Knowledge, attitudes and practices among newly diagnosed tuberculosis patients in selected public hospitals in Nyeri district

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DECLARATION

This Thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

I dedicate this Thesis to my mother, Mrs Felista Muthoni Mukundi who taught me to persevere and be prepared to face challenges with faith and humility. She has been a constant source of inspiration to my life.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
HIV	Human Immunodeficiency Virus
DLTD	Division for Leprosy and Tuberculosis Diseases
DOTS	Directly Observed Therapy Short Course
IEC	Information, Education and Communication
IUATLD	International Union Against Tuberculosis and Lung Diseases
MDR-TB	Multi-drug Resistant Tuberculosis
NDDP	Nyeri District Development Plan
NLTP	National Leprosy and Tuberculosis Program
SPSS	Statistical Package for Social Sciences
SS+	Sputum Smear Positive
TB	Tuberculosis
WHO	World Health Organization

ABSTRACT

Tuberculosis (TB) is considered the most resurgent disease of public health importance worldwide. It is estimated that one third of the world's population is infected with *Mycobacterium tuberculosis* which causes TB. The prevalence of TB among adults has more than doubled since the onset of HIV and AIDS epidemic in Kenya with most of the cases often related to HIV and AIDS conditions. Accordingly TB cases have increased from 137/100,000 population in year 2000 to over 619/100,000 population in 2004. NLTP annual report 2005 indicated that in 2004, 9% of the patients' absconded treatment at the time of completing treatment in Nyeri District. Successful control of disease partly depends on a positive change of habits or way and attitudes of a group of people or an individual. The tendency to behave in a certain way is based on knowledge and information gained from health education. The objective of this study was to evaluate knowledge, asses' attitude and practices regarding TB disease and to determine the association between knowledge, attitude and practice among newly diagnosed TB patients in selected health care facilities in Nyeri District. A cross-sectional study was conducted in different health setting in Nyeri District. Patients were interviewed on treatment initiation using questionnaires. Quantitative and qualitative data were collected and analyzed using SPSS and NVIVO 8 respectively. The study shows that there were misconceptions about TB and its transmission with respondent citing harsh weather condition (cold), smoking and sharing of curtlerly as cause of TB. A total of 170 patients with a mean age of 34.45 (± 12.0) years (range 18-77 years) were interviewed. The mean TB knowledge score was 9.98 (±2.0). When correct answers for ten out of the sixteen questions asked was regarded as satisfactory knowledge based on WHO knowledge,

attitudes and practices survey guide, 46.5 % of the study population had adequate knowledge of disease and treatment. Educational background was an important determinant of the patients' level of knowledge of TB; those with education above secondary scored better than those with lower or no formal education (P <0.001). Male respondents were more knowledgeable than their female counterparts, with the difference being statistically significant (p=0.038). Respondents reported the prescence of stigma towards TB patients in which the respondents were not willing to disclose their disease status. When positive response to three out of the five questions associated with attitude was regarded as positive attitude, 82.9% of the respondents were regarded to have a positive attitude. In addition there was a correlation between knowledge and attitude (r= 2.565, p=0.026). 61.5% of the respondents had good practices. However there was no significant association between knowledge and attitude with practice (p=0.205; p= 0.214). In addition symptoms misinterpretation of early symptoms may have led to delay in seeking care. It seems that the knowledge is not the only factor steering health-seeking behaviour among potential TB cases in this community. However adequate knowledge appeared to have some protectictive effect on good practice (CI= 0.2-1.2).

These social conditions necessitate culturally sensitive health education taking into account local perception of TB. This study concludes that educational and other activities of the national TB control have had beneficial effect on knowledge, attitudes and practices of TB patients. However, the study reveals a significant gap in TB knowledge and poor practices in terms of seeking healthcare among newly diagnosed patients' attending various hospital facilities in Nyeri District. There is therefore need for intensive health education to improve on knowledge, health seeking behaviours and incorporation of the

issues of tuberculosis related stigma along with other programs of TB and HIV/AIDS and further studies to enrich the knowledge about stigma surrounding TB and TB patients. This study will shed light to the understanding of TB disease and its control among the Nyeri community where this study was conducted and also form a basis for intervention in Nyeri and in Kenya at large.

CHAPTER ONE

INTRODUCTION

1.1 Background

Tuberculosis (TB) is considered the most resurgent disease of public health importance worldwide. It has the highest morbidity and mortality rate compared to any other single pathogen. The number of reported TB cases has increased ten fold from 11,625 in 1990 to 116,723 cases in 2006 The average annual increase over the past 10 years is 10% for all forms of TB. However, in the last 5 years the annual increase of notified TB cases slowed down to an average of 4%. Case Notification Rates (CNR) increased from 53/100,000 population for all forms of TB and 32/100,000 population for sputum smear-positive PTB cases in 1990 to 338/100,000 population and 111/100,000 population respectively in 2007 and 2006 (DLTD, 2007).

The major reason for the increasing burden of TB in Kenya is the concurrent HIV epidemic. In the last half of 2005 the DLTLD introduced TB/HIV integrated data collection system that enabled the collection of HIV related information. Data for the year 2007 indicate that the national average HIV prevalence in TB patients was 48% (DLTLD, 2007). It is estimated that one third of the world's population is infected with *Mycobacterium tuberculosis* (WHO, 2006). In Nyeri District where this study was conducted, TB prevalence has progressively increased from 1525 cases in 2004 to 1727 cases in 2005 (NLTP, 2005).

Poor adherence to TB therapy is a major constraint to eradicating the disease. Between 20 and 50% of people with TB do not complete treatment within a 24 month period (Cuneo, 1989; Al-Hajjaj and Al-Khatim, 2000; Kaona, *et al*, 2004). This can lead to prolonged infectiousness, drug resistance, relapse of tuberculosis, or even death. The reasons for poor adherence are complex and range from social and economic factors to individual patient characteristics. Tuberculosis patients' knowledge about general management of tuberculosis has well been recognized as an important factor influencing adherence with tuberculosis treatment (Van Der werf, *et al*, 1990). Disruption of treatment often occurs because patients fail to fully understand the necessity and importance of prolonged, uninterrupted chemotherapy (Haynes, *et al*, 1979).

Tuberculosis is associated with stigmatization often creating resistance among patients towards treatment. For example a study carried out in Nigeria (Odusanya, *et al*, 2004) raised an important point of delays in care seeking behaviour due to stigma experienced by TB patients. Studies by (Ponky, *et al*, 2001) have shown that stigmatization creates a lot of self-denial among those with diseases like TB and Sexually Transmitted Infections (STIs); hence most of them fail to comply with the treatment regime. Issues of diverse nature to caring of patients at home are rampant in communities that have low literacy levels (Kaona, *et al*, 2000; Ponky, *et al*, 2001).

In Kenya, the National Leprosy and Tuberculosis Programme (NLTP) is integrated into the general health system. Once the diagnosis of tuberculosis is established, patients

receive their medications and health education on tuberculosis management. According to NLTP guidelines, every TB patient is given health education on the symptoms and sign of the disease, transmission of TB, cure of the disease, duration of treatment and medication side-effects (NLTP, 2005). This information is provided by health workers to individual patients and in groups. In some centers this education is also provided through video shows. However, studies of the knowledge and attitude of tuberculosis patients about various aspects of the disease in Kenya are lacking. There is therefore need to generate baseline data on knowledge, attitude and perception in order to improve the health education given within the health facilities.

The ultimate goal of patients' education is to influence or change patients' health behaviors by providing them with information that motivates them to follow the treatment plan (Babcock and Miller, 1994). In case of tuberculosis (TB) different target groups which need to be addressed are patients, their relatives, health care providers and the community members (WHO, 1996). Core knowledge elements of relevance to interruption of disease transmission and adherence to therapy relate to: what TB is, what causes it, how it is transmitted, what measures can be taken to limit its transmission, how is it treated, what the importance of taking treatment regularly is, for what duration, what the consequences of stopping treatment are, what the possible side effects and complications are and whether TB considered a curable disease. The patient should know this information (Donald, *et al*, 2000).

Non-adherence to treatment often results from inadequate knowledge or understanding of the disease and its treatment (Sockrinder, *et al*, 2005). For example, a study in Egypt revealed that the significant risk factors for treatment failure were non-compliance to treatment, due to deficient health education and poor patient knowledge about the disease (Morsy, *et al*, 2003). On the other hand greater knowledge about TB may increase the acceptance to the control measures with the resultant decrease in the spread of the disease (Peterson, *et al*, 1999).

For a beneficial outcome of health education, socio economic factors should be taken into account in the design of information about TB (Portero, *et al*, 2002) and psychological implication of TB must be given attention (Gelow, *et al,* 2001). Studies in different parts of the world revealed misconceptions and limited knowledge about the disease and its treatment (Wandwalo and Morkve, 2004). Provision of intensive health education to the patients in an unsupervised intermittent treatment yielded results as good as those obtained by directly observed treatment (Prassad, *et al*, 2001).

The relationship between culture, health-related beliefs and health behaviour is complex. Personal experiences, attitudes of the social network and health beliefs interact and influence health seeking behaviour. TB control could improve significantly if more consideration were given to the health culture of the population. Local surveys on knowledge and attitudes towards TB are of great benefit in the planning and implementation of control programs, particularly their health education element (Grange and Festensteinl, 1993). Health education should be directed at both individuals and

communities and should not only impart knowledge, but also address the myths surrounding TB (Johnson, *et al*, 1995). The present study will attempt to gather baseline information on knowledge, attitude and practices of tuberculosis patients about this disease that is of great public health importance. Findings from this study associated with knowledge and patients' attitude may assist in designing intervention strategies including health education and healthcare services.

1.2 Statement of the Problem

Each year, 424 000 people world wide develop multi-drug resistant tuberculosis (MDR-TB), a form that does not respond to treatment. Poor adherence to the antimicrobial regimen has been cited as one of the most challenging problems for TB treatment (Singleton, *et al*, 1997).

NLTP annual report 2005 indicated that in 2004, 54 patients absconded treatment among 609 new smear-positive cases by the period of completing treatment in Nyeri District. In 2005, there were 97 re-treatment cases compared to 58 cases in 2004. In 2006 there were 1913 patients of all forms of TB compared to 1727 in 2005 and 1677 in 2004 indicating a gradual rise in TB prevalence (NLTP, 2006).

Health seeking behaviour and the perceived knowledge on causes of TB among community members is very critical and may reduce or increase the transmission of the disease. Certain individual practices and beliefs and failure to recognize symptoms early

may delay diagnosis hence increasing the spread of the disease in the community (Auer, *et al,* 2000).

Poor healthseeking behaviour to treatment often results from inadequate knowledge or lack of understanding of the disease and its treatment (Sockrider, *et al*, 2005). For example, a study in Egypt revealed that the significant risk factors for treatment failure were non-adherence to treatment due to deficient health education and poor patient knowledge about the disease (Morsy, *et al*, 2003). On the other hand greater knowledge about TB may increase the acceptance to the control measures resultant decrease in the spread of the disease (Peterson, *et al*, 1999).

Like HIV/AIDS, TB is often associated with stigmatization and thus may create resistance among patients to seek proper diagnosis and treatment (Odusanya, *et al,* 2004). Thus, it is important for community members to know and realize the symptoms of the disease in order to seek treatment promptly (Rubel and Garro, 1992). Since TB treatment in Kenya is provided free of charge, having adequate knowledge and positive perceptions toward it might encourage community members to seek medical care timely. This study was therefore, conducted to determine the knowledge, attitudes and practices as regards to TB and its treatment in Nyeri District, in Kenya.

1.3 Justification

Besides HIV and AIDS, tuberculosis is the most important infection currently causing deaths among adults globally. According to the World Health Organization (WHO), 35 percent of the world's population is already infected with TB, and annually 9 million active TB cases occur, resulting in about 2 million deaths.

In Kenya, 116,000 cases of TB were recorded in 2006; 11 percent of these were retreatment cases that are suspected to be at least mono- if not multidrug-resistant TB (MDR-TB). An estimated 10 percent to 15 percent of all TB cases reported in Kenya die every year (NLTP, 2005).

Although TB is a curable disease, the last two decades have seen a very rapid increase of TB cases and deaths in the world. The most-affected areas are sub-Saharan Africa, Asia, and Russian Federation countries (WHO, 2006c). WHO and the Stop TB Partnership have come up with several strategies to combat this worsening TB situation. It has had significant success in the Americas and Asia-Pacific regions. Countries in those regions are on course to attaining the Millennium Development Goals (MDGs).

Most countries in other regions of the world have stagnated and fallen short of their targets. Stop TB and other key stakeholders in global TB control attribute this worsening TB control situation to the following—

• The high HIV and AIDS prevalence in these countries, which fuels exponential TB case increments annually

• Poverty and worsening socioeconomic status

• The increase of MDR-TB associated with poor adherence often as a result of inadequate knowledge.

MDR-TB and extensively drug-resistant TB (XDR-TB) constitute the most worrying phenomena that are currently threatening to reverse all the gains attained in TB control over the years. In 2004, 40 percent of all TB cases reported to WHO were resistant to either one anti-TB medicine (monodrug-resistant TB) or resistant to isoniazid and rifampicin (MDR-TB). More recently, XDR-TB has gained world attention as a form of TB that is resistant to isoniazid and rifampicin as well as three of the six main classes of second-line TB medicines.

This study was motivated by the fact that 9% of the patient absconded treatment among the study population according to the NLTP report, 2005. In Kenya a study conducted by Chakaya et al revealed significant gap in TB knowledge among the Private Healthcare Providers (PHCPs) in Kibera slum. Could this be a reflection of even a worse scenario among the patients?

Faced with this disturbing but unconfirmed scenario on patients' knowledge, attitude and practice, the principal investigator decided to conduct a study to generate facts on these critical issues. Therefore the purpose of this study was to identify knowledge gaps, individual beliefs, or behavioural patterns that may facilitate understanding and action, as well as pose problems or create barriers for TB control efforts in this specific

community. In addition the study was meant to gather information about what respondents knew about TB, what they think about TB and what they actually do with regard to seeking care or taking other action related to TB. The recommendations drawn will also help achieve the desired goal of reducing the TB infection and transmission and improving quality of life of the affected and infected.

1.4 Research Questions

a) What does the patient know about TB transmission, symptoms and treatment and where do they get their information?

b) Attitudes and practices towards control and seeking care: Is there a relationship between knowledge and attitudea (perceived risk) and health seeking behaviours.

1.5 Null Hypothesis

Knowledge and attitudes are not associated with health seeking behaviours.

I.6 Objectives

1.6.1 Main Objective

The main objective of this study is to determine knowledge, attitude and practices among newly diagnosed TB patients regarding the disease and the likely association between these factors.

1.6.2 Specific Objectives:

1.6.2.1 To assess knowledge regarding TB disease among newly diagnosed TB patients in selected health care facilities in Nyeri District

1.6.2.2 To assess attitude and practice regarding TB disease among the same patients.

1.6.2.3 To determine the association between knowledge and attitude versus practices.

CHAPTER TWO

LITERATURE REVIEW

2.1. TB historical perspective

TB is a bacterial disease caused by the *mycobacterium tubercle*, which can affect any tissue of the body but its predominant form is pulmonary TB (PTB), which affects the lungs. Those with the active disease spread it, mostly exogenously; that is, from person to person through aerosolisation, which is the airborne route. When an infected person coughs, laughs, sneezes or sings, droplet nuclei are produced and may be inhaled by others. The disease can also occur endogenously, that is through reactivation of primary infection (Stanhope and Lancaser, 1996; Jaramillo, 1999).

