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Knowledge and health care seeking behavior of tuberculosis patients attending hospital in Jalalabad, Kyrgyzstan

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Abstract

Background: Tuberculosis is the 13th leading cause of death and the second leading infectious killer disease affecting specially low and middle income countries. In Central Asia, Kyrgystan has the highest tuberculosis incidence. The main objective of the study is to explore patient's early health seeking behaviour and awareness of tuberculosis.

Methodology: A cross-sectional investigation was conducted from January 22 to February 26, 2024 at the Tuberculosis Isolation Center in Jalalabad. The convenience sampling strategy was utilized to obtain the total sample size (260) from the hospital. Patients admitted to the hospital for the treatment of their Tuberculosis were only included in the study.

Result: Out of 260 respondents who visited TB center were 26 ± 2 years with majority 34.6% in the years between 20-30, similarly regarding gender majority were male respondents with 64% where female respondents were 35.8%. In the study it shows there is a statistically significant association between age and knowledge about tuberculosis (p = 0.033). Individuals aged 20-30 tend to have better knowledge. Education level of respondents also shows significantly associated with knowledge about tuberculosis (p=0.001). Illiterate individuals and those with only primary education are more likely to have poor knowledge compared to those with secondary or higher education.

Conclusion: The knowledge regarding tuberculosis was high 91.2% among TB patients similarly overall health seeking behavior of our respondents shows that 97.7% had a good health care seeking practices.

Keywords: Knowledge; Health seeking; Behavior; Tuberculosis

1. Introduction

In 2021, over 1.6 million individuals died of tuberculosis (187 000 of whom were HIV positive). In Central Asia, Kyrgystan has the highest tuberculosis incidence. Kyrgystan is among the 27 nations with the highest TB and MDR- TB burden in the world (1). Globally, around 10.6 million people have been infected with tuberculosis 6 million males, 3.4 million females, and 1.2 million children. Tuberculosis is found in all countries and age groups. However, tuberculosis is both treatable and avoidable. Multidrug-resistant tuberculosis (MDR-TB) is a public health concern. Only roughly one in every three persons with drug-resistant tuberculosis received treatment in 2021. The United Nations Sustainable Development Goals (SDGs) include one of their health targets: ending the tuberculosis epidemic by 2030. (2)

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The Kyrgyz Republic ranks in the top 30 nations in the world for multiple drug-resistant tuberculosis (DR-TB). According to the World Health Organization (WHO), 29 percent of new tuberculosis infections in the Kyrgyz Republic are drug-resistant, compared to 3.3 percent worldwide. (3)

The USAID TB CARE I Program in Kyrgyzstan aims to assist the Kyrgyz Republic in implementing the National Tuberculosis Program by providing assistance in the following areas: universal access to care, laboratory quality checks, infection control checks, programmatic management of drug-resistant tuberculosis, monitoring and evaluation. The USAID TB CARE I initiative helps to establish collaboration and coordination among all partners involved in tuberculosis control, effectively mobilizing available capital and human resources to combat this illness in the Kyrgyz Republic. (4)

Failure or delay in seeking health care from health institutions increases the likelihood of disease spread and poor treatment outcomes. Health care seeking behavior in presumptive TB patients is described as how patients with presumptive TB in the community seek help from the nearest health institution or use health care for their TB symptoms in order to maintain good health and avoid illness.(5) According to one community-based study conducted in Zambia, 65.1% of people with tuberculosis do not seek medical care for their symptoms. (6)

In India, tuberculosis remains a hazardous health problem, with over 3,000 fatalities and 2.2 million new cases each year.(7) The knowledge and stigma of sickness influence health-seeking behavior. A study in India on the health-seeking behavior of TB patients found a link with stigma; those who claimed they were ashamed of having TB were more likely to receive treatment after 15 days. (8)

To reach the objective of a TB-free world, all TB patients must have global access to high-quality treatment. (9) Most countries currently offer free treatment options under the National Tuberculosis Control Programme (NTP). NTP is typically provided by the government health services of a country's national health system. However, the NTP delivery system includes numerous private health care providers and non-governmental organizations (NGOs). (10)

Early detection and treatment shortens the infectious period, which is critical to tuberculosis control. In contrast, TB patients are diagnosed and treated early, and in the majority of cases, morbidity, mortality, and drug resistance are likely to be higher. (11) A fundamental difficulty for TB control efforts is ensuring that TB patients seek diagnosis and, once identified, receive treatment. (12) The poor case detection rate can be attributed to a variety of circumstances, including patient-related delays in seeking medical care or the health-care system's failure to diagnose patients. According to studies, patient delay accounts for 77% of the entire delay duration between the beginning of TB symptoms and the initiation of treatment. (13)

2. Methodology

A cross sectional study was carried out from January 22 to January 26, 2024 from tuberculosis isolation center of Jalalabad. The convenience sampling technique was used to collect the total sample size (260) from the hospital. The patient who admitted in the hospital for the treatment were only included for the study. SPSS software was used to do the analysis of the result from the data they were collected. P value less than 0.05 was considered as statistically significant.

