

Assessment of Socio Demographic Characteristics on Uptake of Tuberculosis Screening by Community Members in Meru County, Kenya

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Abstract

The trend in tuberculosis in Kenya is worrying. TB is the fourth leading cause of death. In 2015 81,518 cases of TB were identified and treated. The Kenya prevalence survey of 2015-2016 found that estimated prevalence is 558/100,000 way above the WHO estimate of 233/100,000. The objective of the study was to determine the effect of socio- demographics characteristics on tuberculosis screening among community members in Tigania East of Meru County. The study design used was cross-sectional survey and targeted 440 household drawn from the five wards randomly and proportionately selected. Key informant interviews and focus group discussions were used to collect qualitative data. Qualitative data was analysed thematically. Quantitative data was analysed using descriptive statistics and inferential statistics using SPSS version 26. The study found out that there were statistically significant association between TB screening and religion ($X^2=13.103$, df 3; p value=0.004.), monthly income ($X^2=14.970$, df 6; p value=0.020. The study concluded that religion and monthly income of community members of Tigania East were associated with TB screening.

Keywords; Socio demographic, Uptake of TB screening, Community members.

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1. Introduction:

Global Tuberculosis Report (2013) observe that majority (95%) of the deaths in developing countries are caused by tuberculosis infections. With increased number of the population in developing countries cases of TB infections have been on the rise annually resulting to increased mortality rates by 95%. Tuberculosis is considered by WHO (2018) to be one of the severe infectious disease that is caused by a combination of mycobacterium genus. Tuberculosis (TB) infections can be transmitted from one patient to another if not diagnosed or detected in advance. It is approximated by WHO (2018) that more than 50% of TB infected patients were infecting an average of 10-15 individuals annually. Despite various strategies adopted by ministry of health from one country to another, it is observed that most of the TB patients do not complete treatment and have little information on the causes and its transmission (Toczek, Cox, Cros, Cooke & Ford, 2013). Non-adherence to TB treatment and high defaulter rates among patients is attributed to increased mortality rates in developing countries. Multi-drug resistance tuberculosis is one of the common factors that has resulted to high costs of managing TB patients in Africa (Kandel, Mfenyana, Chandia & Yogeswaran, 2014).

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The objective of the study was to determine the effect of socio- demographics characteristics on tuberculosis screening among community members in Tigania East of Meru County. Tigania East is the only Sub-county that reported suspected cases of suspected Xtra drug resistant TB (XDR-TB) cases in Meru among the nine sub counties (TIBU report, 2018). Sitienei *et al* (2013) assert that socio-demographics and Lack knowledge are considered to be some of the factors that undermine the uptake of tuberculosis screening thus increased mortality rates of TB patients. Malinga (2019) conducted a study on tuberculosis (TB) screening compliance rates and treatment completion among international students at the University of Kentucky. When screening rates were compared by gender, the study found out there was no significant difference between male and females (p=0.495). Jewett *et al.*, (2016) states that risk of exposure to TB in various settings for example hospitals, prisons and shelter homes. Students can be more exposed to TB when volunteering, researching and travelling (Jewett *et al.*, 2016). Medical students are at higher danger of exposure to TB and are required to do annual screening for TB.

World Health Organization report that death rates attributed to TB infections are increasing among community members annually due to inadequate knowledge about TB infections. Moreover, WHO (2018) point out that the low levels of knowledge on, and poor attitudes towards TB screening among community members in Kenya has persisted despite the efforts of the ministry of health and Non-governmental organizations to educate and encourage community members to embrace the practice. Further, the study noted that non-adherence to tuberculosis treatment is increasing mortality rates by 7% annually. If this continues, more community members will continue suffering from latent and active TB thus resulting to increased mortality rates that could have been

avoided though voluntary TB screening. This study therefore sought to assess the effect of socio demographic characteristics on uptake of TB screening in Tigania East.

2. Methodology

The study adopted cross-sectional research design using both quantitative and qualitative approaches. The cross-sectional research design was appropriate because it explores and describes the relationship between variables in their natural setting without manipulating them. This study was limited to Tigania East of Meru County, Kenya. Tigania East which is an administrative sub-County of Meru is considered appropriate areas of study based on the high cases of tuberculosis reported by the Ministry of Health (2018). The study is conducted in Tigania East of Meru County.

