study found that (84%)of nomadic pastoralist had inadequate access to healthcare, and therefore mainly relied on traditional healthcare with consequent patient delay, (58.8%) of the study participants were agro-pastoralist by occupation ,(87%)sought traditional health care first for their illnesses (*Abdi et al*.,2009).

A study about effective tuberculosis control in Kenya found that there were challenges that made TB prevention and control difficult. It is evident from the study that between 1980 and 1997 the annual number of new tuberculosis cases increased fourth hold in Kenya and reached approximately 50,000 cases in 1998. The rise was found to have a link with the epidemic of the HIV/AIDs which is presently overburdening the control of tuberculosis. Inadequate knowledge about the relationship between HIV/AIDS and tuberculosis has made effective tuberculosis control approaches unsuccessful (*Hanson et al., 2004).*

Health survey studies conducted in Kenya have it that awareness of Tuberculosis was almost universal and that (99%) of men and (98%) of women have heard about tuberculosis. Knowledge of other aspects of tuberculosis was found to be wide spread, (80%) of men and (76%) of women aged between 14 – 49 who have heard of Tuberculosis and knew that it spreads through the air by coughing and (89%) of women and (92%) of men knew that tuberculosis was curable. Stigma related to tuberculosis was found not to be common in Kenya but only one in every ten men said that if a family member had tuberculosis they would keep it secret (KDHS, 2008 – 2009).

The incidence of TB was high in the pastoralists' district of Wajir. The district treatment compliance was poor and up to 70% of patient defaults treatment. In order to control the disease in these mobile populations, TB patients are admitted into newly constructed small villages or manyattas,adjacent to health care facility such as health center or hospital. Theestablishment of remote and hard to reach nomadic population in the district may improve treatment compliance (WHO, 2006-2010)

2.3 Conceptual Framework



CHAPTER THREE

MATERIALS AND METHODS

3.1 Introduction

This chapter presents the research design, target population, sampling design and procedure, research instruments, data collection techniques, method of data analysis and the expected output. A brief description of the study area was also presented.

3.1.1 Study Area

3.1.2 Position and Size of the District.

The study was conducted in Wajir East District. Recently Tarbaj District was curved from Wajir east district. The district lies between latitudes 3^0 N and 1^0 3^0’ N and between Longitudes 39^0 45’ E and 41^0 and covers an area of 14,471 $km^{2.}$ It borders Somali Republic to the East, Wajir south district to the South, Wajir West district to the west, Wajir North District to the North West and Mandera Central District to the North.

3.1.3 Administrative and Political Units

Administratively, Wajir East District is divided into three division’s twelve locations. WajirEast has four wards and Wajir County Council is the only local authority in the District. The District has only one constituency; Wajir East constituency.

3.1.4 Physiographic and natural conditions

Wajir East District is a featureless plain, which is prone to flooding during the rainy seasons, often making roads impassable, The district has seasonal swamps which together with drainage lines serve as dry season grazing zones which also allow some cultivation during the rainy seasons through these impede road transport during the wet seasons as most sections on the swamps and *laghas* become impassable.

3.1.5 Climatic Conditions

1. Rainfall

The district lies within the Sahelian climatic region, which is characterized by long dry spells and short rainy seasons. In classifications the district is categorized as zone VII (i.e. 100% ASAL). Its climate is characterized by frequent droughts and unreliable rainfall unfavorable for pasture for livestock keeping and agricultural activities.

The district is a slightly elevated plateau, which rises from an altitude of 150m above the sea level in the South East (Along Somali border) to 200m above sea level in the North West.

2. Temperature

The district experience high temperatures as result of continentally and its low altitude. The average annual temperature is 29^0c with January, February and March as hottest months during which mean temperatures soar above 30^0c. At the onset of the long rains in April, temperatures are moderate at 28^0c. The months succeeding the long rains June to September, are very dry but vegetations continue to do well since low temperatures reduce the rate of evaporation.

3.1.6 Population Profiles and Projections

Wajir East has a population of 112,572 (KNBS, 2009). The population growth rate in the district is rapid due to social cultural practices which are common among the members of the Muslim faith and stands at (3.7%) (*NCPD, 2010).*

The poverty level stands at (84%) and the district is currently under threat of desertification as a result of cutting trees for firewood and charcoal. Uncontrolled

settlements and indiscriminate grazing have also contributed to the worsening trend. There is a high unemployment rate, high rate of school dropout, high rate of early marriage and malnutrition leading to stunted growth which is one of the major concerns. Major issues that affect the families in the district include, family instability, increase number of single parenthood, high rate of divorce cases and high poverty level. The elderly and people with disabilities have faced with many problems that include increased poverty, high rate of abandonment of elderly persons and people with disabilities, inadequate shelter and health for the elderly have led to stigmatization. Most people depend on livestock keeping for the livelihood. There are few who do subsistence farming, bee keeping and livestock trading (*KIHS, 2006).*

3.1.7 Health

Health services in the district are delivered through a number of Governments, Private and faith based facilities. Central division leads with the number of health facilities, as it is the district's headquarters. There are sixteen GOK facilities in the entire district, two private Nursing Homes, one faith based facility and several private clinics. The most prevalent disease in the district includes malaria, diarrhea and respiratory diseases. The district has fast rising incidents of HIV/ Aids and the town accommodates many poor people who have lost their livestock.

3.1.8 Water and Sanitation

The district has no permanent surface water sources. Sources of Water in the district are boreholes, shallow wells, pans and dams for human and livestock consumption. Roof- catchments are also an important source of water in both urban and rural areas. Scarcity of water in terms of quantity and quality is a major bottleneck in the development of the district.

3.2 Study Design

A descriptive cross-sectional study was used. It is relevant because it involves specific narration of facts and characteristics concerning the Knowledge, Attitudes and Practices of study participants at a specified point in time.

3.2.1 Study Population

The study population included all adults aged 18 – 65 years residing in Wajir East District.

3.3 Inclusion and Exclusion Criteria

Inclusion Criteria

Adult population aged 18 to 65 years residing within the study area who gave informed consent to participate in the study.

Exclusion Criteria

1) Those who were seriously ill and could not respond to the questionnaire.
2) Those whose residency in the District is less than 3 months.

3.4Sampling and Sample Size

3.4.1 Sample Size Determination

The sample size was determined using the formula by Krejcie and Morgan (1970).

$$n = \frac{Z^2 \times P(1-P)}{C^2}$$

Where:

n = Sample size

Z = Z value (which is 1.96 for 95% confidence interval)

P = Percentage with a characteristic of interest (in this study, the interest is in level of knowledge, attitude and practices). For this study, a prevalence of 50% that gives the maximum desired sample size was used.

C = Confidence interval (or level of precision), in this case 0.05

Substituting values in the above formula

$$n == \frac{3.8416 \times 0.25}{0.0025} = 384$$

3.4.2 Sampling Procedure

To ensure representation of the selected sample, study participants were chosen randomly. Multi-stage sampling procedure was applied to select subjects for this study as follows:-

Step 1: Selection of Divisions: Two divisions of the three divisions in Wajir East District were selectedinto the study. Wajir Central because of its high population was automatically included into the study. One division between Wajir-Bor and Khorof-Harar divisions was selected randomly for the study by tossing a coin.

Step 2: Selection of Locations

First, the list of locations for each of the two selected divisions was prepared. There were 8 locations in Central division and 3 locations in Khorof-Harar division.

Secondly, from the prepared list of locations two locations were randomly selected from each division. The selection was done using a table of random numbers.

Step 3: Selection of Villages and Households

The list of villages within each of the selected locations was prepared before 5 villages were randomly selected from Khorof-Harar sub-location and 8 villages were randomly selected from Waberi sub-location.

In each selected village, a list of households was made and a pre-determined number of households were systematically selected following a random start as follows:-

1. For each selected village, landmark/point (road junction) which was centrally placed within the village was identified as a starting point.
2. While at the identified central point, a starting direction was selected by spinning the bottle (random walk method) and where the bottle lands facing was used. The nearest eligible household in the selected direction was the first one to be selected/ visited.
3. Thereafter, households were selected systematically taking every third household.
4. The process was repeated until there was an adequate coverage of the allocated number of households for selected villages

Step 4:Selection of households

The households that participated in the study in each of the above villages were randomly selected by use of a table of random numbers.

In each eligible household, only one adult who consented to participate in the study was interviewed. In households with more than one adult, one of them was selected at random.

In order to have equal representation of males and females in the sample, there was alternative recruitment of subjects among the study participants. For example, if in a household, a female was recruited, then in the next household, a male was given priority to be selected for the study.

To ensure that this was achieved there was preparatory visits to the study area, to meet the administrative leaders, who were to assist in mapping of the households within the study area. For each of the household selected the head of the household was

interviewed and household was used as a sampling unit. Names of villages in different sub locations were used as a sampling frame.Khorof-harar sub location had 600 households while Waberi had 1680 households (KNBS, 2009). The households were selected proportionate to population size (PPS) from each sub-location and were determined using the following formula:

$$\frac{\text{Household selected in a sub location}}{\text{Total household in the two sub locations}} \times 384 \text{ (sample size)}$$

The households selected from Khorof-Harar sub location were;

$$\frac{600}{2280} \times 384 = 101$$

The households selected from Waberi sub location were;

$$\frac{1680}{2280} \times 384 = 283$$

From each village in the two sub locations, the households that participated in the study were obtained using the following formula.

Household in a village/ Total Households in sub location X sub-location sample size

Table 1 Households that participated in the study in Khorof-Harar sub location

Village (s)	No. of Households	No. of Households selected (Sample size)
Bulla Kurman	145	24
Township	163	27
Bulla-Amar	93	16
Jogoo	112	17
Oman	87	15
Totals	**600**	**101**

Table 2 Households that participated in the study in Waberi sub location

Village (s)	No. of Households	No. of Households selected (Sample size)
Waberi I	180	30
Waberi II	168	28
Village Polytechnic	135	23
L.M.D	220	37
Catholic	184	31
Frontier	283	48
Halane	275	46
HZ Dam	235	40
Total	**1680**	**283**

3.5 Data collection

The study utilize a designed and pre-tested questionnaire covering the respondent's demographic characteristics (Age, sex, marital status, employment and level of education), and information related to knowledge, attitude and practices on tuberculosis transmission and prevention.

The data was collected through face to face interviews conducted by the principal investigator and recruited trained research assistants.

The research assistants were trained on interviewing techniques as well as the research data collection tool and their competence confirmed during pretesting.

3.6 Minimization of errors and biases

In order to minimize errors and biases arising from the study the following was done during the design, implementation and data collection stages of the study:-

1. The data collection tool was pre-tested in a village not selected for the study. This was done before the tool was used in the field.
2. The filled questionnaires were edited while in the field so that errors or mistakes were detected and corrected. The questionnaires were to be checked for completeness after the interview before leaving the household.
3. The eligible study participants were selected at random to ensure representativeness of the parent population.
4. The research assistants received training on the tool and interviewing procedures prior to fieldwork and were constantly monitored by the principal investigator while collecting data.
5. The eligible study participants were assured of confidentiality of the information they provided by not having their names recorded on data collection tool.

3.7 Data analysis

The data was cleaned before data entry using SPSS version 17 program. Descriptive statistics namely, proportions and means were computed during data analysis. The results were presented in form of tables, graphs and pie-charts. Cross-tabulation analysis was also conducted in order to determine the relationships being sought. The chi-square test of significance was applied to test for statistical associations.

Questions were scored in order to categorize study participants to whether they had sufficient knowledge, positive attitude and correct practices towards TB.

The statistical tests of significance such as, chi-square test and regression analysis were used to determine if associations exist between/among variables. Logistic regression was used to determine if there were independent associations between variables.

3.7.1 Criteria for Scoring on Knowledge, Attitude and Practices questions on TB

Scored questionswere used in order to obtain overall level of knowledge, attitude and practices on tuberculosis. Answers corresponding to Tuberculosis related knowledge and practices were scored out of 18. Each correct answer was scored as 1 and each incorrect answer was scored as 0. The total correct scores were summed and reported as overall knowledge. A score of 9 was used as a cut-off point for defining sufficient or insufficient level of knowledge; a person that obtained a score higher than 9 or equal to 9 was classified as having adequate knowledge whereas those receiving a score less than 9 were classified as having inadequate knowledge on TB. Attitude towards tuberculosis was scored using a likert scale of 5 where 1= strongly disagree and 5= strongly agree. It was scored out of 25. Total correct answers were summed and reported as overall attitude score out of 25 for that participant. The median (13) score was used as a cutoff point for defining a positive attitude or a negative attitude.

Individuals that received scores higher than the median (13) or equals to were classified as having positive attitude while those obtaining less than the median (13) were classified as having a negative attitude. Answers regarding correct practices on TB were scored out of 8. Each correct answer was scored 1and each incorrect answer was scored0. The total correct answers were summed and reported as overall practices score out of 8. A score higher than 4 or equals was used as a cutoff point for defining a correct or incorrect practices regarding tuberculosis. Respondents that got scores higher than or equals to four were considered as having correct practices while those receiving a score less than four were classified as having incorrect practices regarding tuberculosis. Scoring of knowledge, attitude and practices questions was done as shown in Appendix IV.

The interpretations were as shown below.

3.7.1.1 Overall knowledge level

Score of (50%) and above (overall score≥9) refers to **sufficient knowledge**

Score of below (50%) (Overall score<9) refers to **inadequate knowledge**

3.7.1.2 Overall attitude score

Score of (50%) and above (overall score≥13) refers to **positive attitude**

Score of below (50%) (Overall score<4) refers to **negative attitude**

3.7.1.3 Overall practices level

Score of (50%) and above (overall score≥4) refers to **correct practice**

Score of below (50%) (Overall score<4) refers to **incorrect practice**

3.8 Ethical consideration

Ethical approval was obtained from institutional research committee (IREC) of Moi University. Informed consent was obtained from all the study participants after describing to them all the issues related to the study in details.

