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Original Article

Knowledge and Healthcare Seeking Behavior among Tuberculosis Patients Attending Some Selected Tuberculosis Centers in Mogadishu, Somalia

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Abstract

Introduction: Tuberculosis is a disease caused by Mycobacterium tuberculosis germs. The bacteria are most commonly found in the lungs but can also harm other sections of the body. Worldwide about 1.5 million people died from tuberculosis (TB) in 2020 (including 214 000 people with HIV). TB is the 13th leading cause of death worldwide and the second leading infectious killer after COVID-19 (above HIV/AIDS). This study aims to determine TB patients' knowledge and healthcare-seeking behavior attending Mogadishu- Somalia, in some selected TB centers.

Methods: A cross-sectional study was conducted among tuberculosis patients in five TB management units in Mogadishu, Somalia. The data collection tools used to collect data were close-ended self-administrated questionaries from May to June 2022. The target population of this study was TB patients registered and taking treatment during data collection. The sample size of this study was 384 respondents. We used logistic regression analysis to identify the factors associated with knowledge about TB and healthcare-seeking behavior among TB patients.

Results: The study found that the mean score for all knowledge of tuberculosis was 22.7. 209 (54.4%) of the 384 TB patients had good knowledge of the disease, compared to 175 (45.6%) who had poor knowledge. The average score for TB patients' healthcare-seeking behavior was 6.67. 200 (52.1%) of the 384 respondents reported good healthcare-seeking behavior about TB, compared to 184 (47.9%) of the respondents who had bad healthcare-seeking behavior

Conclusion: TB patients had good knowledge of the signs and symptoms of TB, the transmission of TB, treatment of TB, and healthcare-seeking behavior of TB, but their knowledge of the cause of TB and the method of prevention of TB was not adequate. This study also revealed that the healthcare-seeking behavior of TB patients was good.

KEYWORDS: *Tuberculosis, Knowledge, Healthcare seeking, Mogadishu, Somalia*

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INTRODUCTION

Tuberculosis (TB) is a disease caused by mycobacterium tuberculosis germs. The bacteria are most commonly found in the lungs but can also harm other sections of the body (1). One-third of the world's population is expected to have mycobacterium TB, according to the World Health Organization (WHO)(2). Tuberculosis is one of the world's most common infectious diseases (3). Symptoms include cough for more than three weeks, fever with chills, night sweating, loss of appetite, fatigue, and in the worst cases, blood in sputum with chest pain. TB spreads through the air when a person with TB of the lungs or throat coughs, sneezes, or talks (1).

A study showed that a low knowledge score was more likely to be observed among the illiterate, females, rural residents, low-income, and youngest age groups. They also showed that less than half of the respondents were aware of the diagnosis and accessible treatment of TB, which could act as barriers to TB diagnosis and significantly affect the case notification rate. Furthermore, it has been proven that the disease significantly impacts social relations. This occurs when stigma, discrimination, and several misconceptions could contribute to poor adherence and treatment compliance (4).

The chest symptomatic must be aware of the disease etiology, symptomatology, management, mode of TB spread, preventive measures against the disease, and duration of treatment. Lack of such knowledge among TB patients may lead to potential delays in healthcare-seeking and the persistence of social stigma and misconceptions about TB and the resultant poor adherence to TB treatment (5).

Early detection and treatment of infectious TB cases is one of the key components of global TB control programs. While many factors contribute to the transmission and spread of TB, there is increasing recognition of the need for a better understanding of the role of behavioral factors, such as healthcare-seeking behavior, in TB control studies have shown that there is often considerable delay between the onset of symptoms and contact with healthcare providers factors affecting healthcare-seeking delay identified in studies worldwide include gender, age, education, economic constraints, self-treatment and access to health care, also found a relation between patient delay and underlying illness, poor perception of health services, and long distances to clinics. A better understanding of patients' healthcare-seeking behavior could help reduce delays in diagnosis, improve treatment adherence and offer suggestions for improving intervention strategies (6).

African countries reported >25% of new TB cases (2.5 million cases) and TB deaths (417 000 people) worldwide. Although highly effective treatments for TB are available, the control of the TB epidemic still remains a challenge in developing countries. Poverty, limited healthcare services, poor prevention programs and the emergence and rapid spread of human immunodeficiency virus (HIV) and multidrug-resistant TB (MDR-TB) have been identified as enabling factors for the high TB burden in African countries (7).