The study population is about 60% of the population are of ages 18 years and above (KNBS). They were about 104,442 persons. These are both male and females. The study population of consisted of 174,121 persons. This is the estimated population of Tigania East by 2018 according to 2009 census projection (KNBS, 2009). The Sub County has five wards. It's in Tigania East Constituency. The respondents comprised of 398 households' members in Tigania East and 45 health workers from public health facilities in Tigania East. The unit of analysis was household members in Tigania East in Meru County while unit of observation was households in Tigania East in Meru County. The inclusion criteria was household members in Tigania East in Meru County who were willing to take part in the study were included. The study considered respondents aged more than 18 years to be appropriate. Respondents residing in the County for the past one year was considered appropriate in this study.

The exclusion criteria were households' members in Tigania East in Meru County unwilling to give consent to the study participation. The study did not consider respondents aged below 18 years. Respondents residing in the county for less than one year were not included in this study.

The sample size of this study was 440 household respondents as shown in Table 3.1 Israel formula (2009) was used to determine the ideal sample size. Respondents of this study was household members. Israel (2009) formula was used in the form:

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$$n = \frac{N}{1 + N(e)^2}$$

Where: n is the sample size, N is the target population size, e is the allowable error (0.05).

$$n = \frac{104,442}{1 + 104,442 (0.05)^2}$$

= 400 Household Members and added 10% to cater for drop-out and incomplete questionnaire for a total of 440 respondents

Table 1 Sampling Frame.

Ward	Population	Household	Target population	Sample Size
Muthara	43,204	8,641	25,923	99
Karama	27,741	5,549	16,645	64
Kiguchwa	21,223	4,245	12,734	49
Mikinduri	37,412	7,483	22,448	86
Thangatha	44,490	88,98	26,694	102
Total	174,070	34,808	104,442	400

Source: County Bureau of Statistics (2019)

Respondents of the study were selected using simple random sampling technique. This method of sampling involves giving a number to every member subject or member of accessible population, placing the numbers in a container and picking any number at random. The subjects corresponding to the numbers picked were included in the sample. The respondents were household members from Tigania East.

Questionnaires with open and closed questions were used to collect data from household members in Tigania East. Questionnaires were preferred due to their ability to capture respondent opinions in a structured manner and in written form for future reference. Further, they will enable the respondents to answer questions freely and frankly even on sensitive issues. In addition, they provide uniformity in answering questions allowing a great degree of comparison because the items are framed in the same format. Items of the questionnaire were measured using a Likert point scale where 4 represents strongly agree while 1 represents strongly disagree.

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Focus groups discussions was held with community leaders in Tigania East. The group comprised of 5 to 8 informers and lasted for a minimum of 45 and a maximum of 1 hour. Information related to TB infections sought and evaluated in relation to that given by household Key health workers who are knowledgeable on tuberculosis were interviewed. These are County TB Coordinator, Sub County Clinical Officer, Sub County Laboratory Technologist, Sub County Public Health Officer, Sub County Public Health Nurse, Sub-county TB Coordinator Tigania East and Sub-county Medical Officer of Health in Tigania East.

Content validity which was employed by this study as a measure of the degree to which data collected using

a particular instrument represents a specific domain or content of a particular concept. The researcher was selected pretest sample of 10% as recommended by Fisher (2010). Feedback from pretest sample was used to modify questions of the research instrument in order to measure what is expected to be measured. The study used Cronbach's alpha coefficient to test internal consistence of the instrument. Cronbach alpha value of 0.7 was used as the cutoff point as recommended by (Guest, 2018) to suggest reliability of the variables of the study. The overall value was 0.8 for the all the variables.

To analyze the data, the Statistical Package for Social Sciences, (SPSS version 24) software was used. The data collected in the research was sorted, edited, coded, keyed and classified on the basis of similarity and then tabulated. Descriptive statistics was used to analyze data and explain the findings. To permit quantitative analysis, data was converted into numerical codes representing attributes or measurement of variables. Descriptive statistics such as frequency distributions, percentages and frequency were used to summarize and relate variables which was attained from the study. The study adopted inferential statistics such as chi square.

Before data collection, the researcher sought permission from the Kenyatta University and National Commission for Science, Technology and Innovation. Approval from Meru County Health Department was sought. Responsibility to the respondents was to include voluntary participation and informed consent prior to participation.