Data were kept anonymous and all efforts were made to maintain confidentiality related to the information provided and recorded in the data set.

The principal investigator ensured compliance of protocol to ensure that the study adhered to all provisions designed to protect the rights of study participants during the study.

The district security committee, community leaders and all the stakeholders were informed of the intention to undertake the study before commencement

3.9 Limitation of the Study

1. The vastness of the district and the poor transport/logistics affected coverage of the study population.
2. Majority of the population had no experience of such kind of studies and therefore getting information from them was a problem.
3. Obtaining a sponsor for the study was difficult and as such it was self-sponsored.
4. Undertaking the study during the rainy season created some hiccups because some of the study participants were on the move and tracing them was both difficult and expensive.
5. Distribution of relief food/market days had at times slowed the study process.

3.10 Delimitation of the study

1. A well designed transport was availed to cover the terrain roads in the vast area under study.
2. Questionnaires were translated into the local spoken Somali language.
3. There were enough funds so as to avoid delays related to logistical issues.
4. The population under study was briefed by the members of the provincial administration prior to the commencement of the study.
5. The study was suspended during relief food distributions and market days.

CHAPTER FOUR

4.0 STUDY RESULTS

This chapter presents the results of the study which was presented in descriptive forms and using frequency tables, cross tabulations, figures, statistical tests of association and significant test of associations were given as appropriate. P value was fixed at 0.05.

4.1 Socio-demographic Characteristics

Three hundred and eighty four (384) adult residents of Wajir East District were interviewed to assess their knowledge, attitude and practices on tuberculosis. The age of the study participants ranged from 18 to 65 years, with a mean age of 37.5 years and was evenly distributed according to gender with (49.6%) males and (50.4%) females. About three-fifths (59.6%) of the participants were married while (30.4%) were single.

Table 3: Demographic characteristics of the study participants

Variable	Frequency	Percentage
Age (in years)		
<20	17	4.4
20-29	108	28.1
30-39	99	25.7
40-49	90	23.4
50-59	61	15.8
60-69	10	2.6
Mean (SD): 37.5 (11.8)		
Range: 18 - 65 years		
Gender		
Male	191	49.6
Female	194	50.4
Marital status		
Single	117	30.4
Married	228	59.2
Widowed	14	3.6
Divorced	26	6.8
Employment status		
Unemployed	121	31.4
Employed	264	68.6

As shown in Figure 1 the rate of illiteracy was high at (48.8%) with (5.5%) having undergone adult education; (10.6%) primary, (13.2%) secondary and (21.8%) post-secondary levels of education. Similarly, unemployment was low with (31.4%) being unemployed and (68.6%) employed (Table 3).

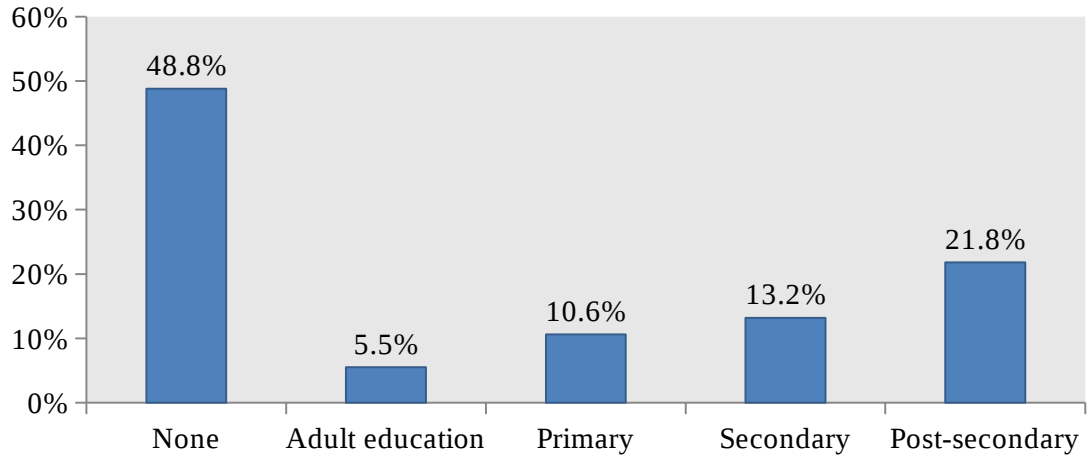


Figure 1: Level of education

4.2 Knowledge on Tuberculosis

4.2.1 Awareness about TB

As shown in Table 4 majority (97.4%) of the participants had heard of TB. As illustrated in Figure 2 (41.1%) learnt about the disease from family and friends and (34.8%) from health workers. Media and information, education and communication materials, such as, brochures and posters contributed to awareness among (13.8%) and (3.2%) of the residents respectively. TB was said to be a problem in the area according to (71.7%) of the residents while (21.1%) did not know if the disease was a problem.

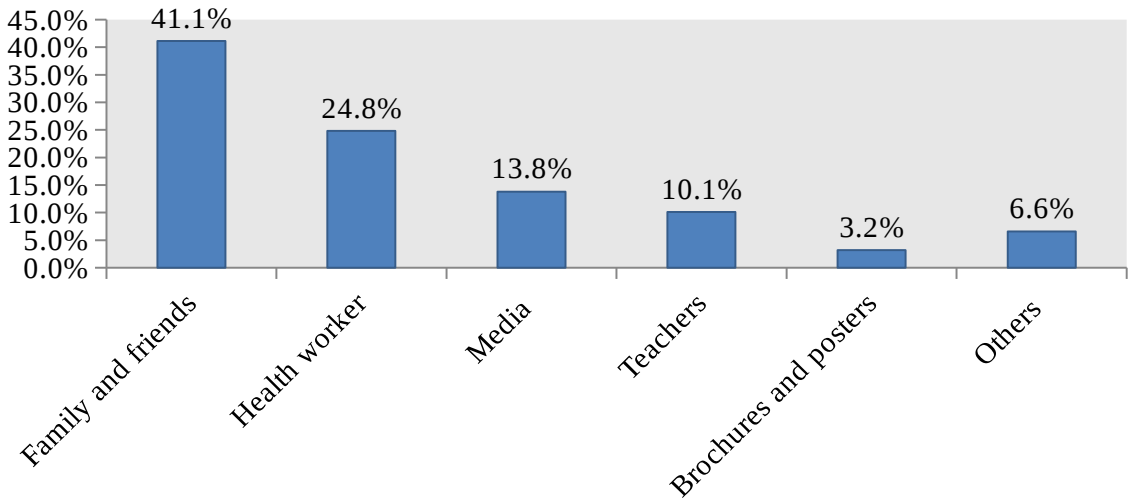


Figure 1: Source of information about TB

Only 27% of the participants said that TB is caused by bacteria while majority either did not know (38.2%) or had the wrong information that included witchcraft (5.2%) and others (23.4%) (Table4).

Table 4: TB infection awareness among study participants

Variable	Frequency	Percentage
Ever heard of a disease called TB		
Yes	375	97.4
No	10	2.6
Whether TB is a problem		
Yes	276	71.7
No	28	7.3
Do not know	81	21.1
Cause of TB		
Virus	29	7.5
Bacteria	104	27.0
Witchcraft	20	5.2
Do not know	147	38.2
Others	85	22.4

4.2.2 Signs and symptoms of TB

About three-fifths (61.3%) of the participants knew that TB can be identified in a person if a cough lasts longer than 3 weeks. Other signs mentioned by the residents included weight loss (34.8%), night sweats (20.3%), chest pain (19.5%), fever without a clear cause (19.5%) and coughing blood (17.2%) (Fig. 3).

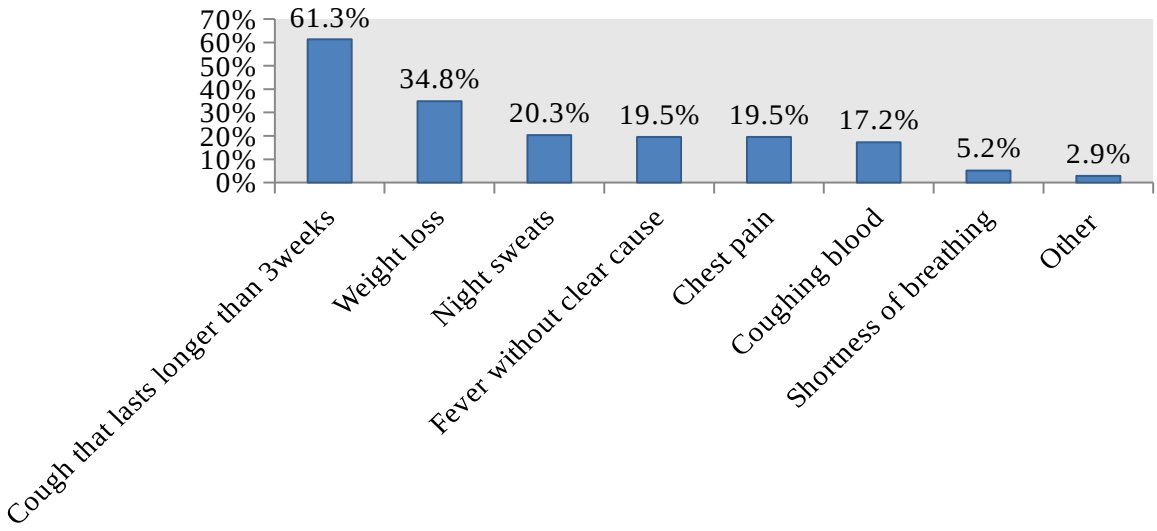


Figure 1: Signs and symptoms of TB

4.2.3 Modes of TB transmission

Slightly over a half (55.8%) of the respondents knew that TB can be transmitted through coughing and sneezing. Other modes of transmissions mentioned by the respondents included sharing utensils (23.4%), sleeping in overcrowded houses (21%) and shaking hands (14.8%), (10.9%) do not know and 3.1% mentioned through witchcrafts (Fig. 4).

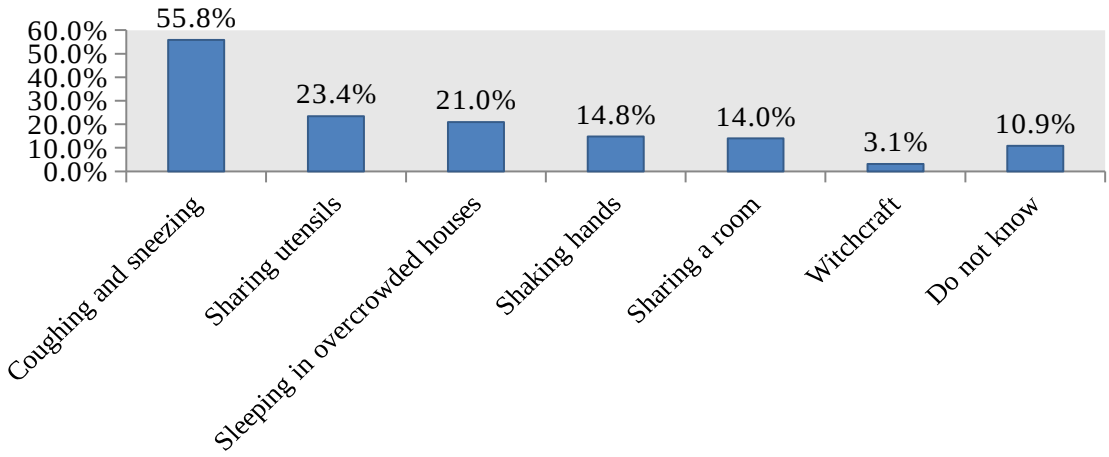


Figure 1: Modes of transmission of TB

4.2.4 Prevention of TB

As illustrated in Figure 5, BCG immunization was identified by (20.5%) of the study participants to be a way of preventing TB. Several other ways were mentioned and they included covering mouth and nose when coughing and sneezing (15.6%), good nutrition (7.5%), avoiding sharing dishes (15.3%) and others (21%). Overall, (14.3%) of the participants did not know any ways of TB prevention. Some participants said that TB can be prevented through treatment (13%) or by avoiding carrying heavy materials (3), cleanliness (4), public health education (2) and advice (3).

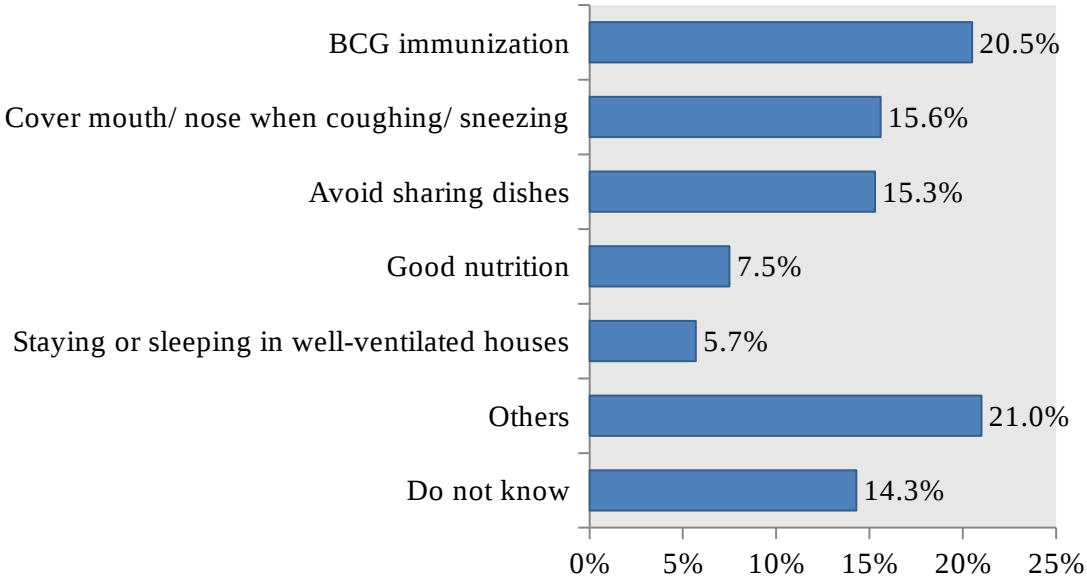


Figure 1: Ways of preventing TB infection

According to 60.8% of the study participants, anybody can be infected with TB. The other groups mentioned to be vulnerable to TB infection included poor people (15.8%), those only homeless people (3.9%) and PLWHA (1.6%) (Fig.6).