3. Results of the study

A total of 260 patient who came to TB center for their treatment were included for this study. The average age of the respondents who visited TB center were 26 ± 2 years with majority 34.6% in the years between 20-30,14.2% were below 20 years of age, 24.2% were in between 30-40 and 26.9% were above 40 years of age. (Table1)

Table 1 Distribution of respondents according to their socio-demographic information

SN	Variable	Frequency(n=260)	Percentage (%)
1.	Age		
	Below 20	37	14.2
	20-30	90	34.6
	30-40	63	24.2

	Above 40	70	26.9
2	Education		
	Literate	109	41.9
	Primary level	96	26.9
	Secondary level	44	16.9
	Above secondary level	11	4.2
3	Income		
	Below 1 lakh	68	26.2
	Below 5 lakhs	74	28.5
	Below 10 lakhs	46	17.7
	Below 20 lakhs	36	13.8
	Other	36	13.8
4	Gender		
	Female	93	35.8
	Male	167	64.2
5	Nationality		
	Kyrgyzstan	229	88.1
	Uzbekistan	12	4.6
	Other	19	7.3
6	Marital status		
	Single	83	31.9
	Widow/widower	11	4.2
	Divorced	41	15.8
	Married	125	48.1

Above table shows, majority 41.9% respondents were literate 26.9% were having primary level of education, 16.9% had secondary level of education and only 4.2% had above secondary level education. Majority 28.5% of the respondents were having income below 5 lakhs, 26.2% were having below 1 lakh 17.7% were having below 10 lakhs,13.8% were having below 20 lakhs and 13.8% were not having an exact validation about their income. Majority were male respondents with 64% where female respondents were 35.8%, similarly regarding nationality, Kyrgyz respondents were 88.1% followed by 4.6% from Uzbekistan and others. Similarly in this study 48.1 % of our respondents were married, 31.9% were single followed by 15.8 % divorced and 4.2% were widow. (Table 1)

Table 2 Distribution of respondents according to their TB treatment status

Responses	Frequency(n)	Percentage (%)
1st line	103	39.6
2nd line	54	20.8
3rd line	61	23.5
Completed	11	4.2
Treatment break	31	11.9
Total	260	100

Above table shows the treatment status of TB patients of which 39.6% are under 1st line treatment, 20.8% were having 2nd line treatment, 23.5% were having 3rd line, only 4.2% very minimal percentage have completed their course of treatment and 11.9% are in treatment break.

**Table 3** Distribution of respondents according to their habit

Responses	Frequency(n)	Percentage (%)
Smoking	54	20.8
Drinking	48	18.5
Both	37	14.2
None	121	46.5
Total	260	100

Above table shows 20.8% of the respondents have a habit of smoking,18.5% have drinking habits and remaining 14.2% are having both habits and majority 46.5% have none of the habits.

Table 4 According to respondents' responses, is TB a major health problem in Kyrgyzstan

Responses	Frequency(n)	Percentage (%)
Yes	155	59.6
No	105	40.4
Total	260	100

Above table shows 59.6% respondents answered yes for TB being a major health problem in Kyrgyzstan and 40.4% answered no it's not a major health problem in their country.
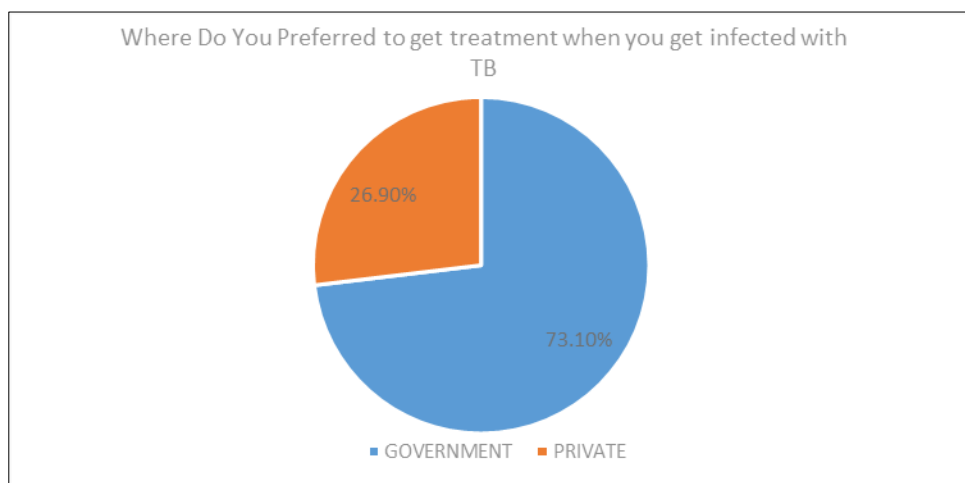
Figure 1 Respondents' choice of place for their treatment