TB is an ancient disease. In 1680, Bunyan (Kaplan, 1997) described TB as "the captain of all these men of death". At that time there was no cure for the disease. The disease was prevalent in the slums of Britain during the industrial Revolution and the United States because of overcrowding and poor ventilation. The only treatment was isolation in a sanatorium or being sent away into the country where it was believed plenty of fresh air helped somehow in the treatment (Berkow, 1999).

In 1940, there was a decline in TB because of a breakthrough in successful chemotherapy, improved standards of living and the advent of vaccination of children with Bacille Calmette Guerin vaccine (BCG). These improvements led to reduced public

expenditure on TB treatment and control (Jaramillo, 1999). However, in the mid 1980's, the number of cases worldwide in both developing and developed countries began to rise again. AIDS in combination with overcrowding, unsanitary conditions, homelessness and prisons have again made TB a serious health problem (Berkow, 1999).

In 1998 (WHO, 1998) reported TB to be the most widely prevalent disease with between 25 and 30 percent of the world's population already infected. The majority is latent cases, and under suitably depressed socio-economic conditions, reactivation occurs because of lowered resistance by malnutrition and poor living conditions. The WHO stated further that in developing countries between 8 to 10 million cases are reported each year and between 3 to 5 million cases die each year from TB. TB kills more than any other disease and is still the "captain of all these men of death"

2.2 TB Statistics

Kenya ranks 10th among the world's 22 countries with a high tuberculosis burden. The total number of TB cases (all forms of tuberculosis) reported in 2007 was 116,723. This is an increase of 1.3% compared to the 115,234 cases of TB reported in 2006. In 2005, 108,401 cases of TB were reported (DLTLD, 2007). This stagnation in case notification may be the result of a slackening of TB case-finding efforts or the result of a stabilization of the epidemic due to previous TB control efforts. It could also be a result of Kenya's phenomenal uptake of antiretroviral HIV and AIDS treatment. In 2005, TB treatment results showed treatment success rates of 82 percent for new SS+ pulmonary

TB cases; 75 percent for SS+ re-treatment cases; 77 percent for new smear-negative cases; and 76 percent for extra-pulmonary TB cases. The National Leprosy and Tuberculosis Program (NLTP) began implementing Directly Observed Therapy, Short-Course (DOTS) in 1993 and reported 100 percent DOTS coverage by 2001 (NLTP, 2005).

Kenya's increasing TB burden is as a result of the concurrent HIV epidemic. In the last half of 2005, the National Leprosy and Tuberculosis Program (NLTP) introduced an integrated TB-HIV and AIDS data collection system, and the government recently placed the NLTP and the national HIV and AIDS program in the same division in the Ministry of Health to better address TB-HIV co-infection. With increased funding for planned NLTP activities, including mechanisms to improve treatment outcomes, TB-HIV and AIDS management, and community-based care, public-private mix DOTS (PPM-DOTS), and multi-drug resistant TB, a greater proportion of TB patients should benefit from improved DOTS services (NLTP, 2005).

2.3 Course of the Disease

2.3.1 Transmission of infection

The transmission of TB occurs by airborne spread of infectious droplets. The source of infection is a person with PTB. This person is usually sputum smear-positive, which means that his/her sputum has the *Mycobacterim tuberculosis*, the organism responsible for causing TB. Coughing produces tiny infectious droplets called droplet nuclei.

Transmission usually occurs indoors, where droplets can stay in the air for long time. Ventilation removes the droplets nuclei. Direct sunlight quickly kills the bacteria, but they can survive in the dark for several hours. Two factors determine individuals' risk of infection; that is the concentration of droplet nuclei in the air and the length of time they breathe that air. The transmission of the infection is closely related to personal and environmental hygiene (WHO, 1996).

2.3.2 Risk of infection

Individuals' risk of infection depends on the extent of exposure to droplet nuclei and their susceptibility to infection. The risk of infection of a susceptible individual is therefore high with close, prolonged indoor exposure to a person with sputum smear-positive PTB. The risk of infection to a TB patient with sputum smear-negative PTB is low and with extra-pulmonary TB is even lower (WHO, 1998; Jaramillo, 1999).

HIV increases susceptibility to infection with TB (WHO, 1996). Environmental factors also increase the susceptibility to infection. These include poor living standards like overcrowding and inadequate diet (WHO, 1996; WHO, 1998; Berkow, 1999).

2.3.3 Risk of progression to disease

Berkow (1999) emphasizes that once infected with *Mycobacterium tuberculosis*, a person stays infected for many years, probably for life. The vast majority (90%) of

people without HIV infection who are infected with the bacteria do not develop the disease. Usually a person with TB Bacilli has a 5% chance of developing infection within one to five years. The rate of progression depends, in particular, on the strength of person's immune system. In healthy asymptomatic but infected individuals, the only evidence of infection may be a positive tuberculin skin test which is a test done on the skin to indicate the presence of infection.

2.3.4 Untreated TB

The WHO (1996) warns that without treatment, after five years, 50% of the clients will be dead, 25% will be healthy (self-cured by strong immune defence) and 25% will remain in illness with chronic infectious TB.

2.3.5 Clinical Manifestations

Kumar, *et al.*, (1999) and Stahope *et al*, (1996) state that symptoms of TB include;

- Fever, especially at night.
- Cough lasting more than two weeks.
- Possible coughing up of blood due to erosion of blood vessels as infection spreads
- Fatigue
- Gradual loss of appetite and weight

- Chest pains

2.3.6 Clinical and laboratory diagnosis

A complete medical evaluation for TB includes a medical history, a physical examination, a chest X-ray and microbiological examination (of sputum or some other appropriate sample). It may also include a tuberculin skin test, other scans and X-rays, surgical biopsy.

TB is diagnosed through the clinical manifestation as outlined above, which are then confirmed by microscopic examination of sputum smears for the bacilli. The sputum collection strategy involves spot, morning and spot (all within 24 hours). The chances of finding the bacteria are greater with three sputum samples than with two or one sample (WHO, 1996). Sputum smears and cultures are analysed for acid-fast bacilli using fluorescence microscopy (auramine-rhodamine staining), which is more sensitive than conventional Ziehl-Neelsen staining (Drobniewski, *et al,* 2003).

2.4 TB and HIV and AIDS

According to the WHO (1996), in 1995, about one third of the 15 million HIV-infected people worldwide were also co-infected with TB. Seventy percent of the co-infected live in sub-Saharan Africa. HIV and AIDS increase's a person's susceptibility to infection with the TB tubercle. HIV and AIDS is also a potent cause of progression of TB infection to disease because of the suppressed immunity in these patients. The impact of HIV and AIDS on TB control is quite substantial. There are usually high defaulter rates

because these clients develop adverse anti-TB drug reactions and as a result, they stop taking TB treatment. The cure rates in HIV and AIDS clients are low resulting in high mortality rates. There is also an increase in emergence of drug resistance, especially with defaulting treatment. However, provided TB is diagnosed early in these clients and effectively managed, TB can be cured even if they are HIV and AIDS positive. This should be emphasized in health education.

2.5 Treatment of TB

Before the discovery of antibiotics, TB used to claim many lives because the organisms overwhelmed the body's natural defence. The discovery of chemotherapy in 1940 led to reduced morbidity and mortality (Clark, 1996).

The aims of treatment according to Webber (1997) are to treat individual cases, reduce infectiousness, and provide a method of disease reduction as well as reducing morbidity from the disease. Long (2001) also concur that treatment of TB aims to provide a lasting cure with few treatment failures and relapses as well as preventing drug resistance.

Murray (1990) also says that the treatment is the best way to prevent death and the most cost-effective intervention available in the health armamentarium. However, the same authors state that the benefits of TB treatment only hold if it is taken regularly according to prescription for at least six to eight months.

In Kenya, the NLTP advocates the use of multi-drug therapy once a firm diagnosis has been made. The treatment consists of two phases. The first phase is the intensive phase

lasting two months where four drugs are used. The second phase is the continuation phase lasting for four to six months in which two drugs are used. Tuberculosis treatment in Kenya involves the use of multiple drugs taken in combination. This is done to prevent the emergence of drugs resistance to any of the drugs when a single drug (monotherapy) is used. The drugs used are: Rifampicin (R), Isoniazid (H), Pyrazinamide (Z), Ethambutol (E), and Streptomycin (S). The combination therapies in Kenya include RHZE-Rifafour; RHZ-Rifater and Rehizide; RH-Rfinah and EH-Ethizide (NLTP, 2006). Anti-TB treatment is tedious because it is difficult to kill the semi-dormant bacilli. These drugs are used in combinations, because the TB bacilli can form resistance to any of the drugs and so if given in combination, the other drugs can cover the resistance (WHO, 1996). This, however, seems to be too much for clients. A study by Haynes, *et al*, (1979), cited in Naing, *et al*, (2001), indicated that clients default treatment because of the complex treatment regimens as well as long treatment duration.

Having knowledge of the reasons for the combination treatment and for the long duration of treatment may prepare clients to follow the treatment regime.

2.6 Directly Observed Therapy Short Course Strategy

To ensure that the treatment for TB cures the client, health workers have to ensure client adherence to the treatment. Client adherence to short course chemotherapy means the client takes every dose of the recommended treatment regimen. It is difficult for clients to adhere to anti-TB treatment for eight months. It is also difficult to predict which clients will adhere to self-administered treatment. One certain way to ensure client adherence to treatment is Directly Observed Therapy Short Course (DOTS).

The WHO introduced DOTS in 1993 as a technical and management strategy to improve global TB control. This strategy has proved to be cost effective and also prevent MDR-TB (Nachega and Chaisson, 2000). According to Bastian, *et al*, (2000), DOTS is a method to ensure high levels of adherence and completion of TB treatment.

DOTS entails that a health worker, volunteer, village health worker, home based caregiver, community member or family member takes the responsibility of observing the client take and swallow every dose of the drug. Akkslip (1999) studied family members supervising taking of TB treatment. They recorded a cure rate of 85% in the directly observed sputum positive clients compared to a cure rate of 70.9% in those who opted for self-administered treatment. The study further indicates that family members may contribute to effective implementation of DOTS leading to reduction of defaulter rates.

To ensure compliancy the MOH/NLTP in its treatment policy has recommended the DOTS strategy. The treatment can be administered in a wide range of clinical settings including at home, workplace or any convenient designated area. Missed doses of anti-TB treatment are immediately detected when clients are on DOTS as all tablets taken daily are recorded on a card. Great success on adherence due to DOTS has been reported in different countries such as Banglandesh, China, Peru and Tanzania (WHO, 1998). DOTS is also a last line defence against MDR-TB. DOTS has a number of advantages, mainly that it is the only way to ensure clients receive complete treatment of TB and become TB free. DOTS also stop MDR-TB and it is also a potential gain to the community to see clients managed and cured in the community and this decreases the stigma of TB.

However, Burman (1997) asserts that DOTS may make the client's situation worse and not better. They argue that negative perceptions regarding DOTS such as surveillance of pill swallowing can be alienating and authoritarian causing clients with TB to avoid health care and hence contribute to defaulting. The authors seem to assume that DOTS is less attractive to clients than self-administered therapy. Heyman *et al.*, (1999) in the American journal of public health points out that DOTS is more effective than self-administered therapy only for clients who have not adhered to previous treatment. Zwarenstein *et al.*, (2000) also carried out a study in South Africa at Khayelitsha and Elsies River and proved that self-supervision can produce better results than the use of DOTS. In the study, self-supervised clients achieved better outcomes, 74% as compared to 42 % of patients on DOTS. A number of authors however feel that DOTS is still a

strategy waiting to be used extensively as its success has proved in various studies (Westaway, *et al*, 1991; Burman, *et al,* 1997; Kochi, 1997; WHO, 1998; Bayer, *et al*, 1998; Barker, *et al*, 2002) on DOTS says, "This is one of the health intervention of this decade that has achieved significant results.

2.7 Adherence to Treatment

One of the goals of the NLTP (WHO, 2006) is to maintain a cure rate of 85% 0f new cases through systematic client education, effective chemotherapy and defaulter retrieving. TB treatment in Kenya is free with the expansion of DOTS; however, defaulting is still a problem in many areas. In Malawi (Kruyt *et al,* 1999) found that clients default because of ignorance of the duration of treatment. In Masvingo Province, Zimbabwe, Proudfoot, *et al*, (1996) indicate that defaulting was a result of high travel cost for supply of drugs and reviews, inadequate support from relatives and employers and poor understanding of modern treatment. Mukherjee, *et al*, (2003) indicate that in several states in India, the main reasons for defaulting were distance from the treatment centre, indifferences due to improvement in symptoms, and lack of motivation.

Naing, *et al*, (2001) and Haynes, *et al*, (1979), also describe factors associated with defaulting such as long treatment duration and complex medical regimes. In their study in Malaysia, Naing, *et al*, (2001) attribute defaulting to lack of DOTS, highlighting that clients who were not on DOTS had three times significantly higher chances of defaulting. Therefore, they strongly recommend that DOTS be offered to every client on TB

treatment. Further more, distances from health facilities was a major factor because clients who lived more than 10 kilometers from health centre had six times higher odds of defaulting. However, their findings were in contrast with another study carried out in Malysia where distance had no significant effect on defaulting behaviour. They also disputed factors such as knowledge about complete dosage of treatment, side effects of the drugs, waiting time and dissatisfaction with services contributing to defaulting whereas Khan, *et al*, (2000) maintain that these factors contribute to defaulting.

In Saudi Arabia, Al-Hajjaj and Al-Khatim (2000) found that older age groups (41-60 years) tend to be less compliant than younger adults possibly due to illiteracy among older adults. This observation was supported by the fact that in the same study, defaulting was more common among clients with no or minimal education.

2.8 Multi-Drug Resistant Tuberculosis (MDR-TB)

During the early 1990's, multidrug-resistant tuberculosis (MDR-TB), defined as resistance to at least isoniazid and rifampicin, the two most powerful anti-tuberculosis drugs emerged as a threat to TB control worldwide (WHO, 2004).The numerous outbreaks of MDR-TB reported from many different countries located in diverse geographical environments during this time were indications of a global epidemic. Between 1994 and 2002, the WHO Global Project on Anti-TB Drug Resistance Surveillance coordinated data collection on more than 250,000 patients from 109

countries (or regions within large countries), representing 42% of the world's population (WHO/HTM/TB/2006).

In Kenya, findings from the 1995 anti-TB drug resistance surveillance showed that despite increasing prevalence of both TB and HIV-1 infections, rates of initial drug resistance were still low and no MDR-TB was reported (Githui, *et al*, 1995). However, later results indicated that levels of drug resistance and MDR-TB were higher in the refugee community in North-Eastern Province (Githui, *et al*, 2000). Ten years later, MDR-TB strains were first described in an indigenous patient population from private and public care facilities in Nairobi. MDR-TB has also been observed in the last national anti-TB drug resistance surveillance conducted in 2002 (Githui, *et al*, 2004), exactly 10 years since the introduction of Directly Observed Therapy Short Course (DOTS) in the country.

2.9 Tuberculosis Knowledge and Health Education

The guidelines of the NLTP-Kenya put emphasis on health education as an integral part of the overall control process of TB. Health education targets different groups: the patients, healthcare providers and members of the community. The major objective of health education at the level of the patient is to remove stigmatization associated with the disease and to motivate the patient to complete the treatment successfully (Johansson, *et al*, 1996).

Health education is important in TB management so that clients can be empowered with information, make informed decisions and thus understand the cause of the disease and the treatment. Knowledge is a state of knowing and is essential if attitudes are to change. Tuberculosis Patients in Kenya obtain information about the disease from the healthcare workers, media (radio, television, newspapers) and pamphlets provided within the health facility. This is aimed at helping them understand their condition and hence comply with treatment (NLTP, 2005)

Core knowledge elements of relevance to interruption of disease transmission and adherence to therapy relate to: what TB is, what causes it, how it is transmitted, what measures can be taken to limit transmission, how it is treated, what the importance of taking treatment regularly is, what the consequences of stopping treatment are, what the possible side effects and complications are and whether TB is considered as curable disease. All these are important educational messages that patients should know (Donald, *et al*, 2000).