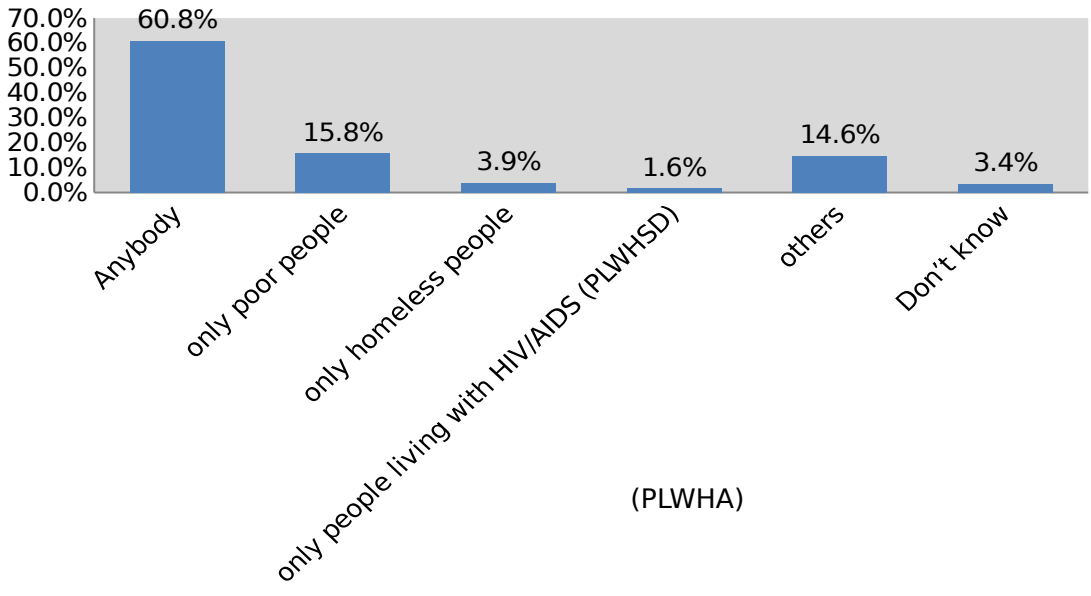


Figure 1: People vulnerable to TB infection

4.2.5 Treatment of TB

Majority (86.8%) of the participants knew that TB was treatable. Of those who knew that TB was treatable and (67.4%) of them mentioned taking a combination of TB medicines prescribed a national TB program as a way of treating the disease, (13.8%) mentioned BCG vaccination, (2.7%) herbal medicine, (1.2%) home rest without medicine, (2.4%) gave other responses for treating T.B, and (12.6%) did not know any way of treating TB (Table 5).

Table 5: Treatment on TB infection

Variable	Frequency	Percentage
Whether someone infected with TB can be cured		
Yes	334	86.8
No	51	13.3
How TB can be cured		
Taking a combination of TB medicines prescribed by a medical doctor.	225	67.4
Vaccination with BCG	46	13.8
Herbal remedies	9	2.7
Home rest without medicine	4	1.2
Other	8	2.4
Do not know	42	12.6

Knowledge on TB transmission, prevention and treatment

As shown in Table 6, about three-quarters (74.5%) of the study participants knew that one cannot get TB by touching a TB patient. However, (16.6%) knew otherwise and (8.9%) didn’t know if one can get TB by touching a TB patient. Slightly more than a half (57.9%) of the participants knew that TB was a long duration disease while (26.8%) thought it was not a long duration disease. Similarly, (48%) of the participants knew that one can get a vaccine against TB while a substantial proportion either thought it was not available (22.6%) or were not aware (29.3%). In relation to the length of TB treatment, (42.1%) of the participants thought that the long term treatment of TB harms health while (36.2%) knew that treatment does not harm

health. A high proportion (71.4%) of the participants knew that there was good TB drug available for TB treatment while (16.1%) thought it was not available and (12.5%) were not sure.

Table 6: Study Participants views on TB transmission, prevention and treatment

Statement	True	False	Do not know
One can get TB by touching a TB patient	64 (16.6)	287 (74.5)	34 (8.9)
TB is a long duration disease	223 (57.9)	103 (26.8)	59 (15.3)
One can get a TB vaccine	185 (48.0)	87 (22.6)	113 (29.3)
Long term treatment of TB harms health	162 (42.1)	139 (36.2)	84 (21.8)
Good TB drug available for treatment	275 (71.4)	62 (16.1)	48 (12.5)

4.2.6 Overall assessment of knowledge on TB

As illustrated in Figure 7 below, (53%) of the study participants had sufficient knowledge on TB while (47%) had inadequate knowledge.

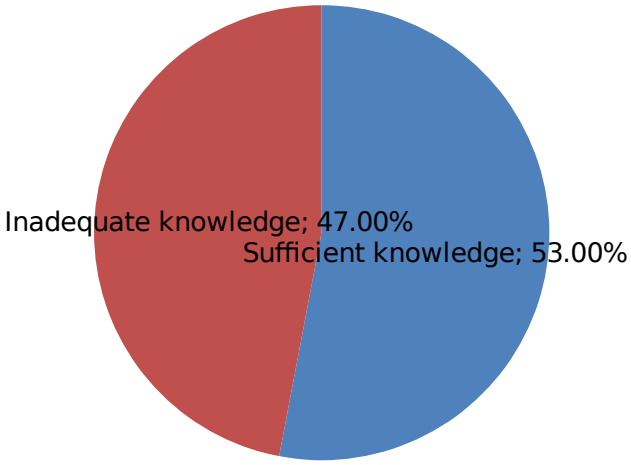


Figure 1: Level of knowledge

4.2.7 Factors associated with knowledge on TB

As shown in Table 7, the mean age for the participants with sufficient knowledge (36.6 years) was not significantly different from those with inadequate knowledge (38.4 years), (p=0.129). Male participants were more likely to have sufficient knowledge (59%) than females who made up majority (58%) of those with inadequate knowledge (p=0.001). Also, the married and the single participants showed a higher likelihood of having sufficient knowledge than the widowed and the divorced (p=0.035). Similarly, having primary education or higher increased the chances of a participant having sufficient knowledge on TB compared to those with adult education or no education (p<0.001).

Table 7: Factors associated with level of knowledge on TB

Variable	**Knowledge**		**Test statistics**
	Sufficient	Inadequate	
Age , mean (SD)	36.6 (11.7)	38.4 (11.9)	t=-1.523, df=374, p=0.129
Gender			
Male	118 (57.8)	73 (40.3)	X^2 = 11.765, df=1, p=0.001
Female	86 (42.2)	108 (59.7)	
Marital status			
Single	64 (31.4)	53 (29.3)	X^2 = 8.612, df=3, p=0.035
Married	127 (62.3)	101 (55.8)	
Widowed	3 (1.5)	11 (6.1)	
Divorced	10 (4.9)	16 (8.8)	
Level of education			
None	63 (30.9)	125 (69.1)	X^2 = 69.077, df=4, p<0.001
Adult education	8 (3.9)	13 (7.2)	
Primary	27 (13.2)	14 (7.7)	
Secondary	38 (18.6)	13 (7.2)	
Post-secondary	68 (33.3)	16 (8.8)	
Employment status			
Unemployed	60 (30.9)	61 (34.5)	X^2 = 0.526, df=1, p=0.468
Employed	134 (69.1)	116 (65.5)	

4.2.8 Results of Multivariate analysis of factors associated with level of knowledge on TB

The factors which showed significant associations in cross-tabulation analyses (Table 8) were put in logistic regression analysis to determine those independently associated with participants' level of knowledge. Gender and education level of the participants were found to be independently associated with the level of knowledge on TB. Male participants were more likely to have sufficient knowledge than the females (OR 1.7 [95% CI 1.0-2.6], p=0.027). Similarly, the participants with no education or those with adult education were less likely to have sufficient knowledge (OR 0.1 [95% CI 0.1-0.2], p<0.001 and OR 0.1 [95% CI 0.1-0.4], p<0.001 respectively). Marital status and employment status were not independent factors associated with the level of knowledge (Table 8). See Appendix VI for regression analysis outputs.

Table 8: Factors independently associated with level of knowledge on TB

Variable	OR (95 % CI)		P value
Gender			
Male	1.7 (1.1-2.6)		0.027
Female	1.0		
Level of education			
None	0.1 (0.1-0.2)	<0.001	
Adult education	0.1 (0.1-0.4)	<0.001	
Primary	0.5 (0.2-1.1)		0.086
Secondary	0.7 (0.3-1.6)		0.396
Post-secondary	1.0		

4.3. ATTITUDE TOWARDS TUBERCULOSIS

Slightly more than a half (54%) of the respondents knew that TB was a serious disease, (14.3%) thought it was somewhat serious and (19.5%) not very serious. About three-fifths (62.1%) of the respondents thought they could personally be infected while (27.3%) were not sure (Table 9)

Table 9: Attitudes towards T.B

Variable	Frequency	Percentage
Whether TB is a serious disease		
Yes, very serious	208	54.0
Yes, somewhat serious	55	14.3
Not very serious	75	19.5
Do not know	47	12.2
Whether the respondent thinks he can be personally infected with TB		
Yes	239	62.1
No	41	10.6
Do not know	105	27.3

4.3.1 Attitude of participants towards seeking TB treatment

About three-quarters (73.8%) of the respondents would go to public health clinic or hospital if they thought they had symptoms of TB while (35.8%) would go to a private clinic. Traditional healer was the option for (3.4%) of the respondents (Fig 6). Those who would not go to public health clinic would be due to the attitude of the medical workers (22.3%), not trust towards the medical workers (20%), transport difficulties (19.7%) and cost (11.2%) (Fig.8).

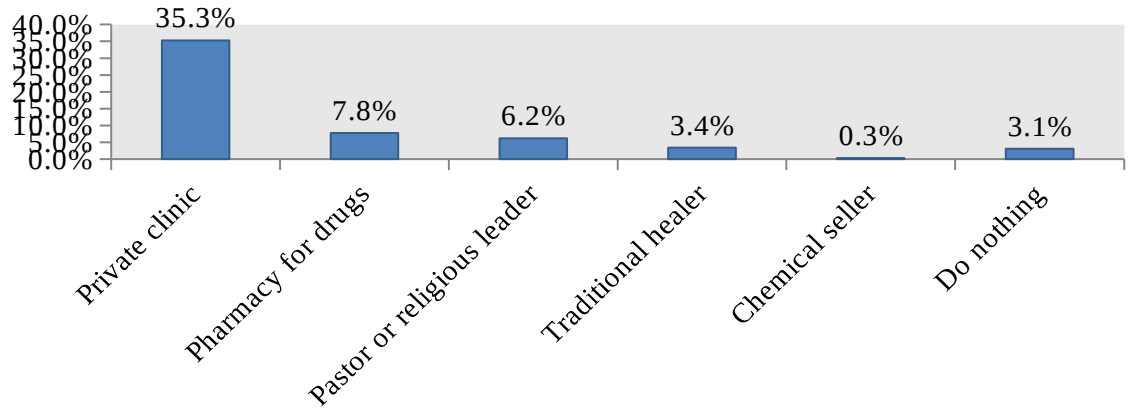


Figure 1: Place of seeking treatment if one suspects TB symptoms

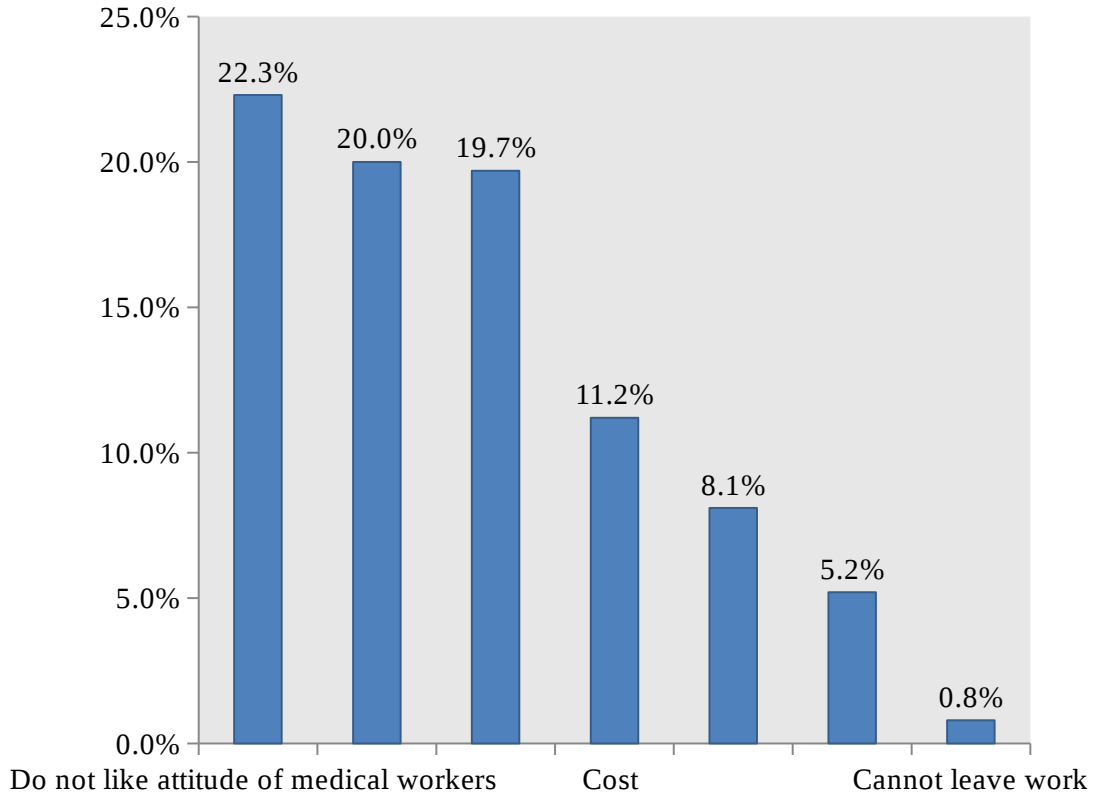


Figure 1: Reason for not going to a public health clinic

4.3.2 Attitude towards TB infection

Though (30.1%) of study subjects would not experience any change if they had TB, (20.8%) said they would fear, (15.3%) become sad or hopeless, (10.6%) surprised, (9.1%) embarrassed and (4.7%) ashamed. Others said they would seek treatment (Fig. 10).

