

## Healthcare Givers' Factors that Contribute to Non-Adherence to Tuberculosis Treatment among Tb Patients in Kericho and Nakuru Counties, Kenya

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### Abstract

**Background:** Tuberculosis (TB) continues to be a major cause of high morbidity and mortality in Kenya. Adherence to TB treatment is one of the interventions that lead to increase in cure rate thus reducing mortality and emergence of Multi drug resistant tuberculosis (MDR) and high cost of treatment. This study focused on TB patients in urban and rural areas of Kericho and Nakuru Counties of Kenya.

**Objective:** The objective of the study was to isolate the healthcare givers' factors that contribute to non-adherence to medication among Tb patients.

**Methods:** A purposive sampling method was used to carry out a cross sectional descriptive survey with retrospective cohort of non-adherent TB patients. Target population was smear positive TB patients registered in the TB registers in the two counties, within the past six months (June-December 2015) at the commencement date of the study. Data was collected using developed interview schedules and questionnaires. Respondents were traced non-adherent smear positive TB patients (defaulters) and health care workers. Age, gender, inadequate knowledge, ignorance on need for treatment adherence, stigma, alcoholism, social and economic factors such as low income, lack of social support, low education, financial problems, drug side effects were analyzed using SPSS platform that generated graphs and tables.

**Results:** Feeling well soon after medication initiation, drug side effects, stigma, alcoholism, low educational level, poor financial status, unemployment, shortage of Tb drugs including unavailability of pyridoxine which is essential in counteracting drug side effects were associated with defaulting. Healthcare workers were found to be poorly prepared to treat Tb patients. Existing training curricula in training institutions are deficient and wanting in components of management skills and devoid of soft skills applications.

**Conclusion:** Socio-demographic and socio-cultural/economic factors associated with non-adherence to treatment included ignorance on need for treatment adherence, stigma, alcoholism, poverty, low income and inadequately prepared healthcare workers who seemed poor in treating Tb patients. Available training curricula in training institutions are inappropriate.

**Recommendations:** A deliberate and sustained plan on patients' health education regarding adherence to medication and stigma reduction must be emphasized. Staffs' updates on Tb treatment must be regularly enhanced through continuing medical education forums. Existing training curricula in training institutions need to be revised and updated to include practical components that touch on patients' management skills reinforced with mandatory hands on soft skills applications for all trainees.

**Keywords:** Non-Adherence, TB Treatment, Defaulter, Patient Factor, Tuberculosis

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## 1. Introduction

### 1.1. Background

Tuberculosis (TB) is one of the world's deadliest communicable diseases and remains a global public health problem with significant morbidity and mortality.<sup>[1, 2]</sup>In 2013, an estimated 9.0 million people developed TB and 1.5 million died from the disease, 360 000 of whom were HIV-positive. Globally, the tuberculosis (TB) mortality rate has fallen by 41 % since 1990, and the world is on track to reach the global target of a 50 % reduction during 2015.<sup>[3]</sup>However, global TB control has faced many challenges, with an estimated 8.7 million incident cases in 2011 and 1.4 million deaths from TB since 2011. Non adherence to TB treatment leads to high increase in morbidity and mortality, prolonged TB infectiousness, multi-drug resistance, relapse and death and

high cost of TB treatment which translates to increased burden not only to the nation but to the community TB control interventions. Non-compliance to prescribed drug regimens is a major challenge to attainment of TB treatment goal which is to cure patients once they start treatment. Progress in responding to multidrug-resistant TB (MDR-TB) remains slow,<sup>[3]</sup> particularly in high-burden countries where the incidence of MDR-TB is unacceptably high.<sup>[3, 4]</sup> In addition, global economic crises and reduced investments in health services threaten national tuberculosis control programs.<sup>[3,5,6]</sup>

The Kenya National Tuberculosis, Leprosy and Lung Disease Program (NTLD-P) has been implementing initiatives towards achieving internationally agreed TB control targets whose immediate short-term goal was to achieve 70/85 targets – that is, to detect 70 % of infectious TB and cure 85% of the detected cases and then sustain this effort over a long time. The TB MDG has halted and begun to reverse the incidence and mortality due to TB by 2015 has been met in Kenya and the NTLDP has begun to implement the post 2015 Global TB Strategy that consists of 3 major areas, namely: *integrated, patient-centred care and prevention; bold policies and supportive systems* and *intensified research and innovation* (National Tuberculosis, Leprosy and Lung Disease Program – 2016). To affirm this goal during the commemoration of the World TB day on March 24, 2016, the Principal Secretary, Ministry of Health, Dr Nicholas Muraguri, recounted that, “*Over the last 10 years, a total of 1.2 million Kenyans have been diagnosed with TB and one million TB patients treated successfully, averting an estimated half a million TB deaths. Moreover, free TB services have been accessible to Kenyans across 4,500 health facilities and 1,800 testing sites, and that Kenya remains the first country in sub-Saharan Africa to reach World Health Organisation targets for TB case detection and treatment success.*”