To ensure the participants was not prejudiced, simple language and statements was used to describe the aim of the research and its procedures. Responsibility to the profession was include accuracy in analysis, presentation and reporting of the study findings. Confidentiality and anonymity of the respondents was guaranteed. For objectivity purposes of scientific reaserch, stakeholders were informed and the objective of the research explained to ehnanse willingness and high response rates from the respondents. Finally, respondents was assured about publication of final report.

3.Results

A total of 440 household questionnaires were distributed and 425 questionnaires were returned for a response rate of 96.5%. Table 2 summarizes socio-demographic characteristics of respondents. From the results 265(62.4%) were of the age 35-60 and 59(13.9%) were of the age 60 and above. The study found out 295(69%) were married monogamous and 16(4%) were Divorced, Majority of the respondents 234(55%) indicated that they had primary level education,22(5%) had university level of education ,22(5%) had diploma level of education.

The study found out that 181(43%) were farmer and 14(3%) others. The study finally found out that 281(66%) of the households earned less than 10,000 and 6(1.4%) had no monthly income

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Table 2 Social Demographic Characteristics of Respondents

Social Demographic		N	%
Age	18-34	101	23.8
	35-60	265	62.4
	60+	59	13.9
Religion	Catholic	136	32
	Protestant	280	65.9
	Muslim	3	0.7
	None	6	1.4
Education	None	23	5.4
	Primary	234	55.1
	Secondary	124	29.2
	University	22	5.2
	Diploma	22	5.2
Main Occupation	Employed/salaries	36	8.5
	Farmers	181	42.6
	Business/Self employed	100	23.5
	Unemployed	94	22.1
	Others	14	3.3
Monthly income	Less than 10,000	281	66.1
	Between 10,000-20,000	90	21.2
	Between 20,000-30,000	19	4.5
	Between 30,000 -40,000	11	2.6
	Between 40,000-50,000	10	2.4
	Over 50,0000	8	1.9
None	6	1.4	

The proportion of respondents who have been screened is presented in figure 1. Majority of the respondents 68% (n=288) stated that they have never been screened for TB while 32% (n= 137) stated that they have been tested for TB.

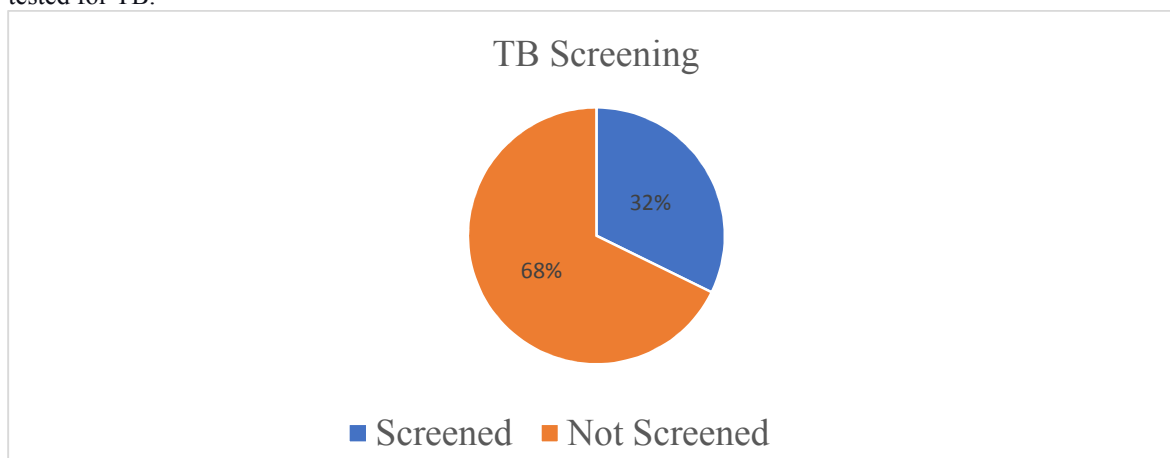


Figure 1 Uptake of Tuberculosis Screening

The result in Table 3 found out that the association between religion and TB screening was statistically significant at 5% level of significance (p value=0.004<0.05, X²=13.103, df 3), and the association of monthly income and TB screening was statistically significant at 5% level of significance (p value=0.020<0.05, X²=14.970, df 6). The rest of the socio demographic parameters that's; age, marital status and education level were not statistically significant.

