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Health seeking behavior and its predictors among new pulmonary tuberculosis patients in Kilimanjaro region

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Abstract

Background: Early seeking of modern health unit among new pulmonary TB patients enhances early suspect diagnosis and treatment and so prevent more transmission of TB in the community, more advance disease leading to death, and more complications.

This study aimed to determine the health seeking behavior and its predictors among new pulmonary TB patients in Kilimanjaro region.

Method: This analytical cross-sectional study was conducted using both qualitative and quantitative methods; where 84 new pulmonary TB patients were involved in quantitative data method and 10 new pulmonary TB patients were involved in qualitative method. Quantitative data were collected using structured questionnaire administered face to face. Qualitative data were collected using interview guide

Results: Among 84 new pulmonary TB who responded, 43 (51.2%) were male, 74 (88.1%) were aged between18-48. Forty-seven 47 (56%) were married and 73 (86.9%) had formal education. Twenty-six, 26(31%) were smokers and 28 (33.3%) drink alcohol, 64 (71.4%) Those living within 0- 10 km were 43 (51.2%) and 48 (57.1%) were living in rural area Fifty one51 (61%) spent less than three hours to reach health facility while 7(8%) spent more than six hours. The median time to reach health facility was 2 hours and mean time was 2.7 hours.

38 (70.4%) reported a monthly income of 100,000TSH and bellow and 59 (93.6%) spent 1000 TSH or less on transport per visit. Seventy-eight (93%) reported to have spent money on their illness during the course of treatment, of them 59 (75.6%) reported to have spent equal or less than 100,000 TSH on their illness during the course of treatment.66 (78.6%) sought modern care as first choice (private (42.9%) and public35.7%) while 4(4.8%) sought traditional care as first choice.48 (57%) sought modern care more than 4weeks after onset of first symptom.

On predictors of type of care sought at first, living a distance of 0-10 km to modern health facility OR12.86, p=0.01 and severe symptom (Hemoptysis) OR 16.67 p=0.045 were associated with seeking modern care as first choice.

On predictors for delay in seeking modern care, factors such as sex, age, expenditure per illness distance to health facility, severity of symptoms and monthly income did not show statistical significance association, however expenditure of 100,000TSH per illness OR 4.33 p=0.06 and I living more than 10 km from modern health facility OR 3.38. p=0.06 Showed a trend toward significance.

Patients involved in In-depth interview reported a complex health seeking pattern, within modern care and modern care to alternative care and vice versa. Study found out that there are different perceptions in the community about the

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cause of TB. Most of New pulmonary TB interviewed related the cause of TB and their occupation, some with witchcraft. Perception about the cause of TB determines the type of care one will seek for, Traditional healers were consulted when modern care has failed and patient not improving. This study also confirmed that there is knowledge gap in the community about TB and HIV/AIDS that TB symptom was associated with HIV/AIDS. Severity of symptoms determines the type of care to seek; less severe TB symptoms are taken as normal symptoms and were treated by using home remedies and one will seek modern care when they have severe symptoms like coughing blood sputum (Hemoptysis).

Conclusion: This study has shown that; new pulmonary TB patients in Kilimanjaro region have demonstrated pluralism health care seeking, by seeking care in both: modern health care facilities (public and private) and alternative care providers (traditional healers, home remedies, spiritual healers). Most patients sought modern care as first choice.

Study also found out beliefs about TB and fear of being HIV positive which exist in the community influences health seeking in terms, of place to seek care at first and when to seek care.

There is a need to improve TB/HIV control communication to the community, ensure smooth linkage and referral between alternative care providers and modern care providers and reinforce early TB screening for people with persistent cough for two weeks or more

Keywords: Health Seeking Behavior; New Pulmonary TB Patients; Pathway Model; Beliefs about TB and Determinant model

1. Introduction

Tuberculosis is a chronic infectious disease caused mainly by mycobacterium tuberculosis (and occasionally by mycobacterium bovis and mycobacterium africanum). These microorganisms are also known as acid- fast bacilli (AFB). The micro-organisms usually enter the body by inhalation through the lungs.

Basically, there are two types of tuberculosis, the pulmonary tuberculosis which affects the lungs and is the commonest form of the tuberculosis. This is the infectious form of the disease. The second type is extra pulmonary tuberculosis which affects organs other than the lungs, such as pleura, lymph nodes, pericardium, spine joints, abdomen and genitourinary tract. It may affect any part of the body.

Important source of infection is an individual with pulmonary tuberculosis; when they cough, sneeze or talk, they produce infectious droplets into the air these infections droplets are transmitted by air.

Tuberculosis continues to be among the major public health problems worldwide, with one third of the world population infected with mycobacterium tuberculosis and about 8.3 million new cases and 2 million deaths due to tuberculosis occurring yearly and more that 95% of those occurring in developing countries [1-2].