Somalia has one of the highest rates of MDR-TB in the world. It has a 491 case per 100 000 population prevalence rate and a 274 case per 100000 population incidence rate. In addition, the case detection rate in Somalia is only 49%, which means 51% of all TB cases are undiagnosed, according to the World Health Organization (WHO) Report 2018. The Somalia National TB Control Program adopted the directly observed treatment short course (DOTS) strategy in 1995. Through the implementation of this strategy, at least one TB Centre was set up in each of the eighteen regions of Somalia (7).

According to the latest WHO data published in 2018, Tuberculosis deaths in Somalia reached 10,058 or 6.58% of total deaths. The age-adjusted death rate is 130.73 per 100,000 population, ranking Somalia #3 globally. In Somalia, the prevalence rates of TB and MDR-TB still remain high. The levels of MDR-TB in Somalia are among the highest in the Eastern Mediterranean and African regions. Treatment of MRD-TB usually requires prolonged chemotherapy with highly toxic second-line drugs. Although MDR-TB treatment was started in some areas of Somalia, Banadir and other parts still suffer from a lack of anti-MDR TB drugs (4). Therefore, the purpose of this study is to assess the level of knowledge and healthcare-seeking behavior of TB Among TB patients attending some selected TB centers in Mogadishu -Somalia

Methods

Study setting and period: This study was conducted in five TB management units in Mogadishu, Somalia, namely Dharkenley TB center, Banaadir Hospital, Martini Hospital, Ayaan TB center, and Muslim aid TB center. The TB management units deliver the service for free, including the diagnosis and treatment for the registered patients. The study was conducted from November 2021 to August 2022.

Study design: A cross-sectional study design was used.

Study population: The study population was all TB patients aged 15 years and above attending, registered and taking treatment in TB centers during the study period. All TB patients who met inclusion requirements and were willing to participate in the study were included.

Data collection instrument: The questionnaire was created after reading various article reviews. A close-ended self-administered questionnaire was used to collect data.

Data analysis and interpretation: After data collection, data were entered into the Statistical Package for the Social Sciences (SPSS) version 20 for analysis. Odds ratio with 95% confidence interval and binary logistic regression were used to assess the significance and strength of the association.

Ethical consideration of the study

This study obtained permission and approval letter from the ethical review committee of Jamhuriya University for Science and Technology (JUST) for the TB management administrators to carry out this research activity. The research samples were collected with respect to ethical values.

RESULTS

Socio-demographic characteristic of TB patients: The majority of respondents, 228 (59.4%) were male, while 156 (40.6%) were female. The highest frequency in the age group was (26-35) years, while the minority age group was (>56) years, as shown in table 1. The majority of respondents 167 (43.5%) were illiterates, 115 (29.9%) were primary, 74 (19.3) were secondary, and 28 (7.3%) were University. About 222 (57.8%) of respondents were unemployed, while 162 (42.2%) were employees. The majority of them, 195 (50.8%), were married, 79 (20.6%) were single, 56 (14.6%) were divorced and 54 (14.1%) were widowed. The majority of respondents 337 (87.8%), were urban, while others, 47 (12.2%) were rural. In the treatment time of respondents, 321 (83.6%) were first time while 63 (16.4%) were Second time (Table 1).

Table 1: Sociodemographics Characteristics and the treatment time of TB patients

Variables	Frequency	Percentage%
Sex		
Male	228	59.4%
Female	156	40.6%
Age		
15-25	86	22.4%
26-35	112	29.2%
36-45	89	23.2%
46-55	68	17.7%
>56	29	7.6%
Educational status		
Illiterates	167	43.5%
Primary	115	29.9%
Secondary	74	19.3%
University	28	7.3%
Occupational status		
Employee	162	42.2%
Unemployed	222	57.8%
Martial status		
Married	195	50.8%
Single	79	20.6%
Widowed	54	14.1%
Divorced	56	14.6%
Residence		
urban	337	87.8%
rural	47	12.2%
Treatment time		
Frist time	321	83.6%
Second time	63	16.4%

Knowledge of TB patients: Of the respondents, 226 (61.1%) were cursory from God, 295 (76.8%) were virus, and only 95 (24.7%) correctly answered the question about

the cause of TB by saying that the cause is bacteria. The majority of respondents knew that TB has signs and symptoms of cough (94.8%), blood-stained sputum (55.5%), fever (83.1%), weakness (67.2%), night sweating (71.1%) and only (44.8%) of the respondents knew that TB has a sign and symptom of enlargement of lymph nodes. Regarding TB transmission, 301 (78.4%) correctly answered that TB is transmittable, while 83 (21.6%) don't know that TB is transmittable. The majority of the respondents knew that TB is transmitted by coughing (92.7%), sneezing (62.8%), and drinking raw milk (15.9%), while incorrectly answered by kissing (28.6%), talking (34.4%), using the same utensils (76.6%), and sleeping together (24.7%). According to the common parts of the body affected by TB, most patients know that the pulmonary part is mostly affected by TB 82.0%. All participants knew that the TB is curable. The majority of the patients (74.7%) knew that they may die if they did not take TB treatment, but only (32.6%) of them knew that they transmit the disease to others if they did not take TB treatment. The majority of the respondents, 348(90.6), knew that TB is treated for six months, while incorrectly answered for four months (13.0) and two months (5.5). Most 200 (52.1%) patients answered that anti-TB drugs have side effects, while 184 (47.9%) responded that anti-TB medications have no side effects.