Studies in different parts of the world have revealed misconceptions and limited knowledge about the disease and its treatment (Wandwalo and Morkve, 2000). Provision of intensive health education to the patients in an unsupervised intermittent treatment yielded results as good as those obtained by directly observed treatment (Prassad *et al*., 2001).

Khan, *et al,* (2000) and Mukherjee, *et al*, (2003) emphasize that patients' lack of knowledge about the nature of their disease contributes significantly to defaulting. This anomaly rests with both doctors and nurses. In their study in Egypt, Tolba, *et al,* 1995 found that clients lacked knowledge of TB and factors associated with treatment compliance in Kuala Lumpur, Malysia. Liam (1999) found that a large proportion of TB clients did not understand the symptoms of TB and had limited knowledge and many misconceptions about the transmission and treatment of the disease.

CHAPTER THREE

METHODOLOGY

3.1 Study Population

The study population constituted all the patients diagnosed with TB during the time of the study. Majority of these patients were found in the high potential areas of Nyeri municipality, Othaya, Mukurwe-ini and Mathira,

The number of reported TB cases in Nyeri District just like the national figure has been increasing significantly over the years. In 2004 there were 1677 TB cases compared to 1727 TB cases in 2005 and 1913 TB cases in 2006 (DLTLD, 2007). The major reason for the increasing burden of TB in the district is the concurrent HIV epidemic which stands at 18 per cent overall prevalence in the district (NDDP, 2002).

3.2 Study Site

The study was carried out in four public health facilities within Nyeri District. These four public health facility included; Nyeri Provincial hospital, Karatina District Hospital, Othaya Sub-District hospital and Mukurwe-ini Sub-District hospital.

Nyeri District is one of the seven districts of Central Province and forms part of Kenya's eastern highlands. It covers an area of 3,288 km² and is situated between longitudes 36º

and 38º east and between the equator and latitude 0º 38' south. The district borders Laikipia District to the north, Kirinyaga District to the east, Muranga District to the south, Nyandarua District to the west and Meru District to the northeast. Administratively the district is divided into seven divisions. The District is further sub-divided into 37 locations and 194 sub-locations.

The majority of the population in Mathira, Tetu, Mukurwe-ini, Othaya and Kieni Divisions practice agriculture and livestock farming. The population of Municipality Division works in the formal and informal sectors as well as in small-scale urban agriculture and livestock rearing.

Some of the most prevalent disease includes TB, pneumonia, heart disease and cancer. The district has one provincial hospital, two major private hospitals, three sub-district hospitals, fifteen health centres, sixty seven dispensaries, twelve nursing homes and fifteen health clinics (NDDP, 2002).

3.3 Study design

A cross sectional descriptive study, with both quantitative and qualitative research methods of enquiry was conducted among newly diagnosed TB patients attending selected public hospitals operational within Nyeri district, Kenya under the Ministry of Health. The study focused on describing knowledge, attitudes and practices of newly diagnosed patients towards TB.

3.4 Sampling Procedure

Because of budget constraints, health facilities were selected, with the aim of including a diversity of facilities as well as limiting travel costs and time. These four health facilities had the highest number of TB patient from their respective catchments areas within the district (NLTP, 2007). This cross-sectional study was conducted among a consecutive sample of patients receiving treatment for active Pulmonary TB to include the total population within the period of study. All adult patients commencing anti-tuberculosis within the first week of treatment were picked and interviewed individually at the time of diagnosis and initiation of treatment using a pre-tested questionnaire and an in-depth interview guide (appendix II and III) between 29th September, 2008 and 2nd January, 2009. The patients were selected because the study intended to identify gaps in TB knowledge, attitude and practices which changes as patient progresses in treatment due to intense health education.

3.5 Sample Size Determination

The reported cases of TB in Nyeri district in 2005 were 1630 (excluding relapse cases). And since no study has been conducted to determine adequate knowledge, among TB patients, the P value was assumed as 0.5. Using the formula below, the sample size was arrived at 385. But after applying the finite population collection factor, the minimum sample size was arrived at 311.

Formula of Sample size determination

$n = Z^2_{1-\infty/2} P(1-P)/d^2$ (Fisher, *et al,* 1954)

Description:

n=required sample size

z = confidence level at 95% (standard value of 1.96)

p = estimated Tuberculosis knowledge in the country (0.5)

d = Level of precision at 5% (standard value of 0.05).

But since the population is ≤10,000, we have to apply the finite population collection factor. Thus the actual sample size was calculated as follows;

$$n_c = \frac{Nn}{N+(n-1)}$$

Where n_C =Sample size after applying FPC

N= Target Population (1630)

n= 385 (as calculated above)

3.6 Data collection.

A pre-tested questionnaire form (appendix II) was administered after obtaining informed consent from the participant (appendix I). The questionnaire consisted of four sections: Section one, adressing patient socio-demographic characteristic (age, sex, marital status, educational status and occupation). Section two, probed patients' knowledge through nine basic questions about the disease and its treatment (name of the disease, causative agent, Sign & Symptoms, disease infectivity (contagious), mode of transmission, curability and preventive measures taken by the patient). A scoring system was designed to assess the level of satisfactory knowledge and answering correctly ten out of the sixteen questions was arbitrarily taken as a cut –off point between adequate and inadequate knowledge. Section three was probed patients on their attitude and practice regarding their health seeking behaviours. A scoring system was designed to distinguish between positive and negative attitude, and good and bad practices among these patients. During the pre-testing of the questionnaire, in a pilot study performed on 6 patients in Mbagathi District Hospital, the reliability was calculated to be 0.7 for knowledge, 0.8 for attitude and 0.97 for practice by Cronbach's Alpha.

In-depth interview guide (appendix III) was developed and administered to the same patient in order to deeply explore the respondent's point of view, feelings and perspective. Some of the key characteristic that were used in the in-depth interview include open-ended questions and semi-structured format in order to seek clarity and deeper understanding from the respondent's through-out the interview. The questionnaire in the in-depth interview guide were administered by the researcher in the

language understood by the respondent covering areas such treatment seeking trajectory, disclosure, perception of disease and experience to stigma. Both had three translation including English, Kiswahili and Kikuyu.

An observation guide (appendix IV) was used to for the purpose of describing the health facility regarding the location of TB clinic, privacy of patients during counseling, sanitary conditions and attitude of health workers.

3.6.1 Inclusion criteria

- All newly diagnosed TB patients who were within their first week of TB treatment and gave consent to participate in the study.
- All patients above 18 years

3.6.2 Exclusion Criteria

- Any newly diagnosed patient within the first week of treatment unwilling to participate in the study.
- Very sick patients unable to participate in the study
- Patients whose treatment has been initiated for more than a week at the time of interview.

3.7 Data Management and Analysis

Quantitative data was entered into MS Access database. It was edited using consistency and range checks after data entry. The data was then analyzed using statistical package, SPSS version 12.01. The Chi-squared Yates corrected test for 2 by 2 tables and Pearson's uncorrected Chi-squared test for higher contingency tables was used to determine associations between quantitative factors. The cut off point for statistical significance was set at the 5% level.

All interviews were tape recorded and transcribed for analysis in the language recorded. During transcription, Para-linguistic features of the interview such as pauses, emphasis and body language were noted. Data was then translated into English. Interim analysis was pursued to expose emerging important themes. A ground theory approach was used to analyse the data. This entailed coding the themes, topics and categories emerging from the transcribed interviews using the Nvivo computer programme (QSR international, Doncaster, Victoria, Australia). These were then compared within individual interviews and between interviews revealing links between the data and common themes, thus leading to higher order generalizations.

Odds ratio point and interval estimates, and chi-squared and *t* tests were used thereafter. Control of effect modification and confounding was achieved by Mantel–Haenszel stratified analysis and logistic regression to identify the adjusted determinants of knowledge, attitudes and practices.

3.8 Ethical considerations

Approval to conduct this study was obtained from the Scientific Steering Committee at the Kenya Medical Research Institute (KEMRI). Study and ethical approval was obtained from National Ethical Review Committee before commencing the study. Consent was also obtained from the respondents through the attached consent form (appendix I) before the interview. Courtesy call was paid to the Medical Superintendent at provincial and at District levels and the Medical Officers in- charge of the sub-district hospitals by the principal investigator before moving to the facilities dealing with TB.

Because of stigma associated with TB, all patients were assured of confidentiality and anonymity. Information on patients, residential addresses, and health facilities to which patients were affiliated was collected incase of follow-up. Respondents were informed that this information will not be made available to persons outside the study team. Respondents were further assured that no person-identifiers would be used for publication.

CHAPTER FOUR

RESULTS

4.1 Demographic data and patient characteristic

Table1: Demographic characteristics of the Respondents

Demographic characteristis	n (%)	95% CI	
		Lower	Upper
Study Population (n=170)			
Nyeri Provincial	69 (40.6)		
Karatina District	70 (41.2)		
Othaya Subdistrict	9 (5.3)		
Mukurwe-ini Subdistrict	22 (12.9)		
Age in Years (n=170)			
≤ 40	134 (78.8)	2.44	2.76
> 40	36 (21.2)		
Gender (n=170)			
Male	108 (63.5)	1.18	1.44
Female	62 (36.5)		
Level of Education (n=169)			
<Secondary	87 (51.2)	1.22	1.68
≥ Secondary	83 (48.8)		
Marital Status (n=170)			
Single	50 (29.4)		
Married	75 (44.1)	1.64	2.11
Divorce/Separated/ Widowed	45 (26.5)		
Occupation (n=170)			
Student	16 (9.4)		
Casual worker	24 (14.1)	3.97	4.51
Permanent Employment	20 (11.8)		
Self Employment	61 (35.9)		
Unemployed	49 (28.8)		
Personal Habits (n=170)			
Smoking	8 (4.7)		
Alcohol	17 (10.0)		
Alcohol and Smoking	65 (38.2)		
none	80 (47.1)		

Table 1 above describes the demographic characteristics of the respondents. A total of 170 participants from four study sites participated in this study. Of these, 69 (40.6%) were from Nyeri Provincial Hospital, 70 (41.2%) from Karatina District Hospital, 9 (5.3%) from Othaya Sub-district Hospital and 22 (12.9%) were from Mukurweini Sub-district Hospital.

The mean age was 34.45 years (with minimum of 18 and a maximum of 77 years). Most of the patients were below 40 years of age (78.8%) with 21.2 % aged above 40 years. The sample included more men (63.5%) than women (36.5%) consistent with the current pattern of the TB statistics in Kenya. The education level of the majority of the respondents was below primary school (51.2%) with 48.8% having attended or completed secondary school with highest education being the university.

Of 170 respondents interviewed about their occupation, the majority (35.9%) were in self employment; only 20 (11.8%) of the patients were in formal employment. The rest worked either in informal sector or were students. 52.9% were found to engage in smoking, alcohol consumption or both which is an increased factor towards contracting and defaulting of TB treatment.

4.2 Distance to health facility and mode of transport

Table 2: **Distance from the health facility**

Distance to the health facility in km	n (170)	%
<= 10	132	77.6
11 - 20	25	14.7
> 20	13	7.6

Table 2 above describes the distance traveled and the mode of transport by the respondents to the health facility. About 22.3% traveled for more than 10 km to the health facility and the maximum distance traveled was 60 km.

Table 3: mode of transport to the health facility

Mode of transport to the health facility	n(170)	%
By Foot	81	47.6
By Bus	71	41.8
By Car	14	8.2
Others	4	2.4

Table 3 above describes respondent means of transport. Majority of the respondent 47.6% walked to the health facility with only 8% reporting to have used private cars (both Taxi and Personal cars) to reach the health facility.

4.3 Knowledge of disease name and TB cause

Table 4: TB cause

Cause of Tuberculosis	n	%
Germs	96	56.5
Hereditary	4	2.4
Don't Know	51	30.0
Others (Harsh weather, sharing utensils, smoking etc)	19	11.1

Table 4 above describes respondent knowledge of disease cause. Out of the total number of respondents 168 (98.9) knew that they were infected by TB. The study highlighted that about 51 (30%) of the community was totally unaware of the mode of spread of TB. Germs as the cause of infection was known by 96 (56.5%) of the respondents, while 2.4% thought TB is hereditary. However, 11% of respondents said that smoking, weakness, malnutrition, or a poor diet were causes of TB.

4.4 Knowledge of symptoms/ sign (s) of TB

Table 5: Symptoms/ signs of TB

Symptoms/signs of TB	n	%
Fever		
Yes	18	10.6
No	152	89.4
Cough exceeding two weeks		
Yes	134	78.8
No	36	21.2
Drenching night sweats		
Yes	34	20.0
No	136	80.0
Loss of weight		
Yes	24	14.1
No	146	85.9
Chest pain and shortness of breath		
Yes	67	39.4
No	103	60.6

Table 5 above describes respondents' knowledge of symptoms of TB. The commonest symptoms mentioned by the respondents were cough exceeding two weeks 134 (78.8%); chest pain and shortness of breath 67 (39.4%) drenching night sweats 34 (20%), loss of weight 24 (14.1%) with fever being last 18 (10.6%).

4.5 Knowledge of TB transmission and prevention

Table 6: TB transmission and preventive measures

	n	%
TB Transmission		
Sexual Intercourse	2	1.2
Sleeping in the same room with TB patient	10	5.9
Sharing Cups	28	16.5
Patient Coughing Directly to others	100	58.8
Don't Know	30	17.6
TB Preventive Measures		
covering of the mouth	66	38.8
reducing of overcrowding	23	13.5
Not aware of any method	37	21.8
Avoid sharing of personal items	19	11.2
Early diagnosis and medication	24	14.1

Table 6 above gives a summary on the knowledge of transmission and TB preventive measures. When asked about TB transmission 100 (58.8%) of the patients said patient coughing directly to others, 5.9% thought TB was transmitted by sleeping in the same room with a TB patient while 28 (16.5%) thought that it was spread by sharing eating utensils thereby accepting to have a plate and a cup of their own.

When asked whether TB was preventable, 142 (83.5%) thought it was preventable while 27 (15.9%) thought it was not preventable. Of those who thought it could be prevented, 66 (38.8%) mentioned covering of the mouth when coughing as the way to achieve this, 23 (13.5%) mentioned reducing of overcrowding while 24 (14.1%) thought

of early diagnosis and medication. Avoiding of sharing of food utensil was mentioned by 11.2% of the respondent and the rest 37 (21.8%) had no idea of any preventive measures. A great proportion of those who thought that the disease could not be prevented ascribed this to the fact that the disease was airborne.

4.6 Knowledge of association between TB and HIV and AIDS

Table 7: Association between TB and HIV and AIDS

Responses	n	%
Yes	91	53.5
No	42	24.7
Not Sure	37	21.8

Table 7 above gives a summary on the response to the association between TB and HIV and AIDS. On the issue of the association between TB and HIV and AIDS, 91(53.5%) were aware that HIV and AIDS was a predisposing factor to TB, 42 (24.7%) thought that there was no link while 37 (21.8%) were not sure. Thus more than half of the respondent felt that HIV patients were more prone to TB.