TB continues to be a major cause of high morbidity and mortality in Kenya and it is in record that Kenya is among the 22 countries contributing 80% of global TB burden. Though the country has improved from number 13<sup>th</sup> to 15<sup>th</sup> among the 22 countries with a high burden of TB in the world, and the 5<sup>th</sup> highest country with TB burden in Africa (WHO Tuberculosis Report 2013) TB still remains a major cause of morbidity and mortality in Kenya which affects all age groups with its greatest toll in the most productive age group of 15 to 44 years. The Kenya TB treatment defaulter rate is 15% (Global Tuberculosis Report 2013 [www.who.int/tb/data](http://www.who.int/tb/data)).

Adherence to TB treatment is one of the factors that lead to increase in cure rate and reduction in morbidity and mortality and also decreased emergence of multi drug resistant tuberculosis (MDR TB). Emergence of MDR TB results in high cost of treatment. Previous research studies in different contexts (Munro et al.2007) has shown that there exist many factors that influence non-compliance to TB treatment ranging from individual patient, health care provider, health care delivery patterns and socio-economic related factors. These underlying factors that lead to patient non-compliance are key areas of concern that are normally not emphasized during the healthcare workers' (HCW) training. The HCW training curriculum does not emphasize capacity building up of required competencies in Tb patients' management because healthcare workers always focus on hard skills, or skills directly related to job duties like acquiring a certificate and getting employed at the expense of “soft skills”. Soft skills, which do not depend on acquired knowledge such as common sense, the ability to deal with people (effective communication), and a positive flexible attitude when dealing with patients are never taught as they are not in the curriculum and so receive no attention. The HCWs are thus poorly prepared on Tb treatment. This calls for re-evaluation of the training curricula with the aim of incorporating these skills as knowledge components to be acquired by the HCWs.

## **1.2. Objective of the Study**

The objective of the study was to isolate the healthcare givers' factors that contribute to non-adherence to medication among Tb patients in Kericho and Nakuru counties.

## **1.3. Research Question**

What are the healthcare givers' factors that contribute to non-adherence to Tuberculosis medication among Tb patients?

## **II. Methods**

### **2.1. Research Design**

A mixed method research design was used which combined both quantitative and qualitative methods in this study in which closed-ended (quantitative) and open-ended (qualitative) questions were addressed. The study utilized a retrospective cohort (Tb defaulters) with a mixed method approach comprising both interviews and focus group discussions. Interviews were done to all traced Tb defaulters, health workers from health facilities where defaulters were traced and focus group discussions with the County Tuberculosis and Leprosy Coordinators (CTLCs) and sub County Tuberculosis and Leprosy Coordinators (sCTLCs) of the two counties of Kericho and Nakuru.

## **2.2. Location of the Study**

The study was conducted in urban and rural areas of Kericho and Nakuru Counties in Rift Valley Region. Rift Valley Region is one of Kenya's 8 regions, covering an area of 182,505.1 square kilometres and according to the 2009 Census had a population of 10,006,805. Kericho County is one of the 47 counties in Kenya with a population of 752,396 and an area of 2,111 km<sup>2</sup>. Nakuru County is one of the largest counties in Kenya with a population of around 1.6 million, living on some 7,495 square kilometres in the central part of the country.

## **2.3. Study Population**

Target population was identified smear positive non-adherent TB patients registered in the TB registers in the two counties. Study period was within the past six months at the commencement date of the study in January 2016.

**Inclusion criteria:** All registered smear positive non adherent TB patients within the past six (6) months of the study period were recruited for study.

**Exclusion criteria:** Transfer-ins and outs and patients with other disease conditions were not included in the study.

## **2.4. Sample Size**

A total of 112 smear positive non-adherent TB patients from 34 health facilities (24 in Kericho County and 10 in Nakuru county) were purposively identified (62 from Kericho County and 50 from Nakuru County).