Majority of new tuberculosis cases occur in 22 countries referred to as high burden TB countries, including Tanzania. About 80% of them are classified as low-income countries

Mathematical models predict that if at least 70% of the incident cases of smear positive TB are detected and treated and at least 85% are cured, TB transmission will decline by 7% to I % per year [3-4]. The world health organization (WHO) has therefore set these thresholds for case detection and cure rates at target for its Global DOTS strategy [4].

The 2009 WHO report on global TB control, estimates 61% case detection, which is 10% less than Global plan milestone of case detection rate of 71% in 2008. It also reported that, among the year 2007 TB cohort, 87% were successfully treated, the first time that the target of 85% first set in 1991 has been exceeded at global level. Also, incidence rate peaked to 143 per 100, 000 population compared to 136 to 151 per 100,000 in 2004 [5].

Many sub-Saharan Africa countries have witnessed a dramatic upsurge of tuberculosis cases over the past decade; the rise is largely attributed by human immunodeficiency virus [6].

In Tanzania tuberculosis cases steadily increase from 11753 in 1983 to 62100 in year 2006. The notification rate for all form of tuberculosis was about 164/100,000 population which is 48% of WHO estimate of 342/ 100,000. The notification for new smear positives was 65.4/ 100,000 population [7].

2. Health care system in Tanzania

Health care system in Tanzania like in many developing countries is classified into two categories: Modern and Alternative health systems.

Modern health care system is comprised of public and private health facilities. The public health care is delivered through hierarchy of institutions, at bottom village health post followed by dispensaries, Health centers, districts and region hospitals and consultant hospitals on top [8].

Dispensaries offer ambulatory and preventive services, health center in addition also offers basic inpatient care, district and region hospitals provides specialized and non-specialized ambulatory and inpatients care as well as preventive care. Consultants' hospitals are tertiary level care offers specialized and non-specialized ambulatory and inpatients, preventive and teaching medical and paramedical [9].

Alternative care which includes traditional healer, home remedies, herbalists, spiritual healer, and drug stores are also practiced and recognized by Tanzania health policy. Variety of traditional healers with wide range of therapeutic practices is found in Tanzania. Herbalists' use various form of herbal preparation for healing almost all type of ailment. Most traditional healers have other occupation such as farming and practice healing as part time [10].

2.1. Tuberculosis services in Tanzania

Tuberculosis services are delivered in modern health facilities (public and private health facilities). In public health facilities TB services are delivered from tertiary level to bottom level. Tuberculosis and Leprosy Central unit (TLCU) is responsible for coordinating all activities pertaining to TB and Leprosy in the country. Health facilities offers TB diagnostic services and are referred as TB diagnostic center, while others supervise treatments and are referred as DOT centers. In Kilimanjaro region there are 45 modern health facilities offering TB diagnostic services, which is above expected WHO diagnostic target of I diagnostic center for 50,000 populations. There are also 114 modern health facilities providing Direct Observed Therapy. [11].

2.2. Health care seeking

One author elaborated health seeking behavior model as applied to public health, a variant of Andersen's model by distinguishing two basic approaches: the pathway model and determinant model. The pathway model assumes a logical sequence of steps taken by an individual from earliest symptoms until the use of the health care services, while the determinant model focuses on the variables that could explain the choice of preferred form of the health care services [12].

2.3. Pathway model

Study has shown that modern health units (both private and public), traditional healers and fortune tellers all participate in management of TB [13].A study done on health seeking behavior and delays in diagnosis of TB in East Sikkim, reported that majority choose government health facility as their first choice, but 26% of them turned to private providers.

In rural South Africa, study done on assessing health seeking behavior among tuberculosis patients showed that of 215 patients presenting to hospital 181 (84%) did not seek treatment for their condition elsewhere. All people presenting to traditional healers referred themselves to either a clinic or direct to hospital [14].

A Study in Burkina Faso on treatment seeking behavior of smear positive tuberculosis patients involving 61 smear positive patients reported on the trend taken by patients before diagnosis, where 15 (24.5%) of patients had visited public health unit, 19 (31%) had visited a private health unit, 19 (31%) had treated themselves and 8 (6%) had visited a traditional healer [13].

2.4. Determinant model

A Study done in Gambia on health seeking behavior among Gambians with cough reported that the most appropriate places for patient to go were guided by a desire, but after the initial visit, health seeking behavior was complex: those who visited the health unit as first choice tended to stay in that system while few who first visited alternative provider including traditional healer did so more than once and tended to not seek help again [15].

Other determinant factors mentioned are cost and proximity.