4.7 Knowledge on management of TB

Table 8: TB treatment duration, reasons for treatment completion and consequences for treatment completion.

	n	%
Duration of treatment		
four weeks	11	6.5
two months	7	4.1
four months	4	2.3
Eight months	132	77.7
Don't know	16	9.4
Reasons for treatment Completion		
Curability to be achieved	142	83.5
Satisfy doctors Requirement	24	14.1
Don't know	4	2.4
Consequences of treatment incompletion		
cure failure	121	71.2
Death	14	8.2
Drug resistance	25	14.7
Don't know	9	5.3
Others	1	0.6

Table 8 above summarizes the respondents' knowledge on TB management. The vast majority of the patients (97.6%) believed that the disease was curable while 2.4% were not sure. The duration of treatment was correctly identified by 77.7% of the respondents. 9.4% were not sure of the duration at all. 97.6 % 0f the respondents believed it was necessary to complete treatment. Consequences of treatment incompletion were

mentioned as follows; 71.2% thought that it would lead to cure failure, 14.7% to drug resistance, 8.2% to death while only 5.9 had no idea or incorrectly answered the question Majority of the respondent 166 (97.7%) felt that completing full course of TB treatment is essential, failure of which the disease becomes untreatable.

4.8 Knowledge Score

Table 9: Summary of the knowledge scores

n	Mean	SD	Median	Minimum	Maximum
170	10.0	2.0	10	4	15

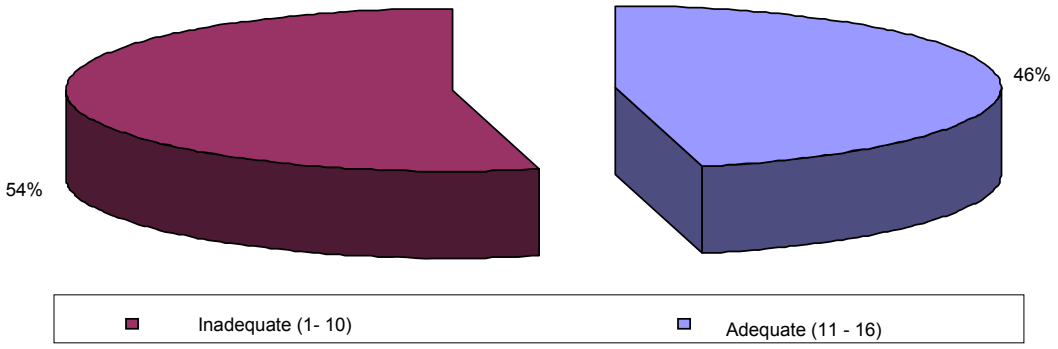

Figure 1: Knowledge score categories

Table 9 and Figure 1 above gives a summary of the overall knowledge score. The mean knowledge score for the 16 selected questions among the respondents was 10.0 ±2.0,

(range of 4-15, median 10). Correct answers to at least ten out of sixteen questions asked were taken as an arbitrary criterion of satisfactory knowledge. About 46.5% of the respondents were regarded to have adequate knowledge (Figure 1).

4.9 Knowledge scores by demographic characteristics

Table 10: Knowledge scores by demographic characteristics

Factor Variables (Categorized)	Adequate (11-16)	Inadequate (1-10)	Odds ratio	95% CI		P value
	n	n		Lower	Upper	
Current Marital Status						
Single	31	19	2.4	1.2	4.8	0.011
Ever Married	48	72				
Age group category						
>40	63	71	1.1	0.5	2.3	0.852
≤40	16	20				
Occupation status						
Unemployed	24	41	1.9	1.0	3.5	0.058
Employed	55	50				
Level of Education						
< Secondary	25	62	4.6	2.4	8.8	<0.001
≥Secondary	54	29				
Gender						
Male	57	51	2.0	1.068	3.865	0.038
Female	22	40				

Table 10 above describes knowledge scores according to gender, marital status, level of education, age category and occupation.

Pearson chi-square test revealed a significant association between adequate knowledge and marital status (p=0.011). Majority of singles (62%) scored higher compared to ever-

married (44.0%). Being married places someone at 2-folds risk of scoring poorly compared to being single. Male respondents had a better knowledge score than their female counterparts, with the difference being statistically significant (P=0.038). Odds ratio revealed that females had 2-fold risk of scoring low. Education level according to Pearson chi-square test revealed a significantly higher level of knowledge among those with above secondary education (p <0.001). Respondents with low level of education had 4-fold risk of scoring low. However there was no significance difference between adequate knowledge and respondent age category (p=0.852) and also occupation (p=0.058).

4.10. Respondents attitudes

Table 11: Attitudes

Attitude variable	n (170)	%	P- Value
Reason for delay in visiting of healthcare facility			
Fear of TB diagnosis	21	12.4	0.828
Delay due to lack of resources	21	12.4	0.343
Delay due to fear of losing Job	1	0.6	0.828
Ignorance/Not worried	65	38.2	0.955
Delay due to distance from the health facility	9	5.3	0.348
Delay due to family disagreement	3	1.8	0.576
Delayed Diagnosis	50	29.4	0.985
Reaction to TB diagnosis and treatment			
Not too worried	12	7.1	0.731
Fear of Spreading to Others	72	42.4	0.608
Incurability worry	48	28.2	0.734
Shocked	78	45.9	0.887
Job Loss fear	7	4.1	0.173
Stigma concern	21	12.4	0.298
Medication Dislike	43	25.3	0.157

Table 11 above gives attitudes by the respondents with 38.2% of the respondents admitted to ignorance or not being worried about their health condition as reason for delay to seek health care. 12.4% delayed to seek healthcare because of fear of TB diagnosis and lack of resources. Furthermore, healthcare providers contributed to suboptimal TB case management by delay in diagnosis by 29.4%. There was no significant association between adequate knowledge and ignorance as a reason for delay to the health facility.

When informed of TB diagnosis, 45.9% of the respondents were shocked and confused; 42.4 % had fear of spreading the disease to others; 28.2 % were worried whether they will be cured; 25.3% were concerned the long period of medication. The two questions attracted multiple responses.

4.11: Respondent practices

Table 12: Practices

Practices variable	n (170)	%	P- Value
Duration taken to visit a health facility			
<2weeks	21	12.4	
2-4 weeks	46	27.1	
>month	96	56.5	0.138
Where treatment was first sought			
Government/ Public Hospital	161	94.7	
Private Hospital	9	5.3	
Others	0	0.0	0.083
Encouraged testing of family members			
Yes	109	64.1	
No	61	35.9	0.522

Table 12 above gives a summary of practices as expressed by the respondents. About 56.5% of the respondents were reluctant to seek care taking over a month before visiting the health facility despite the existence of the symptoms with only 12.4% seeking treatment in good time. A high proportion of the respondents sought initial care at government/public hospitals (94.7%); with a paltry 5.3% seeking care at private clinics. Again, adequate knowledge had no significant association with care-seeking behavior. The study found that 64.1% of the respondents would encourage their household members to have TB investigations, but this attitude was not significantly associated with adequate knowledge (p=0.522).

4.11 Attitude

Table 13: Attitude Score

Attitude score	n	%	mean	Median	SD
<3	29	17.1			
=>3	141	82.9	3.4	4.0	0.93
Total	170	100			

Table 13 above shows the attitude score among the respondents. A score of three out of the five questions dealing with attitude was taken arbitrary as a positive attitude. 82.9 % had positive and 22% had negative attitudes. The mean attitude score was 3.4 ± 0.93 (range 0-5).

4.12: Attitude versus demographic characteristic

Table 14: Distribution of Attitude score by demographic characteristic

Factor Variables (Categorized)	Negative attitude <3	Positive attitude ≥3	Odds ratio	95% CI		P value
	n	n		Lower	Upper	
Marital Status						
Single	15	35	3.2	1.4	7.4	0.007
Ever Married	14	106				
Age group category						
<40	25	109	1.8	0.6	5.7	0.331
≥40	4	32				
Occupation status						
Unemployed	15	50	1.95	0.9	4.4	0.141
Employed	14	91				
Level of Education						
< Secondary	10	77	0.4	0.2	1.0	0.066
≥Secondary	19	64				
Gender						
Male	21	87	1.6	0.7	3.9	0.299
Female	8	54				

Table 14 above describes attitude scores according to gender, marital status, level of education, age category and occupation.

Pearson chi-square test revealed a significant association between attitude score and marital status (p=0.007). Being married places someone at 3-folds risk of negative attitude compared to being single. Using the 95%CI, education level seems to have a protective effect on developing positive attitude (p=0.066; CI=0.2-1.0). However there

was no significance difference between attitude score with respondents' age (p=0.331), occupation (p=0.141) and gender (p=0.299).

4.13 Knowledge versus Attitude

Table 15: Knowledge score versus attitude score

Knowledge Score	Adequate Knowledge (11 - 16)	Inadequate Knowledge (1 - 10)	Odds ratio	95% CI		P-Value
Attitude Score	n	n		Lower	Upper	
<3	19	10				
=>3	60	81	2.565	1.113	5.914	0.026
Total	79	91				

Table 15 above shows an association between knowledge and attitude among the respondent. There was significant relationship between knowledge and attitude (r= 2.565, p= 0.026). Having inadequate knowledge places someone 2.5 folds risk towards negative attitude.

4.14: Practice Score

Table 16: Practice score

Practice Score	n	%	Mean	Median	SD
<=1	65	38.5	1.62	2	0.53
>2	104	61.5			
Total	169	100.0			

Table 16 above shows the practice score among the respondents. A score of two out of the three questions dealing with practice was taken arbitrary as good practice. 61.5 % of the respondent had good practices while 38.5% had poor practices. The mean attitude score was 1.62 ± 0.53 (range 0-3).

4.15: Knowledge, attitude versus practice

Table 17: Knowledge versus practice adjusted for demographic characteristics

Predictor variables	Crude odds ratio	Stratum specific Odds ration (95% CI)	Adjusted odds ratio
Knowledge[1]			
Inadequate knowledge	0.6	1.3 (0.4-5.0)	0.9
Adequate knowledge		0.2 (0.1-1.2)	
Attitude[2]			
Negative attitude	0.6	0.2 (0.03-1.1)	1.4
Positive attitude		0.8 (0.4-1.7)	
Age group[3]			
< 40 years	0.8	0.6 (0.3-1.3)	1.1
≥ 40 years		0.7 (0.2-2.8)	
Gender[4]			
Male	1.5	0.6 (0.3-1.4)	1.6
Female		0.5 (0.2-1.6)	
Education level[5]			
< Secondary	2.8	0.7 (0.3-1.8)	2.6
≥ Secondary		1.2 (0.4-3.4)	
Marital status[6]			
Single	0.5	0.4 (0.1-1.5)	0.7
Ever married		0.9 (0.4-1.8)	
Occupation[7]			
Unemployed	0.7	0.3 (0.1-1.0)	0.7
Employed		0.9 (0.4-1.8)	

Tale 17: Stratified analysis of point and interval estimates of adjusted and unadjusted odds ratio for the determinant of knowledge and practices.

NB: Knowledge has been adjusted for attitude to obtain stratum specific odds ratio

Table 18: Attitude versus practice adjusted for demographic characteristics

Predictor variables	Crude odds ratio	Stratum specific Odds ration (95% CI)	Adjusted odds ratio
Knowledge[1]			
Inadequate knowledge	0.6	1.3 (0.4-5.0)	0.9
Adequate knowledge		0.2 (0.1-1.2)	
Attitude[2]			
Negative attitude	0.6	0.2 (0.03-1.1)	1.4
Positive attitude		0.8 (0.4-1.7)	
Age group[3]			
< 40 years	0.8	0.6 (0.3-1.5)	1.1
≥ 40 years		0.4 (0.04-4.6)	
Gender[4]			
Male	1.5	0.6 (0.2-1.7)	1.6
Female		0.3(0.03-2.3)	
Education level[5]			
< Secondary	2.8	1.6 (0.4-6.1)	2.6
≥ Secondary		0.3 (0.06-1.2)	
Marital status[6]			
Single	0.5	0.4 (0.06-1.8)	0.7
Ever married		1.0 (0.3-3.0)	
Occupation[7]			
Unemployed	0.7	0.7 (0.2-2.6)	0.7
Employed		0.5 (0.2-1.7)	

Table 17 and 18 above shows the relationship between knowledge, attitude and practice adjusting for the demographic characteristics. In table 17, adequate knowledge was suggestive in terms of contributing to good practices.With adequate knowledge one was likely to have good practices compared to those with inadequate knowledge because the stratum specific odds ratio was calculated to be 0.2- showing good practices in the adequate knowledge stratum. However, the confidence interval is seen to capture the value of no effect (OR=1), running as it does from 0.2 to 1.2. The observed difference is thus non-significant; the true value could be anything from 80% good practices in the adequate knowledge group to 20 % bad practices. This was similar in the negative attitude group (CI= 0.03-1.1) and the unemployed stratum (CI= 0.1-1.0).

In table 18, having education above secondary school was protective in in terms of having good practices (CI= 0.06-1.2).

4.16 Reliability analysis.

In a pilot study performed on 6 patients in Mbagathi District Hospital, the reliability was calculated to be 0.70 for knowledge, 0.80 for attitudes and 0.97 for practices. In this study the reliability calculated was 0.83 for knowledge, 0.82 for attitudes and 0.65 for practices.

4.17 Qualitative Results

The qualitative information reported below was collected from an In-depth interview with the newly diagnosed patient in order to explore the depth of their feeling and knowledge. These data are based on the perspective of the TB patients.

4.17.1 Denial of TB diagnosis

The Study revealed that patients are still reluctant to admit that they have TB because they fear stigma, and they prefer not to discuss the disease in the presence of family or neighbors. Respondents who did not accept the diagnosis often had misconceptions about the nature of their illness, had experienced longer times to diagnosis and had nor prior experience of TB in a known or close person. Individual acceptance of TB diagnosis is a key to the necessary behavioral change that is required for good health outcomes.

Two forms of reactions emerged from this question with some accepting and others denying the condition depending on prior knowledge of the disease.

One TB patients with experience of TB reported;

> "Am positive about the condition because I believe after the medication I will be okay. My neighbor used to have it but he is well"

Another patient said

> "TB is like any other disease. Am going to deal with it by attending all my clinics until I get well"

Contrary another TB patient said:

"I was very worried and didn't know how I will explain this at home. I didn't believe it, to be honest … there's nothing relating to TB in my family. If you have this thing (TB) in your family, then it may come to you, so me, I don't believe it"

4.17.2 TB Preventive measures

There was some misconception in terms of the preventive measures that the respondent would use to prevent spread to those close to them. Many of the respondent confided of having their own eating utensils.

"I am not sharing my eating utensil and am keeping distance from other people."

"I have a room of my own separate from my wife and am also having a plate and a cup of my own which should not be used by any other person. I wash them myself."

4.17.3 Misconception concerning TB

Although a significant number of the respondents were aware of germs as the cause of TB from the quantitative data. There were misconceptions regarding the aetiology and transmission of TB with some ascribing TB to causes such as smoking, sharing cutlery and harsh weather condition. This was revealed by the following statements:

"I used to take beer with friends using the same glass and cups that were not necessarily washed"

> "I was smoking for a long period of time including smoking two packs a day"
>
> "The weather condition where I was working was characterized by very low temperatures and because I was working with an excavator, the dust was too much making me to contract TB".

4.17.4 Symptom misinterpretation.

Some individuals misinterpreted their initial symptoms of TB, attributing them to flu, pneumoniae, ordinarly cough or strenuous activity, resulting in delays in seeking advice from health professionals.

> "I thought it was because of the heavy load I carried. I did not report the chest pain for about four weeks. When I coughed and saw blood, then I came to the hospital"

Some respondents also reported that healthcare providers failed to consider TB early in the course of their illness, resulting in delay in arranging appropriate investigations. The population that complained of delayed diagnosis was quite high with 52 (30.6%) complaining of this.