The majority of respondents, 322 (83.9%), knew that TB becomes life-threatening if untreated, while 62 (16.1%) don't know that TB becomes life-threatening if left untreated. The majority of respondents, 273 (71.1%), knew that TB could be prevented, while 111 (28.9%) didn't realize that TB could be prevented. The majority of the respondents 328 (85.4), 109 (28.4), answered that TB can be prevented by avoiding direct coughing and breathing, and drinking boiled milk, but 257 (66.9) of them wrongly answered by saying TB can be prevented by using separate utensils 328 (85.4) and avoid kissing 114 (29.7). Only 69 (18.0) of the respondents knew that there was a vaccine to prevent TB. The mean score for all knowledge of tuberculosis was 22.72. 209 (54.4%) of the 384 TB patients had good knowledge of the disease, compared to 175 (45.6%) who had poor knowledge (Table 2).

Table 2: Knowledge of TB patients about the etiology, signs and symptoms, transmission, treatment, and prevention of TB in TB centers in Mogadishu from November 2021 to August 2022.

Variables	Frequency (%)	
	Yes	No
Cause of TB		
Cursory from God	246 (64.1%)	138 (35.9%)
Bacteria	95 (24.7%)	289 (75.3%)
Virus	295 (76.8%)	89 (23.2%)

Signs and Symptoms		
Cough	364 (94.8%)	20 (5.2%)
Blood stained sputum	213 (55.5%)	171 (44.5%)
Fever	319 (83.1%)	65 (16.9%)
Weakness	258 (67.2%)	126 (32.8%)
Night sweating	273 (71.1%)	111 (28.9%)
Enlargement of lymph nodes	172 (44.8%)	212 (55.2%)
Transmission of TB		
Is TB transmitted?	301 (78.4%)	83 (21.6%)
Mode of Transmission		
Sneezing	241 (62.8%)	143 (37.2%)
Coughing	356 (92.7%)	28 (7.3%)
Kissing	110 (28.6%)	274 (71.4%)
Talking	132 (34.4%)	252 (65.6%)
Using some utensils	294 (76.6%)	90 (23.4%)
Sleeping together	95 (24.7%)	289 (75.3%)
Drink raw milk	61 (15.9%)	323 (84.1%)
most common part of the body affected by TB		
Pulmonary	315 (82.0%)	69 (18.0%)
Brain	87 (22.7%)	297 (77.3%)
Bones	96 (25.0%)	288 (75.0%)
Is TB curable?		
Yes	384 (100%)	
What will happen if you don't take TB treatment?		
I can lead a normal life	152 (39.6%)	232 (60.4%)
I may die	287 (74.7%)	97 (25.3%)
I can transmit the disease to others	125 (32.6%)	259 (67.4%)
For how long is regular TB treatment to be given?		
2 month	21 (5.5%)	363 (94.5%)
4 month	50 (13.0%)	334 (87.9%)
6 month	348 (90.6%)	36 (9.4%)
Do TB drugs have side effects?		
Yes	184	47.9%
No	200	52.1%
TB becomes life-threatening if untreated.		
Yes	322	83.9%
No	62	16.1%

Is TB preventable?		
Yes	273	71.1%
No	111	28.9%
How can TB be prevented?		
Vaccination	69 (18.0%)	315 (82.0%)
Using separate utensils	257 (66.9%)	127 (33.1%)
Avoid direct coughing and breathing	328 (85.4%)	56 (14.6%)
Avoid kissing	114 (29.7%)	270 (70.3%)
Drinking boiled milk	109 (28.4%)	275 (71.6%)
Knowledge about TB		
Good	209	(54.4%)
Poor	175	(45.6%)

Healthcare-seeking behavior of TB patients: Most respondents, 276 (71.9%), would return to seek advice or treatment from health providers. Most respondents, 208 (54.2%), didn't visit traditional local healers before the health care unit. The majority of respondents, 314 (81.8%), think that getting early treatment is beneficial for people who are sick. Most of the respondents 209 (54.5%) believe that the people only with a severe cough should go to the clinic to test for TB. While 225 (66.4%) didn't take the TB symptoms seriously or were hoping the symptoms would disappear with time. Most respondents, 210 (54.6%), thought people do not make TB follow-up visits because of fear of what people will say about them. Meanwhile, 200 (52.1%) attend the clinic outside their catchment area (Table 3).