## **2.5. Sampling Frame**

This involved non-adherent smear positive TB patients within the past six months at the commencement date of the study as per the TB registers. Key informant interviews involving a total of 46 health care workers (11 from Nakuru County and 35 from Kericho County) were carried out.

## **2.6. Instrumentation/Tools**

Structured questionnaires and semi-structured interview schedules were used.

## **2.7. Reliability and Validity**

For the reliability and validity of this study's tools, piloting was done at Emining location of Baringo County, a neighbouring county North – East of Nakuru County. The study tools were prepared in English.

## **2.8. Procedures for Data Collection**

Data were collected using interview guides and questionnaires. Interviews were conducted by a trained research assistant, who was well versed and fluent in the local language.

## **2.9. Data Analysis**

Data were analysed using SPSS v20. Results were presented in tables and graphical summaries.

## **2.10. Ethical Approval and Ethical Considerations**

IREC, Moi University approved the protocol, consent form and interview schedule. An official permission was given by CTLCs and sCTLc of the two counties of Nakuru and Kericho, prior to the interviews. During data collection, oral informed consent was obtained from all participants. Informed oral consent was also obtained from parents or guardians for subjects under 18 years old.

# **III. Results**

## **3.1. Socio-demographic factors**

From the study, more than 50% of the respondents were males and not married and that more than 65% of them were in the age group 21-39 years which is also the most economically active age group generally. More than 60% of the respondents in Nakuru were unemployed, compared with more than 50% who included students in Kericho which also revealed that 98% of respondents in Nakuru earned less than 5,000/= per month compared with 81% in Kericho county. In fact more than 80% of the respondents in the two counties admitted that they defaulted because of their financial challenges. On level of formal education, 40% and 52% had up to primary education in the two counties of Nakuru and Kericho respectively.

## **3.2. Health Care Workers' Factors**

A total of 46 health care workers (11 from Nakuru County and 35 from Kericho County) were interviewed by the researcher who administered an interview schedule to each of those who currently administer Tb treatment in various health facilities, in particular about their cadre, whether they get any Tb updates on Tb disease management, if so, the last time it happened, whether they have always performed Tb work after qualification and posting to Tb clinic and their knowledge about who supports patients on treatment as they supply Tb drugs to them. The findings from the healthcare workers regarding the questions posed are presented in tables 1 to 5 and figures 1 to 5.

### 3.2.1. Cadre dealing with Tb patients' Treatment

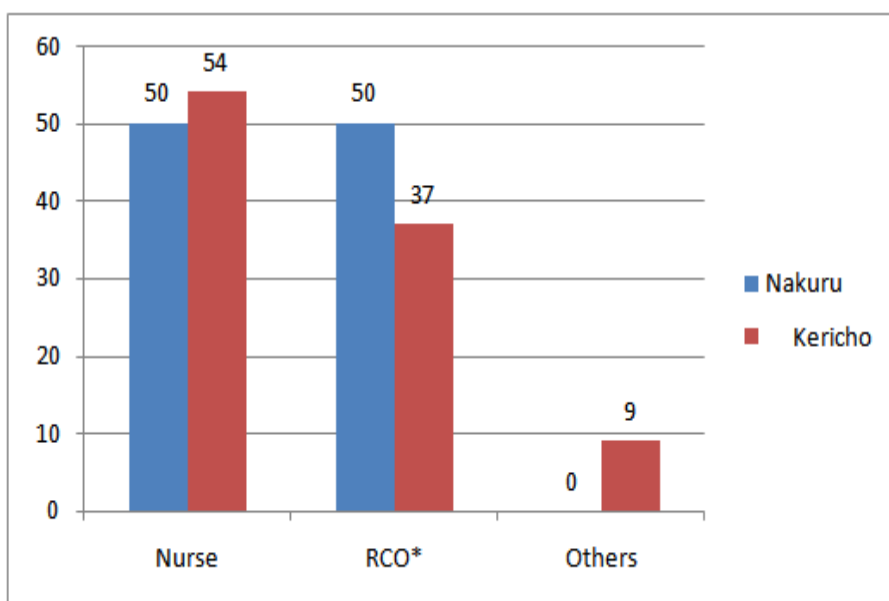
An interview schedule was administered to the healthcare workers who were dealing with Tb patients' treatment in order to establish their cadre. The findings are shown in table 1 and figure 1.