> "I started coughing in September, when I came for treatment I was given an Antibiotic and some painkillers and it wasn't until December that I was asked to provide the sputum for TB diagnosis"

4.17.5 Stigma

Non-disclosure was one of the themes that emerged as a barrier to prevention of spread of Tuberculosis. Respondents stated that failure to tell someone (especially friends and colleagues) could be due to reasons such as: fear of being discriminated against, TB patients feared to be branded HIV positive. It was not uncommon to hear people who were rejected in their social circles because of suffering from TB. This problem is highlighted by the following quotes from some of the respondents:

> "We can't stay together with a TB patient"
>
> "People should seek treatment and get healed from disease that they are suffering from"
>
> "People are saying that I have HIV/AIDS and am just lying that I have TB"
>
> "Some of my student colleagues said that am taking ARV while in actual fact I was taking TB medication"

Failure to disclose the condition can result in occasional skipping of medications and failure to keep clinic appointments.

4.17.6 Encouraging others to come for test

Many of the respondents were willing to encourage those close to them to come and take TB test. For example;

> "One young man who was working in a garage, he encouraged five of his colleagues to have a test, three of whom had TB"

"A female respondent took the initiative of carrying sputum cups for the family members and the son sputum turned to be smear positive"

4.17.7 Location and quality of operating structure

The information below was derived mainly from a structured observation and from notes taken by the researchers' as they interviewed the patients.

A number of structural problems in the health facilities which had a potential impact on visiting the health facility by the patients were observed. In Nyeri Provincial and Karatina District hospitals, there was no separate room for consultation and thus no possibility of confidentiality for patients. At the time of this study, three healthcare workers were sharing a single room and consulting with three different TB patients at the same time in Nyeri Provincial Hospital. However, TB patients frequently mentioned that they were accorded respect. In Othaya and Mukurwe-ini sub-district facilities generally had better operating structures and even their location were somehow away from the other general clinics. Privacy was generally assured owing also to the smaller number of patients in these facilities.

Nyeri provincial hospital had a lot of laboratory test to conduct leading to delay in releasing the patient results at least for a week. This resulted in delay to initiate treatment as the patients had to return again in order to get the results of tests.

4.17.8 Healthcare Attitude

In all the facilities studied, healthcare providers showed respect to the TB patients. This may be as a result of the constant training conducted by the district NLTP team. During observation of consultations, newly diagnosed patients were informed that TB is curable, the importance of adhering to the medication, preventive measures that they can use within the household among others.

In all the TB clinics included in this study, it was observed that providers showed respect for TB patients. Patients were given an opportunity to ask questions and clarification.

4.17.9 IEC materials

From the observation guide there were no written materials provided to the patient either on the disease or instruction regarding the medication. Patients were given Oral information without the emphasis of the written information.

CHAPTER FIVE

DISCUSSION

5.1 Discussion of the results

This study employed both qualitative and quantitative methods of data collection to deeply explore knowledge, attitude and practices among the newly diagnosed patients in Nyeri District. Although similar studies have been conducted in other countries, this triangulation approach has not, to my knowledge, previously been used to explore the link between knowledge, attitude and health seeking behaviours.

One of the major unresolved questions in health-seeking behaviour studies is how far knowledge actually determines practice. It is most common to assume, implicitly or explicitly, that changing knowledge entails behaviour change. Hence the vast body of literature that concludes with recommending the education of people about causes, symptoms and treatments of illnesses as the key factor for success in behavioural change. It is, however, also widely recognised that improving knowledge, for example with well designed IEC campaigns, will not automatically lead to improved health behaviour (Annika L., 2009; Susanna *et al*., 2003).

One would expect that if people recognize the signs and symptoms of TB and they are also aware that TB can be treated, they would accordingly attend a health facility. However in this study we found that there was no correlation between knowledge and health seeking behaviours. Although knowledge about illness may be high, illness

recognition during the actual episode is much less clear. In this case, typical symptoms of incessant cough, leaves open a variety of other, less serious illness interpretations. Other motivation factors and stigma may also influence health seeking behaviour. Other factors like treatment expectation, satisfaction with healthcare services, decision making for healthcare and external barriers (e.g. financial constraint, accessibility to health services) are among many other factors making knowledge to be just one element in a broad array of factors which determine health seeking behaviours (Nitcher, M., 1993).

But there are two interesting points to consider in the relationship between knowledge and practice which are scarcely discussed in the literature: the uncertainties of illness and the unreasoned behaviours. Often, illness symptoms are diffuse and ambiguous and illness course or treatment outcomes are unexpected. Facing uncertainity people follow a trial and error search for relief and meaning (Whyte, 1997; Ryans, 1998). Under these circumstances, even good biomedical knowledge would affect behaviours.

The practices among the respondents were poor; for example, only 12.4% visited the health facility within a period of less than two weeks from the time symptoms appeared. In some respondents, symptoms misinterpretation appeared to contribute to delayed treatment seeking and longer times to diagnosis. Symptoms misinterpretation is not surprising if we consider that early symptoms of TB are non-specific and may be attributed to self-limiting illness, such as viral infections. Individual with unexplained weight loss may fear a diagnosis such as HIV infection and thus may delay in seeking medical attention. This is because the 65% of the patient with TB also has HIV infection

(DLTLD., 2007). Experience elsewhere has shown that the TB management practices of healthcare providers are often poor. In a study conducted among private healthcare providers in Kibera slum in Kenya, private healthcare providers were often associated with poor TB case management practices, including provider-related diagnostic delay and inadequate therapy (Chakaya, *et .al.,* 2005). Good practices among were found in 61.5% of the respondents. However in this study, knowledge was not associated with appropriate healthseeking behaviours. Although adequate knowledge appeared to have some protectictive effect on good practice (CI= 0.2-1.2).

In this study 29.4% of the respondent acknowledged delayed diagnosis as a reason for delayed treatment. Ultimately, the delay in TB diagnosis or incorrect treatment regimen will lead to poor TB case management and hence unfavorable TB treatment outcomes, such as prolonged patient suffering and complications, continued TB transmission, development of medicine resistance, or even a patient's death (Sitienei and Gitau., 2007).

However a number of patients reported to have encouraged family members and friends to come for testing. This is a lather interesting finding in this study and if members of this community would be encouraged to move in this direction, there would be reduction in transmission especially among positive smear cases. The firm response by one of the respondent (I carried the sputum cup for all the family members and the sputum for my son turned positive for tuberculosis) captures some of the good practices among the members of this community.

With regard to TB being a stima, while majority of the patients felt the disease was no longer considered such a big stigma, upon further probing a number of them admitted of experiencing negative sentiments concerning their condition and at times isolation once the disease was revealed.

When confronted with a survey question, people tend to give answers which they believe to be correct or in general acceptable and appreciated. The survey interview context may influence the answer; since this interview was conducted at a clinic with other people present may have influenced their response and may be not a true reflection of their attitudes. There may be several explanations for the high proportion of positive attitude score (141 (82.9%). One explanation could be that there is indeed strong agreement and cultural homogeneity among the patients attending clinics in Nyeri District. When taking into account the socio-cultural background in Nyeri District often includes formal (Western-style) schooling, with emphasis on being factual, it is also possible that this would have contributed to the positive attitude and reduced stigma. The fact that only 5 (3%) of the respondent had not gone through primary school education attest to this possibility. The question formulation could have an influence on attitudes towards favourable, "agreeing" answers. For example, a very high number of the respondents agreed to the statement which put forth the argument: "How would you describe the hospital environment?" This statement was formulated on the basis of the qualitative findings, but the problem is that it would require a lot of courage from the respondent to disagree with this statement even if they thought otherwise especially in the presence of the healthcare workers.

The study revealed significant association between knowledge attitude among the respondents (P=0.026, r=2.565). Respondents with adequate knowledge were twice likely to have a positive attitude compared to this that had inadequate knowledge. The finding is in agreement with a study conducted in urban slums in Kenya (Chakaya *et al.*, 2005). In addition to knowledge; this study revealed that marital status of the respondent had a significant association with positive attitude. Singles were more likely to have a positive attitude compared to those that were married (P=0.007). A range of other factors affects the actual attitudes among the individuals, issues such as perceived stigma, economic resources and health perceptions are among other factors that affect individual attitudes. An intensive media-based education campaign is highly recommended in order to reduce TB associated stigma in the community. Such educational activities should also target behavioral modification rather than being confined to increasing awareness of the community.

The study also illustrates how some participants' responds to the diagnosis of TB by retreating into denial. The firm response by a number of respondent ('No, I haven't got TB') to the diagnosis of TB aptly captures the denial observed in over half of the respondents. Denial in our respondents appeared to be attributed to initial uncertainty about the diagnosis and a sense of felt stigma. Although it is the experience of some experts (Kneir, 2000) that denial is an immediate response that fades away with time, giving way to more active coping strategies, in this study respondent expressed denial even after a week of treatment , a sense of isolation, enacted by not sharing meals,

cutlery and avoiding sexual intercourse. However a sense of stigma was less often reported in those who had experienced a person with TB in their family.

In this study there were misconceptions regarding the aetiology and transmission of TB with some ascribing TB to cause such as smoking, sharing cutlery, dust and harsh weather condition in agreement with the finding of another study done in Pakistan (Ali *et al*., 2003). Though not technically correct, these are among factors that will predispose a person to develop TB disease. The fact that TB is caused by a microbe helps the patient understand how the disease is transmitted, however this is highly specialized information and most of the healthcare providers ignore to go in-depth in explaining this fact.

Knowledge among TB patients was 46.5%, whether criteria used in this study or more conservative ones as adopted. The criterion to this study was to take correct replies to 11 out of the sixteen of the questions asked as adequate knowledge based on WHO knowledge, attitudes and practices guidelines. This was somewhat surprising, as one could expect that awareness among TB patients receiving treatment could be high, as they were informed about different aspect of TB hours to this interview.

Educational background was an important determinant of the patients' level of knowledge of TB; those with a higher level of education scored higher than those with lower or no formal education ($P<0.001$). Higher education level, no doubt, helps the patients to understand the educational messages. Moreover such patients have better

chances to come across considerable knowledge about the disease in the media. However employment status did not reveal any significant difference in the knowledge score, this finding coincides with results of two studies in Philippine (portero *et al*., 2002) and Iraq (Hashim *et al*., 2003).

There was similar observation on patients' gender with males scoring significantly better than their female counterpart (P=0.038). Males' level of knowledge as observed in the study was better than females; this finding is in agreement with a study done in Vietnam and Sudan respectively (Johanson *et al.*, 1996; Mohamed *et al.*, 2007). Findings from this study indicate an association between knowledge levels and gender. Probably promotion of health education is done through radio and television which may not be accessible to both genders leading to such discrepancies. TB globally is most common among the socio-economically disadvantaged, and if equal opportunities to education and media access are not forthcoming, health communication may fail despite good intentions.

The finding also indicated high awareness about TB among singles compared to the married ones (p=0.011), this might be related to the fact that singles have a chance for education and they may have access for information.

Sufficient knowledge of TB was similarly proportionate across all age groups (P=0.0852). It should be noted, however, that the only age group for which a large enough sample size was gathered to draw any meaningful conclusions was the "below

40 years" category. A similar study in which larger numbers of those in other age groups were interviewed might yield different results.

In spite of this level of knowledge about TB, more than half of the respondents (56.5%) did not have the appropriate health-seeking behaviors in terms of timely access to appropriate care, thereby reflecting a high degree of stigma attached to the disease. This finding is in agreement with other studies reporting that knowledge alone is not the only factor determining the health-seeking behavior of patients or their adherence to treatment, but mainly patients' attitudes and practices (Johanson *et al.*, 1999;Yamada *et al*., 1999; Wanndwalo *et al.*, 2000). The consequences of delay in treating TB include increased period of infectivity, risk of late of sequalae (including post TB lung fibrosis and brochiectasis) and mortality, and increased cost of the disease (Lawn *et al*., 1997).

With the introduction of the revised national TB control Guidelines and the implementation of the DOTS Strategy, more emphasis is being given in many countries to health education and counseling of patients as well as supervision of treatment by face-to-face observation of patients. These activities imply a close contact between healthcare providers and patients, which has increased several-fold over the DOTS era (Molding, 1996).

5.2 Study Limitations

During this survey I have certain limitations that may have affected the study results. These Limitations were:

1) During the development of the proposal a sample size of 311 was arrived. However it was not possible to achieve this sample size because of the flow of the new patients which was lower than anticipated. Despite employing consecutive sampling method, a sample size of 170 respondents was covered. It may be argued that this sample of 170 patients is too small and may not be a representative of the Nyeri Community. Results obtained in this study correlate with those of a study conducted in Malaysia and Croatia (Liam *et al*., 1999; Savicevic *et al*., 2008) on the same subject when variables such as age, sex, education level were correlated with variables of patients whom data was analyzed. The correct degree of precision for this study would have been 0.07 bringing the sample size to 175 after constituting finite collection factor.

2) Absence of similar studies in the area has made comparison of the results difficult.

3) Influence of bystanders and spectators: It was not always possible for the interviewer to talk with the respondent alone. The presence of a third party might have affected their responses and there might have been attempts to conceal certain facts.

CHAPTER SIX

CONCLUSION AND RECOMENDATION

6.1 Conclusions

It can be concluded that, there are significant knowledge gaps in the majority of the TB patients in Nyeri District, most of whom do not have good education. Further patients' understanding on the cause, transmission and preventive measures of TB were rather superficial- likely to be influenced incorrect opinions as revealed in the in-depth interview.

The study revealed strong association between knowledge and attitudes among the respondents. Stigma against TB patients was indicated in the community, which was manifested by considering TB patients as HIV and AIDS cases showing negative feeling toward them and supporting isolation of them. Because of this patients may fail to disclose their disease to the public which can be detrimental to the health of family members, the patients and the community by spreading the disease because of avoidable delays in treatment. A positive attitude and moral support from family members can help in alleviate this problem.

This study also revealed that practices were not associated with knowledge or attitudes. Behaviours related to TB prevention and treatment is influenced by complex net of socio-cultural factors. Nevertheless great opportunities exist to reach the population

through the patients especially in encouraging others to have timely asses to proper healthcare.

6.2 Recommendations

The following recommendations emanate from this study:

1. It is important for DLTD to build on the existing knowledge and dispel mis-conceptions among the TB patients. There should be development of new tools that can improve knowledge and influence behavioral change.

2. Sustained community mobilization aimed at encouraging the community to seek healthcare within the shortest time possible

3. Innovative strategies are required and the creative application of a rigorous scientific approach is needed to identify appropriate solutions to the utterly human challenge of adherence. This can only be achieved through a combination of quantitative and qualitative research methods and the promotion of a comprehensive research agenda enabling the critical use of scientific evidence.

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APPENDICES

Appendix I: Consent to Participate in Research

KNOWLEDGE, ATTITUDES AND PRACTICES AMONG NEWLY DIAGNOSED TUBERCULOSIS PATIENTS IN SELECTED PUBLIC HOSPITALS IN NYERI DISTRICT

You are asked to participate in a research study conducted by Paul Mukundi, from the ITROMID department at the Jomo Kenyatta University of Science Technology (J.K.U.AT.). You have been asked to participate in this study because you have met the basic inclusion criteria for this study. We require about 365 newly diagnosed patients. You should read the information below, and ask questions about anything you do not understand, before deciding whether or not to participate.

- **PARTICIPATION AND WITHDRAWAL**

Your participation in this research is completely VOLUNTARY. If you choose to participate you may subsequently withdraw from the study at any time without penalty or consequences of any kind. If you choose not to participate, that will not affect your relationship with JKUAT or your right to health care or other services to which you are otherwise entitled.

- **PURPOSE OF THE STUDY**

The aim of this study is to understand what you know about TB, in order to identify patients' gaps that may require specific intervention within the study population. Some of the principal areas of enquiry will include;

- Common beliefs about TB and knowledge of symptoms
- Individual (social) and structural (system) barrier to TB care
- Perception of TB contagiousness
- Trusted and popular sources of health information
- How individual feel about TB

- **PROCEDURE**

If you volunteer to participate in this study, we would ask you to do the following things:

- Fill the following questionnaire
- Participate in the in-depth interview as will be guided by the investigator

This will take approximately 30-40 min depending on your speed.