Table 3: Healthcare seeking behavior of TB patients about the etiology, signs and symptoms, transmission, treatment, and prevention of TB in TB centers in Mogadishu, from November 2021 to December 2022

Variables	Frequency	Percentage
Would you return to seek advice or treatment from this provider?		
Yes	276	(71.9%)
No	108	(28.1%)
Have you visited traditional local healers prior to the health care unit?		
Yes	176	(45.8%)

No	208	(54.2%)
Do you think that early treatment is beneficial for people who sick?		
Yes	314	(81.8%)
No	70	(18.2%)
Do you think that people only with a severe cough should go the clinic to test for TB?		
Yes	209	(54.5%)
No	175	(45.5%)
Do you take the TB symptoms seriously or you are hoping the symptoms with you disappear with time?		
Yes	129	(33.6%)
No	225	(66.4%)
Do you think people do not go back to the clinic as a result of TB investigation?		
Yes	159	(41.4%)
No	225	(58.6%)
Do you think people do not make TB follow-up visits because of fear of what people will say about them?		
Yes	210	(54.6%)
No	174	(45.4%
Do you currently attend the clinic that is outside your catchment area?		
Yes	200	(52.1%)
No	184	(47.9%)
Do you prefer buying treatment from the pharmacy before you go to the clinic for TB treatment		
Yes	190	(49.5%)

No	194	(50.5%)
Do you prefer going to traditional healers before you seeking medical TB treatment?		
Yes	185	(48.2%)
No	199	(51.8%)
Do you think that the early TB symptoms would go away on their own ?		
Yes	185	(48.2%)
No	199	(51.8%)
Health care seeking behavior		
Good	200	(52.1%)
Poor	184	(47.9%)

Determinants of knowledge about TB:

The bivariable analysis showed that knowledge about TB was significantly associated with educational and marital status with a p-value <0.05. However, gender, age, occupation, and residency did not show a significant association with knowledge about TB(Table 4)

Table 4: Logistic regression analysis of factors associated with knowledge of TB patients in some selected TB centers in Mogadishu

Variable	Category	Knowledge about TB		95% CI for OR	P value
		Poor	Good		
Gender	Male	102	126	1.086(0.722-1.635)	0.691
	Female	73	83	Ref	
Age	15-25	45	41	0.480(0.200-1.150)	0.100
	26-35	46	66	0.755(0.322-1.773)	0.519
	36-45	39	59	0.675(0.282-1.615)	0.377
	46-55	35	33	0.496(0.201-1.222)	0.128
	56 and above	10	19	Ref	
Education	Illiterate	82	85	0.283(0.109-0.733)	0.009*
	Primary	57	58	0.278(0.105-0.735)	0.010*
	Secondary	30	44	0.400(0.145-1.104)	0.077

	University	6	22	Ref	
Occupation	Employee	72	90	1.082(0.720-1.625)	0.704
	Unemployed	103	119	Ref	
Martial status	Married	82	113	1.837(1.008-3.351)	0.047*
	Single	37	42	1.514(0.760-3.016	0.239
	Widowed	24	30	1.667(0.784-3.542	0.184
	Divorced	32	24	Ref	
Resident	Urban	153	184	1.058(0.574-1.951	0.856
	Rural	22	25	Ref	
Treatment	Frist time	143	178	1.285(0.748-2.207)	0.364
	Second time	32	31	Ref	

CI: Confidence interval, **OR:** Odds ratio, ***:** Statistically significant

Determinants of healthcare-seeking behavior about TB:

The bivariable analysis showed that healthcare-seeking behavior about TB was significantly associated with age, educational status, and treatment time with a p-value <0.05. However, gender, occupation, marital status, and residency did not significantly correlate with healthcare-seeking behavior about TB (5).

