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Community Knowledge, Attitude and Practices on prevention of tuberculosis: A Crossectional Study in Lari Sub-county, Kenya.

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Abstract: *Introduction: Tuberculosis remains a major problem globally despite it being a fairly preventable and curable disease. TB remains a major cause of morbidity and mortality in Kenya and the greatest burden is in the most productive age group. Lack of knowledge on TB within communities affects the health seeking behavior of patients which in turn presents ample time for infection to spread to the healthy population and poses a formidable challenge towards controlling the disease. Objectives: The aim of the study was to assess the Knowledge, Attitude and Practices on prevention of Tuberculosis among residents of Lari Sub-County. Methods: The study was a hospital based cross sectional study which was conducted at the Outpatient Department in Lari Hospital in Kenya. A total of 337 clients were selected using systemic random sampling and interviewed. The data collected was analyzed using SPSS version 21.Findings: Knowledge level was average (62.6%) with 15% being aware of the causative agent, 35 % aware of the signs and symptoms and 42% recognizing BCG vaccine as a preventive measure to TB. Majority of the respondents did not have a favorable attitude towards TB and there existed stigma towards TB infected people. The average mean for good practices was 65% with some of the respondents exhibiting poor practices towards prevention of TB. Conclusion: Knowledge level was average with knowledge gaps existing. A significant number did not have favorable attitude towards TB and there was stigma associated with TB infection and some poor practices were reported. There is need to step up health education to empower the communities with knowledge on TB and reduce stigma towards TB patients.*

Keywords: *Attitude, Knowledge, Practice, Prevention, Tuberculosis*

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I. Introduction

Tuberculosis (TB) is one of the major communicable diseases afflicting mankind. The prevention of TB is a major challenge as one infected person can infect up to fifteen people through coughing. TB prevalence is increasing with increasing Human Immunodeficiency Virus (HIV) infection. Despite TB being a preventable and curable disease, it is still a major global health burden as 10.4 million new (incident)TB cases were reported worldwide in 2015 and among this number, 1.2 million were co-infected with HIV. In 2015, 1.4 million people died from TB of whom 0.4 million were infected with HIV. TB is ranked among the top five causes of mortality among adult women aged 20-54 years. Men are also equally affected as, 890,000 men died from TB and 5.4 million had acquired TB infection in 2014. Approximately One Million children were infected with TB and 400,000 died of TB in 2015. [1]

In 2015, there were approximately 480 000 new cases of multidrug-resistant TB (MDR-TB) and an additional 100 000 people with rifampicin-resistant TB (RR-TB). These patients were also newly eligible for treatment of MDR-TB. According to WHO, the number of new cases that were notified to National TB Programmes in 2015 were 6 million which represented about 59 % of people estimated to have acquired the infection. This shows a gap in reporting of the detected cases and access of the care so this is increases the risk of spreading TB at the community level. There still exists inequalities in the case fatality rate across countries with the developing countries being the most affected. TB death rates have decreased by 47% since 1990, but decreased only by 1.5% from 2014-2015 which is lower than the rate highlighted in the End TB strategy to be achieved by 2030 which would require a rate of approximately 5% per annual decrease.[1]

Tuberculosis remains a major cause of morbidity and mortality in Kenya and the greatest burden is in the most productive age group 15 – 44 years. Factors responsible for the large TB disease burden in Kenya is deprivation socially, HIV co-infection, low socio economic status, congestion in households and inadequate access to health care and preventive services. The global TB/HIV co-infection rate was 12% in 2015 while in Kenya it was at 33%, this was significantly higher than the global rates. The drug resistant TB cases in Kenya have been in a gradual increase with MDR-TB notification increasing from 112 cases in 2010 to 288 cases in

2014. There was an increase of the cases by 50 % in 2015, as the number of those infected rose to 433 in 2015, in comparison to 2014. Currently the number of patients with multi-drug resistant TB in Kenya is approximately 600. This is worrisome considering the calls for reduction of TB mortality by 90% and incidence rate by 80% by the year 2030 as stipulated in the WHO End TB Strategy, endorsed by the World Health Assembly in 2014. [1]