Since you will be audio-taped, the cassette will be locked in safe by the investigator so that no other party gains access to them. You also have the right to review any content of your speech by the end of this interview. The Tapes will be destroyed immediately after submission of thesis.

- **POTENTIAL RISKS AND DISCOMFORTS**

There are no known harms associated with your participation in this research. There will be no monetary benefits associated with participating in this study except gathering information on baseline information on knowledge, attitudes and practices.

Some of the questions may appear uncomfortable for you but it is necessary for you to answer them with honesty as this would help us to come up with specific interventions that would improve healthcare in general.

- **ANTICIPATED BENEFITS TO SUBJECTS**

There will be no direct benefits to you for your participation. But a probable benefit of participating in this study is that you will be able to learn preventive measures that can help to curb the spread of TB and treatment strategies that can improve the outcome of your condition. Further your contribution will help us better understand and interpret issues that will go along way in improving quality of healthcare and healthcare provision.

- **PRIVACY AND CONFIDENTIALITY**

The only people who will know that you are a research subject are members of the research team and, if appropriate, your physicians and nurses. No information about you, or provided by you during the research will be disclosed to others without your written permission, except: if necessary to protect your rights or welfare, or if required by law.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity. If photographs, videos, or audio-tape recordings of you will be used for educational purposes, your identity will be protected or disguised.

Personal information, research data and related records will be coded and stored secure and locked place where there is no chance that other people could use the information. Immediately analysis are done any data stored in hand copies, tapes among others will be destroyed

- **CONSEQUENCES OF WITHDRAWAL**

I understand that I may at any time during the study revoke my consent and withdraw from the study without any loss or penalty. My refusal to participate in the study will involve no penalty or loss of benefits to which I am otherwise entitled.

- **IDENTIFICATION OF INVESTIGATORS**

If you have any questions about the research, please feel free to contact the Principal Investigator. If I have any further questions I may contact **Mr Paul Wambugu Mukundi**; **Mobile: 0722808583; E-Mail:sistojnr@yahoo.com.**

- **RIGHTS OF RESEARCH SUBJECTS**

You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you feel you have been treated unfairly, or you have questions regarding your rights as a research subject, you may contact the Chairman of the Ethical Review Committee on the Use of Humans Subjects, KEMRI using the address below;

Chairman/ Secretary ERC

Box 54840-00200 Nairobi

Tel 254 (020) 2722541, 2713349

Mobile; 0722-205901, 073334003

Email: director@kemri.org; info@kemri.org

I give my consent to participate in this study

_____	_____
Signature of Interviewee	Signature of Interviewer
_____	_____
Name	Name
_____	_____
Signature of Interpreter	Date

_____

Name

Appendix II: questtionnares

I. Basic Information

1. Study site _____

II. Socio-demographic/ Health variables characteristics of patients by Gender

2. Sex/ Gender of participant [1] Male [2] Female

3. What is your Age?

4. What is your current Marital Status?

[1] Single [2] Married (monogamous)

[3] married (polygamous)

[4] Divorce/Separated [5] Widow/Widower

[6] Others Specify_____

5. What is your level of education?

[1] None [5] Secondary Education, 13-14

[2] Primary education, 1-4years [6] University Education >14years

[3] Primary education' 5-8 years [7] Adult education

[4] Secondary education, 9-12

6. What is your current occupation?

[1] Student [4] Self Employment

[2] Casual Worker [5] Others (Specify) ……

[3] Permanent Employment

7. What personal habits do you engage in?

[1] Smoking [3] Others (Specify)_____

[2] Alcohol

8. How long is the distance from your place of residence to the public health facility?

[1] < 2km

[2] ≥ 2km

[3] Others specify

9. Mode of transport to the public health facility

[1] By foot [3] By Car

[2] By Bus [4] Others_____

III. Patients' Knowledge of Disease, Transmission and Treatment

10. Do you know the disease you are suffering from?

[1] Yes [2] No

If yes what is it called? _____

11. What do you think is the cause of this Tuberculosis?

[1] Germs

[2] Witchcraft

[3] Hereditary

[4] Others specify _____

12. Do you think the disease you are suffering has any link with HIV/AIDS?

[1] Yes

[2] No [3] Not Sure

13. What are the signs and symptoms of TB?

[1] Fever

[2] Cough for more than two weeks

[3] Drenching night sweats

[4] Loss of weight

[5] Chest Pain and shortness of breath

[6] Others specify_____

14. How is tuberculosis transmitted?

[1] Through Sexual Intercourse

[2] From Mother to child

[3] Sleeping in the same room with TB patient

[4] Sharing Cups

[5] Patient Coughing Directly to Others (Infectious droplet spread)

[6] Others specify_____

15. Can Tuberculosis be prevented?

[1] Yes [2] No

16. Which preventive measures do you know that can reduce transmission?

[1] Covering of the mouth when coughing

[2] Reduction of overcrowding

[3] Using sputum cups with lids

[4] Using a face-mask when possible

17. Do you think the disease is curable?

[1] Yes

[2] No

[3] Not-Sure

18. What duration of treatment is sufficient for curability?

[1] Four weeks [2] Two months

[3] Four months [4] Eight months

[5] Others specify_____

19. Do you think it is necessary to complete treatment even when symptoms have resolved, though the prescribed treatment duration has not been reached?

[1] Yes [2] No

20. What is the major reason for this?

[1] For curability to be achieved

[2] To satisfy Doctors Requirement

[3] Others specify_____

21. What do you think is the consequence of interrupted treatment (incompletion)?

[1] Cure Failure/ Death/ Drug Resistance

[2] No Effect

[3] Don't Know

[4] others specify_____

IV. **Perception and Attitudes**

22. How long did it take you to visit the health facility after the symptoms appeared? ____

23. Have any of the following reasons delayed you from visiting the public health facility once symptoms appeared.

[A] Fear of TB diagnosis ☐

[B] Fear of being stigmatized ☐

[C] Not worried ☐

[D] Others. Specify _____

23. How would you describe your attitude towards TB?

[1] Positive

[2] Negative

[3] Others. Specify_____ ☐

24. Where did you seek advice first?

[1] Government Hospital [2] Private Hospital

[3] Others specify_____ ☐

25. What did you think you were suffering from when you were diagnosed?

[1] Cough [2] Drenching night sweat

[3] Chest pain and Shortness of breath

[4] Others specify_____

26. What was your reaction when informed of diagnosis and subsequent adherence with treatment?

[A] Composed

[B] Shocked/ disbelief Fearful/Worried

[C] Concerned about social stigma

[D] Others? Specify _____

27. Would/Have you encourage members of your family and Friends to come for TB test

1. Yes ☐ 2.No ☐

28. What do you think of the service you receive at this clinic?

- Did you feel listened to? Yes☐ No☐
- Are you given the chance to state your problems and ask questions?

  Yes ☐ No ☐
- Are you treated with respect? Yes ☐ No ☐
- Did you feel you can trust the health workers? Yes ☐ No ☐
- Did you have privacy during consultation and counseling? Yes ☐ No ☐
- How did you use to find the environment within the clinic?

Appendix III- In-depth Interview Guide

OVERALL QUESTION TO ANSWER IN IN-DEPTH INTERVIEW GUIDE:

The purpose of the study is to conduct evaluative research to determine (in order of priority):

- Knowledge, attitudes, beliefs and reactions TB patients have after being diagnosed with active TB disease.

Introduction

Good Morning ……Afternoon or ….evening. Thank you for taking time to be with me today. My name is _____ and I am a student with JKUAT (ITROMID Programme), undertaking a Masters Programme in Public Health. As you know, we will have an in-depth to try and improve the care and services that you receive at the TB clinic. You have been asked to come to this desk because I would like to talk with you a little about some of your experiences since you became sick. We also want to hear your opinions of the care that you have received at the clinic.

Our interview will run for about 20min. I would like the interview to be informal, so there is no need to wait for me to call on you to respond. In fact I encourage you to speak openly about anything you fill like you want. If you don't understand a question, please let me know and I will rephrase it. I hope you will feel free to speak openly and honestly, as everything that is said in this room will be held completely confidential.

Your comments will NOT be linked to your name or identity, and NOTHING that you say will affect your medical care.

I am going to be guiding the interview. Am going to be taking notes but since it will be difficult for me to write down everything, I would like to tape record the discussion. No one except me will listen to the tape. Do you anyone have any objection? May we turn on the tape recorder?

[TURN ON TAPE RECORDER]

Warm-up

Okay, let us begin by getting to know a little about each other. Please may I know your name that you would like me to use during our interview (first name only). It can be any name you would like- real or phony... whatever makes you feel more comfortable... [PAUSE] B. Now let us begin by knowing about your family background and how long you have you been living in this area.

Begin.

For the first few questions, I would like you to think way back to the time when you first found out you might have tuberculosis...

Q1. What was your reaction? .... what were your first thoughts? (mad, upset, confused?...) Am not asking to hear the whole story of your diagnosis and treatment, etc.....just your first thoughts when you first heard that you were sick.

Q2. That first week or so, did you revel to anyone that you have been diagnosed withTB?

Q3. Was there anyone you wanted to keep the information from... anyone you really DIDN'T WANT to know you had TB? (Probe: What are reasons people would not want to tell people?)

???Q4. What do you believe caused your TB?

Q5. Is having to deal with TB not bad/bad: why? (i.e., What makes having TB not bad/bad? How do you think it will or has affected your life? future?)

Q6a. What are the common beliefs about TB within your Society?

Q6b. How would you describe your feeling about the disease that you are suffering from the time of your diagnosis?

Q6c. What do you think are the reasons why you think this?

Q7. Was there anything that the healthcare worker said that made you uncomfortable when you visited the clinic? If so what did the healthcare worker say?

Q8 Are you aware of being treated differently because of your status…… At home, workplace and at the clinic? What do people do or say that makes you say this?

Winding Up.

We are just about to finish. ....I have just a couple of more things I would like you to comment on...

Q9. Before we close, is there anything I did not ask you about that you think is important for me to know? Is there anything you would like to add? Okay, we want to thank you for sharing your opinions with us today. This is very valuable information for us.

Thank you again for talking with us today. Your comments and opinions will help us improve the care people like you receive here. Thank you very much. [TURN OFF TAPE RECORDER].

Appendix IV- Observation

Name of Observer _____Name of health facility_____

Date/ Time observation took place_____

The purpose is to give descriptive of the setting under which care takes place and to account the type of consultation that takes place.

1. Describe the location and setting of the TB clinic and support services (pharmacy, laboratory and counseling)

2. Where are patients received? Is there privacy? Describe what you see

3. What is the general attitude of health workers, are they receptive and willing to assist clients or are they impatient? Describe what you see, what notices or information are displayed for clients to read, describe

4. Specifically look through where patients get TB drugs to see if there is any piece of information emphasizing the need for good adherence or telling people how to improve adherence.

5. Is the patient invited to ask questions? Yes ☐ No ☐
   (If yes what do they ask? Was the question addressed?)

Details_____

6. Since these are new patients, do they receive comprehensive general information about TB drugs?

- How to use them ☐
- The need to continue treatment ☐
- What to do if drug is forgotten/ missed ☐
- Possible interactions with other drugs ☐
- Which side-effects (for the different drugs) may occur ☐
- What to do if they occur ☐
- Feeding requirements ☐
- When and where to get re-supply ☐
- Requirement to bring unused medicines
- Dosage (number of tablets to take and how often) ☐
- Times of when to take the medicine ☐
- How to take the in relation to meals (where necessary ☐

APPENDICES (Swahili Translation)

Appendix I: KIBALI CHA KUHUSIKA KATIKA UTAFITI

KUFAHAMU, NIA AND TABIA KATI YA WATU AMBAO WAMEPATIKANA NA UGONJWA WA KIFUA KIKUU KATIKA HOSPITALI CHACHE ZA UMMA WILAYANI NYERI

Waombwa kuhusika katika utafiti wa somo la utafiti unaofanywa na bwana Paul Mukundi, kutoka idara ya ITROMID katika chuo kikuu cha Jomo Kenyatta Sayansi na Tekinolojia (J.K.U.A.T). Waombwa kuhusika katika somo hili kwa kuwa una hali inayokubalika katika hili somo. Na hitaji watu 365 wambao wamepatika kuwa na ugonjwa wa kifua kikuu hivi majuzi. Tafadhali somo maelezo and uulize maswali mahali huelewi kabla ya kuhusika.

- **KUHUSIKA AMA KUJIONDOA**

Kuhusika kwako katika utafiti huu ni kwa KUJITOLEA. Unapoamua kuhusika, unaweza badae kujiondoa wakati wowote bila garama wala shuruti. Uamuapo kutohusika, hii haitabadili uhusiano wako na chuo kikuu cha JKUAT ama haki yako ya afya bora au huduma unayopaswa kupewa.

- **KUSUDI LA SOMO**

Lengo la somo hili in kusaidi kuelewa unayoyaelewa kuhusu TB, ili kuweza kutimiza mahitaji ya mgonjwa kwa njia ya rahisi. Baadhi ya sehemu zitakazo angaliwa katika utafiti ni:

- Watu wanayoyaamini kuhusu ufahamu wa ishara za Kifua kikuu.
- Vizuizi vya kibinafsi ama vilivyomo katika kupata tiba.
- Watu wanayofikiria kuhusu uabukisaji wa kifua kikuu
- Mahali panapofahamika na kuaminika kutoka habari ya afya
- Jinzi mtu binafsi anavyohisi kuhusu Kifua Kikuu

- **NJIA**

Ukijitolea kuhusika katika somo hili, tunakuuliza ufanye yafuatayo:

- Ujaze maswali yafutayo
- Uhusike katika mahojiano yatakayo ongozwa an muchunguzi.
- Hii itachukia dakika 30-40 kulingana na sipendi itakayotumiwao

Kwakuwa utanakiliwa kwa kanda, kanda itawekwa mahali salama na mchungizi isiweza kufikiwa na mtu mwingine yote, Unaweza kujisikiza baada ya mahojiano. Kanda zitaharibiwa baada somo kumalizika (aprili 2009)

- **UWEZEKANO WA HATARI**

Hakuna jambo mbaya lolote lawezatokana na kuhusika katika utafiti huu. Hakuna faida ya kifedha kutokana na kuhusika katika utafiti huu, ila habari ya kuweza kujifahamisha kuhusu kulewa, nia desturi. Maswali mengine yawezekana yasiwe rahisi lakini jibu kwa wazi kwakuwa hii yaweza kusaidia njia ya matibabu ya haraka.

- **FAIDA ZITOKANAZO NA SOMO**

Usitalanjie hali ya kuwa bora kwa kuwezakuhusika katika utafiti huu. Lakini faida yawezekana yakuweza kutafuta njia yakuzuia itakayowezeza kuzuia kueneza kwa TB and njia ya matibabu itakayosaidia matokeo ya hali yako. Zaidi ni kuwezeza watoa huduma kukupa huduma za afya bora.

- **UBINAFUSI NA SIRI**

Watu wapekee watakaojua kuwa watumika katika somo hili ni watafiti, na ikipasa madakitari na wakunga. Hakuna habari kukuhusu ama utakayopeana katika utafiti itakayotolewa bila kibali kutoka kwako. Ila tu ikiwa yakulinda haki or hasilahi yako , au itakapohitanjika kisheria.

Wakati matoleo ya utafiti yakopochapishwa or kujandiliwa kwa kongamano, hakuna habari itakayoongezwa ikuthihilisha wewe ni nani. Iwapo picha, video, au kanda zakukunakili nitatumiwa kwa somo, ali yako italidwa or kufichwa.