Above figure shows the patients preferences to get treatment when they get infected with TB of which 73.1% preferred to receive treatment from government facility whereas remaining 26.9% preferred private health facility.

Table 5 Respondents' perception on getting admission to hospital after getting TB

Responses	Frequency(n)	Percentage (%)
Yes	226	86.90
No	34	13.10
Total	260	100

Above table shows that majority of the respondents 86.9% like to get admitted and 13.1% do not like to get admitted for the treatment of their TB.

Table 6 Distribution of respondents according to their level of knowledge

Responses on Knowledge about	Correct answer	Incorrect responses
Bacteria as a cause of TB	204(78.5)	56(21.5)
Is it curable	222(85.4%	38(14.6)
Mode of transmission	191(73.5)	69(26.5)
Organ mainly affected by TB	242(93.1)	18(6.9)
Duration of treatment	217(83.5)	43(16.5)
Only restricted to lung	204(78.5)	56(21.5)
Causative organism	242(93.1)	18(6.9)

Above table represents a different aspect or question related to knowledge on tuberculosis, with columns indicating the number of respondents who answered each question correctly and incorrectly, regarding the cause of TB was answered correctly by 78.5 percent of our respondents similarly curability of TB knowledge based question was asked where 85.4 % of our respondents correctly answered regarding mode of transmission was correctly answered by 73.5 % of our respondents, organ mainly affected was answer by majority 93.1% of our respondents ,similarly duration of TB treatment was aware to majority 83% of our respondents and only 56% of our respondents were in assumption of TB infection restricted to lungs which was a wrong concept.

Table 7 Distribution of respondents according to their level of knowledge on TB

Level of Knowledge	Frequency(n)	Percentage (%)
Good Knowledge	237	91.2%
Poor Knowledge	23	8.8%

Above table shows the knowledge of TB shared by our respondents, 91.2% of our respondents shared good knowledge whereas only 8.8 percent of respondents were with poor knowledge.

Table 8 Factors associated with Knowledge on tuberculosis with socio demographic information

	Level of Knowledge			P-vale
	Total(n=260)	Good Knowledge	Poor Knowledge	
Age				0.033*
Below 20	37	35	2	
20-30	90	76	14	
30-40	63	58	5	

Above 50	70	68	2	
Education				0.001*
Literate	109	90	19	
Primary level	96	92	4	
Secondary Level	44	44	0	
Above secondary	11	11	0	
Occupation				0.004*
Agriculture	88	73	15	
Business	61	56	5	
Government Job Holder	23	21	2	
Private Job Holder	76	76	0	
Others	12	11	1	
Type of Family				0.001*
Nuclear	151	129	22	
Single Parent	73	73	0	
Guardian	36	35	1	

*Statistically Significant

Based on the provided data, several socio-demographic factors are associated with knowledge about tuberculosis. There is a statistically significant association between age and knowledge about tuberculosis (p = 0.033). Individuals aged 20-30 tend to have better knowledge compared to those below 20 or aged 30-40. Education level is significantly associated with knowledge about tuberculosis (p = 0.001). Illiterate individuals and those with only primary education are more likely to have poor knowledge compared to those with secondary or higher education. Occupation also shows a significant association with knowledge about tuberculosis (p = 0.004). Individuals in agriculture and business sectors tend to have poorer knowledge compared to those working in government or private sectors. The type of family is significantly associated with knowledge about tuberculosis (p = 0.001). Individuals from nuclear families tend to have better knowledge compared to those from single-parent or guardian households.

