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EVALUATION OF ACTIVE CASE FINDINGS AS TUBERCULOSIS CASES DETECTION TOOL AT ST. MARY'S HEALTH CENTER INKISERIAN TOWN

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Abstract: **Tuberculosis is a highly contagious disease accounting for a high number of deaths in the developing countries; its control can be effectively achieved if individuals with the disease receive adequate and timely treatment. The objective of this study will be to determine the factors associated with ACF as a screening tool for TB detection cases inSt. Mary's Health Center in Kiserian. A cross sectional study was conducted on patients accessing treatment St. Mary's Health Centre. Data was collected from a sample of 91 respondents and 19health workers who filled the various questionnaires. The study design was cross sectional design where patients were given questionnaires as they come to the health Centre. The collected data was coded, entered and analyzed using the SPSS version 17 computer software. Data was presented using tables to make them reader friendly and all ethical issues related to this study was addressed by maintaining high level confidentiality of the information volunteered by the respondents. The finding of the study revealed that the TB patients /respondents who are affected are mostly male, most are married and with low study level with almost half being primary level but accept and recommend the use of ACF screening tool while least percent (5%) of the respondents who are university level still fear the use of ACF screening tool because privacy and confidentiality of the results. The study also found out that the ACF screening tool is the most effective in screening TB in the research health centre with a recommendation that the government should enhance the capacity of the health workers to fully understand the use of ACF screening tool. It is also recommended that the government to fund and promote other health centers to acquire ACF screening tool to control spread and transmission of TB in Kajiado West Sub County.**

Keywords: **Active Case Finding (ACF), Community development, Demographic Factors, TB infection (latent TB), Non- adherent to TB treatment.**

1. INTRODUCTION

Tuberculosis is caused by bacteria called mycobacterium tuberculosis that most often affect the lungs and other part of the body apart from the hair, teeth and nail. Tuberculosis is spread from person to person through the air where people with lung TB cough, sneeze or spit, they propel the TB bacteria into the air. A person needs to inhale only a few of these bacteria to become infected. When a person develops active Tuberculosis the symptoms are cough, fever, night sweats and weight loss may be mild for many months. This can lead to delays in seeking care and results in transmission of the bacteria to other (WHO, 2004)

According to Dye C. et al 1999, Tuberculosis (TB) is a major public health problem in developing countries. Despite intensified global efforts, the number of cases of TB worldwide is increasing. The WHO also estimates that there are nearly 2 million deaths from tuberculosis annually; thus, the disease ranks second only to human immunodeficiency virus (HIV) infection as an infectious cause of death Patient´s alertness to the symptoms of tuberculosis combined with health workers´ readiness to diagnose the disease and understanding which factors influence this delay is crucial for controlling the spread of the infection within a community.

The estimates of the global burden of disease caused by TB in 2010, 8.8 million people fell ill with TB globally and a total of 1.4 million people died as a result of the disease, most of these cases and deaths (about 95%) are occurring in developing countries. WHO (2012).An estimated 11-13% of incident cases were HIV-positive; the African region accounted for approximately 80% of these cases. This means that the disease is still a major problem in the African region. According to the Division of Leprosy, Tuberculosis and Lung Diseases (DLTLD) in Kenya, the country is one of the 22 high TB burden countries in the world which collectively contribute 80% of the global TB disease burden (WHO 2012).

According to Styblo K.(1984), Early diagnosis and prompt effective therapy form the key elements of TB control. Late presentation of patients to health facilities results to delayed diagnosis. Delay in diagnosis results in increased infectivity in the community and it is estimated that an untreated smear positive patient can infect on average 10 contacts annually and 20 during the natural history of the disease until death. Late presentation to health facilities is a major problem contributing to the high burden and transmission of tuberculosis (TB) in most developing countries: where fewer than half the estimated sputum smear positive pulmonary tuberculosis. It is therefore important to identify the factors that cause patients to present late to health facilities as this will enable policy makers to come up with effective interventions to reduce the delay. Reduction of the time between onsets of TB symptoms to diagnosis is therefore a prerequisite to bring TB epidemic under control.

Kenya subscribes to the internationally accepted World health organization strategy in TB control and treatment that is tailored from WHO recommended regimes. Although treatment duration for TB in Kenya was previously 8 months, a 6 months' regime was started in 2009. The first two months of treatment (intensive phased) a combination dose of Isoniazid, Rifampicin, Pyrazinamide and Ethambutol (2RHZE) is use daily followed by 6 months of Ethambutol and Isoniazid (6 EH) or 4 months of Rifampicin and Isoniazid (4RH) for new patients. To be effective the drugs must be taken exactly as prescribed. WHO (2012)

ST. MARY'S HEALTH CENTER

St. Mary's Health Center is under the Kenya Episcopal Conference-Catholic Secretariat and was started in the year 1972. The hospital is bases in Kajiado West Sub County, Kiserian town. The hospital provides healthcare services, education and evangelization to the poor and vulnerable people.

Outpatient department operates 24 hours offering a wide range of services including: General Outpatient Care, Dental Services, Pharmacy Services, Laboratory Services, Imaging Services, HIV/AIDS Prevention Treatment and Care, Maternal and Child Health, Eye Services and Nutrition Services.

Specialist clinics at St. Mary's Health Center provide services that help the patients get the best outcome for your treatment and care. Specialist clinics in St. Mary's Health Center serve as an important link between hospital and community and provide access to: medical, nursing, midwifery ongoing specialist management of chronic and complex conditions, diagnostic services, such as pathology and imaging.

Problem Statement

The World Health Organization (WHO) estimates that the average incidence of tuberculosis in African countries to be more than doubled between 1990 and 2005 from 149 to 343 per 100,000 population. The proportion of TB cases co-infected with HIV is highest in African region countries; overall, African region accounted for 79% of TB cases among people living with HIV (PLHIV) because the synergy between TB and HIV is strong; i.e. PLHIV ranged from 20-37 folds at in-creased risk of active TB development compared to HIV uninfected people depending on the state of HIV epidemic in the area, Kajiado which is at 30%. (WHO, 2017).

Kenya is ranked 15th up from 13th position among the 22 high TB burden countries worldwide which contributes 80% of the global TB (World Health Organization, 2013).Tuberculosis remains a major cause of morbidity and mortality in Kenya. It affects all age groups, but has its greatest toll in the most productive age group of 15 to 44 years. The major factor responsible for the large TB disease burden in Kenya is the concurrent HIV epidemic. Other factors that have contributed to this large TB disease burden include poverty and social deprivation that have led to mushrooming of peri-urban slums, congestion and limited access to general health services (MOH , 2013).