Habari ya kibinafsi, habari ya utafiti na habari zinginezo zitanakiliwa kwa kodi and na kuwekwa salama na kuhifadhiwa mahali ambapo hakuna mtu mwingine anaweza kuitumia, Punde tu utafiti utakapomalizika, habari ilyoandikwa, kanda nazinginezo itaharibiwa.

- **ADHARI ZA KUNJIONDOA**

  Na fahamu kwamba naweza wakati wowote katika somo naweza kujiondoa bila kupoteza ama ghalama. Kutokubali kuhusika katika utafiti haitagalimu ghalama au kupoteza faida yoyote inpaswayokupokea.

- **KUTAMBUA WACHUNGUZI**

Kama ulanalo swali kuhusu utafiti, tafadhali jisikie huru kuwasiliana na Mchunguzi . Iwapoina swali lingine naweza wasiliana na **Bwana Paul Wambugu Mukundi; Mobile: 0722808583; E-mail: sistojnr@yahoo.com**

- **HAKI YA KUTUMIA KWA UTAFITI**

Hauondoe haki ya kisheria, haki au njia ya haki kwa kuhusika katika utafiti huu. Ukihisi kutotendewa haki, au una swali kuhusu kutumiwa kwako katika utafiti, wasiliana na Mwenyekiti wa kamiti ya uchunguzi kuhusu kutumia wanadabu katika utafiti, katika KEMRI kwa anwani ifuatayo:

Mwenyekiti/ Katibu ERC

Box 54840-00200 Nairobi

Tel 254 (020) 2722541, 2713349

Mobile; 0722-205901, 073334003

Email: director@kemri.org; info@kemri.org

Natoa Kibali cha kuhusika katika utafiti

_____ _____

Sahihi Ya Mtahiniwa Sahihi ya Mtahini

_____ _____

Jina Jina

_____ _____

Sahihi Ya Mtafsiri Tarehe

_____

Jina

Sehemu II Maswali

I. Habari

1. Kituo Cha Somo _____

II. **Uhusino/Tafauti ya tabia za wagonja wa njizia**

2. Jinsia ya muhusika [1] Mwanaume [2] Mwanamke

3. Umri wako?

4. Umeolewa ama Kuoa?

[1] Bado [2] Umeolewa (kwa mme au mke mmoja)

[3] UMeolewa (kwa wake wengi)

[4] Talaka/Kuwachana [5] Mjane

[6] Eleza kama tofauti_____

5. Kiwango chako cha elimu ni kipi?

[1] Sikusoma

[2] Shule ya msingi, 1-4years

[3] Shule ya msingi' 5-8 years

[4] Shule ya Upili, 9-12

[5] Shule ya upili, 13-14

[6] Chuo Kikuu >14years

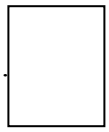
[7] Masomo ya watu wazima

6. Unafanya Kazi ngani?

[1] Mwanafunzi [4] Nimejiajiri

[2] Kibarua [5] Nyingineyo (Eleza) ……

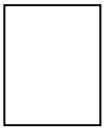
[3] Kazi ya kudumu



7. Tabia zipi unazonjihuziza nazo?

[1] Kufuta sigara [3] Nyingineyo (Eleza)_____

[2] Unwanchi wa pombe

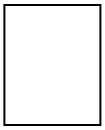


8. Ni ubali gani kutoka kwa hadi kituo cha afya?

[1] < 2km

[2] ≥ 2km

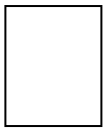
[3] Nyinginezo (Eleza)



9. Waenda je? hadi kituo cha afya

[1] Kwa miguu [3] Kwa gari

[2] Kwa basi [4] Njia nyingine_____



III. Ufahamu wa mgonjwa kuhusu ugonjwa, kuenea na

10. Je, unajua ugonjwa unao ugua?

[1] Ndio [2] La

Kama ndio, ugonjwa waitwa je? _____

11. Je wafikiri ni nini kinacho sababisha ugonjwa huu?

[1] Viini

[2] Uchawi

[3] Kijami

[4] Njia nyingine, elezea _____

12. Je, unafikiri ugonjwa unaougua unauhusiano na HIV and AIDS?

[1] Ndio

[2] La [3] Sina uhakika

13.Je ni ishala ipi uliotambua ilikuweza kutafuta matibabu?

[1] Kupanda joto

[2] Kukohoa kwa zaidi ya majuma mawili

[3] Kutokwa na jasho usiku

[4] Kupoteza uzito

[5] Kumwa na kifua na kutoweza kupumia

[6] Nyingineo, Eleza_____

14. Kifua kikuu husambaswaje?

[1] Kuonana kimwili

[2] Kutoka kwa mama hadi mwana

[3] Kulala chumba kimoja na mgonjwa wa kifua kikuu

[4] Kutumia kikombe kimoja

[5] Wagonjwa wanaokohoa wakiwaelekezelea wengine (Chembembe zenye kuambukiza)

[6] Jngine, eleza_____

15. Kifua Kikuu kinaweza zuiliwa?

[1] Ndio [2] La

16. Ni njia gani ya kuzuilia kuenezwa unayojua?

[1] Kufunika kinyua ukikohoa

[2] Kupunguza umzongamano wa watu pamoja

[3] Kutuamia vitu vya kutemea kikohozi zenya vifuniko

[4] Kutumia vitu vya kufunika uso ikiwezekana.

17. Je, ugonjwa huu waweza tibiwa?

[1] Ndio

[2] La

[3] Sinahakika

18. Ni kiasi gani kitatumika kutibu?

[1] Majuma manne [2] Miezi miwili

[3] Miezi mne [4] Miezi Nane

[5] Jingine, elezea_____

19. Je, unafikiri ni ya muhimu kumaliza dawa hata kama dalili zimeisha, hata ingawa muda unaopaswa kumalizika haujaisha?

[1] Ndio [2] La

20. Sababu kuu ya haya ni?

[1] Uponyanji uwezekupatikana

[2] Kutimiza mahitaji ya daktari

[3] Jingine, elezea_____

21. Je, unafikiri matokeo ya matibabu ambayo haikukamilika ni nini?

[1] Kutopona [4] Hakuna lolote

[2] Kifo [5] sijui

[3] Dawa kutofanya kazi [6] Jingine, elezea_____

IV.Hisia na Nia

22. Je, Kunayo sababu ifuatayo inayoweza kuwa imekuchelewesha kutembelea kitua cha afya inapoona isala.

[A] Hofu ya kuambiwa una Kifua Kikuu

[B] Kiuchumi/Kutokua na fedha

[C] Kutojali

[D] Hofu ya kupoteza kazi

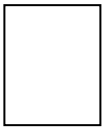
[E] Umbali wa kituo cha afya

[F] Hakuna makubaliano ya kijamii

[G] Ngingne (fafanua) _____

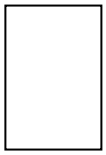
23. Ulijuaje una kifuu kikuu?

[1] Nilienda hospitali [2] Niliambiwa na rafiki

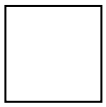
[3] Nyingine, eleza_____ 

24. Ni wapi ulitafuta mashauri kwanza?

[1] Hospitali ya serikali [2] Hospitali ya kibinafsi

[3] Nyingine, elezea_____ 

25. Ulifikiri unaugua nini ulipotambuliwa?

[1] Kukohoa [2] Jasho 

[3] Uchungu kifuani na kutopumua vizuri

[4] Nyingine, elezea_____

26. Ulitenda nini ulipofahamishwa kuhusu ugonjwa na jinzi ya kuzingatia matibabu?

[A] Hofu kidogo  [E] Kushanga/ Kutoamini 

[B] Hofu ya kuabukiza wengine  [F] Hofu ya kupoteza kazi 

[C] Hofu ya kufa  [G] Hofu juu ya kutengwa 

[D] Wasiwasi juu ya kutowezekana kupona  [H] Kutopenda kunywa dawa 

[I] Jingine eleza, _____

27. Je, unafikiri nini kuhusu huduma unazopata kutoka kiliniki hii

- Je, unaona kama walikusikiza? ☐Ndio☐ La
- Je, unapewa nafasi kuelezea shida zako na kuuliza maswa☐?

  Ndio ☐ La ☐
- Je, unahudumiwa kwa heshima? La ☐ La ☐
- Je, unaweza watumaini wahudumu wa afya? Ndio ☐ La ☐
- Je, ulikuwa na wakati wako pekee yako, ulipomuona daktari au wakati ☐

  wa mashauri? Ndio ☐ La ☐
- Je, mazingara kwa kiliniki yalikuwaje?

Appendix III- Muongozo wa mahonjiano ya ndani

Wakati wakumia na wahusika: 20 min

Swali la kujibu katika katika mahojiano:

Kusudi la somo ni kuchunguza ilikuweza kutambua (kwa mpangilio):

- Ufahamu, Nia, imani na jinsi wangonjwa hufanya baada ya kupatikana wa kifua Kikuu.

Utangilizi

Habari ya asubuhi ……Adhuhuri ….jioni. Asante kwa muda wako kuwa nami leo. Jina langu ni _____ nami ni mwanafinzi katika chuo cha JKUAT (ITROMID Programme), nafanya shahada ya Masters kuhusu afya ya umma. Kama unavyojua tutakuwa na mazungumzo ya ndani ilikujaribu . Umeombwa uje hapa kwa kuwa ningetaka kuongea nawe kuhusu jinzi umekuwa tangu upatwe na ugojwa. Tungependa kusikia moni yako kuhusu huduma unazopokea katika kiliniki.

Mazungumzo yetu yatachukua dakika 20. Mazungumzo haya ni ya kawaida. Kwa hivyo usingonje ni kuulize ujibu. Kwa kusema kweli jisikie huru kusema chochote ungetaka kusema. Kama hauelewi swali, nieleze nitalirudia kwa njia nyingine. Natumai utajisikia huru kuzungumza kwa wazi na ukweli, kwa kuwa kila utakachokisema kitawekwa kwa

siri. Maoni yako hayatataja wewe ni nani au hakuna chochote usemacho kitabandilisha huduma unazopewa.

Nitakuongoza katika majadiliano. Nitakili alama lakini kwa sababu nivigumu kuandika kila kitu ningependa kunakili kwa kanda mazungumzo haya. Hakuna mtu mwingine isipokuwa mimi nitakae sikiza kanda hii. Je, kuna yeyote aliye na swali? (Kimya - Jibu swali lolote.) Hebu tuaze kunakili?

[KUANZA KUNAKILI]

Kutayarisha [2min]

Basi, tuanze kwa kujuana kwa kifupi. Tafadhali nijulishe jina lako ambalo ungetaka nitumie katika mazungumzo (Jina la kwanza) Laweza kuwa jina lolote lakweli ama la utani. Lolote likufanyalo kuwa umetulia. [Kimya] B. Sasa tuelezee kuhusu familia yenu na muda ambao umeishi eneo hili.

Kuanza. [1 min]

Kwa maswali maswali ya kwanza , ningetaka ufikirie pale mwanzo ulipoambiwa una ugonjwa wa kifua kikuu.

Q1. [2 min] Uliitikie kwa njia gani? .... mawazo yako yakwanza ? (kukasirika, gadhabu, kuchanganyikiwa?...) Siulizi hadithi yote kuhusu kutabuliwa au matibabu, nakadharika. Ile mawazo yako ya kwanza ulipojua una ugonjwa.

Q2. [1min] Hilo juma la kwanza nani uliambia kuhusu kifua kikuu?

Q3. [1 min] Je kuna mtu yeyote ambaye hukutaka kujulisha … mtu ambaye hukutaka ajue una kifua kikuu? (Peleleza: Sabau gani hukutaka kuambia watu?)

Q4. [1 min] [Je ni nini unaamini ilisababisha kifua kikuu?]

Q5a. [2 min] Je, kujipata na kifua kikuu ni vibaya, kwa sababu gani (Ni nini hufanya kifua kikuu kuwa vibaya? Je unafikiri hii imebandili maisha yako sasa, yabadae?

Q5b. Je, unafikiri hii ni hatari? Je, unafiri mtu aweza kufa kutokana na kifua kikuu? Je mtu yeyote aweza pata kifua kikuu, ama kuna watu wengine waweza patwa na wengine hawawezi.

Q6a [2min] Je, ni mambo gani watu wanaamini kuhusu kifua kikuu.

Q6b. [1min] Je, unaweza elezea unavyohisi tangu uambiwe una ugoonjwa huu.

Q6c. [1min] Je, unafikiri ni sababu gani unafikiri hivi?

Q7. [1 min] Je, kunakitu ambacho wahudumu walisema katika vituo vya afya ambacho kilifanya usikie vibaya. Kama iko ni nini wahudumu walisema?

Q8. [1min] Je, unayo habari kama unatibiwa tafauti na watu wengine kwa sababu ya ugonjwa wako…. Nyumbani, Kazini, mahali pakazi au kwenye kliniki? Ni nini watu husema yakufanya useme haya?

Kumalizia

Tuko karibu kumaliza …kuna mambo machache ningetaka uzungumzie juu yake

Q9. [2 min.] Kabla ya kumaliza, kunalo jambo lolote ambalo sijauliza ambalo unafikiri ni la muhimu kwangu kujua. Kuna kitu ungetaka kuongeza? Sawa, tunataka kukushukuru kwa kushiriki nasi maoni yak oleo. Habari hii ni ya umuhimu kwetu. Asante sana. (Zima kinaza sauti) (~ 20 min)

APPENDICES (Kikuyu translation)

Appendix 1: Witikiri wa Kunyitanira Thiini wa Utuiria.

Umenyo, Maoni Na Mitugo Gatagatiini Ka Andu Aria Mamenyette Ica Ikuhi Ati Mena Murimu wa TB Thibitariini Mwanya-Mwanya Cia Thirikari Districtini ya Nyeri.

Bwana Paul Mukundi ni murutwo wa University ya Jomo Kenyatta (J.K.U.A.T) ruhongeini rwa ITROMID kuria KEMRI.
Ni Ukurio na gitio unyitanire nake githomoini kia utuiria iguru rwa murimu wa T.B, nitondu ni uhingitie maundu maria magiriire thiini wa uturia uyu.

Andu Magana matatu ma mirongo itandatu na ithano ni mabatarikaine aria mathimitwo na kumenyeka ica ikuhi ati nimari na murimu wa TB.
Niwagirire guthoma mutaratara wa mohoro haha kianda na uurie ciuria cia undu uria utagutaukirwo wega utanatua itua ria kunyita itemi.

<u>Unyitaniri Kana Kwiyeheria Thuthaini</u>

Unyitaniri waku utuiriaini uyu ni wa kwiyendera. Ungithura kuheana mawoni maku nouceke wiyeherie thuthaini hingo o~yothewo hatari na faini kana undu ungi o wothe (consequences) Unyitaniri waku ndûkurehe ugarûrûku urĩa mwitainio na university ya JKUAT kana mirorere yaku ya ugima wa mwirĩ o na kana utungata wothe urĩa wagiriire nĩ kwamukira.

Gitumi Kia Utuiria

Gitumi kia uturia uyu ni kuheana uhoro Wigiĩ umenyo, mawoni na mitugo ya andu aria maceketwo na makoneka mena murimu wa TB ica ikuhi mathibitariini ma thirikari distrini ya Nyeri nigetha kuoneke uhinyiririku wa aruaru acio. Maundu mamwe maria megutuirio ni:

- Ihĩnga cia kuhurana na TB.
- Kugwatanio gwa TB
- Kihumo kia uhoro ukoniĩ TB.
- Mawoni ma muingĩ iguru ria TB

Mutaratara

Angikorwo ni-ukwĩrutira kunyita itemi utuĩriainĩ uyu, nĩtugukuria na gitio wike ta uu!