The major challenge surrounding the prevention and control of TB has been the link between HIV infection and TB, poor adherence to treatment and poverty. Kenya just like other countries has been immensely affected by the HIV epidemic and is ranked 4th in the world in relation to HIV prevalence by the UNAIDS Global Report 2013. However the HIV prevalence has reduced to 5.6% in 2014 in comparison to 2007 when it was at 7.2% in the population. Approximately 11.9% of the people infected with HIV also had a history of co-infection with TB.[2] African region has the highest proportion (31%) of TB patients who are co-infected with HIV with some parts of southern Africa exceeding 50%. The 2014 WHO global TB report had 22 high burden countries accounting for 80% of the global TB cases and Kenya had the 15th highest TB burden in the world.[3] There is also need to strengthen human resource capacity at all levels for effective coordination of TB control activities across the country according to the National Tuberculosis, Leprosy and Lungs Diseases (NTLP) Program, 2016.

Tuberculosis among other diseases has contributed to major economic crisis in developing countries. Patients and households affected by TB are likely to find themselves in a 'medical poverty trap' contributed by an increment in the treatment expenses as their income decreases as result of the disease. TB has been significantly associated with low socio-economic status and is found to greatly contribute to poverty. Consequently, high TB burden is linked to poverty as 42% of the population in Kenya live below the poverty line.[4]TB has been found to cause an economic burden to families affected despite the majority of the affected people being poor. A study done in Kenya, showed that the median total cost incurred as a result of TB infection in Kenya was KSH 22,753 (US$ 350), which is approximately a quarter of the median income measured before the onset of the TB in the household. Most of the patients are forced to sell their assets or borrow money to cater for the expenses they incur as a result of the disease. The indirect costs mainly occurring due to loss or reduction of income represent approximately 85% of the economic burden Kenyan among individuals and households affected by TB incur, with median indirect costs amounting to an estimated KSH 19,123 (US$ 294). The patients experience a tremendous decline in their productivity resulting from infection with TB. Patients incur costs during treatment which include transport cost to health facilities in order to get drugs or to check up their sputum tests results. The direct costs incurred are as a result of Food, accommodation, and drug administration.[5] There is a high a prevalence of HIV/TB co-infection, among the TB patients which results in majority having to also cater for costs resulting from their HIV infection. [6]

Lack of knowledge on the dangers, prevention, causes, mode of transmission, signs and symptoms related to TB within communities affects the health seeking behavior of patients. This lack of knowledge causes delay in health seeking behavior which in turn presents ample time for infection to spread to the healthy population and poses a formidable challenge towards controlling the disease.[7]The control of TB in Kenya is based on six elements with one of them being empowering communities through advocacy and involvement of communities in TB care. The increment of MDR-TB in Kenya possess a threat to control of TB. In Kenya the cases of Multi Drug Resistant- TB is on the rise with 433 cases reported in 2015 and 600 cases currently. This is worrisome as the crisis of MDR-TB continues globally with only 20 % of the cases being treated.[1] The prevention and control of TB is dependent on community awareness which enhances early diagnosis of TB which is one of the pillars of the End TB Strategy. This study primarily aimed at assessing the level of knowledge, attitude and practices towards Tuberculosis among the residents in Lari Sub-county.

II. Methods

The study design was a hospital based cross sectional study. The study was carried out at the Outpatient Department in Lari Level Four Hospital, Kiambu County in Kenya to asses the communities knowledge, attitude and practices regarding TB prevention. The study population comprised of patients attending the Outpatient Department at Lari Level Four Hospital. A total of 337 clients were selected using systematic random sampling and interviewed. A structured interviewer administered questionnaire was used to collect quantitative data from the study participants. The data collected was analyzed using SPSS version 21. Ethical clearance was sought from Mount Kenya University Ethical review committee.

III. Results

3.1. Socio-demographic Characteristics

The socio demographic characteristics of the respondents are summarized in Table 1. Majority of the respondents were aged between 24-44 years. Majority of the respondents occupation was farming as Lari sub-county is in a rural setup in Kenya. Male respondents constituted 21% and majority of the respondents had acquired primary level of education and were married.