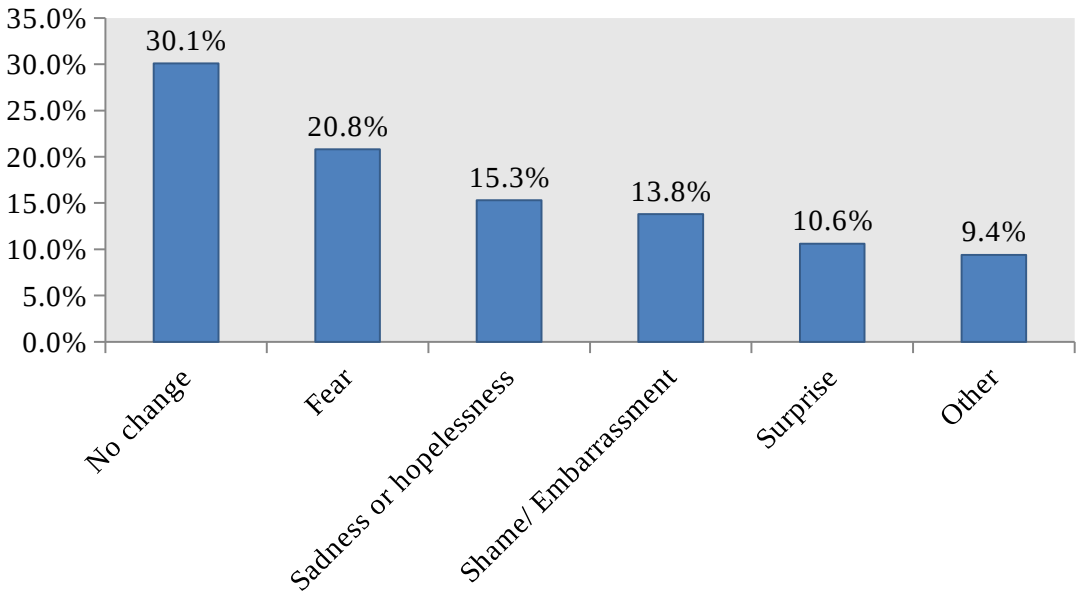


Figure 1: Reaction if found out to have TB

4.3.3 Seeking advice in case of TB infection

Slightly less than a half (46.5%) of the respondents said they would talk to the doctor or other medical workers if they got TB while (31.2%) would talk to their spouses and (23.6%) to their parents. Only (6.2%) of the respondents would never talk to anyone if they were infected with TB (Fig. 11).

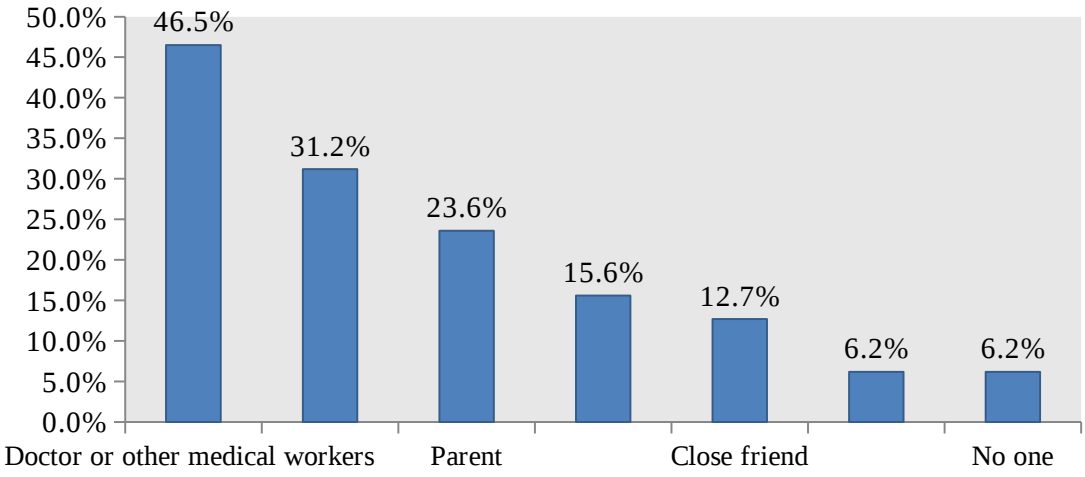


Figure 1: The person to talk to in case of TB infection

4.3.4 Community's attitude towards T.B

More than two thirds (69.4%) of the respondents had some knowledge of an individual who had TB. According to (46.2%) of the respondents, most people in the community reject TB patients, (28.6%) said people are friendly to them but they generally try to avoid them and (21.6%) said the community mostly supports them. Majority (58%) respondents did not know if HIV positive people should be concerned about TB while (35.3%) knew. A small proportion (28.1%) of respondents felt they were well informed about TB with (70.1%) feeling otherwise. Slightly more than a half (52.5%) of the respondents said that they needed more information about TB (Table 10).

Table 10: Community's attitude and awareness towards T.B

Variable	Frequency	Percentage
Knowledge of any person with TB		
Yes	267	69.4
No	75	19.5
Do not know	43	10.2
How a person with TB usually regarded in community		
Most people reject him/her	178	46.2
Most people are friendly, but they generally try to avoid him/her	110	28.6
The community mostly supports him/her	83	21.6
Others	14	3.6
HIV positive people should be concerned about TB		
Yes	136	35.3
No	26	6.8
Do not know	223	58.0
Well-informed about TB		
Yes	108	28.1
No	270	70.1
Do not know	7	1.8
Need more information about TB		
Yes	202	52.5
No	163	42.3
Do not know	20	5.2

4.3.5 Attitude towards TB patients

A half (49.6%) of the respondents said they feel compassion and desire to help people with TB while (29.9%) feel compassion but intend to stay away from them. Others felt TB is the problem of the patient (6.5%) while (6.8%) fear they might be infected. Besides, (41%) of the respondents said they were worried by stigma associated with TB, (21%) were bothered by long period of treatment and (16.9%) were worried by the fact that TB can be transmitted to others (Table 11).

Table 11: Attitude towards TB patients

Variable	Frequency	%
Statement closest to the feeling about people with TB		
I feel compassion and desire to help	191	49.6
I feel compassion but intend to stay away from these people	115	29.9
It is their problem and I cannot get TB	25	6.5
I fear them because they may infect me	26	6.8
I have no particular feeling	22	5.7
Others	6	1.6
Worries about TB		
Long period of treatment	81	21.0
Stigma associated with it	158	41.0
Transmission to others	65	16.9
Nothing	51	13.2
Others	30	7.8

Table 12: Attitude and stigma associated with tuberculosis

Statement	Strongly disagree	Some extent disagree	Neutral	Some extent agree	Strongly agree
TB is a serious disease	265 (68.8)	22 (5.7)	34 (8.9)	4 (1.0)	60 (15.6)
People should always seek medical attention when they are suspecting to have TB	70 (18.2)	33 (8.6)	59 (15.3)	52 (13.5)	171 (44.4)
People with TB get discriminated against in the community	74 (19.2)	13 (3.4)	113 (29.3)	19 (4.9)	166 (43.1)
TB is a disease for the HIV positive population	108 (28.1)	31 (8.1)	84 (21.8)	48 (12.5)	114 (29.6)
TB treatment takes too long	47 (12.2)	15 (3.9)	48 (12.5)	24 (6.2)	251 (65.2)

As shown in table 12, about two third (68.8%) of the study participants strongly disagreed with the statement that TB is a serious disease but (15.6%) agreed with the statement. More than half of the participant agreed that people should always seek medical attention when suspecting to have TB, with (44.4%) agreeing to the statement. Similarly, (43.1%) of the study participants strongly agreed that persons with TB are discriminated in the community but a good proportion were either not sure or disagreed whether they are really discriminated. Though (28.1%) of the participants did not agree that TB is a disease for the HIV positive population. On the contrary, (29.6 %) strongly agreed that TB is a disease of the HIV positive population. About two third (65.2%) of the respondents strongly agreed that tuberculosis treatment takes too long. In general, the respondents correctly sought medical attention when signs suggestive of TB appear. Others believed that they are discriminated against in the community due to tuberculosis. There is a deep-rooted

believe where tuberculosis is associated with HIV positive persons in the community. TB is also considered as a disease which takes too long to treat though not serious at times. A number of participants were not sure whether TB is a disease for the HIV population too.

4.3.6 Attitude towards TB and associated factors

The overall assessment of attitude (see criteria in Appendix IV) showed that (47.3%) of the participants had positive attitude towards TB infection while (52.7%) had a negative attitude.

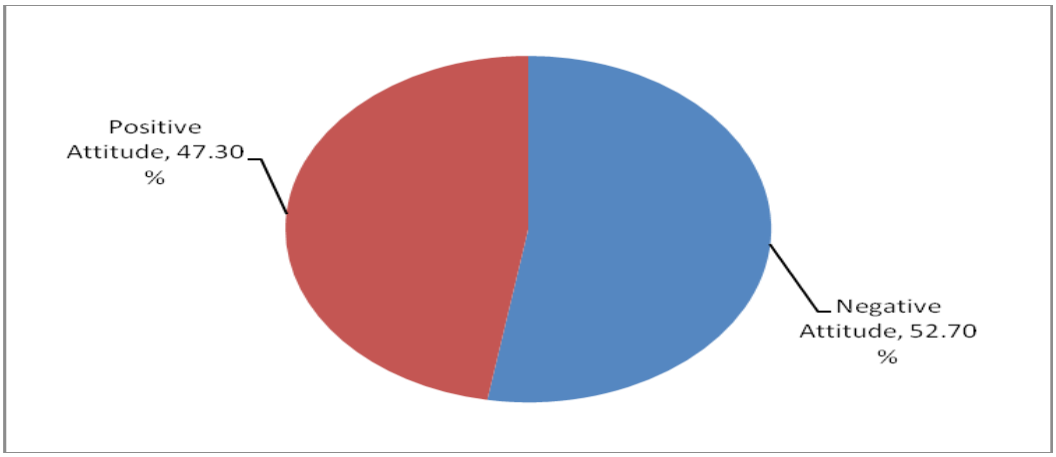


Fig 12: Attitudes towards Tuberculosis

Age was not significantly different between the participants who demonstrated positive attitude (37 years) and those with negative attitude (37.9 years), (p=0.488). Similarly, whether a participants was a male or a female did not influence the kind of attitude the participant demonstrated (p=0.091). However, the married or single participants were more likely to have a positive attitude towards TB than the widowed or divorced (p=0.010). Also, the participants with no education demonstrated a positive attitude towards TB as compared to the educated group of participants (p=0.006). Unemployment influenced positive attitude among the participants while the employed were more likely to have a negative attitude (p=0.020). On the other

hand, having sufficient knowledge on TB did not influence whether the participants demonstrated positive or negative attitude towards the disease.