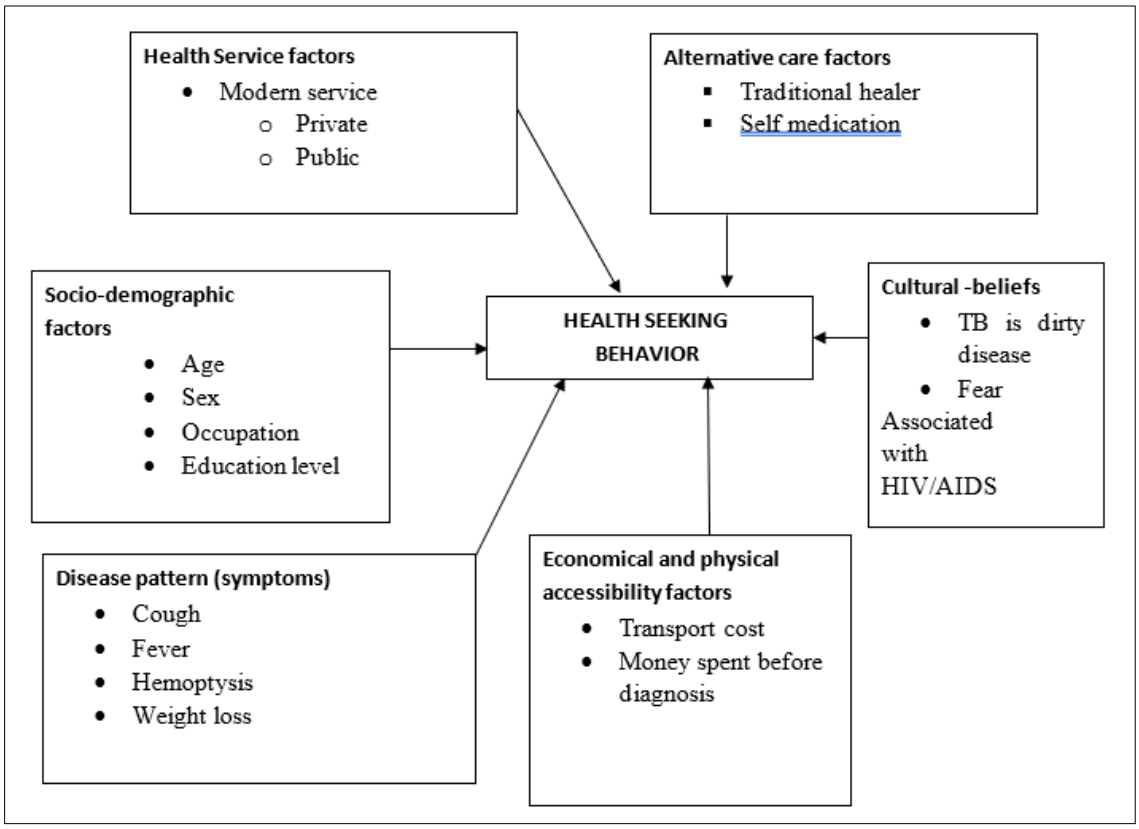

Figure 1 Factor associated with health seeking behavior among new pulmonary patients

Objectives

The main objective of the study was to describe the health seeking behavior and its predictors among new pulmonary TB patients in Kilimanjaro region

This research specifically; determined the proportion of new pulmonary TB patients. The study also described the socio-economic characteristic of new pulmonary tuberculosis patients, explored the cultural beliefs about tuberculosis among new pulmonary tuberculosis patients and described the health care seeking pattern and its predictors among new pulmonary tuberculosis patients

3. Method

3.1. Study design

This was analytical cross-sectional study aimed at evaluating health seeking behaviour and its predictors among new pulmonary TB patients in Kilimanjaro region from October 2009 to June 2010

3.2. The study area

The study was conducted in Kilimanjaro region.

According to Kilimanjaro Regional medical officer (RMO) report of 2008, Kilimanjaro has a population of 1.5 million. The region has a total of 378 health facilities. The region has total of 45 TB diagnostic centers which is above the WHO expected target of 30 diagnostic centers for 1.5 million people. These diagnostic centers are distributed as follows Rombo (7), Moshi Urban (9), Same (8), Mwanga (4), Hai (4), Siha (3) and Moshi Rural (10). According to the regional case notification report of 2008, the region notified 2611 cases, 860 (33%) new smear positive, 967 (37%) new smear negative,784 (30%) other forms of tuberculosis. The distribution of new pulmonary cases notified per 1 district in 2008 was as follows Moshi Urban (599), Mwanga (101), Moshi rural (420), Rombo (164), Hai (61) and Siha (343)

3.3. The Study population

Study population included all new pulmonary TB patients attending outpatient clinic and in patients during the time of this study.

3.4. Sample size

- Sample size calculated using the formula was 92 new pulmonary TB patients.
- Assuming refusal rate will be 10%, so the minimum sample size was 101 new pulmonary TB patients.

3.5. Inclusion and exclusion Criteria

3.5.1. Inclusion criteria

- All new pulmonary TB patients on treatment for not more than two months during the time of data collection
- Patients aged 18 years and above
- Those who consented to participate in this study.