The current anti-TB therapies are fraught with problems, predominantly because of the long-term treatment and the increasing occurrence of medication resistance types of *M. tuberculosis* organism, which is most probably due to treatment non-adherence and lost to follow up.Despite, implementation of internationally recommended strategy (DOTS) in almost all parts of WHO (29-31) regions and many national and international efforts exerted against TB prevention and control, still the patients are failing to complete their treatment to declare cure or complete the treatment. Current WHO report shows considerable TB cases are failed after several treatments, many are relapsingafter completion of the treatment , other seek the retreatment after completion of treatment and many cases are developing MDR-TB among retreatment cases (20%) throughout the world.

According to MoH (2013), 56% of the TB patients are missed being diagnosed at the health facility which translate to about 85,000 patients annually due to lack of knowledge from the patient and the health practitioners about possibility of patient suffering from TB due to the fact that the disease can manifest in different symptoms like other diseases. This large TB burden and the significant missed patient opportunities call for more aggressive TB case detection approaches in Kenya and need for harmonisationof TB detection methods to control treatment costs, detection and spread of TB which led to the MOH adopting ACF screening tool as key to solve this problem of missing patient cases and a policy to screen every patient attending the facility to minimize chances of spread of the disease or treatment costs associated with late detection and treatment.

However as per the MoH statistics, Kajiado West sub county region, Kiserian still is regarded as high TB risk prone area despite this Government intervention and policy direction which is prompting a need for this research to determine effectiveness of ACF screening tool to detect and prevent the spread of the TB disease and St. Mary's Hospital as main health facility in the sub region.

The overall objective of this study was toevaluate active case finding as a screening tool to detect TB cases in St. Mary's Health Center,Kiserian.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Theoretical Framework

2.1.0 Tuberculosis

According to WHO Report (2017), Tuberculosis is a chronic disease occurs in both tropical and temperate climates caused by mycobacterium tuberculosis (MTB) bacilli first identified by German scientist Robert Koch on March 24,1882. In 2010, 8.8 million people fell ill with TB globally and a total of 1.4 million people died as a result of the disease, most of these cases and deaths (about 95%) are occurring in developing countries. WHO (2012) Global tuberculosis report. TB is transmitted through droplet infection from a simple cough, when an uninfected person inhales air contaminated by the tubercle bacilli Raviglioneet at, (2001). TB infection is more common in resource limited countries with high HIV infection rates co-existing with low social economic status.

Africa is facing the heaviest TB burden in the world. Despite implementing the internationally recommended Directly Observed Therapy Short Course(DOTS) Strategy, the African region continues to contribute a high proportion of the global TB burden of the 22 high burden countries responsible for 80% of the total burden of TB, nine countries are in the African region. Thirteen of the 15 countries with the highest estimated TB incidence rates in the world are found in Africa (WHO, 2012). The lack of infrastructure compounded by the higher HIV prevalence in African region, contributes to African's high TB burden.

Kenya continues to experience a large burden of tuberculosis. In 2016 the country placed by the world health organization in all the three lists of countries with either high absolute or per capita burden of TB, TB/HIV and multi drug resistant TB. TB is ranked the 4th leading cause of death in Kenya accounting for 6.3% of all death (MOH2013).

In the last decade, Kenya appeared to be on track to achieve recommended TB care and prevention targets with a high estimated Tb treatment coverage and a high treatment success rate. However, the results of the recently completed National TB Prevalence Survey show that the population of incident TB cases that are not notified to the National Tuberculosis, Leprosy and Lung Disease Program is unacceptably high in the region of about 55%. This implies that Kenya may be very much off track to achieve the target to end TB as public health threat by 2030.

In view of this, the NTLD program has made the timely identification of Tb as well as the effectiveness of the treatment of the disease important priorities. It knows that the effectiveness of the treatment depends on a combination of the use of adequate drugs and correct doses for sufficient time. Like several other countries, Kenya uses a standardized Six-month treatment regime of TB. Treatment non-adherence persists of as major challenge to the effectiveness of tuberculosis treatment (Ong'ang'o et al, 2014). As a key strategy for treatment success, the NTLD- Program uses directly observed treatment therapy strategy (DOTS) to strengthen patient adherence to treatment (Marciel et al, 2018).While there are many ongoing interventions to improve TB case finding in Kenya, less focus is placed on improving the treatment success rate. This is despite the fact that adverse patient outcomes of loss to follow up, treatment failure and death continue to constitute major challenges of TB care and prevention in the country (WHO Global report 2017).

2.1.1Transmission of Tuberculosis

According to WHO Report (2017), Tuberculosis is a bacterial disease caused mainly by mycobacterium tuberculosis and mycobacterium bovis. Bacillus from infected person with TB of the lung is transmitted to a susceptible host through expiratory efforts such as coughing, sneezing, laughing, spitting, speaking and singing. The infected person produces tiny infectious droplets know as droplet nuclei. In indoor environment the droplet nuclei can remain suspended in the air for long periods of time (up to 24 hours) unless removed by ventilation, filtration or ultraviolet irradiation.

A vulnerable contact inhaling these contaminated droplet nuclei into the pulmonary alveolae, where they are taken up by alveolar macrophages is at risk of becoming infected. The magnitude of this risk is primary dependent upon the concentration of the droplet nuclei in the air and the duration of exposure. Virtually all transmissions occur in enclosed environments (Snider 1994). Inhaled bacilli settle in the lung and cause infection. Most cases of tuberculosis are in apparent (non-clinical) but can still transmits the disease (Gordis,2003). Risk to TB infection is highest among close contacts to the infected. The risk of developing disease is highest in children under three years of age, lowest in later childhood and high again among young adults, the very old and the immune suppressed.

Mycobacterium bovis is transmitted via the oral route through ingestion of meat or unpasteurized milk from infected animals. Effective antimicrobial chemotherapy usually eliminates communicability within 2-4 weeks. WHO (2013).

2.1.2 Clinical Manifestation of Tuberculosis

The development of tuberculosis is a two stage process, first an infection most become established and second, that infection progress to clinical disease. The initial infection usually goes unnoticed but demonstrable primary lesion or significant tuberculin test sensitivity appears within 2-10 weeks subsequent risk of progressive pulmonary or extra pulmonary TB is greatest within the first year or two after infection, latent infection may persist for a lifetime. Among all persons who become infected with Mycobacterium approximately 10% will eventually progress to active or clinical disease (Bass et al 1990) half of them during the first two years following infection, initial infection may progress rapidly from weeks to months to active tuberculosis. This is more common among infants and in the immune suppressed, such as HIV positive individuals.

In majority of tuberculosis infection, 90%, the bacilli are contained by the immune system and remain dormant for the rest of a person's life without further consequences. Activation of dormant TB is enhanced with the immune system is compromised by among others, diabetes, aging, poor nutrition and HIV/ADIS. Without HIIV co-infection, the lifetime risk of TB progression from latent to active disease is about 10 % but is increased 5-10 times more in HIV infected persons (Heymann, D.L ,2004).