**Table 1:** Cadre that currently deals with Tb patients' Treatment

Cadre	Nakuru	Kericho
	%	%
Nurse	7(50)	19 (54)
RCO*	7(50)	13 (37)
Others	N/A	3 (9)
Total	14 (100)	35 (100)

\* RCO – Registered Clinical Officer

The results from the interview schedule revealed that Nurses, RCOs and others are involved in Tb patients' treatment. Table 1 and figure 1 revealed that among those involved in Tb patients' treatment, 50% and 54% were nurses in Nakuru and Kericho counties respectively, while 50% and 37% were RCOs. 9% of those who were also involved in Tb patients' treatment and were listed as others, included Tb ambassadors (cough monitors) and peer educators and who were found only in Kericho County. These findings indicate that in Nakuru County, nurses and RCOs share Tb work equally (50% each) while in Kericho County, most (54%) of the Tb work is performed by nurses.



**Figure 1:** Cadre that currently deals with Tb patients' Treatment

### 3.2.2. Tb update workshops attended

When asked if they had attended any Tb update workshop the healthcare workers' responses are shown in table 2 and figure 2.

**Table 2:** Tb update workshops attended

Any Tb update workshop attended?		Nakuru	Kericho
		%	%
	Yes	8 (57)	23 (66)
	No	6(43)	12 (34)
	Total	14 (100)	35 (100)

The results in table 2 and figure 2 from responses of the healthcare workers revealed that 57% and 66% of the healthcare workers had attended Tb update workshops in Nakuru and Kericho counties respectively, while 43% and 34% had not. The findings indicate that in Kericho County, 66% of the healthcare workers had attended Tb update workshops while 43% in Nakuru County had not compared to 34% in Kericho County.

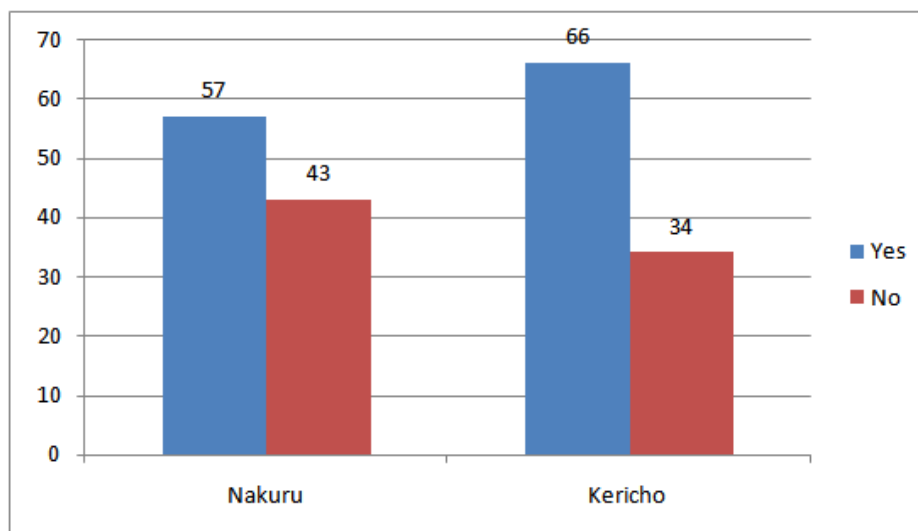


Figure 2: Tb update workshops attended

**3.2.3. Time of attendance of last Tb update workshop.**

When asked about the last time they had attended Tb update workshop, the healthcare workers' responses are shown in table 3 and figure 3.

**Table 3:** Time when last Tb update workshop was attended

When was the last time you attended a Tb update workshop?	Nakuru	Kericho
	%	%
Less Than A Year Ago	1(7)	4(12)
Within A Year But Less Than 2 Years	3(21)	7(20)
More Than 2 Years Ago	4(29)	12(34)
Never	6(43)	12(34)
Total	14(100)	35(100)

The results in table 3 and figure 3 from the interview schedule revealed that the period of Tb update workshop attendance varied, with 7% having attended less than a year ago in Nakuru County, 21% within a year but less than 2 years, 29% more than 2 years ago and 43% having never attended at all. The situation was a little different in Kericho County which showed 12% of attendance within less than a year, 20% within a year but less than 2 years, and an equal number- 34% each for those who had attended more than 2 years ago and those who had never attended at all.