3.5.2. Exclusion criteria

- New pulmonary TB patient bellow 18 years
- Those who were mentally disabled or very sick and unable to communicate and
- Patient who was on treatment for more than two months.
- Refused to consent

3.6. Sampling method

3.6.1. Quantitative data

Sampling method used for quantitative data was multi-stage sampling, involving following stages

- 1st stage, five districts out of seven districts was selected by simple random sampling. The following five districts were selected, Moshi Rombo, Mwanga, Siha and Moshi Rural.
- 2nd stage, Ten Health facilities offering TB diagnostic/DOT services from selected district were selected in virtue of accessibility, and enrolment of at least one patient in a week, These Health facilities offering TB diagnostic/DOT services are distributed as follows Rombo (l) Moshi Urban (4) Mwanga (2) Siha (l) Moshi Rural (2).
- 3rd stage, all new pulmonary TB patients in the selected diagnostic/DOT centers who meet criteria were studied to meet the proportion of patients per district as shown in table below.

Table 1 Distribution of average expected and interviewed new pulmonary TB according to district

District	Average New PTB per 2 months (according to 2008 report)	Expected per District	Interviewed per district
Moshi Urban	100	37	20
Moshi Rural	70	26	8
Siha	58	22	35
Rombo	28	10	15
Mwanga	16	6	6
Total	272	101	84

3.7. Qualitative data

3.7.1. Qualitative data

Ten (10) new pulmonary TB patients admitted at Kibong'oto TB hospital were selected purposively and involved in In-depth interview.

3.8. Variables

3.8.1. Dependent variables

Health seeking behavior of new pulmonary TB patients

3.8.2. Independent variables

- Socio- demographic.... (Age, sex, marital status, religion, occupation, education, etc).
- Cultural beliefs... (Tb is dirty disease, associated with HIV/ADS, caused by witchcraft,)
- Economic status (monthly income, total amount spends per illness, transport cost)
- Physical accessibility... (Distance to health facility and type of road). Tuberculosis pattern / symptoms ---- (fever, cough, Haemoptysisetc)
- Health services factors. . .. (Ownership, perceived quality of care, cost, distance)

3.8.3. Pre-testing

Pre testing of questionnaire to test ability to capture targeted information, how user friendly the tool was to interviewer and interviewee, average time taken, and logical flow of questions was done to ten patients with relapse TB admitted at Kibong'oto hospital, and necessary modification of the tools was done accordingly.

3.9. Data collection tools

Structure questionnaire with closed and open-ended questions was used. The questionnaire was written in English and translated in Swahili the National Language. The questions included socio -demographic information, economic factors physical accessibility to health facilities, tuberculosis clinical features, and health services factors.

3.9.1. Qualitative data collection tool

In depth interview guide was used to elicit individual experiences, opinions and feeling about the cause, diagnosis and treatment of TB among new pulmonary TB patients in Kilimanjaro region. All information were tape recorded.

3.10. Data processing and analysis

3.10.1. Quantitative data

Data were checked by principal investigator for completeness and consistency to cover discrepancy on daily basis, for nearby districts and on weekly basis for far districts like Rombo and Mwanga districts, while in the field. No questionnaire was discarded and replaced by another due to discrepancy.

Data including text responses and coded answers were entered in Microsoft excel data base, and analyzed using SPSS computer program version 2.09, descriptive and analytical statistics were computed. Comparison was done using chi-square tests for example between male and female or public and private health facility consulted. Univariate and multivariate Logistic regression analyses were used to assess the impact of socio-demographic, clinical features, physical accessibility on the health seeking pattern. Measures of association were presented using odds ratios (OR) together with 95% confidence intervals.

3.10.2. Qualitative data

Qualitative data analysis was done manually using Framework Thematic analysis which involves the following five steps (1) Data familiarization, (2) themes identification, (3) coding/indexing, familiarization (4) charting, (5) mapping and interpretation [17].

3.11. Familiarization Stage

This is the first stage of the thematic analysis, basically involved repeated reading the notes and listening to audio tape. This made the researcher familiar with data and began to see themes arising from the data. The arising themes were highlighted and the mistakes that happened during taking notes were edited.

3.11.1. Identifying the Themes

This stage aimed at generating categories, themes and patterns. Based on study aim and objectives, the recurrent emergent issue and concepts and the themes were developed

3.11.2. Index/ Coding

Coding of Specific sections was done by reading the data, by using numbers. Coding helped to refer the data easily.

3.11.3. Charting

Charts or sub heading was created. The aim of the charting was to build a picture of the data as whole using either charts or subheadings. This aid easy retrieval of data by cross checking with the original data.

3.11.4. Mapping and Interpretation

This stage followed charting stage where themes which had already been identifier included following approaches, defining concepts, mapping range and nature of the phenomena creating typologies, finding association, providing explanations and developing strategies.

3.12. Ethical Clearance

Ethical approval was obtained from KCM College Research and Ethical Review Committee. Permission to conduct this study was sought from Kilimanjaro Regional Medical Officer, District Medical Officers of; Siha, Rombo, Moshi Urban, Moshi Rural and Mwanga and from the in-charges, of selected TB diagnostic centers.