Table 9 Distribution of respondents according to their Health Care Seeking behaviour

Variables	Frequency	Percentage
Would you return again to the healthcare facility to seek advice and treatment		
Yes	237	91.2%
No	23	8.8%
Do you think getting early treatment is good for treating TB		
Yes	233	89.6%
No	27	10.4%
Have you visited traditional healers		
Yes	37	14.2%
No	223	85.8%
Health care seeking behavior		
Good	254	97.7%
Poor	6	2.3%

Above table shows the health seeking behavior of our respondent's 91.2 percent of our respondents agreed for going again to healthcare facility to seek advice and treatment and rest denied, where as 89.6 percent of our respondents agreed to get early treatment and only 10.4% denied, it was seen that 14.2 percent of our respondents shown superstition and went to traditional healers and 85.8 percent went to professional. Overall health seeking behavior of our respondents shows that 97.7% had a good health care seeking practices whereas remaining 2.3% only had poor practices. (Table 9)

Table 10 Knowledge about USAID TB care I program implemented in Kyrgyzstan

Responses	Frequency(n)	Percentage (%)
Yes	156	60
No	104	40
Total	260	100

Above table shows that 60% of people know about USAID TB care program implemented in Kyrgyzstan and 40% doesn't know about the program.

Table 11 Distribution of respondents by the way they got diagnosed for their TB

Responses	Frequency (n)	Percentage (%)
Sputum test	120	46.20
Chest X ray	80	32.30
Blood test	60	21.50
Total	260	100

Above table shows 46.2% respondents responding sputum test as diagnosis for their TB, 32.3% as chest x-ray and remaining 21.5% said through blood test they had confirmed their diagnosis.

Table 12 Respondents thought on getting recovered by self

Responses	Frequency (n)	Percentage (%)
Yes	104	40
No	154	60
Total	260	100

Above table shows 40% respondents thought they can recover by themselves whereas majority of them 60% believed that they cannot get recovered by themselves.
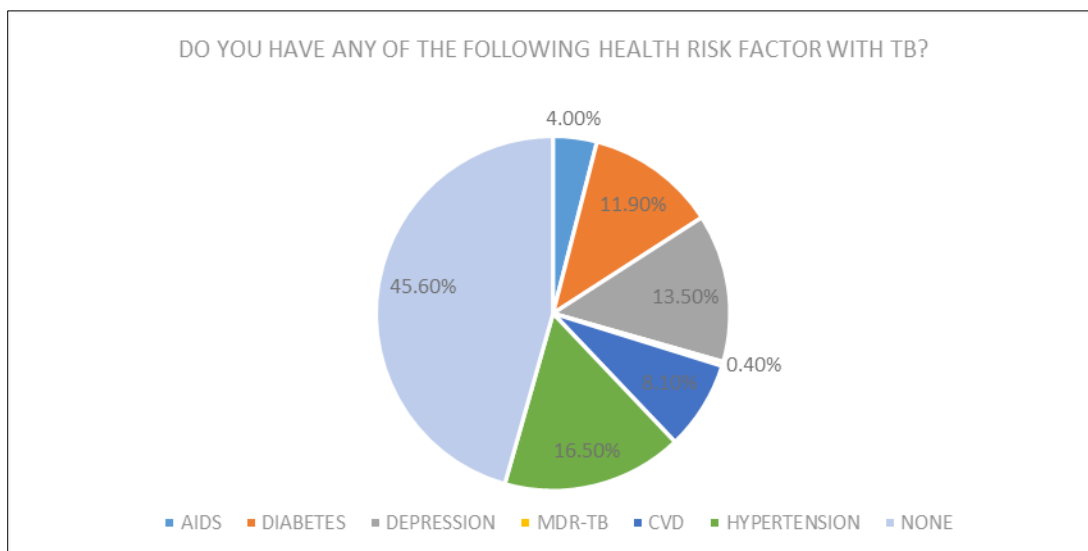
Figure 2 Distribution of respondents according to their Health risk factors with TB

Above figure shows 4% respondents were having HIV/AIDS, 11.9% were having Diabetes along with TB, 13.5% were suffering from depression, 0.4% were having MDR-TB, 8.1% were having CVD, 16.5% were having Hypertension and remaining 45.6% didn't have any associated health consequences with TB.

Table 13 Distribution of respondents according to their mental health (0-10 scale)

| Responses	Frequency (n)	Percentage (%)
1-3(Depressed)	86	33.1
4-7(Moderate impact)	131	50.4
8-10(Good)	43	16.5
Total	260	100

Above table shows 33.1% respondents said they were depressed, 50.4% were moderate with their health status diagnosed with TB and remaining 16.5% were good didn't have any effect on their mental health.