Tuberculosis disease commonly affects the lung (pulmonary TB), but may also affect any organ or tissues except nails, hair and teeth (extra pulmonary). In order of frequencies other organs and tissues affected include: lymph nodes, kidneys, bones, middle ear, skin, intestines and eyes. Extra pulmonary TB occurs less commonly (30%) than pulmonary TB (HeymannD.L ,2004).

The classification of TB for treatment purposes is based mainly on the presence or absence of tubercle bacilli in the sputum. A smear positive for acid-fast bacilli (AFB) is indicative of high infectiousness. Patient with TB often present with early or late symptoms of fatigue, fever, night sweat and weight loss in addition to symptoms specific to the involved organ. Pulmonary TB usually present with a cough that lasts more than two weeks and may be associated with sputum production and chest pain (MOH, 2011).

2.1.3 Diagnosis of Tuberculosis

Pulmonary TB is diagnosed by history of: cough of any duration, with or without blood stained sputum, chest pains, shortness of breath, loss of weight, fever and night sweats and fatigue. Physical chest examination of a pulmonary tuberculosis case may detect crepitation, bronchial breathing, diminished breath sound or dullness.

Diagnosis of extra pulmonary TB depends on clinical presentation and the organ involved.

The development of an acid-fast stain by Ehrlich in 1885 and the discovery of X-rays by Roentgen in 1895 made possible early and accurate diagnosis of tuberculosis disease. Sputum smear microscopy examination for acid-fast bacilli is the most cost effective diagnostic test for the diagnosis of pulmonary tuberculosis (World Bank, 1993)

2.1.4 Management of Tuberculosis

2.1.4.1 Chemotherapy of Tuberculosis

Chemotherapy of tuberculosis without chemotherapy, about 65% of patients with sputum smear –positive pulmonary tuberculosis dies within 5 year of diagnosis, most of these within 2 years. The cure for TB has evolved from combination of vest fresh air and sunshine provided by isolated mountainous sanatoria and healthy diet, through more invasive surgical procedures to modern outpatient drug therapy. The modern strategy of treatment is based on standardized short course regimen and proper case management to ensure completion of treatment.

The discovery of the tubercle bacilli led to intense interest in development of chemotherapy of TB. Waksmann and coworkers discovered streptomycin in 1944and trials confirmed its efficacy but drug resistance soon emerged (Fox, 2011). Today tuberculosis chemotherapy uses five primary drugs comprising of Streptomycin (S) Rafampicin (R) Isoniazid (H) Ethambutol (E) Pyrazinamide (Z). Treatment involves use of these multiple drugs taken in combination.

Tuberculosis takes 6 to 8 months to cure and patients have to take drugs on a strict and regular basis (once a day) for the entire course of treatment. In the first two months of treatment (intensive Phase) four drugs are used to rapidly reduce the number of tubercle bacilli (bacillary load) in the body. After two months, two drugs are used for 4-6months (continuation Phase). In the continuation phase, the patient collects a supply of drugs four weekly for daily self-administration at home (MOH , 2003).

2.1.4.2 Tuberculosis Treatment outcomes

By law, tuberculosis is a notifiable disease in Kenya. In 1993, the World Health Organization introduced surveillance of treatment outcome in order to evaluate the impact of tuberculosis (WHO, 2003b). As a result, all cases on treatment are recorded in the tuberculosis treatment facility registers. The International Union Against Tuberculosis and Lung Disease and the WHO recommends a standardized classification of tuberculosis treatment outcome into six categories namely: cured (C) Treatment Completed (TC), Died, Treatment Failure (F) Out of Control (OOC) and Transferred Out (TO).

The cured category refers to smear positive (PTB+) patient who complete treatment and are smear negative at the end of treatment pulmonary tuberculosis. Pulmonary smear negative (PTB-) and extra pulmonary (EPTB) patient are considered successfully treated once they complete their treatment schedules and give a treatment outcome of Treatment Completed (TC). Treatment success rate is the proportion of smear positive pulmonary tuberculosis patient that get cured and complete treatment, and is thus directly influenced by those not completing treatment such as defaulters. The global target is the achievement of 90% treatment success rate. MOH data 2016Default from treatment and the high HIV prevalence (57%) among TB patient are among Kenya's setback in achieving the global target. HIV patient have been observed to have a poor treatment success rate in Nairobi (Chakaya et al, 2002)

2.1.5 Active Case Finding

According to the World Health Organization(WHO) annual global tuberculosisreports (2007), Active TB case finding (ACF) is defined by theWHO as 'the systematic identification of people withsuspected active TB, in a predetermined target group,using tests, examinations or other procedures that can be applied rapidly.

The principle objective of ACF is to find and treat cases ofactive TB that would otherwise not have been diagnosed atthis time, using strategies that are in keeping with available resources. ACF for TB generally begins with an initial screening stepfollowed by confirmatory testing. Initial screening may compriseof one or a combination of symptom reporting or

chestradiography, and if either are positive, a confirmatory microbiologicaltest, such as smear microscopy, or a molecular test e.g. Xpert MTB/RIF. Ideally, the confirmatory test should berapid, hence Mycobacterium tuberculosis (MTB) culture is a lessfeasible option, unless the health system in place has sufficientcapacity to follow-up screened patients (WHO, 2013).

However, the use of symptoms or chest X-ray as the initialscreening step has important limitations. Prevalence surveyshave shown consistently that the majority of undiagnosed TBpatients in the community lack typical symptoms of TB and alarge proportion have no symptoms at all (MOH , 2013). Furthermore,while chest radiography is more sensitive than usinga symptom-based approach alone, this can be logistically difficultin many rural and remote settings. Xpert MTB/RIF usedup-front as a primary screening tool (i.e., regardless of symptomsreported or chest X-ray findings), has been shown to befeasible and improve case detection in certain high risk populations,such as people living with HIV (PLHIV), andalso in ACF conducted in the general community. Whilethis approach may overcome some limitations of traditionalTB screening, the feasibility and cost-effectiveness of thisstrategy in a programmatic setting is yet to be determined. WHO (2013)

According to WHO report (2016), one argument against ACF it that it merely detects diseaseearlier, but does not substantiallyalter individual patient outcomes.However, diagnosing and treating TB disease earlier islikely to have a substantial impact on TB transmission,decreasing the long term trajectory of TB in a population,and subsequently reducing the cost of TB control overall. It is important however, when evaluating thepopulation-level effects and the cost-effectiveness of ACF, toconsider its impact over a longer time frame (e.g., a 20-yeartime horizon), as short-term assessments can dramaticallyunderestimate longer- term gains of ACF.