4. Results

A total of 84 new pulmonary TB patients on treatment for less than two (2) months were interviewed. This is 83.2% of the expected minimum sample size of 101 new pulmonary TB patients. Respondents were recruited from ten (10) health facilities in five (5) randomly selected districts in Kilimanjaro Region. The distribution of respondents per district is as follows; Moshi Urban (10), Moshi rural (8), Siha (35), Rombo (15) and Mwanga (6)

Table 2 Socio-demographic characteristics of new pulmonary TB patients

SOCIAL-DEMOGRAPHIC VARIABLES	NO =84	Percent (%)
AGE (YEAR)		
18-28	26	31
29-38	25	29.9
39-48	23	27.2
>49	10	11.9
Sex		
Male	41	48.8
Female	43	51.2
MARITAL STATUS		
Married	47	56
Not married	37	44
EDUCATION LEVEL		
No formal level	11	13.1
Complete primary education	63	75.0
Complete secondary education	6	7.1
College/ Technical/ Diploma/University	4	4.8
DISTANCE TO HEALTH FACILITY		
0-5km	33	39.3

6-10km	17	14.3
More than 10km2	51	46.4
Type of transport used		
Walking	17	20
Vehicle	51	61
Combination (walking and vehicle)	16	19
RESIDENCE		
Urban	36	43.9
Rural	48	57.1

43 (51.2%) were male, 74 (88.1%) were aged between 18-48.The mean age was 36 years, with the range of (18 — 86 years). Forty-seven 47 (56%) were married and 73 (86.9%) had formal education. Twenty-six, 26 (31%) were smokers and 28 (33.3%) drink alcohol. Those living within 0- 10 km were 43 (51.2%) and 48 (57.1%) were living in rural area while 36 (42.9%) were living in urban area. Fifty-one (61%) spent less than three hours to reach health facility while 7 (8%) spent more than six hours. The median time to reach health facility was 2 hours and mean time was 4.1 hours

Table 3 Distribution of new TB patients in Kilimanjaro Region according to type of tuberculosis from Jan – March 2010

Type of TB	Number	Percent
Pulmonary TB Negative	180	37.3
Pulmonary TB Positive	172	35.6
Extra pulmonary	131	27.1
Total	483	100

Nearly three quarter of new tuberculosis patients, 352 (72.9%) diagnosed in Kilimanjaro region from January to March 2010 were new pulmonary TB patients.

Table 4 Socio-economic characteristic of the study participants

Socio – economic variables	Number	Percent
Monthly income (TSH)		
0-50,000	20	37
50,001-100,000	18	33.4
100,001-150,000	9	16.6
>150,000	7	13
Total	54	100
Among spent on transport (TSH)		
<1000	21	33.3
1001-3000	18	28.6
3001-6000	20	31.7
>6000	4	6.6
Total	63	100
Total expenditure per illness		

0	6	7.1
1-50000	40	47.1
50001-10000	19	22.6
100001-150000	7	8.3
>150000	12	14.3
Total	84	100

Out of 84, 54 study participants were able to give the average of their monthly income, 38 (70.4%) respondents said their monthly income was 100,000 TSH. and below while few 7(13%) respondents had monthly income above 150,000 TSH. (Mean of monthly income 95,092.59 TSH, Range O — 500,000 TSH). Three quarter of respondents (63%) reported to have spent money on transport per visit. Fifty-nine (93.6%) spend less or equal go 6000 TSH on transport per visit and 4 (6.6%) respondents spent over 6000TSH.

Those who reported to have spent money during the course of their illness were 78 (93%)

Of respondents, among them 59 (75.6%) of the respondents reported to have spent 100,000 TSH or less and 12 (14.3%) reported to have spent over 150,000 TSH during the course of their illness.

4.1. Cultural-beliefs about Tuberculosis among new pulmonary TB patients

Interviews were conducted to patients admitted at Kibong'oto Hospital. In depth interview involved 10 new pulmonary TB patients, among them 8 were males, and 2 females. The age of patients was 18 years and above.

All participants were aware with common clinical presentation of pulmonary tuberculosis such as cough, night sweat, and weight loss.

With regard to causes of pulmonary tuberculosis; seven participants associate the cause with their occupation, particularly dusts and smoke from blast in mining areas, hardworking, dirty environment and one said is due to witchcraft. All participants believed that the tuberculosis can only be diagnosed at health facility using microscopy and X-rays.

All participants reported to have attended private health facility and were either treated for Pneumonia, malaria or typhoid and some have used traditional medicine. Cough syrup and paracetamol drugs were preferred when one had cough.

Participants had complex health seeking pattern before pulmonary tuberculosis was diagnosed; five of the interviewed patients had visited only modern health facilities and remain five patients had attended both alternative and modern health facility. For those who visited alternative care such as prayers said that they did so after being on modern treatment for long time without improvement. Male participant aged 69 years said:

After been treated several times without relief went to Sloam church and they prayed for 1 me for three consecutive days, while in church my condition worsens and my relative brought me here,,

A male participant aged 37 years, who was formerly a traditional healer and now born again Christian had this to say:

"l wanted to go to traditional healer..., on the way I met, someone who advised me to come to Kibong 'oto Hospital, so I decided to come here "

Nearly half of the participants said that if someone is severely wasted, with severe symptoms or bedridden people think he or she has HIV/AIDS.A female participants aged 20 years said that:

"If someone is severely wasted or bedridden, people will say he/she is HIV/AIDS positive especially when you meet group of people"

Now days in this era of HIV/AIDS, most of illnesses are associated with HIV/AIDS.