Variable	**Attitude**		**Test statistics**
	Positive	Negative	
Age, mean (SD)	37.0 (11.6)	37.9 (12.0)	t=-0.315, df=374, p=0.488
Gender			
Male	98 (53.8)	93 (45.8)	X^2 = 2.478, df=1, p=0.115
Female	84 (46.2)	110 (54.2)	
Marital status			
Single	58 (31.9)	59 (29.1)	X^2 = 1.586, df=3, p=0.010
Married	115 (63.2)	113 (55.7)	
Widowed	4 (2.2)	10 (4.9)	
Divorced	5 (2.7)	21 (10.3)	
Level of education			
None	104 (57.1)	84 (41.4)	X^2 = 3.400, df=4, p=0.006
Adult education	7 (3.8)	14 (6.9)	
Primary	14 (7.7)	27 (13.3)	
Secondary	16 (8.8)	35 (17.2)	
Post-secondary	41 (22.5)	43 (21.2)	
Employment status			
Unemployed	62 (35.4)	59 (30.1)	X^2 = 5.385, df=1, p=0.020
Employed	113 (64.6)	178 (69.9)	
Knowledge			
Sufficient	93 (51.1)	111 (54.7)	X^2 = 0.253, df=1, p=0.482
Inadequate	89 (48.9)	92 (45.3)	

Table 13: Factors associated with attitude towards TB infection

Table 14: factors independently associated with attitude towards TB infection

Variable	OR (95 % CI)	P value
Marital status		
Single	1.0	
Married	1.0 (0.6-1.5)	0.874
Widowed	0.4 (0.1-1.5)	0.187
Divorced	0.2 (0.1-0.7)	0.009
Level of education		
None	1.4 (0.8-2.5)	0.177
Adult education	0.6 (0.2-1.8)	0.391
Primary	0.8 (0.4-1.9)	0.690
Secondary	0.6 (0.3-1.3)	0.232
Post-secondary	1.0	
Employment status		
Unemployed	1.0	
Employed	1.4 (0.9-2.2)	0.149

4.3.7 Multivariate analysis of factors associated with attitude towards TB

The factors which showed significant associations during the cross-tabulation analyses (Table 14) were put in logistic regression model to determine those independently associated with attitude towards TB infection. As compared to the single participants, the divorced participants were less likely to have positive attitude towards TB, OR 0.2 (95% CI 0.1-0.7), (p=0.009). See Appendix VI for regression model outputs.

4.4 Practices on Tuberculosis

4.4.1 Health seeking practices

Government clinic or hospital was the most popular place of seeking treatment according to (55.6%) of the respondents. Private clinics contributed substantially (32.5%) to the options the community have when seeking treatment when they are

sick. Also, (1.8%) of the respondents said they sick treatment from traditional healer. Frequency of seeking health at a clinic or hospital was twice a year or more for (36.4%) while (16.4%) had never sought TB check up in the past 5 years. Some said they go for TB checkup once a year (8.6%), less than once a year (16.6%) and once in past 5 years (9.1%) (Table 15).

Table 15: Health-seeking behavior of the Study Participants

Variable	Frequency	Percentage
Where one goes if sick or to treat general health problem		
Private clinic	125	32.5
Government clinic or hospital	214	55.6
Traditional healer	7	1.8
Clinic run by an NGO or church	20	5.2
Do not know	19	4.9
Frequency of seeking health at a clinic or hospital		
Twice a year or more	140	36.4
Once a year or more	33	8.6
Less than once a year but at least twice in the past 5years	64	16.6
Once in past 5years	35	9.1
Never in the past 5years	63	16.4
Other	50	13.0

4.4.2 Seeking treatment upon noticing TB symptoms

In case the respondents had TB symptoms, (43.1%) said they would seek treatment in a health facility as soon as they realized that their symptoms are TB-related while (32.2%) would seek treatment when symptoms that work like TB signs last for 3-4 weeks. Other respondents (15.1%) would go to the health facility when treatment on their own does not work. Majority (35.1%) of the respondents would seek treatment one month after realizing they had TB symptoms; (15.6%) after a day and (27.8%) after a week (Table 16).

Table 16: Point of seeking treatment after realizing TB symptoms

Variable	Frequency	Percentage
Point of going to a health facility		
When treatment on my own does not work	58	15.1
When symptoms that work like TB signs last for 3-4weeks	124	32.2
As soon as I realize that my symptoms might be related to TB	166	43.1
I would not go to a doctor	3	0.8
Do not know	29	7.5
Missing	5	1.3
How long to wait before seeking treatment if symptoms of TB		
One month	135	35.1
One day	60	15.6
One week	107	27.8
Do not know	80	20.8
Others	3	0.8

4.4.3 Place of seeking treatment in case of TB treatment failure

As illustrated in Figure 12 below, two thirds (66.5%) of the respondents said they would go to a health facility immediately if their disease does not respond to TB drugs. Some said they would ask spouses or relatives for advice (13%) or would go to a pharmacy (7%) if they were in the same situation. Also, (2.3%) would go to a traditional healer if they do not respond to TB drugs.

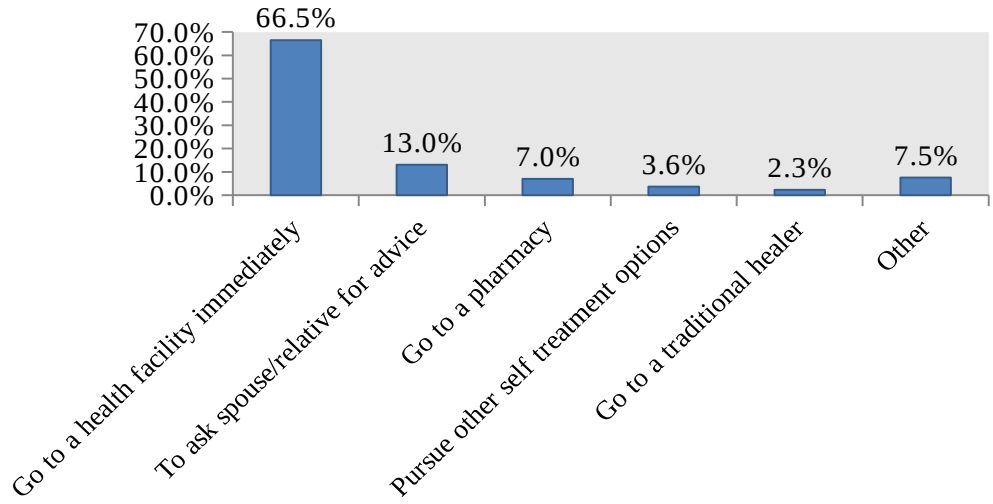


Figure 1: Place of seeking assistance if TB does not respond to drugs

4.4.4 Practices on TB transmission prevention

As shown in Table 17 (27%) of the respondents said they would advice their family member to sleep in a separate room if the person was diagnosed with TB. Others would admit in TB Manyatta (19.7%) or teach family members how to protect themselves (14.5%). Besides, (29.3%) did not know what to do in cases where a family member is infected.

Some of the practices highlighted by the respondents that prevent one from getting TB infection included avoiding spitting anywhere (34.5%), covering mouth/nose when coughing/sneezing (30.6%) and living in well-ventilated house (28.8%). Other respondents (23.9%) did not know of any practice that prevents one from getting infection.

In cases where a family member declines to seek medical care after having TB symptoms, (25.5%) of the respondents said they would advise them on the

consequences of lack of treatment, (23.6%) would consult a health worker to advice them while (8.6%) said they would report to the police.

Table 17: Practices on TB prevention

Variable	Frequency	Percentage
Measure taken if a family member of the is diagnosed with TB		
Admit him/her in TB Manyatta	76	19.7
Advice him/her to sleep in a separate room	104	27.0
Teaching members on how to prevent getting TB infection	56	14.5
Do not know	113	29.3
Other	40	10.4
Practices that prevent one from getting TB infection; Living in well-ventilated house		
Covering mouth/nose when coughing/sneezing	111	28.8
Not spitting sputum anywhere	118	30.6
Do not know	133	34.5
	92	23.9
If a family member with signs of TB declines treatment?		
Advice him on the consequences of not seeking treatment	98	25.5
Consult a health worker to advice him	91	23.6
Report to the police	33	8.6
Other	115	29.9
Do not know	48	12.5

4.4.5 Overall assessment of TB practices

As illustrated in Figure 13 correct practice on TB treatment and prevention was identified among study participants where (49.4%) of the participants had shown correct practices, while (50.6%) revealed incorrect practice in handling TB.

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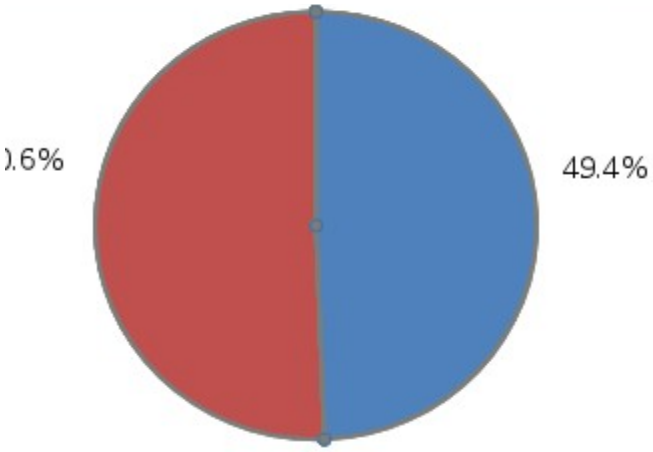

Figure 1: Practices on TB

4.4.6 Factors associated with correct practices on TB infection prevention

As shown in Table 18, age and marital status of the participants was not associated significantly with the kind of practice the participants demonstrated. However, male participants (60.3%) were more likely to demonstrate correct practice towards TB treatment and prevention than the female participants who formed the majority (58.4%) of those with incorrect practice ($p<0.001$). Having primary education or higher was associated with having correct practice compared with those with adult education or no education who were more likely to demonstrate incorrect practice towards TB ($p<0.001$). The participants who demonstrated correct practice on TB treatment and prevention were more likely to have sufficient knowledge (75.3%) as compared to those with incorrect practice whose majority (68.3%) had inadequate knowledge on TB ($p<0.001$).

Table 18: Factors associated with practice on TB treatment and prevention

Variable	Practice		Test statistics
	Correct	Incorrect	
Age-years, mean (SD)	36.5 (11.6)	38.4 (11.9)	t=-1.529, df=374, p=0.127
Gender			
Male	114 (60.0)	77 (39.5)	X^2=16.198, df=1,
Female	76 (40.0)	118 (60.5)	p<0.001
Marital status			
Single	61 (32.1)	56 (28.7)	X^2 =4.875, df=3,
Married	114 (60.0)	114 (58.5)	p=0.181
Widowed	3 (1.6)	11 (5.6)	
Divorced	12 (6.3)	14 (7.2)	
Level of education			
None	51 (26.8)	137 (70.3)	X^2=86.793, df=4,
Adult education	8 (4.2)	13 (6.7)	p<0.001
Primary	26 (13.7)	15 (7.7)	
Secondary	36 (18.9)	15 (7.7)	
Post-secondary	69 (36.3)	15 (7.7)	
Employment status			
Unemployed	60 (33.0)	61 (32.3)	X^2=0.020, df=1,
Employed	122 (66.0)	128 (67.7)	p=0.887
Knowledge			
Sufficient	143 (75.3)	61 (31.3)	X^2 = 74.726, df=1,
Inadequate	47 (24.7)	134 (68.7)	p<0.001

Variable	OR (95 % CI)	P value
Gender		
Male	1.7 (1.0-2.7)	0.003
Female	1.0	
Level of education		
None	0.1 (0.1-0.3)	<0.001
Adult education	0.2 (0.1-0.6)	0.005
Primary	0.5 (0.2-1.1)	0.085
Secondary	0.6 (0.2-1.3)	0.181
Post-secondary	1.0	
Knowledge		
Sufficient	3.9 (2.4-6.4)	<0.001
Inadequate	1.0	

Table 19: Factors independently associated with TB practices

4.4.7 Multivariate analysis of factors associated with practice on TB treatment and prevention

The factors showing significant associations in Table 19 were put in logistic regression model to determine those independently associated with awareness on TB prevention practices. As shown in Table 19, males were more likely to have correct practices than females, OR 1.7 (95% CI 1.0-2.7), (p=0.003). Also, participants with no education and adult education were less likely to demonstrate correct practices on TB treatment and prevention (OR 0.2 (95% CI 0.1-0.3), (p<0.001) and OR 0.2 (0.1-0.6), (p=0.005) respectively). Similarly, the participants with sufficient knowledge were more likely to demonstrate correct practices on TB treatment and prevention, OR 4.1 (95% CI 2.4-6.4), (p<0.001). Employment status was not independently associated with practices. See Appendix VI for regression analysis outputs.

CHAPTER FIVE

5.1DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.

In this chapter the results were presented highlighting the most significant ones and giving possible explanations for the same. At the same time, a comparison of the results with reviewed and emerging literature is given.

Socio-demographic Characteristics

Three hundred and eighty four (384) adult residents of Wajir East District were interviewed to assess their knowledge, attitude and practices on tuberculosis. The age of the study participants ranged from 18 to 65 years, with a mean age of 37.5 years and was evenly distributed according to gender with (49.6%) males and (50.4%) females. About three-fifths (59.6%) of the participants were married while (30.4%) were single. The education level was low where (21.8%) of the study participants had post-secondary level of education, similarly unemployment was low with (31.4%) being unemployed and (68.6%) self-employed.

In this study 53%was of the participants were found to adequate knowledge on TB tuberculosis causes, mode of transmission, signs, symptoms and methods of prevention. This result is lower than the results of a similar study conducted in Sudan by Mohamed et al. (2007) who got a prevalence of 67%. This study also found that males (57.8%) had tuberculosis knowledge than females (42.2%) among the study participants. This study corroborates with findings from similar study carried out in Sudan which found that males (58%) and females (48.4%) were knowledgeable than females regarding tuberculosis causes, mode of transmission, signs, symptoms and methods of prevention.

Only a third of the study participants with post secondary level of education had adequate knowledge on tuberculosis. However, this figure was higher than the figures for those with lower levels of education. This study concurs with a similar study in Ethiopia which found that (57.9%) of those with basic education had sufficient knowledge on tuberculosis treatment and the causative agent of the disease (Gemeda *et al.*, 2008).

This may be explained by the fact that most of the educated persons among the study participants can easily understand and interpret information on tuberculosis. They can also enquire and access information regarding the process since the most educated usually stay in towns. Gender and level of education were the factors found to be independently associated with knowledge on T.B when confounding was controlled for.