3. RESEARCH METHODOLOGY

3.1 Site Description

Kajiado West constituency is an electoral sub-county In Kajiado County Kenya. Kajiado West has five wards;they include Keekonyokie, Magadi ward, iloodokilani, Ewuasooonkidong'i ward and Mosiro ward. Each of which has a member of the County Assembly. This constituency has a population of about 104,300 people and 52,453 registered voters.

Kiserian is a settlement in Kenya's Rift Valley Province, kajiado county. Kiserian town is bordered by Ongata Rongai, Ngong Town, Enoomatasiani town and Kisamis town. It lies at the foot of the Ngong Hills along Magadi Road just adjacent to the Kiseriandam.There is a famous Maasaicommunity around Kiserian town and small Maasai villages called Olteyani and Olooseos. Kiserian has several primary schools and secondary schools and a few higher education institutions. In the language of the Maasai "Kiserian" means "a place of peace".

3.2 Research Design

According to Mugenda (2003), a research design is a plan that is used to generate answers to research problems. This study employs a descriptive research design. Kothari (2008) indicated that a descriptive research design is concerned with determining the frequency at which something occurs or the relationship between variables. It is also used to clarify variables and shaping hypothetical constructs (Kothari, 2008).

A cross-cross sectional study was conducted between Feb 2019 to July 2019 among TB patients in KajiadoWest Constituency who are attending St. Mary's Health Centre, Kiserian.

3.3 Target Population

According to Mugenda and Mugenda, (2003) a population is a complete set of individuals, cases or objects with some common observable characteristics.

A cross sectional study design was used in this study. The population studied was TB patients visiting the St. Mary Hospital and health professionals in the facility as key informants. The study was conducted from February 2019 to July 2019. The target population was all new TBpatients attending the facility under study while health workers assigned to TB and are involved in ACF are 21 in number.

3.3.1 Unit of Analysis and Observations

The unit of analysis and observations is what or who that you are analyzing for the study. The units of analysis in this research project were the TB patients who are residents of Kiserian town and its environs.

The expectation of the researcher was that the target population was able to give reliable and valid information which the study was to usetoaddress the research questions.

3.4 Sample Size and Sampling Technique

The study sample size was determined using the statistical formula for population survey (Naing L, *et el* (2006), which was expressed as:

$$n = \frac{n}{1+\frac{n}{N}}$$

Where;

n= Sample required for population < 10,000, where 120 patients reports annually with delayed detection of three and above weeks of cough out of around 120 total cases reported at St. Mary Hospital annually.

z= standard normal deviation (1.96)

p= 50% of National prevalence used as a target population for TB patients in Kajiado West Sub County.

Therefore the desired sample size (n) =

$$n = \frac{n}{1+\frac{n}{N}}$$

p=50%, 50/100=0.5

Q=1-0.5=0.5

95%=0.05

$$n = \frac{1.96^2 x0.5x0.5}{0.05^2}$$ Therefore:

$$n = \frac{384}{1+\frac{384}{120}} = 4.2$$

$$n = \frac{384}{4.2} = 91.43$$

The desired sample size was 91(Patients)

The desired sample size for health workers was19 in number

$$n = \frac{384}{1+\frac{384}{21}} = 19$$

3.5 Methods of Data Collection

The study employed both quantitative and qualitative methodologies in data gathering and analysis. The instruments that wasused for primary data collection is questionnaires for patients and use of study informants interview guide. Kothari

(2009) states that questionnaires give respondents ample time enabling them to give well thought answers, besides recommending the use of complementary methods to reveal discrepancies in data collection that a single method cannot.

3.6 Ethical Consideration

Ethical issues are standards or rules the researcher sets to guide those carrying out research activities to respect the human dignity and the rights of all stakeholders**.** In the words of Mugenda and Mugenda, (2003), ethical considerations are important for any research work. It is the responsibility of the researcher to safeguard the story of the respondents by maintaining the purpose of the study. Therefore, at the initial contact with the respondents, the researcher will explain in details the relevance of the study and why the questionnaires are to be administered. An introductory letter to the respondents was obtained from the University. The respondent swereassured of confidentiality of information. The researcher sought permission and consent from the respondents before administering the questionnaires.

4. DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1Response Rate

From the data collected, out of the 91 questionnaires administered, 86 were completely filled as shown in table 4.1, which represents 94% response rate. This response rate is considered good to make conclusions for the study while 90% of Health workers managed to return the questionnaires. Mugenda and Mugenda (2003) observed that a 50% response rate is adequate, 60% good and above, while 70% rated very good.

Table 4.1: Response Rate

Key respondents	**Frequency (n)**	**Percent (%)**
Patient	86	94
Health workers	19	90

Source: primary data, (2019)

4.2 Demographic Data

The researcher begun by a general analysis on the demographic data got from the respondents which included;-age, gender, level of education, source of income, marital status , residency of the respondents and the duration and duration of being a residents of the area.

4.2.1 Gender

Gender and work has been a subject of debate among scholars. Gender refers to the socially constructed roles behavior, activities and attributes which a particular society considers appropriate for men and women. In this study area, the societies still observe traditional culture, which is a critical determinant of different issues in the family. Consequently, gender differences play a prominent role in determining several issues. The Table 4.2 presents the distribution of respondents by gender.

Table 4.2: Gender of the respondents

Gender	**Frequency (n)**	**Percent (%)**
Female	41	48
male	45	52
Total	**86**	**100**

Source: primary data, (2019)

The table indicates that 41 (48%) were female respondents and 45 (52%) were male; this clearly shows that both gender is affected by TB disease.

4.2.2 Marital Status

One's ability to manage, influence and make decisions at the household level will influence his/her position in the society. All these depend on the marital status of the respondents. In most cases married couples and people with family responsibilities are more likely to be engaged in day to day decisions making in their households. Their level of

involvement and ability to make choice on what is to be done in the family will therefore reflect and influence their ability and participation in policy making activities and treatment seeking decision. The distribution of the respondents in relation to their marital status is presented in Table 4.3

Table 4.3: Marital Status

Marital status	Frequency (n)	Percent (%)
Married	70	81
Single	16	19
Total	**86**	**100.0**

Source: primary data, (2019)

The table 4.3 shows that 70 (81%) of the respondents were in marriage and 16 (19%) were still single. This shows that most respondents acquired the disease through a family set up since it is likely that married coupled can transmit TB more to the family members than single patients which might have less interaction.

4.2.3 Age

Age is a very important variable in influencing the demographic characteristics of the respondent. In Africa age is the most important factor determining the extent of rights and obligation one holds or enjoys.In this study the community still held to their traditions and culture. The older members of the community commanded a lot of respect and admiration owing to their position in the community and can decide on treatment and authority to attend health facility. The distribution of the respondents according to their ages is presented in Table 4.4.