1.2. Knowledge on Tuberculosis

The level of knowledge on TB among the respondents is summarized in Table 2. Regarding the awareness of Tuberculosis, the study found that all (100%) of the respondents had heard about TB. The main source of TB information was Radio and Television (48.9%), followed by family members (29.4%) and Health Workers (18.7%) and other sources which included churches and teachers. This is similar to other community based studies conducted in Ethiopia.[7,8] Health Workers can provide adequate information on TB, through health education sessions organized by the health care facilities but only 18.7% of the respondents benefited from this source. This shows a gap on health information. This shows that health care facilities have not adequately participated in the education on TB which can be disseminated to patients as they visit the health facilities for treatment.

A knowledge gap was identified in the study on the causative agent of TB as illustrated in Fig. 1 as 15 % of the respondents reported that TB was caused by germs / bacteria other responses included smoking(6%), cold(56%), environmental dust(5 %) and 18 % did not know what caused TB. This may have detrimental effects leading to the affected individuals not visiting the hospital for treatment. Regarding the Knowledge on Signs and Symptoms of TB, the study found that 11.3% of the respondents were not aware of the signs and symptoms of TB. Only 35% of the respondents identified the three (3) symptoms which included coughing for more than 3 weeks, weight loss, and night sweat as symptoms of TB. This showed a knowledge gap regarding the signs and symptoms which could affect the identification of the infection and delay seeking of medical care and increase the risk of transmission to other members in the community.

Majority of the respondents knew that TB can be transmitted from one person to another while 12.8% were not aware that it is transmissible. In the study knowledge gaps on modes of transmission of TB were identified as 22% of the respondents reported that the practices of sharing utensils and clothes contributed to spread of TB. There were 7.2% participants did not know how TB is spread from one person to another. The deficit in knowledge which was manifested by the misconceptions that sharing of utensils, hand shaking, and touching items in public places could transmit TB could lead to stigmatization of patients infected with TB. Majority of the participants reported that TB is a preventable disease while 6.2% of the participants did not know whether TB is a preventable disease or not. The study found that knowledge on TB as a curable disease was high while majority of the respondents recognized the link between HIV infection and TB as 81% respondents knew that persons suffering from TB were also likely to be co-infected with HIV.

The study found that 41.8% of the respondents knew that BCG is administered to children to prevent Tuberculosis. On the other hand, 3.9% thought that BCG vaccination does not prevent TB among children. However, 58% of the respondents had no idea that BCG vaccination prevents TB among children. The significant number of respondents who did not know BCG vaccination prevents TB among children shows knowledge gaps on prevention of TB which shows the need to create awareness on BCG vaccination as a preventive measure against TB in children. The respondents mean for knowledge was 62.6% which indicated that a significant proportion of respondents had knowledge gaps on the causes, signs and symptoms and prevention of TB. This findings are consistent with a study done in Ethiopia which found knowledge gaps on causative agent of TB and preventive strategies.[9] Similar findings were also reported by Paul et al., [10] who found that more than half of the community members had good knowledge on TB.

1.3. Attitude towards Tuberculosis

The respondent's attitudes towards TB are summarized in Table 3. 50.4% of the respondents reported that they believed they can get infected with TB whereas 22% said they can't get TB and 26.7% did not know whether they could get infected with TB. This indicates that a significant number of the respondents have a low perceived susceptibility to TB infection which could impact their prevention of TB negatively. Majority of the respondents reported that TB was a very serious problem in their area (44%) followed by 'somehow serious' (22%)'not very serious' (18%) and 'do not know' (16%). The perception of the community regarding the seriousness of a health problem affects their uptake of preventive measures and increases their need to acquire more information on the disease.Regarding their feeling towards TB infected patients, 52% reported that they feel compassion towards them and are willing to help them. Regarding the community support of people infected with TB 57% of respondents reported that the community supported and generally helped the patients diagnosed with TB. The study found that only 33% of the respondents would be willing to disclose their status in public if they underwent testing and received a positive TB result.