4.1.1. Tuberculosis is not exceptional. A male aged 69 years had this to say

"People say if you have TB you also have HIV/AIDS' study found out that traditional healer is one of the main choices for care for pulmonary TB patients during their course of their illness. Half of the interviewee said that if someone is wasted and treated but not responding people think that he/she is bewitched and thus seek traditional healers. The main reason for seeking care form traditional healer is due to affordable cost compared to modern treatment. As one male participant aged 42 years said

"You can give traditional healer "kiendapori" or "miguu yake" (a small amount of money) like 200 or 500 Tanzania shilling for treatment...„

4.2. Health seeking pattern of new PTB patients

Table 5 Distribution of study participants according to the type of care sought at the beginning of the illness

Type of care	No	Percent
Private Health facilities	36	42.9
Public Health facilities	30	35.7
Home remedies	12	14.2
Traditional healer	4	4.8
Other treatment	3	2.4
Total	84	100

All participants sought different care as first choice, 66 (78.6%) sought modern care at first while 18 (21.4%) study participant sought alternative care as first. Among those sought modern care, 36 (42.9%) participants sought care in private health facilities and

30 (35.7%) sought care in public Health facilities as first choice.

4.3. Predictors associated with place to seek care at first.

Table 6 Univariate and multivariate analyses of predictors of the type of care sought at first

Variable	Univariate analysis OR (95%CI) p-value	Multivariate analysis OR (95%CI) p value
Sex		
Female vs. male Age	2.26(0.76-6.73) o. 14	4.45 (0.83-24.01) 0.08
(>45vs<45yrs)	0.63(0.13-3.12) 0.56	<0.001(<0.001->999.99) 0.96
Expenditure per illness <100,000vs<100,000	1.05(0.29-3.73) 0.95	2.69(0.47-15.52) 0.27
Distance to health facility (>10km vs<10km)	4.00(1.28-12.55) 0.02	12.862(1.771-93.390) 0.01
Severity of symptoms (severe less severe)	3.92. (0.48-32.43) 0.20.	16.671 (1.07-260.10) 0.04.
Monthly income (TSH) >100,000 vs. <100,000	0.69(0.19-2.49.)0.56	0.26(0.04-1.80.) 0.17.

On univariate analysis (Table 6), statistical significant predictor of seeking modern care as the first choice was living 10 km within health care facility (OR4.O p=0.02). A number of factors such as age, sex, expenditure per illness, severity of symptoms, and monthly income did not show any statistical association with seeking modern care as first choice.

In multivariate analysis (Table 6) distance of 0-10km to health facility (OR 12.862, p=0.01) remained associated with seeking modern care as first choice and severe symptoms (Hemoptysis) (OR 16.6671, p= 0.04) turned to be associated with seeking modern care as first choice.

4.4. Predictors of delay seeking modern care

Table 7 Univariate and multivariate analyses of predictors of delay seeking modern among new pulmonary

Variable	Univariate analysis OR (95%CI) p-value	Multivariate analysis OR (95%CI) p value
Sex		
Female vs. male Age	0.84 (0.35-2.01) 0.70	1.32(0.37-4.73) 0.67
(>45vs<45yrs)	1.55. (0.43-5.60) 0.51	1.39(0.11.-17.08) 0.80
Expenditure per illness <100,000vs<100,000	2.61(0.83.-8.20) 0.09	4.33(0.96-19.50)0.06
Distance to health facility (>10km vs<10km)	1.50(0.62.-3.62) 0.37	3.38 (0.93-12.27) 0.06
Severity of symptoms (severe less severe)	0.50(0.49-1.90) 0.33	0.926(0.20-4.30)0.92.
Monthly income (TSH) >100,000 vs. <100,000	1.31(0.40-4.25) 0.65	0.79(0.20-3.17.) 0.74

All factors such as sex, age, expenditure per illness, distance to health facility, severity of symptoms and monthly income did not show statistical significance association with delay in seeking modern care, however expenditure > 100,000TSH per illness showed a trend toward significance, (OR 2.61 p=0.06).In multivariate analysis (table 7) no factor showed statistical significance association, however expenditure of > 100,000TSH per illness remained showing a trend toward significance (OR 4.33 p=0.06) and moreover I distance of more than10 km away from health facility showed trend toward significance (OR 3.38 p=0.06).

5. Discussion

This study aimed at describing the health seeking behavior and its predictors among new pulmonary TB patients in Kilimanjaro region. The key findings discussed here are as follows:

Among new pulmonary TB who responded, majority were within the age group 18-48, married and with formal education. Second, modem care unit were first choice of care for majority of patients, with more patients utilizing private health units than public health units. Distance to health facility and severity of symptoms were found to be predictors of seeking modern care as first choice. Participants reported complex health seeking pattern, also study found out that there are different perceptions in the community about the cause, symptoms and treatment of TB.