Table 4.4: Age of the Respondents

Age	Frequency (n)	Percent (%)
18-25	6	7
26-35	10	11
36-45	19	22
46-55	29	34
over 55	22	26
Total	**86**	**100**

Source: primary data, (2019)

From the study majority 29(34%) of the respondents aged between 46-55 years, 22 (26%) aged in the brackets over 55yrs, 19 (22%) aged between 36-45 years, 10(11%) aged between 26-35 years while only 6 (7%) were 18-25 years old.

4.2.4 Education

The level of education of a person determines his/her ability to secure employment, the type of occupation and the ability to make life decisions. Education in most instances improves the ability of a person to critically reason and understand issues. Active involvement in any activities depended mainly on the level of education. The education level of the respondents is presented in table 4.5.

Table 4.5: Level of Education

Level of education	Frequency (n)	Percent (%)
Primary school	22	26
secondary level	34	39
College level	10	12
University level	5	6
None	15	17
Total	**86**	**100**

Source: primary data, (2019)

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From the study 15 (17%) of the respondents never went to school, 5 (6%) were from university level ,34 (39%) were secondary level, 10 (12%) were college level, 22 (26%) were primary school level.

4.2.5 Source of Income

Source of income determine how community/family/individual can sustain their livelihood, what community depends on their daily lives which later determine the type of development in the community.

Table 4.6: Source of income

Source of income	Frequency (n)	Percent (%)
Formal employment	28	33
Self – Employment	46	53
Not employed	12	14
Total	**86**	**100**

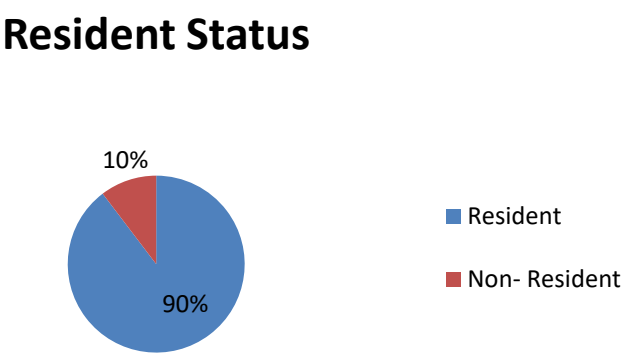
Source: primary data, (2019)

Table 4.6 shows that 28 (33%) were in formal employment either with county government or national government or private sector, 46 (53%) were self-employed as their source of livelihood and 12 (14%) were not employed.

4.2.6 Residence Status

The residency of an individual determines one's ability to understand the study location, its characteristics and environment which occupants face and how they solve the problems they face. The residence status is presented in the table 4.7 below:

Figure 4.1: Resident Status



Source: primary data, (2019)

Figure 4.1 shows that 78 (90%) of the respondents were residents while 9 (10%) of the respondents were non-residents. This shows that most of the respondents understand the socio- cultural practices and other factors that promote spread of TB among masaai tribe practices while others came from treatment due to facility being in town set up.

4.2.7 Occupation status effect

Table 4.7: Occupation status effect

Effect	Frequency (n)	Percent (%)
Yes	40	47
No	46	53
Total	**86**	**100.0**

Source: primary data, (2019)

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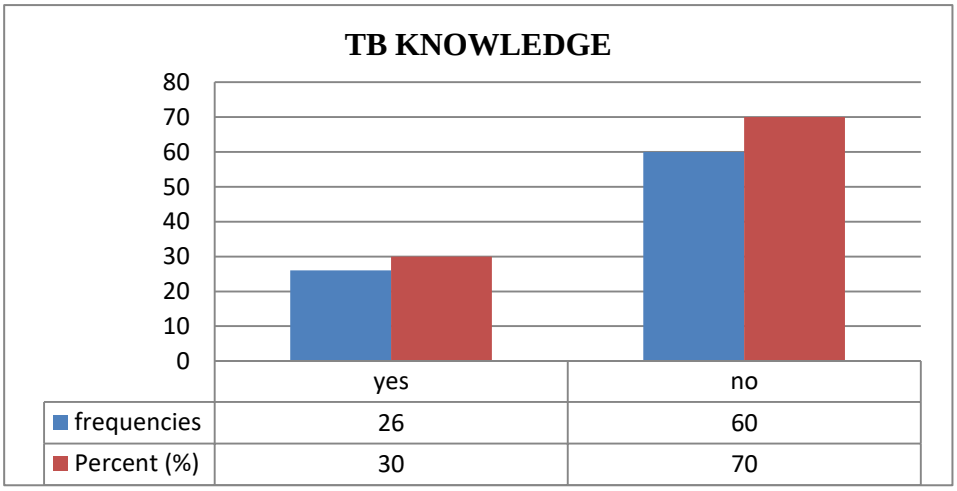
From the study 40 (47%) of the respondents occupation hinder them from accessing medical care while 46 (53%) of the respondents have said that their occupation does not affect them from accessing medical facilities. from the finding it shows that considerable number of patients have challenge from detecting the TB disease before hence need for ACF

4.3 ACF SCREENING

4.3.1 Knowledge about Having Tuberculosis

Figure 4.2: Knowledge about Having Tuberculosis

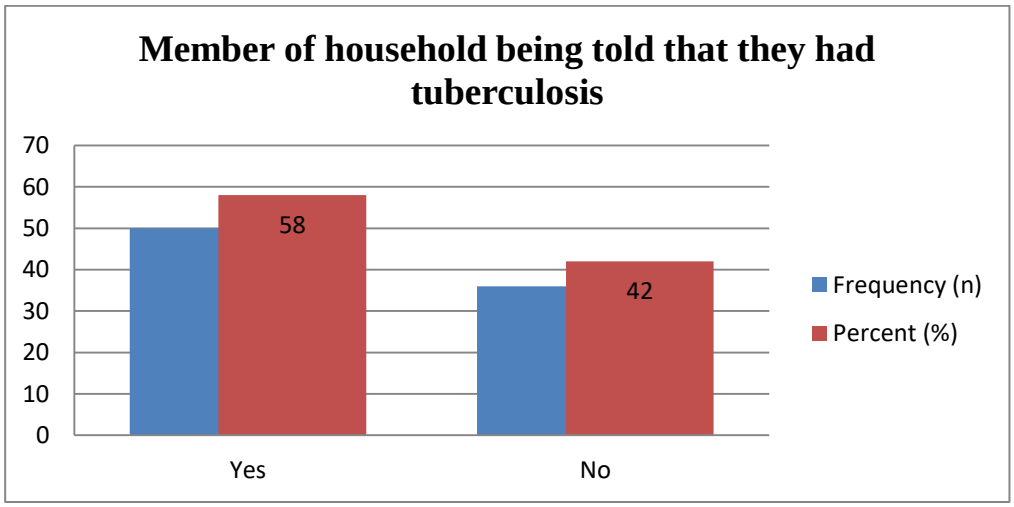


Source: primary data, (2019)

The results of this study as shown in figure 4.2 reveal that, majority (70%) of the respondents' indicated that they had no knowledge of TB at 60 frequency while 30% agreed that they had knowledge of TB. The bigger margin shows the need for ACF to help control and prevent TB transmission in the study area

4.3.2 Member of household being told that they had tuberculosis

Figure 4.3: Member of household being told that they had tuberculosis



Source: primary data, (2019)

The results of this study as shown in figure 4.3 revealed that, majority (58%) of the respondents' that a member of their household member was told had a tuberculosis hence transmission for the said member while 42% of the respondents indicated no that means that no member of their household was never told that they had TB. This shows that TB was mostly transmitted by a household member compared to other acquisition methods hence lead health practitioners to active case finding.