Majority (59%) of the respondents reported that they would not buy food from a person who has TB which indicates high stigma levels towards TB patients. Anochie, et al.,[11] reported similar findings with significant proportion of the respondents being unwilling to relate with TB patients. 43.2% of the respondents had a favorable attitude towards Tuberculosis and those infected with the disease. Similar findings were reported in Bangladesh where the attitude and practices of the community indicated existence of stigma attached to tuberculosis.12Stigma towards TB patients could impact negatively on the seeking of treatment by people with signs and symptoms which would negatively affect prevention and control of TB in the community.

1.4. Practices towards prevention of Tuberculosis

The respondents practices towards prevention of TB summarized in Table 4. Regarding TB related health care seeking behavior, majority of the respondents reported that if they had signs and symptoms of TB they would visit a health care facility (86%), others reported self -treatment using herbs (2%) and visiting a pharmacy (12%). Regarding the period they would take to seek medical care 49% respondents reported seeking medical care immediately they felt unwell while the rest would mostly seek treatment after one week of the symptoms persisting. Seeking of health care following self-medication or after a long duration is likely to increase the risk of transmission of TB. Majority (96%) of respondents reported that they would use drugs given in the hospital if they were diagnosed with TB and 94.7% would continue with medication even upon reduction of the signs and symptoms. This shows a good indication of possibility of high adherence level to TB drugs which is a positive contributor towards prevention and control of TB however the minority (5.3%) who were likely not to adhere upon reduction of symptoms would increase the chances of drug resistant and transmission of the disease in the community. 30% of the respondents reported ensuring their house is well ventilated always by opening the windows.

Adequate ventilation in the house is an important strategy in the prevention of transmission of TB within the household. This could be attributed to the study area being cold which may discourage the opening of the windows in the house. To assess the extent of acceptance on the use of a mask as a Personal Protective Equipment as one of the measures of preventing the spread of MDR-TB in the initial stages of treatment, 68% of the respondents responded that they were not willing to use a mask if they were diagnosed with MDRTB. In the study the average of good practices towards prevention of TB was 65%. Bati, et al., [7]reported similar findings whereby 45.9% of the respondents had good practices towards prevention of TB but there existed some poor practices which would affect the prevention and control of TB. Similar findings were reported in a study done among Maasai in Tanzania with reported health care seeking delay and use of herbs for treatment. [13]

IV. Figures and Tables

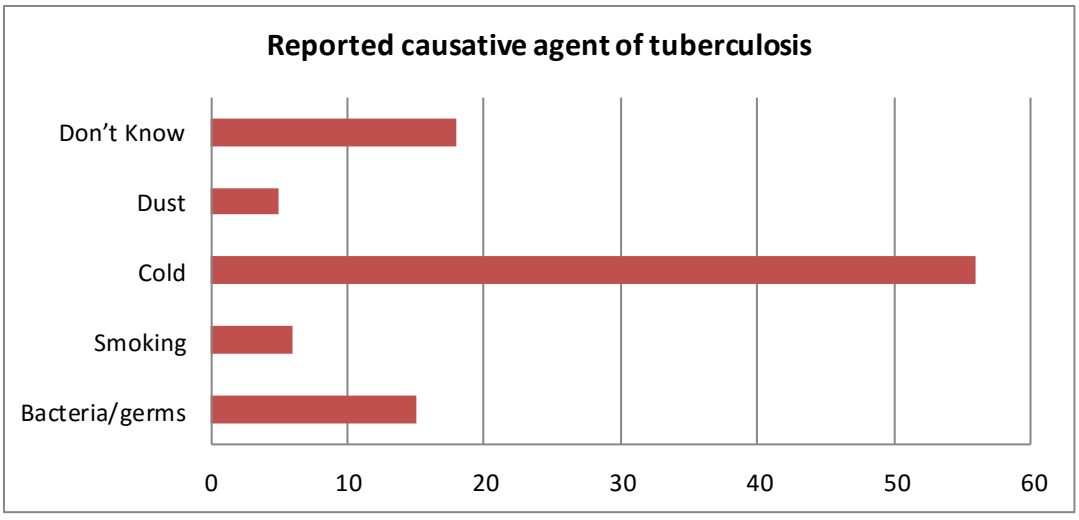

Figure 1: Reported causative agent of TB

Table 1: Socio demographic characteristics of respondents

Characteristic	Frequency	% (n=337)