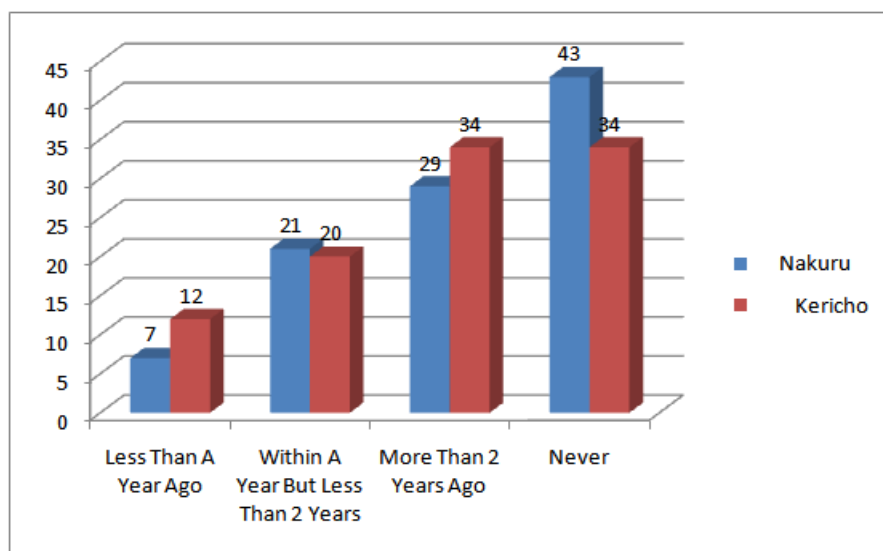


Figure 3: Time when last Tb update workshop was attended

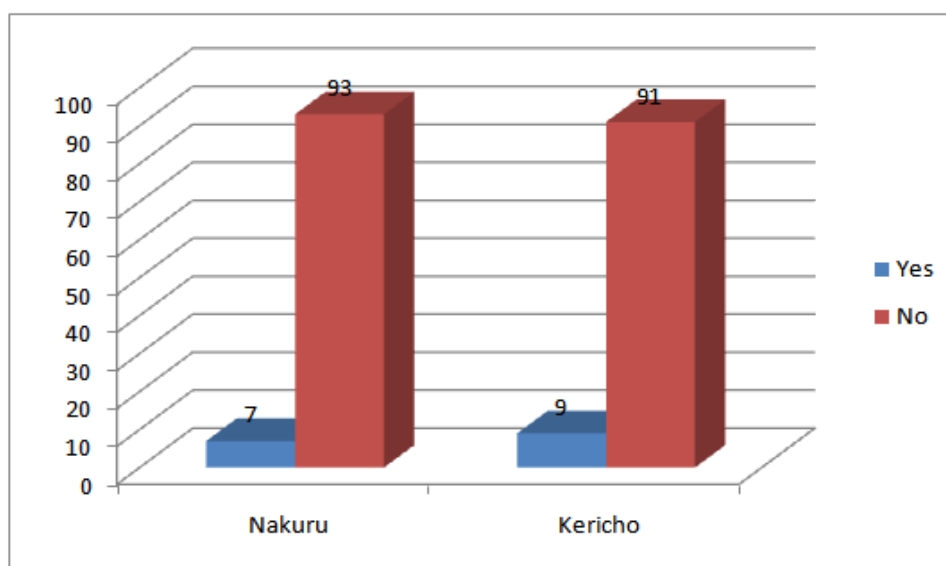
**3.2.4. Performance of Tb work since posting to the Tb Clinic.**

The healthcare workers were also asked whether they had always performed Tb work after qualification and posting to Tb clinic. Their responses are shown in table 4 and figure 4.

**Table 4:** Performance of Tb work since posting to Tb Clinic.

Have you always performed Tb work since posting to Tb Clinic?		Nakuru	Kericho
		%	%
Yes		1(7)	3(9)
No		13(93)	32(91)
Total		14(100)	35(100)

The result in table 4 and figure 4 revealed that 93% and 91% of the healthcare workers in Nakuru and Kericho counties respectively had never performed any Tb work prior to the current engagement with Tb activities while 7% and 9% respectively admitted they had always performed Tb work. The findings reveal that more than 90% of the healthcare workers had never performed any Tb work prior to their posting to the Tb clinic.



**Figure 4:** Performance of Tb work since posting to Tb Clinic

**3.2.5. Patients' support during Treatment.**

The healthcare workers were also asked to state whom they knew (from patients' responses) supported the patients when they were on Tb treatment even as they supplied them with Tb drugs. The healthcare workers' responses are shown in table 5 and figure 5.