Table 3 Social Demographic characteristics influencing uptake of TB screening

Variable		Dependent Variable		Statistical Significance		
		Screened	Not Screened	P value	X ²	df
Social Demographic		N%	N%			
Age	18-34	27(19.7%)	74(25.7%)	.071	5.287	2
	35-60	96(70.1%)	169(58.7%)			
	60+	14(10.2%)	45(15.6%)			
Religion		N%	N%	.004	13.103	3
	Catholic	58(42.3%)	78(27.1%)			
	Protestant	79(57.7%)	201(69.8%)			
	Muslim	0(0%)	3(1%)			
	None	0(0%)	6(2.1%)			
Level of Education		N%	N%	.144	6.856	4
	None	6(4.4%)	17(5.9%)			
	Primary	66(48.2%)	168(58.3%)			
	Secondary	50(36.5%)	74(25.7%)			
	University	9(6.6%)	13(4.7%)			
	Diploma	6(4.4%)	16(5.4%)			
Main Occupation		N (%)	N (%)	.855	1.335	4
	Employed/salaries	14(10.2%)	22(7.6%)			
	Farmers	54(39.4%)	127(44.1%)			
	Business/Self employed	33(24.1%)	67(23.3%)			
	Unemployed	31(22.6%)	63(21.9%)			
	Others	5(3.6%)	9(3.1%)			
Monthly income (KSH)		N (%)	N (%)	.020	14.970	6
	Less than 10,000	76(55.5%)	205(71.2%)			
	Between 10,000-20,000	34(24.8%)	56(19.4%)			
	Between 20,000-30,000	8(5.8%)	11(3.8%)			
	Between 30,000 -40,000	6(4.4%)	5(1.7%)			
	Between 40,000-50,000	6(4.4%)	4(1.4%)			
	Over 50,0000	5(3.6%)	3(1%)			
None	2(1.5%)	4(1.4%)				

Variable		Dependent Variable		Statistical Significance		
		Screened	Not Screened	P value	X ²	df
Social Demographic		N%	N%			
Age	18-34	27(19.7%)	74(25.7%)	.071	5.287	2
	35-60	96(70.1%)	169(58.7%)			
	60+	14(10.2%)	45(15.6%)			
Marital Status		N (%)	N (%)	.677	2.318	4
	Single	177(12.4%)	29(10.1%)			
	Married Monogamous	96(70.1%)	199(69.1%)			
	Married Polygamous	8(5.8%)	14(4.9%)			
	Divorced /Separated	3(2.2%)	13(4.5%)			
	Widow	13(9.5%)	33(11.5%)			

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4. Discussion

The study found out that the association between socio demographic characteristics (religion and monthly income) and TB screening was statistically significant. This implies that religion and monthly income of community members of Tigania East were associated with TB screening. Jewett et al., (2016) states that risk of exposure to TB in various social settings. Students can be more exposed to TB when volunteering, researching and travelling (Jewett et al., 2016). Medical students are at higher danger of exposure to TB and are required to do annual screening for TB.

In TB management gender plays an important role, as seen in various countries whereby men give better outcomes than women and the reverse in other countries (UNAIDS and Stop TB, 2016). Globally TB management focuses on early diagnosis and treatment of cases in high TB and HIV-endemic areas (WHO,2016). Nevertheless, low detection of TB and a rise of multi-drug-resistant strains have been a challenge (WHO,2016)

A study conducted by Esmael Ali, Agonafir , Desale , Yaregal& Desta (2013) on assessment of patients' knowledge, attitude, and practice regarding pulmonary tuberculosis in eastern Amhara regional state, Ethiopia documented misconceptions ranging from 66.3% to 99.7% of the population on the aetiology (cause) of TB, 27.6% to 90.1% on the symptoms, 0.1% to 48.6% on the transmission and 33.4% to 92.9% on prevention methods (Amo-Adjei & Kumi-Kyereme,2013. Literacy status, socio-cultural differences, gender, and spatial variations have been reported to be factors affecting TB knowledge, attitude and practices (KAP) (Amo-Adjei , Kumi-Kyereme ;2013 ; Legesse, Ameni , Mamo , Medhin , Shawel , Bjune ,2010;Bati, Legesse , Medhin 2013)

5. Conclusion and recommendation

The study made the following conclusion; the association between socio demographic characteristics (religion and monthly income) and TB screening was statistically significant. This implies that the religion and monthly income of community members of Tigania East were associated with TB screening. The study recommend that Ministry of Health should introduce and implement Integrated Public health campaigns targeting all age groups, social class and literacy level in Meru community towards TB screening by health managers at lower administrative units

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