5.1. Proportion of new pulmonary TB patients in Kilimanjaro region

The finding of this study support the National TB data, that about two third of new TB patients diagnosed in the country have pulmonary tuberculosis. Patients with pulmonary tuberculosis are the good source of infection especially when they cough, sneeze or talk; they produce infectious droplets into the air [8]. This explains probably there is ongoing transmission of TB in the community, and delays in seeking care can also account for more transmission.

The reproductive and productive age group 18 to 48 years were found to be mostly affected, this is the same age group mostly affected by HIV/AIDS, making them at risk of developing tuberculosis. This has very serious implication to the community in terms of more transmission of TB and on economic impact. Efforts aiming at combating the two infectious diseases are highly needed.

Tuberculosis is disease of poor and illiterate population, as these two factors leads to overcrowding, malnutrition, poor housing which are risk factors for tuberculosis, this cannot be explained by this study as majority had formal education,

able to seek care in private health facilities as first choice of care despite of cost, and were living in rural area where there is no overcrowding. Contrary to study done in Dar es Salaam which showed that majority had equivalent or less than primary education, [18]. smoking is among the risk factors of TB, it was found that one third of respondents were active smokers, showing a gap in knowledge about the dangers of smoking to the community, and also due to fact that smoking can cause other cough related illness, this can lead to delay seeking TB care. There is no standard time to reach nearby health facilities documented, which can be explained by the nature of health care delivery system in the country, distance, transportation and poor roads, many studies report different time to reach a nearby health facility. This study found out that despite of Kilimanjaro been among the regions with good health facilities coverage, (1health unit per 4000 population) and more TB diagnostic centres, the average time to reach a nearby health facility was 2.7 hours which is contrary to other studies, one in Gambia which reported that majority took half an hour to health facility [15].and another in Mbokomu, Kilimanjaro which reported that majority of elderly patients took one hour to reach a nearby health facility [10].This can have an impact on care seeking, which can be positive or negative; from one place to another. There is a need of addressing clearly what is standard time to reach a nearby health facility as access to primary health care facility is projected as a basic social right.

5.2. The economic characteristic of pulmonary TB patients in Kilimanjaro region

Finding of this study have shown that monthly income of majority of new pulmonary TB patients interviewed was 100,000TSH and bellow, this is not enough to support the fact that TB is disease of poor population as most of new pulmonary TB patients were peasants and petty traders, and were also able to spend considerable amount of money on transport and during the course of treatment despite of available free TB services, in private and public health facility. The economic power has an effect on choice health provider and affordability [19]. People with good economic status will tend to seek care in private health unit probably to avoid long waiting hours, inconvenient opening hours as are not for profit, poor perception of staffs and problems with travel to public health facilities.

Ideally TB services are offered free but this is not the reality, most of TB patients incurred significant amount of money during their course of treatment. The costs are contributed by patients together with health facility. Patients incurred cost by seeking alternative care when they have Tb symptoms and care providers contribute to costs by

delaying suspecting and diagnosing TB. The free TB services start when one is suspected to have TB, so the investigation, treatment are done freely, whether in private or in public health facilities. This is in line with finding in study done in Uganda, which reported that approximately half of monetary costs, time lost from work and other socio costs are incurred before diagnosis [20].

Pulmonary tuberculosis impairs ones physical activities, if this is combined with poor transport or living a long distance to a health facility may lead to delay seeking modern care. Three quarters of new pulmonary Tb patients reported to have spent money on transport per visit, this may have impact on either diagnosis delay or not complying with treatment of TB, as diagnosis takes an average of two days and after diagnosis, the treatment takes six months for new TB patients. For disease which are treated for long duration like TB, transport and distance issues need to be taken care either by making services available to very low level of health system or involve different providers in provision of health services. Most of social services are well distributed in urban area compared to rural area, majority of TB patient in Dar es Salaam municipalities were living within a walking distance to health care an only few reported to had spent an average of USD 0.2 to 0.3 as travel costs to health facility[18].also in Gambia the average spent per trip was 1.5 USD, within one country there is difference in distribution of social services making difficulty in controlling infectious diseases and other social problems[15]..

5.3. Beliefs about tuberculosis

From qualitative data it was found out that, there is discrepancy between what National TB and Leprosy Programme advocates, that the most common symptom of pulmonary TB is persistent cough for two weeks or more and every patients presenting with this symptom should be regarded as TB suspect, and more probable if has history of TB contact to what community perceive about cough. Cough in the community is taken as normal presentation and is also related to one's occupation and so delay seeking TB care leading to more transmission in the public. This shows that there is need for the programme to improve on TB control communication to the community.