**Table 5:** Patients' support during Treatment.

Who supports you during treatment?		Nakuru	Kericho
		%	%
Family		8(58)	30(85)
Patient Supporter		1(8)	3(9)
Health Worker		3(22)	1(3)
None		2(12)	1(3)
Total		50(100)	62(100)

The healthcare workers' responses in table 5 and figure 5 indicate that 58% and 85% of the patients cited support from the family in Nakuru and Kericho counties respectively, 8% and 9% cited patient supporters, 22% and 3% cited health workers and 12% and 3% indicated they did not get support from anyone during treatment in the two counties respectively. The findings here indicate that majority (85%) of the defaulters in Kericho county cited family as the main supporters during treatment compared to 58% in Nakuru County. Those who got no support from anybody were 12% in Nakuru County and 3% in Kericho County.

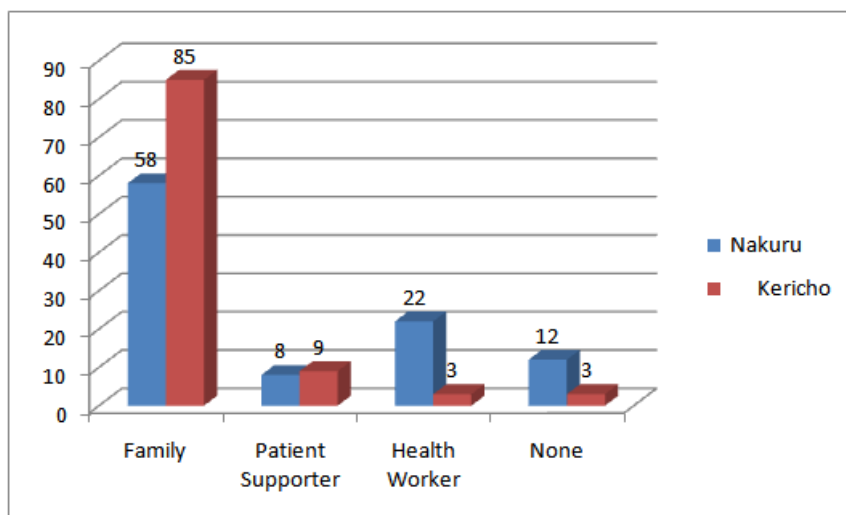


Figure 5: Patients' support during Treatment

### 3.3. Discussion

From the study, more than 50% of the respondents were males and not married and that more than 65% of them were in the age group 21-39years which is also the most economically active age group generally. In addition, more than 60% of the respondents in Nakuru were unemployed, compared with more than 50% who included students in Kericho which also revealed that 98% of respondents in Nakuru earned less than 5,000/= per month compared with 81% in Kericho county. In fact more than 80% of the respondents in the two counties admitted that they defaulted because of their financial challenges. On level of formal education, 40% and 52% had up to primary education in the two counties of Nakuru and Kericho respectively.

The main challenge encountered here is that of a relatively young population of low socio-economic status and low educational level and that of inadequately prepared healthcare workers who seemed poor in treating Tb and which therefore appeared to have contributed to patients' non-adherence to Tb medication. The healthcare workers (43% in Nakuru and 46% in Kericho) felt they were inadequately prepared on Tb treatment and indeed suggested that because of this feeling of inadequacy, efforts should be put in place by the Ministry of Health to intensify adherence counseling competencies in Tb treatment centres. The staff felt that this shortcoming may have contributed to patients' non-adherence to treatment since there may have been poor emphasis on consistency in medication intake.

Other factors of concern addressed are indicated herein: On cadre, the findings indicate that in Nakuru County, nurses and RCOs share Tb work equally (50% each) while in Kericho County, most (54%) of the Tb work is performed by nurses. In the past, public health officers were involved in patients' Tb management and were in fact empowered under public health Act Cap 232 to follow up (contact trace) on such defaulting patients in the community and give notification to relevant authorities for further necessary action. Sadly this is no longer strictly adhered to in all health facilities due to inadequate staff. To supplement the functions of healthcare workers, public health officers, medical officers and pharmacists should all be involved and should complement each other's work in TB patients' management in the fight against Tb.

Regarding healthcare workers' updates, the study revealed that 57% and 66% of the healthcare workers had attended Tb update workshops in Nakuru and Kericho counties respectively, while 43% and 34% had not. The findings indicate that in Kericho County, 66% of the healthcare workers had attended Tb update workshops while 43% in Nakuru County had not compared to 34% in Kericho County. In an ideal situation, all healthcare workers are supposed to undergo regular updates through continuing medical education forums so as to keep up to date with the ever changing medical environment which is compromised with frequent staff turnovers for which there is a persistent need for training of more healthcare workers.