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Vol. 8, Issue 1, pp: (467-486), Month: January - March 2020, Available at: www.researchpublish.com

4.3.3 A cough that has lasted more than 2 weeks

Table 4.8: A cough that has lasted more than 2 weeks

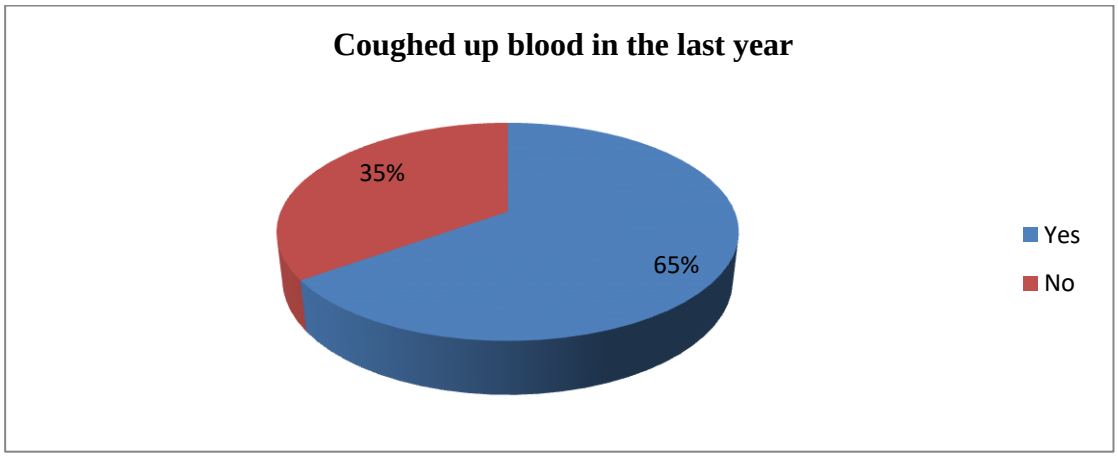
Duration That Has Lasted 2 Weeks	Frequency (n)	Percent (%)
Yes	48	56
No	38	44
Total	**86**	**100.0**

Source: primary data, (2019)

The results of this study as shown in table 4.8 reveal that, majority (56%) of the respondents' that their coughed has lasted 2 weeks while minority at 445 stated that their cough hasn't lasted for 2 weeks. This data show that TB detection symptoms can be cough and it doesn't matter how long it has lasted due to difference in the variance hence need to promote ACF and screening to detect and prevent TB.

4.3.4 Coughed up blood at any time

Figure 4.4: Coughed up blood at any time



Source: primary data, (2019)

The results of this study as shown in figure 4.4 reveal that, majority (65%) of the respondents' coughed blood in the last one year and (35%) said they never coughed blood in the last year. This shows coughing blood is one of the signs which may lead health practitioner to use ACF in detection and control of the spread of TB.

4.3.5 Fever That Has Lasted More Than 2 Weeks

Table 4.9: Fever That Has Lasted More Than 2 Weeks

Fever That Has Lasted More Than 2 Weeks	Frequency (n)	Percent (%)
Yes	48	56
No	38	44
Total	**86**	**100.0**

Source: primary data, (2019)

The results of this study as shown in table 4.9 reveal that, majority (56%) of the respondents admit to be having a fever of more than 3 weeks while 44% of the respondents states otherwise. Additionally the one with more than 3 weeks averagely stated they have been having fever for about a month. This data shows that fever is one of serious sign of TB which can aid ACF as a tool of TB prevention and transmission.

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Vol. 8, Issue 1, pp: (467-486), Month: January - March 2020, Available at: www.researchpublish.com

4.3.6 Lost weight in the last two weeks

Table 4.10: Lost weight in the last two weeks

Lost weight in the last year	Frequency (n)	Percent (%)
Yes	46	53
No	40	47
Total	**86**	**100.0**

Source: primary data, (2019)

The results of this study as shown in table 4.10 reveal that, majority (53%) of the respondents lost weight in the last one year while 47% of the respondents. This shows that one of the signs that a respondent might be having TB is through loose of weight while it also shows that some respondents/ patients never lost wait therefore other signs can be used to convince the patient to go for screen as a means of finding the state of the patient.

4.4 Patient Knowledge

4.4.1 What Causes Tuberculosis

Table 4.11: What Causes Tuberculosis

RESPONSE	Food		Abused drugs		Pregnancy/child birth		Poor sanitation		Contamination/contact allowance		Hot/ Cold weather	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
YES	38	44 %	35	41 %	34	40%	41	48 %	45	52%	35	41 %
NO	48	56 %	51	59 %	52	60%	45	52 %	41	48%	51	59 %
TOTAL	86	100 %	86	100 %	86	100 %	86	100 %	86	100 %	86	100 %

Source: primary data, (2019)

The results of this study as shown in table 4.11 reveals that, nearly half (44%) of the respondents thought that sharing food was a factor that can contribute to TB causes, majority (51%) were not aware that TB can be caused by abused drugs, 52% of the respondents were aware that pregnancy and child birth cannot cause TB, on poor sanitation 52% never knew TB can be caused by poor sanitation and most of the respondents at 51% never new of TB can be spread or caused by hot/ cold weather air contamination.