Because of high TB and HIV/AIDS co-infection rate especially in this era of HIV/AIDS, and association between TB and HIV/AIDS that they accelerate each other, this has created fear and stigma in the community, that when one cough people think he or she has HIV/AIDS and so delayed seeking TB care. TB symptoms like cough and weight loss has become stigmatizing symptoms. This has a serious implication in control of both I diseases. This supports the finding in study done in Thailand which reported that people related TB and HIV/AIDS so delayed seeking care [21].The fact is TB is not always associated with HIV/AIDS [22]. In Tanzania TB and HV/AIDS co infection rate is high [8]. What people

perceive usually determine the choice of type of care to seek for, during in depth interview it was found out that one will consult a traditional healer after being treated in modern care not improving and when they think one is bewitched. This was also reported in Rwanda that TB caused by witchcraft can only be treated by traditional healer [22].

5.4. The health seeking pattern

This study found out that there is a paradox in type of care visited for care at first, although majority sought care in modern health units, private health units were utilized more than public health units. This is opposite to what was expected, TB services are offered freely, it was expected that many new pulmonary TB patients would sought care in public heath units compared to private health units. The probable reasons for this can be due to, there are more private health units in Kilimanjaro, and are owned by Religious institution and are not purely private for profit, and also because most of the patients when they seek care they don't think they have TB. The findings of this study are in line with other studies which reported that two third of patients sought modern care as first choice [10,16].The difference among modern care units finding contradicts the findings in study done in Dar es Salaam Municipalities which reported that majority sought care in public health facilities as first choice, the reason mentioned been good patient-service provider relationship [18].

Few sought care in traditional healer as first choice, this can be contributed by the religious nature of study population, which is against traditional healer practice, and also fear of patients to express freely to researcher or medical personnel issues different from modern care practice[23],similar finding was observed in study done in Dar es Salaam [18], however is contrary to study done in Mwanza Tanzania, which reported that approximately 40% of TB patients used traditional healer as the point of first contact for their symptoms [24] .The reasons for this can be due to Mwanza may have few health facilities and with many traditional healer providers than Kilimanjaro region.

Living shorter distance to health facility and severe symptom like coughing up blood was found to be associated with seeking modern care as first choice. This can be explained by, people living near to a health units have advantage of accessing health information and their lost in terms of cost and time is minimal compared to people living far to a health unit. Perceived danger like coughing up blood sputum can make one seek appropriate care as early as possible,

Delays in seeking TB care is serious issues as far as TB control is concerned, delays leads to more transmission, more advance disease and more complications. It was observed in this study that the average duration from onset of symptom to seeking modern care was 10.2 weeks, which shows that people are not aware of when to go for TB screening, that there is a gap in flow of information to the public, one of very simple observation is most of information education and communication materials (I.E.C) are piling up in most of health facilities especially public. Some of them are not user friendly as are written English, making them inaccessible to the community.

The mean delay is contrary to finding in two studies done in Tanzania, one in Mwanza, which reported a delay of 17weeks, [24], and other in Dar es salaam Municipalities which reported a median delay of 1.5 month [18],This shows that the big variation observed can be contributed by time, as study done in Mwanza was done over ten years ago perhaps the situation is not the same, study done in Dar es Salaam showed the shortest mean delay of 1.5months(6weeks) which is showing a promising trend towards the early diagnosis of TB, suspect TB if one has a persistent cough of two weeks or more. This can be due to accessibility to media (radio, newspaper and television) among people in Urban and peri-urban areas.

Study limitation

This study involved already selected new pulmonary tuberculosis patients that are patients who sought care at modern health facility; it is possible that their views did not reflect who didn't seek care at modern health facilities.

Recall bias is also expected on duration of illness but this was controlled by involving those who were on Anti-TB medication for not more than two months and also by using open and close ended questions that allowed probing for 84 patients involved in quantitative method and in depth interview for 10 patients, but this rely heavily on patients memory, especially with respect to accuracy of onset of symptoms, average monthly income, expenditure per illness during the course of treatment.

The minimum sample size which was attained by eighty-two percent, this is due to geographical, time and logistic reasons. Majorities were treated as outpatients, and used their treatment-supporter to collect medication on weekly basis, making majority of them inaccessible. Information collected could not provide possible significant variations.

6. Conclusion

This study has shown that new pulmonary TB patients in Kilimanjaro region have demonstrated pluralistic health care seeking, by seeking care in both: modern health care facilities (public and private) and alternative care providers (traditional healers, home remedies spiritual healers). Most patients sought modern care as first choice. The main reason for this could be due to distance to health facility and severe symptoms like coughing up blood. More new pulmonary TB patients who sought modern care utilized private health facilities than public health facilities as first choice of care. This can be due to there are more private health facilities in Kilimanjaro region, and economic reasons that many can afford care in private health facilities and also most of private health facility are owned by religious institutions so are not for profit.

National Tuberculosis and Leprosy Control Programme should ensure smooth linkage between the modern health unit and alternative care provider as they are both consulted as first choice of care by new pulmonary TB patients

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare to have no competing interests: financial and non – financial to be disclosed.

Statement of informed consent

Written consent was sought from the study participants. Participant were informed about the objective of the study and asked to feel free to participate or withdraw from the study at any time they wish to do so after reading and understanding. Respect and confidentiality were observed. Code numbers were used instead of actual names. They were also informed about the use of audio tape

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