The mode of training of healthcare providers in the Ministry of health has been inadequate when we consider the training of clinicians which by and large has been based on traditional mode of health worker training i.e. the lecture method which has been the main instructional method in traditional education. The teaching of medical education has utilized the subject-centred curriculum for many years. The curricula in all the training institutions do not explicitly focus on Tb control, adherence counselling, appropriate and effective healthcare worker-patient communication skills and patients' personal disease prevention strategies. This method of teaching assumes that extensive factual knowledge is essential for the practice of health professionals including medicine, and that this knowledge should precede the stimulus situation (the health problem or situation). Here there is no emphasis on skills acquisition in patient management. It is a fact, though, that

knowledge gained during undergraduate medical curriculum almost becomes out-dated by the time the student graduates, yet the general public still assumes that the knowledge acquired is still there. For healthcare workers, there is always a tendency to focus on hard skills, or skills directly related to job duties like acquiring a certificate and getting employed. However, it must be noted that the success of good health service provision often depends on “soft skills,” which are skills related to emotional intelligence, interpersonal communication, social skills, and general attitudes. These are desirable qualities for medical workers that do not entirely depend on acquired knowledge only. Soft skills such as common sense, appropriate and effective healthcare worker – patient communication skills, the ability to empathize and deal with people, a positive and flexible human touch attitude are essential attributes required of healthcare workers when dealing with medical conditions. These are never taught in class settings as they are not in the curriculum. It is therefore recommended that these be included in the revised and modified curricula and that since the healthcare workers were never taken through this, a concerted effort needs to be put in place through continuing medical education forums in order to update and upgrade them. It is this missing link that the healthcare workers felt they were inadequately prepared on Tb treatment and indeed suggested that because of this feeling of inadequacy, efforts should be put in place by the Ministry of Health to intensify adherence counseling competencies in Tb treatment centres. The staff felt that this shortcoming may have contributed to patients’ non-adherence to treatment since there may have been poor emphasis on consistency in medication intake.

Regarding performance of Tb work since posting to the Tb Clinic, the study findings revealed that more than 90% of the healthcare workers had never performed any Tb work prior to their posting to the Tb clinic, thus making them incompetent in counselling and communication as they lacked appropriate patient management skills. This has a negative relationship with the degree of healthcare worker preparedness in dealing with newly diagnosed Tb patients especially regarding effective healthcare provider-patient communication yet it must be remembered that

the success of good health service provision often depends on “soft skills,” which are skills related to emotional intelligence, interpersonal communication, social skills, and general attitudes and which are never taught in training institutions and therefore the staff are deficient in these. Consequently and inevitably they are seen to be incompetent in counselling as they lack appropriate patient management skills especially on areas touching on treatment adherence.

Additionally, on medication non-adherence it should be emphasized that the effectiveness of a treatment depends on both the efficacy of a medication and patient adherence to the therapeutic regimen. Patients, health care providers, and health care systems, all have a role in improving medication adherence and that healthcare workers should be aware that patients are more likely to adhere to medication regimens when they are convinced that the medication they are taking is clearly linked to their future health and wellness and that they must be made active participants in the decision-making process regarding the medications. Most busy healthcare workers do not have time for quality interaction with their patients and, therefore, often fail to consider adherence issues. This is because the staffs are few and most often than not they must clear the queue of patients before the day ends.

To promote medication adherence, patients need to be instructed properly, asked to participate in the decision-making process, and helped to understand the benefits of taking their medications as well as the risks of not taking them. Patients must be told in a simple and clear way how to take their medications. The patient must be able to read and understand, as well as comprehend and translate what he/she understands into actions that conform to the healthcare workers’ instructions. This can be a challenge in a situation where general level of education is low.

Adherence is a dynamic issue and barriers are also liable to change over time, which necessitates continuation of multi-disciplinary and collaborative inputs and support from not only the healthcare workers (nurses and clinical officers) but with others in the health sector such as public health officers, pharmacists and medical officers which is not the case as noted in this study.

Many studies have illustrated a positive effect of health education on improving treatment adherence. A cluster randomized trial in Senegal showed that intensive strategy of treatment monitoring and education led to improved adherence to medications and improved outcomes among TB patients <sup>[7]</sup>. In fact, the National TB Control Program Implementation Guide in China (2008 Edition) states clearly that carrying out health education for TB patients before chemotherapy was the most important step of DOTS implementation, and the treatment regimen and importance of adherence were the core of health education. In this study, it is recommended that health education for all TB patients should be initiated before chemotherapy is started.