1) Uiyurie anja karatathi-ini karia ukuheo kena ciuria.
2) Wĩtikire gucokia ciuria na uhoro wa kwaraniria na uria ugukorwo agikuria. Ŭndu uyu ukuhuthira ndagika 30-40 kuringana na mayu maku.
3) Tondu nĩukuoywo mugambo waku na radio cassette, cassette iyo ni-ikuigwo handuhega ni getha uhoro ucio ndukae kuiguo ni mundu ungi. Ningi niugukorwo na mweke wa gucokera undu o wothe wa miario yaku gugikinya muico wa miaranĩrio ino; Mikwa ino ya cassette ni-igacoka ihario thutha wa mwene utuiria uyu kuneana uhoro uyu kuri agerania aake mweri wa ina, 2009.

Ugwati Kana Kwaga Kuiganira

Gutiri ugwati o wothe uĩkaine kuumania na kunyitanira gwaku thiiniĩ wa utuiria uyu. Gutiri na marihi o mothe ma kibecha mekuneanwo tiga tu o gwetua uhoro ukoniĩ umenyo, mawoni na mitugo. No nĩ atiriri, ciuria imwe no citume uigwe ta utaiganiire mwenainĩ waku no hena bata ucicokie na ûûma wothe tondu nĩtûgûteithĩka gwetha njĩra cia kuhurana na TB na uheani wa utungata wa ugima wa mwiri wongerereke.

Ŭteithio Kuri Aria Aruaru

Uria utarii umuthĩ ndugucenjia ati tondu niukunyita itemi thiini wa utuiria uyû. No ûguniki umwe urĩa ukugia naguo ni kumenya /guthomithio njira imwe cia kurigiriria gutherema gwa TB, na ningi ona njira iria cingiteithiriria urigitani nigetha murimu waku uhone. Ningi mawoni marĩa mekwĩyumĩria ni meguteithia arĩa marumbuyanagia na urigitani ni getha ûtungata wa ugima wa mwiri wongereke na ugacire.

Privacy And Confidentiality

Andu aria mekumenya ati nĩ-unyitite itemi utuĩriaini uyu na andu aria me utuĩriainĩ thiini kana marigitari. Gutirĩ ûhoro ûgûkoniĩ kana umite kuri wee ukumio na nja kuri andu angi hatari na rutha rwandikitwo niwe kuringana na watho.

Mawoni ma utuirio uyu makiario micemanioini minene kana maandikitwo ibukuini, gutiri uhoro ukuheanwo ungituma andu angi mamenye niwe wauiheanire kaana waaririe igûrû riaku angikorwo “mbica, video kana mikwa ya cassette yaku nicikahuthirwo ni undu wa guthoma ri uumûndu waku niûkamenyererwo kana uhumbĩrwo.

Maûndu maku ma thirii, mawoni maku kana riboti o yothe nimekuheo namba njeru na maigwo handu hega haria mundu ungi atangitumira. Thuthaini-rĩ, uhoro uyu niugacabwo ringi, no mikwa ya cassette na video nicigathario.

Kwiyeheria Thutha-ini

Gatagatĩinĩ ka ûtwĩria ûyû-rĩ, ungi-iigwa ati ndukweanda guthi na mbere, hatiri na hathara kana baini. Kwĩyeheria gwaku gûtigûtuma uhurwo baini kana ûthie hathara ya maûndû maria wagiriire ni gukorwo namo.

Mutwiria

Ungikorwo wina kĩuria iguru ria utuiria uyu no wonane na mutwiria mwenyewe. Maundu maria mamukonie nita maya;

Ritwa:Paul Wambugu Mukundi

Thimu: 0722808583

Email: sistojnr@yahoo.com.

Kurii Aria Othe Makunyita Itemi Utuiriaini

Ndûkûûrirwo ni kindu o giothe ni tondu wa kwĩheana thiini wa ûtuĩria uyu. Ungiigwa niwahinyiririo, kana wina ciûria igûrû ria gwitikirika gwaku, no waranirie na mwene giti, kamiti ya utwiria. KEMRI ta uu.

Chairman/ Secretary ERC

BOX 54840-0020 Nairobi.

Tel: 254 (020) 272541, 2713349

Mobile: 0722205901, 073334003

Email: director@kemri.org; info@kemri.org

Witikiri Wa Unyitaniri Waku Utwiriaini

_____ _____

Thaĩni Yaku Ritwa Riaku

_____ _____

Thaini ya Mutauri Ritwa ria Mutauri

_____

Mweri

CIURIA

I.Basic Information

1. Kuria uhoro uratwĩrĩrio _____

II.Maundu makoniĩ uria Uraiyuria

2. Muumbire wa uria urayuria [1] Mundurume [2] Mutumia/ Muiritu ☐

3. Wĩ wa mwika ĩigana? ☐

4. Kwa ihinda rĩrĩ mĩikarire yaku ni iriku?

a) Ndihikite/ Ndihikanitie ☐
b) Nihikite/ Nihikanitie; Muthuri/ Mutumia umwe
c) Nihikite/Nahikanitie; athuri/atumia aingi
d) Nitutiganite na muthuri/mutumia wakwa
e) Muthuri/ Mutumia niakuite
f) Undû ûngi o wothe

5. Ŭthomete kinya ha?

a) Ndiathomire
b) Primary Kirathi(5-8)
c) Secondary Form (1-2)
d) Secondary Form (3-4)
e) College
f) University
g) Ngumbaru

6. Ŭrutaga Wĩra ûrikû?

1) Guthoma
2) Kibarua
3) Biashara
4) Thirikari
5) Ûngi o wothee. _____

7. Nĩ mitugo iriiku wikaga hĩndi iria utari wira?

1) Kunyua Thigara
2) Kunyua Njohi
3) Ŭngi o wothe. _____

8. Ŭraihanĩrĩirie atĩa na thibitari irĩa ĩgukuhiriirie ya thirikari?

1) Ta Kilomita igiri
2) Makiria ma kilomita igiri
3) Uraigu Ungi owothe._____

9. Ŭthiaga thibitari iyo ya thirikari na njira iriku?

1) Na maguru 2) Bathi
3) Gakari Kanini 4) Njira ingi o yothe

III. ŬMENYO ŬKOMIĩ T.B.

10. Ni-uuĩ murĩmû ûrĩa ûûrûarĩte?

1) Ĩĩ 2) Aca

Akorwo nĩ ûĩ wĩtagwo atia? _____

11. TB irehagwo nĩ kĩĩ?

1) Giko 3) Gĩtûkania thiini wa family
2)) Urogi 4) ûndû ûngĩ o wothe._____

12. Murimu uyu uruarite no ukorwo ukonainie na mukingo (AIDS)

1) Ĩĩ 3) Ndiri na Ma

2) Aca

13. Nĩ ndariri irĩkû wonire nigetha ûthiĩ thibitari?

1) Ŭrugarĩ
2) Gukorora makiria ma ciumia igiri
3) Guthithina utuku
4) Gute Uritu
5) Ruo githuri na kuremwo ni kuhuhia
6) Undu ungĩ owothe. _____

14. TB igwatanigio atia

1) Kuonana Kĩmwĩrĩ
2) Kuonga
3) Gûkoma nyûmba ĩmwe na mûndû wĩna TB.
4) Kûgwatanira ikombe kana thani
5) Gûkorora kwa mundu wĩna TB Kwĩ ûngĩ ûtarĩ
6) Undu ungi o wothe (taariria)

15. TB no-ĩgiririke?

1) Ĩĩ 2) Aca

16. Nĩ njira irikû ûû ingihûthirwo kûhiriria TB nigetha itige gutherema?

1) Kuhumbira kanua mundu agikorora
2) Kweherania Irindi
3) Gutuira gikorora handu hena gikuniko
4) Kûhûthira kindu gĩa kwihumbira uthiu kwahoteka

17. TB ni-honagwo?

1) Ĩĩ 2) Aca 3) Ndiri na Ma

18. Nĩ ihinda riigana atia riagiriire ni getha TB ĩhonwo?

1) Ciumia Inya
2) Mieri iirĩ
3) Mieri inana
4) Undu ungi o wothe (taariria)

19. Nĩ ukuona ta harĩbat kûrikia kunyua ndawa ona kungikorwo ndariri cia murimu ni thiru na ihinda ria kunyua ndawa ritathirite?

1) Ĩĩ 2)Aca ☐

20. Nĩ kĩĩ gitumi kia uhoro uyu?

1) Nĩ getha mundu ahone biu
2) Kuhingia watho wa ndagitari ☐
3) Undu ungu owothe (Taariria)

21. Mundu angioga kurikia kunyua ndawa biu, ni atia guthiaga na mbere?

1) Kwaga kuhona
2) Gukua
3) Mwiri kwaga kwaga kugona ona wanyua ndawa. ☐
4) Hatiri
5) Ndiuĩ
6) Undu ungĩo wothe (taariria)

IV MAWONI

22. Thiinĩ wa itumi ici-rĩ, nĩ hari kimwe gĩacio gĩatumire wage guthie thibitari ya thirikari woona ndariri cioimira?

1) Gwitigira ati ndina TB.
2) Kwaga Mbeca
3) Kwaga Kûmaka
4) Gwitigira Kûbutwo wĩra
5) Thibitari kuraihiriria
6) Kwaga Uiguano famili-ini
7) Undu ungĩ o wothe (taariria)

23. Wamenyire atia wina TB?

1) Guthiĩ Thibitari
2) Kwĩrwo ni murata/mundu wa nyumba
3) Undu ungĩ o wothe

24. Wacaririe mataaro kû ria mbere?

1) Thibitari ya thirikari

2) Thibitari ya mundu binafsi

3) Kundu kungĩ (taariria)

25. Weciragia ni murimu urikû winaguo wathimwo riita rĩa mbere

1) Gukorora

2) Guthithina utukû

3) Ruo rwa githuri na kuremwo kuhihia

4) Murimû Ungi o wothe (Taariria)

26. Wamenyithio murimu uria warwarite ri, wekire atia? Ha mutaratara wa kurigitwo?

1) Ndiamakire

2) Nindetigirire kugwatia angĩ

3) Nindetirire gukua

4) Nindetigirire kwaga kuhona

5) Nindatuikire na ngiaga gwitikia

6) Nindetigirire kufutwo wira

7) Nindetigirire uria andu mekuga

8) Ndiendire urigitani wa murimu uyu.

9) Undu ungĩ o wothe (taariria)

27. Ŭûngiuga atia igurû ria ûteithio ûria wamûkagra thibitari ĩno?

- Niuthikagiririo wiyarie?
- Ni heagwo kamweke ga kuheana mathina maku na kuuria ciuria?
- Niwiitagwo keheri-inĩ hindi ya motaaro na gucekwo/ guthimwo.
- Thibitariini thiini-ri miikarire yakuo ihana atia.

APPENDIX III: INDEPTH INTERVIEW GUIDE

Ihinda riri rikuhuthira ndagika mirongo iiri

CIURIA IRIA UGUCOKIA GICHIGOINI GĩKĩ KIA MUICO

Gitumi kia ûtuĩria uyu nĩ kumenya umenyo, mawoni, witikio na meciria ma andu arĩa mathimĩtwo na makamenya mena murimu wa TB.

KWĩMENYITHANI

Wĩ mwega? ……..

Nĩ wega nĩ kuoya kahinda gaka ni getha ukorwo na niĩ. Njitagwo Wambugu wa Mukundi na ndĩ murutwo university ya Jomo Kenyatta (JKUAT) ruhonge-ini rwa ITROMID. Ndirathomera degree ya Keri Ugima wa Mwiri wa Muingi.

Nĩ ngwenda twaranirie uthiu kwa uthiu nigetha tugerie kouongerara uteithio na mataaro marĩa wamukagira thibitari-ini ino. Nĩukuritio ûûke haha nĩ tondu nĩngwenda twaranĩrie igûrû ria maundu maria ugereire kuuma wamenya wi muruaru TB. Nĩnwenda ûûnjire mawoni maku igûrû ria uteithio uria wamûkagira thibitarĩnĩ ino.

Tukwaranĩria gwa ndagĩka mirongo iirĩ. Wĩĩgue wĩĩ muciĩ na ugie na wiyathi wa kwiyaria iguru ria maundu maria me mbere iitu umuthi. Ûngikorwo ndugutaukirwo ni kiuria, ndakuhoya wiyarie ni getha ngûthathaurire. Maundu maria mothe tukwaria haha

matikuma na nja na mawoni maku matikwandikwo ritwa riaku na undu o wothe ûkuuga ndûkûgarûra uteithio uria ûramûkira thibitari –ini ino.

Nĩngukorwo ngiandika na tondu nĩ ûritû kwandika ciugo ciothe nĩnguhingurira radio na nguoye mugamba mukwaini wa cassette. Gûtiri mûndû ungi tiga niĩ ûngithikiriria mûkwa ûyû wa cassette.

Wĩna kiuria o giothe?.....

Tahingurire kameme?

Hingurira kameme ga gutipa.

WARM UP (2min)

Tukwambiriria na kumenyena.

Ndakwihoya unjire ritwa riria ukwenda tuhuthire miarioini iitû (ria kubatithio tu). Kana ona riitwa ria gutuo o riria ukuigua uiganiire na rio.

B] Tukwambiriria na kumenya uhoro wa familia yaku na kahinda karia ukoretwo ugiikara ituura riri.

Kwambiriria (1min)

Gwa ciuria cia mbere ngwenda ucokie meciria thutha hanini kinya hindi iria wamenyire ati win a murimu wa TB……

Q1. Wekire atia?..... niatia wecirie hindi iyo?.....(kurakara, gutukanirwo……..)

Ndiroria uhoro wa guthimwo na kwambiriria kurigitwo, ……Ngwenda tu meciria ma mbere wamenya ati wi muruaru?

Q2. Kiumia kiu kia mbere ri nuu werire ati wina TB.

Q3. He mundu utendaga amenye at uri na murimu wa TB? Mundu wahithire biu uhoro uyu wa murimi?

Ni itumi iriku ciitumaga andu mahithe ati ni aruaru TB.

Q4. Witikitie mirimu wa TB warehirwo ni kii, kuri we?

Q5a. Gukorwo ukirumbuyania na TB ni wega kana ni uuru?

Nĩkĩ? (niki gitumaga gukorwo na TB gukorwo gwi kwega kana kuuru). Undu uyu niuchenjetie kana niugachenjia mûtûrĩre waku wa matuku ma thutha

Q5b. Murimu uyu ni wa biu? Mundu no akue angirwara TB?

Nia marwaraga TB?

Q6a. Ruririini rwanyu ri andu metikitie atia iguru ria murimu wa TB?

Q6b. Ungitaririria atia iguru ria murimu wa TB kuma riria wamenyekire winaguo?

Q6c. Ni itumi iriki citumite wiicirie ta uguo wagweta.

Q7. He maundu aria marutaga wira thibitari maugure/ makwirire ukiaga kuiganira woka thibitari?

Ni atia augire/maugire?

Q8. Kuria urutaga wira ri kana thibitari, mucii kana muing-ini, niuthutokagio tondu wina murimu wa TB.?

Andu maugaga atia? Kana magwikagaatia nigetha niuthutukanagio.

KURIGIRIRIA

Twi gakugi kurikiriria……. Ndigitie o tumaundu tunini ngwenda uhe mawoni matuo

Q9. Tutanarikiria ri, he undu ukuona wi wa bata nii menye uria itanukuria?

No wende kouongerera undu ungi o wothe?

Haya……. Ni wega nikugayana mawoni maku umuthi. Uhoro uyu ni wa bata muno hari nii.

Ni ngatho nikwaraniria nanii . mawoni maku na meciria maku nimegututeithia kuongerera uteithio uria mundu tawe amukagira guku. Ni ngatho. Horia Cassette