Age(Years)		
18-24	82	24.3
25-34	111	32.9
35-44	93	27.6
45-54	44	13.1
55 and Above	7	2.1
Gender		
Male	71	21
Female	266	79
Level of education		
Primary	191	57
Secondary	137	40
Tertiary	9	3
Occupation		
Business	124	37
Farmer	171	51
Formal employment	6	2
Casual worker	26	8
None	10	2
Marital status		
Married	229	68
Single	84	25
Others	24	7

Table 2: Knowledge of Tuberculosis among respondents

Variable	**Frequency**	**%answered correctly(n=337)**
Causative agent of TB	51	15
Signs and symptoms	118	35
Can TB be cured	280	83
Is TB transmissible	270	80
How is TB transmitted	259	77
Can TB be prevented	290	86
How is TB prevented	216	64
People with HIV infection are also likely to have TB	273	81
BCG vaccination prevents TB	141	42

Table 3: Respondents attitude towards Tuberculosis

Variable	Frequency	% (n=337)
Do you believe that you can get TB		
Yes	169	50
No	74	22
I don't know	94	28
How Serious is TB as a problem in your community		
Very serious	148	44
Somehow serious	74	22
Not very serious	61	18
I don't know	54	16
Feelings towards TB infected person		
Compassion and willing to help	209	62
Feel compassion but keep of	54	16
Fear they will infect me	47	14
I don't care	0	0
I have no feeling towards them	27	8
Would you disclose a positive TB test		
Yes	111	33
No	226	67
Would you buy food from a TB infected person		
Yes	138	41
No	199	59
How does your community treat people with TB		
Mostly rejects them	45	13.4
Supports and helps them	192	57
Supports them but keeps off from them	22	6.6
Im not sure	78	23

Table 4: Respondents practices towards TB prevention

Variable	Frequency	%(n=337)
If you had symptoms of TB what action would you take?		
Visit health facility	290	86
Buy drugs from pharmacy	40	12
Visit a traditional healer/ herbs	7	2
When would you seek treatment if you had symptoms of TB		
Immediately I experience the symptoms	165	49
one week after symptoms persists	104	31
Two weeks or more after symptoms persist	24	7
After self-medication/ treatment fails to work	44	13
If diagnosed with TB in hospital would you take the drugs		
Yes	324	96
No	13	4
Would you continue with the treatment if the symptoms improved		
Yes	319	94.7

No	18	5.3
You ensure your house is well ventilated by opening windows		
Never	2	0.6
Sometimes	155	46
Often	79	23.4
Always	101	30
would you use a mask if you were diagnosed with MDR-TB		
Yes	108	32
No	229	68

V. Conclusion

The level of awareness on tuberculosis was high. Knowledge on TB was average with some gaps in knowledge existing in some key areas like the causative agent, modes of transmission and prevention of TB. Based on the findings the study therefore concluded that there is need for TB education at the facility and community level to address the knowledge gaps for the purpose of perpetuating the available information on prevention and control of TB and disseminating correct information.

The study concludes that the stigma levels of TB are still high despite high levels of awareness of the disease. The findings of low perceived susceptibility and stigma towards TB infected individuals is worrisome as this may impart negatively on the prevention and control of the disease. Communities need to be empowered to support TB patients and accepting the disease and learning to disclose in order to acquire support from family and community.

The study concludes that there were some practices which were reported that were likely to have a negative impact on prevention and control of TB. This included participants who were likely to delay in seeking treatment upon contracting TB, cessation of treatment upon improvement of symptoms and inadequate ventilation in the households. The communities should be empowered through Health education to enhance the adoption of practices which will positively contribute to prevention and control of TB such as improved ventilation in households, seeking health care immediately one gets unwell instead of self-medication. There is need to dispel misconceptions on TB in the community by stepping up health education strategy in the TB prevention and control programme.

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