A study in Botswana <sup>[8]</sup>, involving a group of patients noted low knowledge in preventive measures despite having attended a Tb treatment clinic. Although these patients could have received the information from the clinic during the time they were collecting drugs, prevention did not seem to have been stressed by health care providers.



On inquiry about any support patients received during treatment, the study found that 58% and 85% of the patients cited support from the family in Nakuru and Kericho counties respectively, 8% and 9% cited patient supporters, 22% and 3% cited health workers and 12% and 3% indicated they did not get support from anyone during treatment in the two counties respectively. The findings here indicate that majority (85%) of the defaulters in Kericho county cited family as the main supporters during treatment compared to 58% in Nakuru County. Those who got no support from anybody were 12% in Nakuru County and 3% in Kericho County.

Bagoes et al. (2009) found that more patients take TB treatment according to prescription if they are clearly informed and costs for treatment are reduced. They concluded that non-adherence is a result of developed negative image towards the health care staff, treatment, and quality of medication. It was shown that patients and providers' personal character, abuse of substance, and religion influence treatment adherence. Other studies show that contracts or written or verbal agreements to return for an appointment or course of treatment; social support provided by community health care workers; <sup>[10]</sup>social support offered to family members to assist the patient in being adherent, and social support provided by other patients and support groups, <sup>[9]</sup>impact positively on patient adherence to medication.

#### **4. Summary, Conclusions and Recommendations**

##### **4.1. Summary of Healthcare givers' factors that contribute to non-adherence to Tuberculosis Treatment**

- i. Mainly nurses and clinical officers are involved in Tb patients' treatment leaving out other cadres of staff in the Ministry of health such as public health officers, pharmacists and medical officers.
- ii. Because they are few and because they must clear the queue of patients before the day ends, most healthcare workers do not have time for quality interaction with their patients and, therefore, often fail to consider adherence issues.
- iii. Tb updates for health facility staff are unscheduled and irregular.
- iv. The training curricula in all the training institutions do not explicitly focus on Tb control, adherence counselling, appropriate and effective healthcare worker-patient communication skills and patients' personal disease prevention strategies.
- v. The training of healthcare workers in the training institutions does not put emphasis on general skills acquisition and soft skills application by trainees as being essential in patient management.
- vi. Healthcare workers always focus on hard skills, or skills directly related to job duties like acquiring a certificate and getting employed at the expense of soft skills which do not depend on acquired knowledge such as common sense, the ability to deal with people, and a positive flexible attitude when dealing with patients.

##### **4.2. Conclusions**

- i. Socio-demographic and socio-cultural/economic factors associated with non-adherence to treatment included patients' ignorance on need for treatment adherence, stigma, alcoholism, poverty and low income.
- ii. Healthcare workers were inadequately prepared to treat Tb patients.
- iii. Healthcare workers were few and did not have time for quality interaction with their patients and, therefore, often failed to consider adherence issues.
- iv. Mainly nurses and clinical officers were involved in Tb patients' treatment leaving out other cadres of staff in the Ministry of health such as public health officers, pharmacists and medical officers.
- v. The training of healthcare workers in the training institutions does not put emphasis on general skills acquisition and soft skills application by trainees as being essential in patient management.
- vi. Healthcare workers always focus on hard skills, or skills directly related to job duties like acquiring a certificate and getting employed at the expense of soft skills which do not depend on acquired knowledge such as common sense, the ability to deal with people, and a positive flexible attitude when dealing with patients.
- vii. The training curricula in all the training institutions in their current state are inappropriate as they do not explicitly focus on Tb control, adherence counselling, appropriate and effective healthcare worker-patient communication skills and patients' personal disease prevention strategies.

##### **4.3. Recommendations**

- i. A deliberate and sustained plan on patients' health education as a strategy in health promotion and prevention with specific emphasis on importance of adherence to medication and stigma reduction must be maintained by all healthcare workers at all times.
- ii. Staffs' updates on Tb treatment must be regularly enhanced through continuing medical education forums.

- iii. For effective patient care, healthcare workers must at all times apply in equal measure both hard skills and soft skills when managing Tb patients.
- iv. Existing training curricula in training institutions need to be revised and updated to include practical components that touch on patients' management skills reinforced with mandatory hands on soft skills applications for all trainees.

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