Table 5: Logistic regression analysis of factors associated with the healthcare-seeking behavior of TB patients in some selected TB centers in Mogadishu

Variable	**Category**	**Healthcare seeking behavior about TB**		**95% CI for OR**	**P value**
		Poor	Good		
Gender	Male	106	122	1.151(0.766-1.730)	0.499
	Female	78	78	Ref	
Age	15-25	48	38	0.356(0.146-0.871)	0.024*
	26-35	55	57	0.466(0.195-1.113)	0.086
	36-45	45	44	0.440(0.181-1.071)	0.071
	46-55	27	41	0.683(0.271-1.723)	0.420
	56 and above	9	20	Ref	
Education	Illiterate	78	89	0.248(0.090-0.684)	0.007*
	Primary	67	48	0.156(0.055-0.439)	0.000*
	Secondary	34	40	0.256(0.088-0.745)	0.012*
	University	5	23	Ref	
Occupation	Employee	82	80	0.829(0.553-1.244)	0.366
	Unemployed	102	120	Ref	
Marital status	Married	89	106	1.191(0.657-2.159)	0.565
	Single	35	44	1.257(0.633-2.498)	0.514
	Widowed	32	22	0.688(0.323-1.462)	0.330
	Divorced	28	28	Ref	

Resident	Urban	160	177	1.154(0.627-2.126)	0.645
	Rural	24	23	Ref	
Treatment	Frist time	163	158	0.485(0.275-0.855)	0.012*
	Second time	21	42	Ref	

CI: Confidence interval, **OR:** Odds ratio, ***:** Statistically significant

Discussion

This study assessed the knowledge level about TB and TB patients' healthcare-seeking behavior. Our study found that the mean score for all knowledge of tuberculosis was 22.72. 209 (54.4%) of the 384 TB patients had good knowledge of the disease, compared to 175 (45.6%) who had poor knowledge. Another study at Gimbi General Hospital West Ethiopia showed that the overall knowledge mean score about TB was 16.23. Of the 138 TB patients, 85(61.6%) had good knowledge about TB, while 53(38.4%) had poor knowledge about TB(8). The majority of the participants, 246(64.1), believe that TB was caused by cursory from God, only 95(24.7) correctly responded with bacteria, and 295(76.8) incorrectly thought the cause is a virus. This indicates that most patients who participated in the study didn't know the cause of TB. People may become susceptible to infection due to this poor knowledge. According to the signs and symptoms of TB, this study indicated that most participants knew the signs and symptoms of TB, and the majority have identified cough as the major sign of TB.

There is another similar study conducted in Pakistan that showed 39% of the respondents mentioned coughing, coughing with blood (24%), or coughing with fever (15%), but only 7% mentioned coughing for 2-3 weeks (1). According to the mode of TB transmission, the respondents correctly responded with cough 241 (62.8), through sneezing 356 (92.7) and drinking raw milk 61 (15.9). At the same time, incorrectly responded to kissing 110 (28.6), talking 132 (34.4), using the same utensils 294 (76.6), sleeping together 95 (24.7). Another study conducted at Gimbi General Hospital West Ethiopia, reported that the majority of the patients, 111(80.4%), knew that TB is a transmittable disease, and the majority of the respondents know that TB is transmitted by coughing (94.6%) and sneezing (64.9%). The majority of the patients wrongly answered that TB is transmitted by sharing the same utensils (72.1%) and sleeping together (64.0%) (8).

The average score for TB patients' healthcare-seeking behavior was 6.67. 200 (52.1%) of the 384 respondents reported good healthcare-seeking behavior about TB, compared to 184 (47.9%) of the respondents who had bad healthcare-seeking behavior. Another study conducted at Gimbi General Hospital West Ethiopia showed that the overall healthcare-seeking behavior of TB patients was 2.86. Of the 138 respondents, 118(85.5%) had good

healthcare seeking behavior about TB while 20(14.5%) of the respondents had poor healthcare seeking behavior(8). In the majority of the study, 276 (71.9%) correctly responded that they would return again to seek advice or treatment from a health provider. In contrast, 108(28.1) incorrectly responded that they would not return again to seek advice or treatment from a health provider. The study shows 209 (54.5%) participants think that people only with a severe cough should go to the clinic to test for TB, while 175 (45.5%) responded that they did not think that people only with a severe cough should go to the clinic to test for TB. A similar study in South Africa showed that the respondents (55.4%) reported that only people with a severe cough should go to the clinic to test for TB (9).

In conclusion, TB patients had good knowledge of signs and symptoms, transmission, treatment, and healthcare-seeking behavior of TB, but their knowledge of the cause, and method of prevention about TB were not adequate. Thus, we recommend that healthcare workers and community health workers conduct health education and health promotion for TB patients about TB. This study also revealed that TB patients' healthcare-seeking behavior was good. To achieve improved healthcare-seeking behavior, we suggest Health professionals should educate and counsel patients on the importance of seeking care to the health centers and health professionals for good TB management.

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Conflict of interest: No conflict of interest is declare.

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