4.4.2 In Contact With Anyone on TB Treatment

Table 4.12: In Contact with Anyone on TB Treatment

In Contact With Anyone on TB Treatment	Frequency (n)	Percent (%)
Yes	48	56
No	38	44
Total	**86**	**100.0**

Source: primary data, (2019)

The results of this study revealed that above half of the respondents mentioned that they had been in contact with persons suspected to be TB. This is an indication that most of the respondents were not aware that contact can contribute to TB transmission. As shown in table 4.12 , majority of the respondents (48%) had contact with someone who was in TB

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Vol. 8, Issue 1, pp: (467-486), Month: January - March 2020, Available at: www.researchpublish.com

treatment hence TB transmission while 38% of the respondents had no prior contact . this shows that TB can be transmitted by other means as opposed to contact

4.4.3 Who Asked You to Go For Screening

Table 4.13: Who Asked You to Go For Screening

Who Asked You to Go For Screening	Frequency (n)	Percent (%)
HCW through the patient	35	41%
CHW	30	35%
Self-referral	21	24%
Total	**86**	**100.0**

Source: primary data, (2019)

Table 4.13 shows that, majority (41%) received advice from friends and family members concerning screening, 35% received advice from CHW while 24% was self-referral. This implies that only few respondents showed up to a health care provider during the first symptoms of TB where as majority were advised to go for screening hence show need for ACF intervention to control spread of TB.

4.4.4 Any beliefs in your community that can hinder one from seeking TB treatment

Table 4.14: Any beliefs that can hinder one from seeking TB treatment

Any beliefs that can hinder one from seeking TB treatment	Frequency (n)	Percent (%)
Yes	48	56
No	38	44
Total	**86**	**100.0**

Source: Primary Data, (2019)

Table 4.14 shows that, majority (48%) of the respondents stated that the traditional beliefs hinder them from seeking TB treatment while 38% stated that no traditional believe hinder them from seeking TB medical services. This shows that most patients are learned and doesn't use traditional beliefs to hinder their treatment while also the presence of majority shows why the area has a high prevalence for TB. The traditional beliefs **stated were**drinking of fresh blood from slaughtered cattle, also eating raw meat or not properly cooked meat.

4.4.5 Time It Takes To Reach the Health Facility

Table 4.15: How long does it take you to reach the health facility?

How long does it take you to reach the health facility?	Frequency (n)	Percent (%)
5-10 minutes	10	12%
10-20 minutes	16	19%
30-40 minutes	20	23%
1 hour	25	29%
more than 1 hour	15	17%
Total	**86**	**100.0**

Source: Primary Data, (2019)

Table 4.15 shows that, majority (25%) of the respondents statedthatthey take one hour, followed by 23% on 30-40 min, other respondents took 10-20 min which is 19% , followed by more than one hour at 17% and the respondents who took less time stated they took 5-10 min which is at 12%. This statistics shows why the spread of TB is prevalent in the area because of distance to health facility and this shows that ACF assist in TB treatment and prevention.

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Vol. 8, Issue 1, pp: (467-486), Month: January - March 2020, Available at: www.researchpublish.com

4.4.6 The Sputum Examination Results.

Table 4.16: The Sputum Examination Results.

The Sputum Examination Results	Frequency (n)	Percent (%)
Positive	54	63%
Negative	32	37%
Don't Know	0	0%
Total	**86**	**100.0**

Source: Primary Data, (2019)

Table 4.16 shows that, majority (63%) of the respondents stated that their results became positive while minority at 37% stated that their sputum results were negative. This shows that active case finding assist in prevention and transmission of TB disease.

4.5 Health Practitioners Capacity

4.5.1 Certification Level of training

Table 4.17: Certification Level of training.

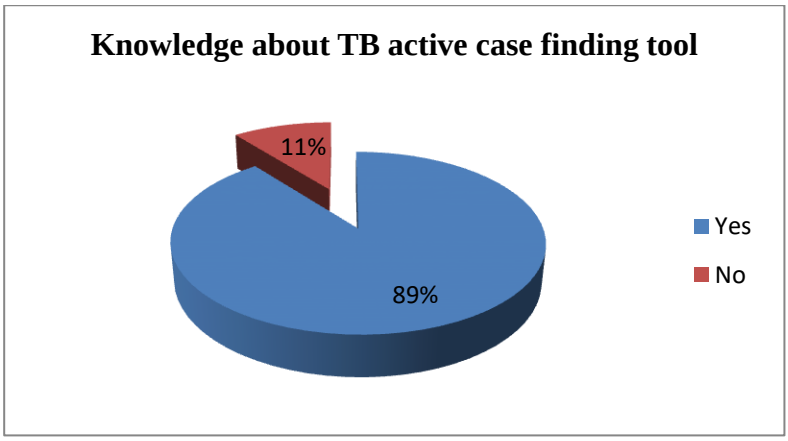
Certification Level of training	Frequency (n)	Percent (%)
Community health Nurse	4	21%
Enrolled Nurse	7	37%
Clinical Officer	6	32%
Medical Officer	2	11%
Total	**19**	**100.0**

Source: Primary Data, (2019)

Table 4.17 shows that, majority 7(37%) of the respondents are enrolled nurses followed by clinical officer at 4(21%), community health nurse at 4(21%) while medical officer last at 2 (11%) of the respondents. This shows that St. Mary's Mission Hospital is well staffed to handle ACF tools and TB cases

4.5.2 Knowledge about TB active case finding tool

Fig 4.5: Knowledge about TB active case finding tool



Source: Primary Data, (2019)

Figure 4.5 shows that, majority of respondents 17(89%) of the respondents stated that they have knowledge about TB active case finding tool while 2(11%) of the respondents have no knowledge about TB active case finding tool. This data shows that there is a need for retraining of the health workers on ACF to be competent on detection and hence control of TB transmission.

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Vol. 8, Issue 1, pp: (467-486), Month: January - March 2020, Available at: www.researchpublish.com

4.5.3 How often active case finding screening tool used

Table 4.18: How often active case finding screening tool used

How often active case finding screening tool used	Frequency (n)	Percent (%)
Every patient	13	68%
Selected patient with TB like symptoms	5	26%
Never	1	5%
Total	**19**	**100.0**

Source: Primary Data, (2019)

Table 4.18 shows that, majority of respondents 13(68%) of the respondents often use ACF screening tools on every patients who attends the health facility while of the respondents 5(26%) use the ACF screening tool on selected patients with TB like symptoms and lastly 1(5%) never used ACF screening tool hence use other methods.