In this study only 47.3% of the study participants had positive attitude towards tuberculosis. A similar study done in Kenya about tuberculosis knowledge, health seeking behavior and perceived stigma towards tuberculosis among me members of the Somali community in Nairobi found that (48.8%) of the study participants had positive attitude towards tuberculosis (Abebe *et al.*, 2010).

Marital status was found to have a significant and an important relationship with perception towards tuberculosis. The married population contributed to the majority (63.2%) of those with positive attitude. This could be due to their life experiences with tuberculosis resulting in more cautious behavior. These findings concur with a study (Gelaw *et al*., 2001) which found that 80.6% of those who are married do fear physical contact with TB patient.

This study revealed that participants with primary level education and above (57.1%) had a positive perception towards tuberculosis, were participants with higher educational levels contrary to a similar study which found that only (35%) of those with basic education had shown positive attitude towards tuberculosis (Mohammad *et al*, 2006). The study demonstrated that 69.9% of those who were employed had indicated a negative attitude towards tuberculosis contrary to a similar study in Ethiopia which found that only (42.8%) of those who were employed had shown negative attitude towards tuberculosis (Senait, 2011). The variation may be that those who were on employment may not have enough time to attend to public health education campaigns or that they pretend to know all that relates to tuberculosis when in actual fact they lack the necessary information about the disease.

In this study, about a half (50.6%) of the study participants had incorrect practices towards tuberculosis prevention and control. This figure is lower than the results found in a study done in Kenya which showed that majority (87.1%) of the study participants had good practices regarding tuberculosis prevention and control (Marubu., 2012).

The current study found that more males (60%) demonstrated correct practices towards TB treatment and prevention than female participants (40%) who seek treatment at government health facility. The underlying reasons may be that the low levels of formal education among women may have created difficulties for health education programmes. Other possible reason could be that women require permission from men or head of household to seek treatment in a health facilitycontrary to a study findings which found that only (33.9%) of males seek treatment for tuberculosis (Matebesi, 2004). There was statistically significant

association between gender and correct practices about TB treatment and preventive practices ($p<0.001$).

Having primary education or higher levels of education was associated with correct practices about TB compared to those with adult education or none education who were more likely to demonstrate incorrect practices towards TB. The high levels of illiteracy and the low levels of formal education among the study participants may have made public health campaigns difficult resulting to increased incorrect practices regarding the disease among the study participants.

The level of education and gender were found to be independently associated with correct practices on prevention of TB under logistic regression model. Similarly, having knowledge on TB significantly influenced correct practices towards TB prevention ($P<0.001$). The factors that have shown significant associations regarding knowledge, attitude and practices on tuberculosis were taken into unconditional logistic regression analysis where a step wise backward elimination method was used to obtain the final “best fit model”. The factors found to be independently associated were gender and level of education relating to tuberculosis knowledge and employment status which was the only factor independently associated with perception towards tuberculosis. Level of education and gender were the factors found to be independently associated with practices regarding tuberculosis. The level of knowledge on Tuberculosis was found to be independently associated with attitude and practices regarding tuberculosis disease.

5.2 Conclusions

The study comes up with the following conclusions:-

Almost a half of the study participants had inadequate knowledge on tuberculosis though the study participants' level of awareness about the existence of TB washigh. Gender and level of education of the study participants were found to be significantly associated with the level of knowledge on tuberculosis.

Majority of the study participants demonstrated negative attitude towards tuberculosis prevention and control.However, marital status was found to significantly influence perception towardstuberculosis.

About a half of the study participantsreported to engage in incorrect practices regarding tuberculosis prevention and control. However, gender and level of education were found to be associated with correct practices about the prevention of tuberculosis.

5.3 Recommendations

The study comes up with the following recommendations:

1. Ministry of health (MOH) should be should put in place some appropriate health education programmes in the study area that could enhance the community's level of knowledge on tuberculosis transmission and prevention. This education messages could be through the media.
2. There should be multi-sectoral approach in dissemination of effective information transfer system regarding tuberculosis in order to overcome deep-rooted cultural values that are against today's modern health care. This may promote positive health seeking behavior among the populations.

3. The Wajir County government should initiate or implement community health education programmes within the County through the Office of the Director of Public Health.
4. Further research is required to be conducted in this nomadic population to identify the factors influencing health seeking behaviour.

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APPENDICES

APPENDIX I: INFORMED CONSENT EXPLANATION AND FORM

My name is Ahmed Sahal Omar. I am a student in Moi- University school of Public Health AMREF campus.

As part of my degree program I am required to conduct a study. The purpose of the study am conducting is to assess level of knowledge, attitudes and practices related to TB infection among adults in Wajir East District, I wish to find out the level of knowledge on T.B, attitude towards T.B what measures you take to prevent its spread in this community.

The information you provide will be used by policy-makers to improve TB prevention in this community.

Your answers will be kept completely confidential. Your name will never appear on any documentation. Similarly, your name will never be used in connection with any of the information you provide. The information you share with me will be analyzed and reported for research purposes only and that your anonymity will be protected. You don't have to answer any questions that you are not comfortable with, and you may end this interview at any time you want to. You have the right to decline from giving the interview, however your honest answers to questions would be greatly appreciated and would assist (me) understand what people think, say and do about TB.

Your participation in this study is voluntary and you can decline to participate if you do not want and there is no penalty for doing so.

There are no major risks involved in your participation in this study. You may only feel uncomfortable as some questions are personal.

You may not directly benefit from this study but the information you provide will be used to plan for T.B control program for people in this population. If you consent to participate in the study, you will be asked some questions and the interview will last for few minutes.

Now that you have been explained what the study entails, you are free to ask any questions related to this study that you don't understand.

In case you have any questions related to the study, you can either contact me on Address P.O Box 380-00610, Nairobi, mobile:0726141422 or The Secretary, IREC, Moi University, P.O Box 460, Eldoret (Tel:33471/2/3)

Consent Form

I …….have been explained what the study involves, benefits, risks involved as well as confidentiality of the information I have to provide and therefore I hereby Agree/Decline to participate in this study.

Participant

Signature / thumbprint _____Date _____

I certify that the nature, purpose, the potential benefit and possible risks associated with regard to participating in this research has been explained to the above individuals.

Signature / Name of principal investigator _____ Date _____

Ahmed Sahal Omar

APPENDIX II: QUESTIONNAIRE

SECTION I – IDENTIFICATION INFORMATION

1. Respondent Serial Number: ☐ ☐ ☐

2. Respondent Residence

District	**Division**	**Location**	**Sub-location**	**Cluster No.**
Wajir East				

SECTION II: DEMOGRAPHIC INFORMATION

3. Length of residency in Wajir East District

    1. One year [ ]
    2. Two years [ ]
    3. Three years [ ]
    4. More than three years [ ]

4. Gender

    1. Male [ ]
    2. Female [ ]

5. How old are you? ……..in years [ ]

6. What is your marital status?

    1. Single [ ]
    2. Married [ ]
    3. Widowed [ ]
    4. Divorced [ ]

7. What is your level of Education?

    1. None [ ]
    2. Adult Education [ ]
    3. Primary [ ]
    4. Secondary [ ]

5. Post-secondary [ ]

8. What is your employment status?

1. Unemployed [ ]
2. Employed [ ]

SECTION III: KNOWLEDGE ON TB INFECTION

9. Have you ever heard of a disease called Tuberculosis (TB)?

1. Yes [ ]
2. No [ ]

10. If yes, where did you first learn/hear about Tuberculosis (TB)?

1. Media [ ]
2. Brochures and posters [ ]
3. Health worker [ ]
4. Family and friends [ ]
5. Teachers [ ]
6. Others (specify)…… [ ]

11. Do you think TB is a problem in this area?

1. Yes [ ]
2. No [ ]
3. Do notknow [ ]
4. If yes, (explain) …….. [ ]

12. What do you think causes TB?

1. Virus [ ]

2. Bacteria [ ]
3. Witchcraft [ ]
4. Do not know [ ]
5. Others (specify) …….. [ ]

13. How can one know that he/she has TB?

1. Cough that lasts longer than three weeks [ ]
2. Weight loss [ ]
3. Coughing blood [ ]
4. Fever without (clear cause that lasts more than 7 days) [ ]
5. Chest pain [ ]
6. Night sweats [ ]
7. Others (specify) …… [ ]

14. How is TB prevented?

1. Avoiding shaking hands [ ]
2. Avoid sharing dishes. [ ]
3. Covering mouth and nose when coughing and sneezing [ ]
4. Staying or sleeping in well ventilated houses [ ]
5. Being immunized (BCG immunization). [ ]
6. Through good nutrition [ ]
7. Through witchcraft [ ]
8. Do not know [ ]

15. How is TB transmitted?

1. Shaking of hands. [ ]
2. Sharing utensils [ ]
3. Through coughing and sneezing. [ ]

4. Sleeping in overcrowded houses. [ ]

5. By sharing a room with infected untreated TB patient. [ ]

6. Others (specify) …… [ ]

7. Do not know. [ ]

16. In your opinion who can be infected with TB?

1. Anybody [ ]
2. Only poor people [ ]
3. Only homeless people [ ]
4. Only people living with HIV/ AIDs (PLWHDS) [ ]
5. Only people who have been in prison? [ ]
6. Others (specify) …….. [ ]

17. Can someone infected with TB be cured?

1. Yes [ ]
2. No [ ]
3. Do not know [ ]

18. If yes, how can someone with TB be cured?

1. Herbal remedies [ ]
2. Home rest without medicine [ ]
3. Taking a combination of TB medicines prescribed by a medical doctor [ ]
4. Vaccination with BCG [ ]
5. Do not know [ ]
6. Others (specify)…… [ ]

19. Please state if any of the following statements is true or false

Disease	**True**	**False**	**Do not know**

1. One gets TB by touching TB patient			
2. TB is a disease of long duration			
3. One can get a vaccine against TB			
4. Long treatment of TB harms health			
5. Good TB drug available for treatment			

Section IV: ATTITUDES TOWARDS T.B

20. According to you, is TB a serious disease?

1. Yes, very serious [ ]
2. Yes, some what serious [ ]
3. Not very serious [ ]
4. Do not know. [ ]

21. Do you think you could personally be infected with TB?

1. Yes [ ]
2. No [ ]
3. Do not know [ ]

22. What would you do if you thought you had symptoms of TB?

1. Go to a public health clinic or hospital [ ]
2. Go to a pharmacy for drugs [ ]
3. Go to a traditional healer [ ]
4. Go to a private clinic [ ]
5. Do nothing [ ]
6. Others (specify) …… [ ]

23. If you would not go to public health clinic, what is the reason

1. Not sure where to go [ ]

2. Cost [ ]

3. Difficulties with transportation / Distance to clinic [ ]

4. Do not trust medical workers [ ]

5. Do not like attitude of medical workers [ ]

6. Others (specify) …… [ ]

24. What would be your reaction if you found out that you have TB?

1. Fear [ ]

2. Surprise [ ]

3. Shame [ ]

4. Embarrassment [ ]

5. Sadness or hopelessness [ ]

6. No change [ ]

7. Others (specify) …… [ ]

25. Whom could you talk to about your illness if you had T.B?

1. Doctor or other medical workers [ ]

2. Spouse [ ]

3. Parent [ ]

4. Children [ ]

5. Other family members [ ]

6. Close friend [ ]

7. No one [ ]

8. Others (specify) ……. [ ]

26. Do you know of any person who have/ had TB?

1. Yes [ ]

2. No [ ]

3. Do not know [ ]

27. Which statement is closest to your feeling about people with TB disease?

1. “I feel compassion and desire to help” [ ]

2. I feel compassion but I intend to stay away from these people” [ ]

3. It is their problem and I cannot get TB” [ ]

4. I fear them because they may infect me” [ ]

5. I have no particular feeling [ ]

6. Others (specify)…….. [ ]

28. In your community how is a person who has TB usually regarded/ treated?

1. Most people reject him or her [ ]

2. Most people are friendly, but they generally try to avoid him or her [ ]

3. The community mostly supports him or her [ ]

4. Others (specify) …… [ ]

29. Do you think that HIV positive people should be concerned about TB?

1. Yes [ ]

2. No [ ]

3. Do not know [ ]

30. Do you feel well informed about TB?

1. Yes [ ]

2. No [ ]

31. Do you wish you could get more information about TB?

1. Yes [ ]

2. No [ ]

32. What worries you most have when you think about TB?

1. Long period on treatment [ ]
2. Stigma associated with it [ ]
3. Transmission to others [ ]
4. Nothing [ ]

33. I would like you to think about the following statements and tick as appropriate on a likert scale of 1 to 5 where 1 = strongly disagree and 5 = strongly agree.

	Statement	**Scale**				
		1	**2**	**3**	**4**	**5**
1	TB is a serious disease					
2	People should always seek medical attention when they are suspecting to have TB					
3	People with TB get discriminated against in the community					
4	TB is a disease for the HIV positive population					
5	TB is a disease of those with ill-gotten wealth					

SECTION V: PRACTICES ON TB PREVENTION

34. Where do you usually go to if you are sick or to treat general health problem?

1. Private clinic [ ]
2. Government clinic or hospital [ ]
3. Traditional or homeopathic healer [ ]
4. Clinic run by a NGO or church [ ]

35. How often do you generally seek TB check up at a clinic or hospital in a year?

1. Twice [ ]
2. Once [ ]
3. Less than once a year but [ ]
4. At least twice in past five year [ ]
5. Once in past five year [ ]
6. Never in the past five year [ ]
7. Others (specify) …… [ ]

36. What would you do, if you do not respond to TB drugs?

1. Go to pharmacy [ ]
2. Go to health facility immediately [ ]
3. To ask spouse/ relative for advice [ ]
4. Go to traditional healer/ herbalist [ ]
5. Pursue other self treatment options [ ]
6. Others (specify) …… [ ]

37. If you had symptoms of TB at what point would you go to the health facility?

1. When treatment on my own does not work [ ]
2. When symptoms that work like TB signs last for 3-4 weeks [ ]
3. As soon as I, realize that my symptoms might be related to TB [ ]

4. I would not go the Doctor [ ]

5. Do not know [ ]

6. Others …… [ ]

38. If you had symptoms of TB how long would you wait before seeking treatment?

1. One month [ ]

2. One day [ ]

3. One week [ ]

4. Do not know [ ]

5. Others (specify) …… [ ]

39. If a member of your family is diagnosed to be having TB what measures would you take to ensure the safety of other family members?

1. Admit him/her in TB Manyatta [ ]

2. Advice him/ her to sleep in a separate room [ ]

3. Teaching members on how to prevent get TB infection [ ]

4. Do not know [ ]

5. Others (specify)……. [ ]

40. Which are some of the practices that prevent one from getting TB infection?

1. Living in a well ventilated house [ ]

2. Covering mouth/ nose when coughing/ sneezing [ ]

3. Not spitting spit/ Sputum any where [ ]

4. Do not know [ ]

5. Others (specify) ……..……. [ ]

41. What would you do if a member of your family has signs and symptoms suggestive of TB and decline to seek medical care?

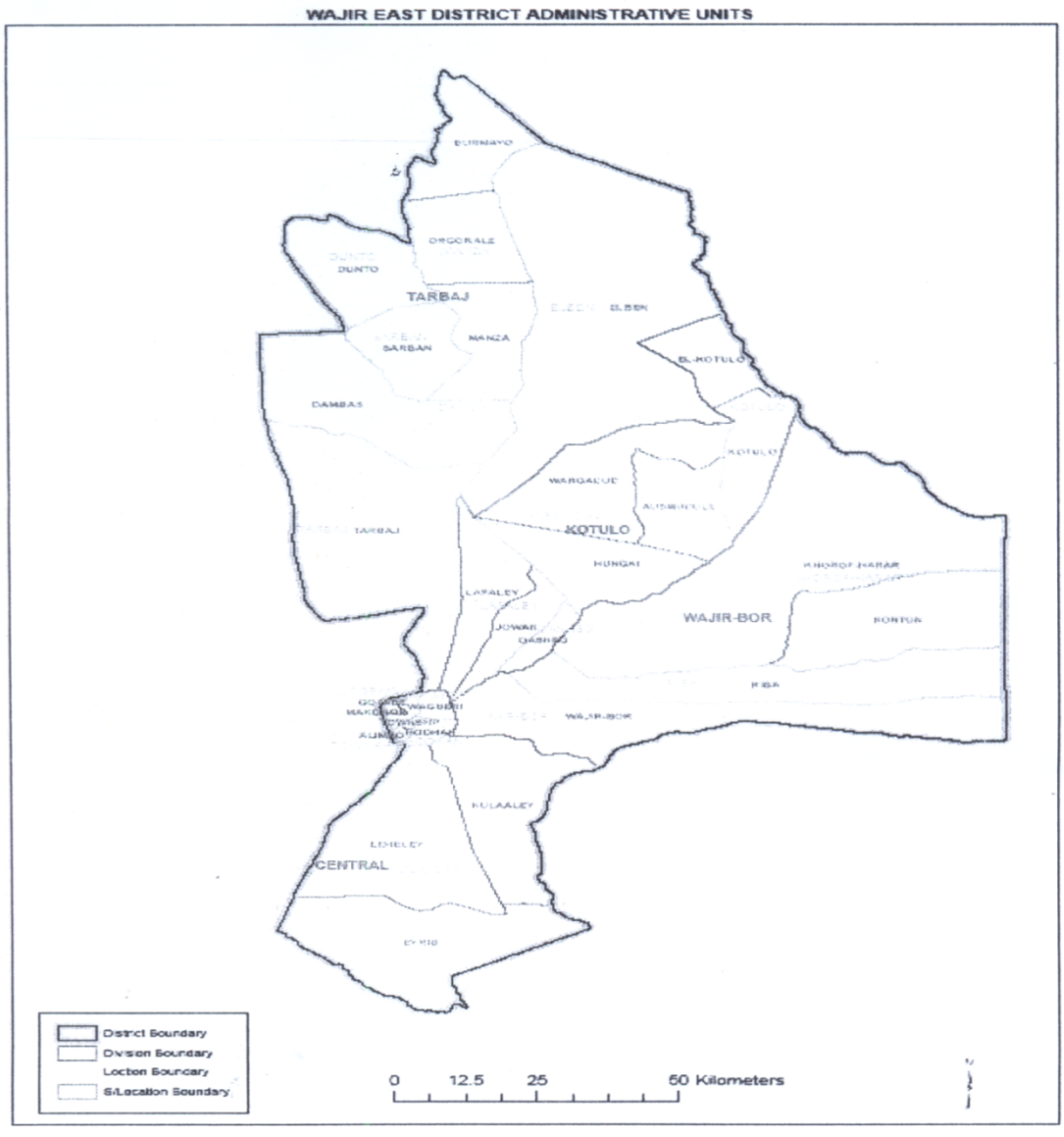
1. Advice him on the consequences of not seeking treatment [ ]

2. Consult a health worker to advice him [ ]

3. Report to the police [ ]

4. Others (specify) …… [ ]

APPENDIX III: Map of Wajir East District Administration



Wajir East District Development Plan 2008-2012

APPENDIX IV: CRITERIA FOR SCORING KNOWLEDGE, ATTITUDE AND CORRECT PRACTICES.

CRITERIA FOR SCORING ADEQUATE KNOWLEDGE ON TB

Questions	**Score**	**Max.score**
12. What do you think causes TB?		
1. Virus	[0]	
2. Bacteria	[1]	
3. Witchcraft	[0]	
4. Do not know	[0]	
13. How can one know that he/she has TB?		
1. Cough that lasts longer than three weeks	[1]	
2. Weight loss	[0]	
3. Coughing blood	[0]	**3**
4. Fever without (clears cause that lasts more than 7days)	[0]	
5. Chest pain	[1]	
6. Night sweats	[1]	
7. Others (specify) …….	[0]	
14. How is TB prevented?		
1. Avoiding shaking hands and sharing dishes	[0]	
2. Covering mouth and nose when coughing or sneezing	[1]	
3. Staying or sleeping in well ventilated houses	[1]	**3**
4. Being immunized (BCG immunization).	[1]	
5. Through good nutrition	[0]	
15. How is TB transmitted?		
1. Shaking of hands and sharing eating utensils.	[0]	

2. Through coughing and sneezing. [1]

3. Sleeping in overcrowded houses. [1] **3**

4. Sharing a room with infected untreated TB patient. [1]

6. Do not know.

16.In your opinion who can be infected with TB?

1. Anybody [1]

2. Only poor people [0]

3. Only homeless people [0] **1**

4. Only people living with HIV/ AIDs (PLWHDS) [0]

5. Only people who have been in prison?

[0]

17. Can someone infected with TB be cured?

1. Yes [1]

2. No [0] **1**

3. Do not know [0]

18. If yes, how can someone with TB be cured?

1. Herbal remedies [0]

2. Home rest without medicine [0]

3. Taking a combination of TB medicines prescribed by a medical doctor [1]

4. Vaccination with BCG [0]

5. Do not know [0]

19. Please state if any of the following statements is true, false or do not know

Statement	**True**	**False**	**Do not know**	
1. One gets TB by touching TB patient				1

2. TB is a disease of long duration				1
3. One can get a vaccine against TB				1
4. Long treatment of TB harms health				1
5. Good TB drug available for treatment				1
Total				**5**

Overall maximum score	**18**

Overall knowledge level

Score of 50% and above (overall score≥9) refers to **sufficient knowledge**

Score of below 50% (overall score<9) refers to **inadequate knowledge**

33.Criteria for rational attitude towards TB Attitude.

		Scale				
	Statement	**1**	**2**	**3**	**4**	**5**
1	TB is a serious disease					
2	People should always seek medical attention when they are suspecting to have TB					
3	People with TB get discriminated against in the community					
4	TB is a disease for the HIV positive population					
5	TB treatment takes too long					
	Overall maximum score					**25**

Overall attitude Score

Score of more than 50% (overall score>=13) refers to **positive attitude**

Score of below 50% (overall score<13) refers to **negative attitude**

APPENDIX V: CRITERIA FOR SCORING POSITIVE PRACTICE TOWARDS TB.

Practices

Questions	**Score**	**Max.score**
35.How often do you generally seek a tuberculosis checkup at a clinic or hospital in a year?		
a) Twice a year or more	[0]	
b) Once a year or more	[1]	
c) Less than once a year but at least twice in past five year	[0]	**1**
d) Once in past five year	[0]	
e) Never in the past five year	[0]	
36.What would you do, if you had symptoms of TB?		
a) Go to pharmacy	[0]	
b) Go to health facility immediately	[1]	
c) To ask spouse/ relative for advice	[0]	**1**
d) Go to traditional healer/ herbalist	[0]	
e) Pursue other self treatment options	[0]	
39.If a member of your family is diagnosed to be having TB what measures would you take to ensure the safety of other family members?		
a) Admit him/her in TB Manyatta	[0]	
b) Advice him/her to sleep in a separate room	[0]	**1**
c) Teaching members on how to prevent get TB infection	[1]	
d) I don’t know	[0]	

40.Which are some of the practices that prevent one from gettingTB infection?

a) Living in a well ventilated house [1]

b) Covering mouth/ nose when coughing/ sneezing [1] **3**

c) Not spitting spit/ Sputum any where [1]

d) Don't know [0]

41. What would you do if a member of your family has signsand symptoms suggestive of TB and decline to seek medical care?

a) Advice him on the consequences of not seeking treatment [1]

b) Consult a health worker to advice him [1] 2

c) Report to the police [0]

Overall maximum score	**8**

Overall practices level

Score of 50% and above (overall score≥4) refers to **correct practice**

Score of below 50% (overall score<4) refers to **incorrect practice**

APPENDIX VI:QUESTIONAIRE TRANSLATED IN THE LOCALLY SPOKEN SOMALI LANGUAGE.

LAMBARKA XIRMADA.

Lambarka xirmada

Lifaaqa kowaad-xogta wax ku a qoonsiga.

1. Lambarka jawabaha.
2. Degaanka jawabaha. Degmada-bariga-wajeer-Qeybta-Rugta-Rugta hoose-Lambarka xirmada.Qeybta labaad:xogta qaab dhismeedka bulshada.
3. Sanooyinka deganaanshaha bariga degmada Wajeer.
    1. Halsano.
    2. Laba sano.
    3. Saddax sano.
    4. In ka badan saddax sano.
4. Lab/Dhedig.
        1) Lab.
        2) Dhedig.

5. Meega sano ayaad jirtaa? _____.

6. xaaladdada guurku waa sidee?

    1) Kali
    2) Xaasle.
    3) Garoob/carmal.
    4) Lafuray.

7. Heer kaaga wax barasho inteebuu la egyhay?

    1) Waxba ma baran.
    2) Waxbarashada dadka waaweyn.

3) Degsiga hoose/dhexe
4) Ka sare.
5) Jaamacad.

8. Hadda maxaad qabataa?

1) Shaqo la’aan.
2) Is-key baad U sheqeestaa.
3) Dowladdaan u shqeeyaa.
4) Xoolo-dhaqato-ayaan ahay.
5) Qaar –kale.

9. Weliga ma maqashay cudurka qaxaada.

1) Haa.
2) Maya.

10. Haddii haa aytahay su’aashu xageed ka ogataay?

1) Warbaahinta.
2) Buugaag yar ama qoraalada sawarrida wata.
3) Shaqale caafimaad.
4) Qoyskeyga iyo saaxibadey.
5) Qaar kale.

11. Ma kula tahay in qaaay mushkilad ku heyso nawaaxigan?

1) Haa.
2) Maya.

12. Ma kula tahay inuu sababao qaaxada?

1) Jeerimi.
2) Noole cudur-sida ah.
3) Sixiroole.

4) Ma ogi.

5) QAAR KALE.

13. Sidee qof ku ogaan karaa in qaaxo heyso?

1) Qufac socda saddax toddobaad wax ka badan.

2) Qando aan la garan waxa keenayoo toddobaad socota.

3) Culeska oo hoose u dhaca.

4) Laabta oo xanuuta.

5) Dhidid habeenki ah.

6) Qaar kale.

14. Sidee looga hortagaa qaaxada?

1) Inaad iska dhowrta salanta dadka .

2) inaad la wadaagto weelasha wax lagu cuno.

3) Afka iyo sanka oo la daboolo marka aad qufaceyso ama hindhisyooneyso.

4) Inaad joogta ama saxa meel hawo le

5) Inaad qaandato talaalka BCG.

6) Cuno nafaqa leh aad cunto.

7) Qaar kale.

8) Maogi

15. Yey kula tahay inay qaadi karaan qaaxada?

1) qof kasta.

2) Dadka saboolka ah.

3) Kuwa aan leheyn hooyga.

4) Kuwa la nool cudurka HIV/AIDS.

5) Kaliye kuwa xabsiyada ku jira.

6) Qaar kale.

16. Ma la dawyn kara qofka qaba qaaxada?

Qoralka	Ruun	Been	Maogi
1. Qof ku waxa uu qaaxada marka uu taabto qof qaba iyada.			
2. Dad wenyta qaaxadu-waxay qaadataa waxti dheer.			
3. Waad heli karta Tallalka qaaxada.			
4. Dawenyta waqtiga dheer ee qaaxadu, caafimaadka u daran.			
5. Dawo fiican oo daweyn karta qaaxada waa la helayaa.			