4.5.4 Method of TB diagnosis commonly used at the facility

Table 4.19: Method of TB diagnosis commonly used at the facility

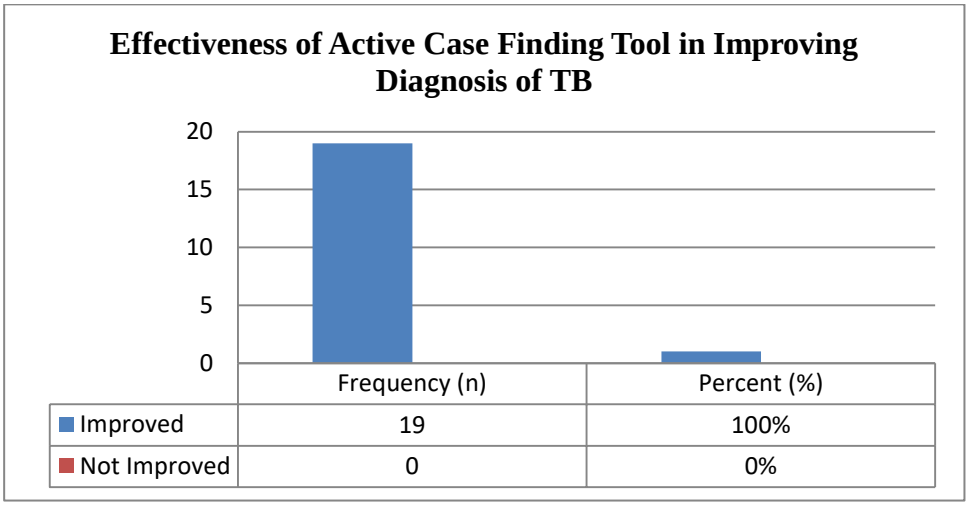
Method of TB diagnosis commonly used at the facility	Frequency (n)	Percent (%)
Gene x-pert	7	37%
X- Ray	0	0%
Microscopy (AFB)	0	0%
Active case finding tool	12	63%
Total	**19**	**100.0**

Source: Primary Data, (2019)

Table 4.19 shows that most of the respondents 12(63%) of respondents use ACF screening tool and 7(37%) of respondents stating that they frequently use Gene x-pert as a method of TB diagnosis at the facility hence show effectiveness of ACF screening tool.

4.5.5 Effectiveness of Active Case Finding Tool in Improving Diagnosis of TB

Figure 4.6: Effectiveness of Active Case Finding Tool in Improving Diagnosis of TB



Source: Primary Data, (2019)

Figure 4.6 shows that all the respondents 19(100%) stated that they are finding ACF screening tool improved the effective in the diagnosis of TB disease.

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Vol. 8, Issue 1, pp: (467-486), Month: January - March 2020, Available at: www.researchpublish.com

4.5.6 Clients willingness to be screened for TB using ACF tool

Table 4.20: Clients willingness to be screened for TB using ACF tool

Clients willingness to be screened for TB using ACF tool	Frequency (n)	Percent (%)
Yes	16	84
No	3	16
Total	**19**	**100.0**

Source: Primary Data, (2019)

Table 4.20 shows that the respondents 16(84%) stated that the clients are willing to be screened using ACF tool while others objected due to their fear of privacy and confidentiality issues at 3(16%). Therefore this shows overall acceptance of the patients to ACF screening technology as a means of TB detection.

4.5.7 Challenges the health workers face due to ACF use

The respondents stated that most of challenges they face due to ACF use in relation to screening is that some of the clients are not willing to be screened since they are of high level community status.

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Study

5.1.1 The relationship between social demographic factors and active case finding of TB in Kajiado West constituency

It is observed that education is likely to affect the patients understanding of TB infection and transmission and the process of getting screened through ACF screening tool. From the finding it shows that more men are affected by the TB at 52% than women which can be shown by their various exposure to TB spread factors, more married respondents were also affected than singles, this evaluates that most singles fear going for test as compared to married respondents. The age also is a factor for patients understanding of TB spread since most affected are over 46 years which is at 60% which also translate to their education level that the research found to be low as of primary states and below at 43%. It is worth noting that university level respondents make list numbers at 5%, this confirm the health workers confirmation that most high level or educated respondents fear confidentiality and privacy of their respondents. This results that most respondents value ACF screening process.

5.1.2 The relationship between attitude and perception towards TB disease and active case findings.

The findings of this study generally reveal that most respondents (56%) traditional beliefs and practices affect the respondents seeking treatment which stated that the cultural practices contribute to them seeking treatment hence affecting effectiveness of ACF, Also academic level affect the effectiveness of ACF where most clients who are ready for screening are low level grade respondents i.e primary and below, this because of poor perception that ACF screening results may be given to third party jeopardizing their position in the society , which was at 5% at university level and also confirmed with health workers. Most respondents stated that poor sanitation and contact allowance (at 41%) are major points of TB spread while on contrary they say that food (at 48%) doesn't spread TB which is a wrong assumption considering the residents style of leaving and practices.

5.1.3 The relationship between knowledge, Practice and Active Case Findings

Most of the respondents (70%) stated that they had no knowledge that had TB as opposed to 30% which had TB knowledge, about half of the respondents (47%) stated that their occupation affected them from getting screened for the TB, also most respondents were agreeing that contact with affected members of the society contribute to them getting TB AT 56%, considering the respondents frequency, less respondents (24%) went for screening by self as compared to the rest who have referred by health practitioners. This shows that the self-drive for TB prevention is low and a fear of active case screening tool.

5.1.4 The effect of government policy on TB effect on active case findings

This study further noted that most of the respondents were referred by health practitioners which are at 66%. This shows Government involvement in containing the TB spread and deployment of the practitioners; however it is also noted that some of the practitioners have no idea on how to use ACF screening tool with most also saying they are qualified to handle to handle patients. Most patients 84% are agreeing also to be screened using ACF screening tool is a major achievement but the other respondents which refuses is a danger to the prevention of the disease hence government should put more effort on sensitization of the respondents of the effectiveness of ACF screening tool and retraining of health practitioners. All the practitioners (100%) agree that ACF tool assist in the effective screening of the TB patients hence government should more resources to purchase the ACF screening tool for control of TB. Additionally, most patients stated that they travel long distances up to more than one hour to seek screening this shows that health care Centre with screening tool is very inadequate and the government should try investment in study area.

5.2 Conclusion

The study concludes that ACF screening tool use has reduced greatly the spread of TB in the pastoralists region because of beliefs, food and other practices. It is also concludes that St. Mary's health Centre is overwhelmed with patients due to being among of the few Centre's with ACF facility in kajiado county hence reasons for patients/ respondents long travel.Lastly, it has clearly come out that most of the residents are not very wellinformed about tuberculosis and tests available, especially on the causes and transmission of the disease which is attributed to relative low education.

5.3 Recommendations

In view of the above conclusions, this study makes the following recommendation relating to policies, TB programs and future research regarding effectiveness of ACF in relations to spread or prevention of TB as follows:

- More health Centre's to be established in the study area with ACF screening tools to assist in detection of TB
- ACF screening tool training and sensitization should be enhanced to prevent the spread and control of TB to both residents and health workers in the study area which includes the CHW to enhance capacity of TB detection.
- Further research should be done in the entire kajiado county to confirm the similarly of the results and TB policy measures initiated.

5.4 Areas for Further Research

This study recommends that future studies be done on effectiveness of ACF screening tool to control TB in the entire Kajiado County.

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