1) Haa.
2) Maya.
3) Ma ogi.

17. Haddii ay jawaabtu haa tahay, side loo daweyn karaa qaaxada?

1) Dawa dhireed.
2) Guriga oo lagu nasto dawa la’aan.
3) Tallalka BCG da.
4) Ma ogi.
5) Qaar kale

18. Fadhlan ma beenba, meesna, ruun ama maogid qorulka hoose ku diigan

QEYBTA AFRAAD: HAB-DHAQANKA QAAXADA.

19. Adiga ahaan qaaxada ma cudur halisaa?

    1. Haa aad.
    2. Haa wax oogaa waa halis.
    3. Maaha halis.
    4. Ma ogi.

20. Ma kula tahay inaad qaadi karto qaaxada?

    1. Haa.
    2. Maya.
    3. Ma ogi.

21. maxaad faleysaa haddaad isku aragto ama dareen to inaad qaaxo qabto?

    1. Waxan aadaya goobaha caafimmaadka.
    2. Farmishiga ayaan dawa doonanayaa.
    3. Waxan u tegayaa ka wax ku bogisiiya caado-dhaqamada qabooba.
    4. Waxan tegayaa goobaha gaarka loo lee yahay ee caafimaadka.
    5. Waxa ba ma sameynayo.
    6. Qaar kale

22. Haddaanad aa deyn goobaha caafimaadka ee qaranka maxay sababtu tahay?

    1. Ma hubo meshii aan aadi lahaa.

2. Qiimaha aw geed.
3. Gaadiidka ayaa dhib iga heystaa.
4. Ma aaminsani shaqaalaha caafimaadka.
5. Waxanan jecleyn hab-dhaqanka shaqaa caafimaadka .
6. Qaar kale.

23 Sideed u qaabileysaa marka aad ogaato inaad qaaxo qabto.

1. Baqdin.
2. Anfariir.
3. Ceeb.
4. Weji- gabax.
5. Rajo-la’aan iyo murugo.
6. Waxba iska key beddeli maayaan.
7. Qaar kale.

24. Yaad kale hadleysaa cudurka markaad ogaato inaad qabto.

1. Takhtar ama shaqaalaha kale ee caafimaadka.
2. Xilaheyga.
3. Waalidkeyga.
4. Xubnaha kale ee qoyska.
5. Saaxibka iyu dhow.

6. Cidna.

7. Qaar kale.

25. Ma ka war heysa qof qaba ama qabay cudurka qaaxada?

1. Haa.

2. Maya.

3. Ma ogi.

26. Howraarta hoose teebaa dareen dareen kaaga ugu dhow dadka qaba cudurka qaaxada?

1. Waxan dareemaa naxiriis iyo rabitaan u gargaar.

2. Waxan dareema naxariis iyo laakin waxan doorbida inaan ka fogaado dadkan.

3. Waa mushkiladd ooda anigu qaadi- mayo.

4. Waan ka baqaa sababtoo ah inay qaaxao qaad –siiyaan ka baqaaa.

5. Waxa gaara oo dareena uma yeesho.

6. Qaar kale.

27 .Bulshada aad la noshay qoofka qaaxada qaba side loola dhagmaa?

1. Badanaa waa la gooyaa.

2. Dad badan ayaa qalbi-jileec u muujiya, lakin badanaa wey iska dhowraan.

3. Bulshadanaa gacanbey siisaa.

4. Qaar kale.

28. Ma kula tahay in dadka qaba cudurkaHiv/AIDS ay kawalalaan cudurka qaaxada?

    1. Haa.
    2. Maya.
    3. Ma ogi

29. Ma dareensantay inaad aad ula socoto xogta ku saabsa qaaxada?

    1. Haa.
    2. Maya.

30. Ma rajeyneysaa inaad heli karto xog dheeraada oo ku saabsan qaaxada.

    1. Haa.
    2. Mayaa.

31. Maaxa kuugu badan ood ka weleshaa, marka qaaxo kugu dhacdo?

    1. Waqti dheer oo kugu dhacdo?
    2. Ceebeyn –dhleeco.
    3. Inaan u gudbiyo dad kale.
    4. Waxba.
    5. Qaar kale.

32. Waaxan Raaba inaad fikirta oos tik kudufata siidee aas ka qabta qaralka hoos ku Qoran

Qoralka	Skalka				
	koow	laba	saatah	aafah	shaan
1. Qaaxada waa cudur haalisah					
2. Dadka waa inna taagaan goobta caafimaadka marka isskijaa shakiyah cudur Qaaxada					
3. Bulshada waa gooyaan Qofqa Qaaxada Qabo					
4. Cudurka Qaaxada waxuu kudacaa Dadka Qaboo cudur HIV/AIDASKA.					
5. Cudur Tibishada waxuh kudacaa Dadka Haasto Xoolah Xaarantaah.					

33. Sidee loo gudbiya qaaxada?

1. Salaanta iyo waadagga
2. alaabta cuntada.
3. Qufac iyo hindhiso.
4. Ku noolaasho hooy dad badan ay galaan.
5. La qeybsasho qol qofka qaba qaaxada aan la daweyn.

6. Ma ogi.

7. Qaar kale.

33. Waaxan Raaba inaad fikirta oos tik kudufata siidee aas ka qabta qaralka hoos ku Qoran

Qoralka	Skalka				
	koow	laba	saatah	aafah	shaan
1. Qaaxada waa cudur haalisah					
2. Dadka waa inna taagaan goobta caafimaadka marka isskijaa shakiyah cudur Qaaxada					
3. Bulshada waa gooyaan Qofqa Qaaxada Qabo					
4. Cudurka Qaaxada waxuu kudacaa Dadka Qaboo cudur HIV/AIDASKA.					
5. Cudur Tibishada waxuh kudacaa Dadka Haasto Xoolah Xaarantaah.					

34. Xageed caadiyan tagtaa marka aad xanuusantahay ama aad dooneyso inaad daweyso mushkild caafimaad oo ku heysa?

1. Goob caafimaad oo gaar loo leeyahay.

2. Goobaha caafimaad ee dowladda.

3. Caado- dhaqameed isku dawladda.
4. Goob caafimaad oo ay maamusho hey’ad samofal ama kaniisad.

35. Intay la egtahay inta aad ka raadsaato baritaan caafimaad goobaha caafimaad sanandkii?
    1. Laba jeer.
    2. Mar.
    3. Waxba yar mar sananadkii laakin ugu yaraan lab jeer shantii sano ee ugu dambeysay marna mategin.
    4. Mar shantii sano eeugu dameysay marna mategin.
    5. Shantii sano ee ugu dambeysay marna ma tegin.
    6. Qaar kale.
36. Maxaad yeeleysaa haddii aaney dawadu cudurka wax ka tariin?
    1. Waxan aadayaa farmashiyaha.
    2. Dhaqso ayaan ka raadsanayaa meelaha qalabka caafimaad yaaliin.
    3. Talo ayaan ka ka raadsanayaa qaraabadeyda ama xaaskeyga.
    4. Waxan utegayaa midka caado dhaqameedka wax ku daweeya.
    5. Waxan ku raad-joogsanayaa- siyabo kale oo aan gaarkey isugu daweeyo .
    6. Qaar kale.

37. Haddaad isku aragto calaamadaha qaaxaada, xaaladdeed ku tegeysaa qoobaha caafimaad ?

    1. Marka ay shaqeyn weydo dawenytii gaarka a heyd.
    2. Marka calamado saan saan qaaxo le toddobaad .
    3. Degdeg marka aan xaqiiqsado in calaamaduhu yihiin uwa lagu yaqaan qaaxada.
    4. Takhtar utegi mayo.
    5. Ma ogi.

38. Haddii laheyd calaamadha qaaxa intee baad sugeysaa inta aanad donan dadweyn?

    1. Daqiiqado.
    2. Maalin.
    3. Toddabaad.
    4. Ma ogi.
    5. Qaar kale.

39. Haddii maxay tallabadaha qaar , ee aad qaadeyso ee mid ka horjoogsan kara inuu qaaxo gaado?

    1. Ku noolosho hooy hawo le.
    2. Daboolidda afka /sanka marka hindhisada.
    3. In aan cadhufta tufin meelna.

4. Ma ogi.

5. Qaar kale.

40. Waa maxay tallabadaha qaar ee aad qaadeyso e midka hoorjoogsan kara inuu qaaxo qaado?

1. Ku noolaasho hooy hawo le.

2. Daboolidda afka /sanka marka qufac iyo hindhisada.

3. Inaan cadhuufta lagu tufin meelna

4. Ma ogi.

5. Qaar. Kale

41. Maxaad sameyneysaa haddii lagu arko calaamado tilmaanaya qaaxada , xubin ka mida qoyskaaga diidana inuu /inay raadsado xannaneyn iyo dawa?

1. Waxan ku waaninaa inuu /inay qaadayo cawaaqibka ka dhasha dawo raadshola'aanta.

2. La tashto shaqaalaha caafimaad si uu u waaniyo.

3. Ku wargelinayo booliska.

4. Qaar kale.

APPENDIX VII: LOGISTIC REGRESSION ANALYSIS OUTPUT

Table 1: Factors independently associated with level of knowledge

Variables in the Equation

		B	S.E.	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Step 1[a]	Q4_Gender(1)	.505	.229	1	.027	1.657	1.058	2.594
	Q7_LOE			4	.000			
	Q7_LOE(1)	-2.049	.321	1	.000	.129	.069	.241
	Q7_LOE(2)	-1.959	.532	1	.000	.141	.050	.400
	Q7_LOE(3)	-.745	.434	1	.086	.475	.203	1.111
	Q7_LOE(4)	-.362	.427	1	.396	.696	.301	1.608
	Constant	1.153	.306	1	.000	3.168		

a. Variable(s) entered on step 1: Q4_Gender, Q7_LOE.

Table 2: Factors independently associated with attitude

Variables in the Equation

		B	S.E.	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Step 1[a]	Q6_Mstatus			3	.034			
	Q6_Mstatus(1)	-.038	.238	1	.874	.963	.603	1.537
	Q6_Mstatus(2)	-.838	.635	1	.187	.433	.125	1.501
	Q6_Mstatus(3)	-1.531	.586	1	.009	.216	.069	.682
	Q7_LOE			4	.069			
	Q7_LOE(1)	.370	.274	1	.177	1.448	.846	2.477
	Q7_LOE(2)	-.470	.548	1	.391	.625	.214	1.829
	Q7_LOE(3)	-.164	.411	1	.690	.849	.379	1.901
	Q7_LOE(4)	-.454	.380	1	.232	.635	.302	1.337
	employment(1)	.337	.233	1	.149	1.400	.887	2.211
	Constant	-.380	.274	1	.166	.684		

a. Variable(s) entered on step 1: Q6_Mstatus, Q7_LOE, employment.

Table 3: Factors independently associated with practices

Variables in the Equation

		B	S.E.	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Step 1[a]	Q4_Gender(1)	.527	.247	1	.033	1.693	1.044	2.747
	Q7_LOE			4	.000			
	Q7_LOE(1)	-1.979	.348	1	.000	.138	.070	.273
	Q7_LOE(2)	-1.622	.576	1	.005	.197	.064	.611
	Q7_LOE(3)	-.783	.454	1	.085	.457	.188	1.114
	Q7_LOE(4)	-.589	.440	1	.181	.555	.234	1.315
	knowlevel(1)	1.364	.251	1	.000	3.910	2.393	6.389
	Constant	.218	.362	1	.547	1.244		

a. Variable(s) entered on step 1: Q4_Gender, Q7_LOE, knowlevel.

APPENDIX VIII: IREC APPROVAL

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
FACULTY OF HEALTH SCIENCES
P.O. BOX 4606
ELDORET
Tel: 33471/2/3

Reference: IREC/2011/183
Approval Number: 000752

29th November 2011

Ahmed Sahal Omar
P.O. Box 610-00610,
NAIROBI

Dear Ahmed,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee have reviewed your research proposal titled:

"Knowledge, attitude and practices regarding tuberculosis infection among adults in Wajir East District, Wajir County, Kenya".

Your proposal has been granted a Formal Approval Number: **FAN: IREC 000752** on 29th November 2011. You are therefore permitted to commence your investigations.

Note that this approval is for 1 year; it will thus expire on 28th November 2012. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Yours Sincerely,

DR. W. ARUASA
AG. CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc:	Director	-	MTRH
	Dean	-	CHS
	Dean	-	CHS
	Dean	-	SPH
	Dean	-	SOD
	Dean	-	SON

APPENDIX IX:REAUTHORIZATION

REPUBLIC OF KENYA
OFFICE OF THE PRESIDENT

Telegrams. "DISTRICTER", Wajir
Telephone: Wajir 21632 and 21175
Fax: 21369
Email: dcwajireast2011@gmail.com
When replying please quote

THE DISTRICT COMMISSIONER
WAJIR EAST DISTRICT
PRIVATE BAG
WAJIR

Ref: No. ADM/15/20 VOL.III (114)

30th December 2011

Ahmed Sahal Omar
P. O BOX 610-00610
Nairobi.

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter ref No. IREC/2011/183; Approval number 000752 dated 29th November 2011 from Institutional Research and Ethics Committee of Moi University allowed you to conduct a research on;

"Knowledge, altitude and practices regarding tuberculosis infection among adults in Wajir East District"

This is therefore to inform you that, you have been authorized to conduct the same in the District.

Kihara Ndungu
For: District Commissioner
Wajir East

CC.

All District Officers
Wajir East. (Ensure that the chiefs and Asst. Chiefs gives the necessary Support.)