Table 14 Have respondents received moral support by their family or friends

Responses	Frequency(n)	Percentage (%)
Yes	200	76.9
No	60	23.1
Total	260	100

Above table shows 76.9% respondents have received moral support from their family members or might be from their friends where as remaining 23.1% didn't get.
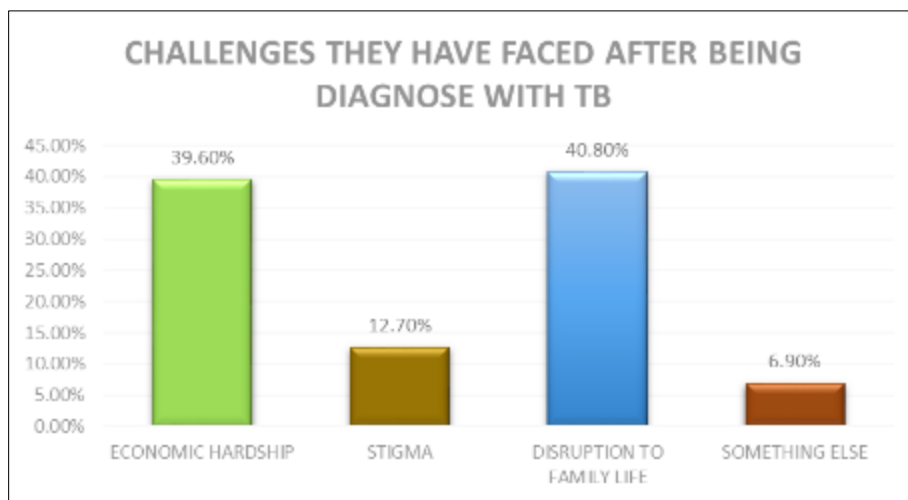
Figure 3 Challenges faced by the respondents after being diagnosed with TB

Above figure shows the challenges respondents have faced after being diagnosed with TB of which 39.6% were having economic hardships, 12.7 were having stigma,40.8% were having disruption to life and 6.9% were having something else. (Figure 4)

Table 15 Distribution of respondents according to the impact of TB on daily living?

Responses	Frequency(n)	Percentage (%)
TB stopped me doing things i like to do	81	31.2
TB caused economic hardship	64	24.6
Cough breathing is embarrassing	39	15.0
Become fraiol or an invalid	5	1.9
TB is a nuisance to friend/family/neighbors	30	11.5
Don't feel in control of my TB	41	15.8
Total	260	100

Aove table shows how the respondent's life were impacted by TB of which 31.2% were stopped from doing things they like to do,24.6% were affected by economic hardship,15% were having coughing/breathing got embrassed,1.9% became fraiol or an invalid,11.5% were facing TB as a nuisance to friends/family/neighbors and 15.8% felt they were not in control.

4. Discussion

According to a study conducted in West Ethiopia, the majority of patients (69.6%) were under the age of 40, while 30.4% were over the age of 40. In our study, the majority of respondents (73%) were under the age of 40, while 26.9% were over the age of 40. According to our survey, 38.1% of respondents were farmers, but a study performed in West Ethiopia found that 34.15% of respondents were farmers. Similarly, a survey conducted in Ethiopia found that 34.8% of respondents did not know the cause of tuberculosis, whereas just 21.5% knew. In our study, 21.5% of respondents incorrectly stated that tuberculosis is limited to the lungs, indicating a potential misperception. This assumption was not specifically addressed in the West Ethiopia study (14).

In one Saudi Arabia survey, 71.3% of respondents were university level (15), however in our research, 4.2% had more than a secondary level of education, which was exactly the opposite of our results.

In Northern India, 87% of study participants reported initiating self-care measures, such as home treatments for tuberculosis symptoms (16). In contrast, just 40% of respondents in our study thought they might heal by self-treatment. This indicates a greater reliance on traditional or home treatments in Northern India than in our study population.In another Indian study, 72% of respondents consulted nonprofessional private healers for their symptoms (17), however only 28% of our study respondents sought aid from unprofessional healthcare practitioners.

In a survey conducted in Kenya, comments were recorded on whether tuberculosis could be entirely healed; the study found that 46% of participants were aware that tuberculosis is curable (18). Similarly, in our study, 38% of respondents were aware that tuberculosis is treatable, whereas the remainder believed it was a fatal condition.

Our survey found that coworkers provided emotional support to 76.9% of respondents. In contrast, Indonesian researchers discovered that only 42.5% of respondents reported receiving emotional support.(19)

In the study from the United States, 28% of patients had a history of smoking, and poor treatment results were much higher. In our study, 20.8% of respondents smoked, 18.5% drank and 14.2% had both. These practices are recognized as a risk factor for poor TB treatment results, highlighting the need for specific treatments to address them during TB therapy.(20) According to a survey conducted in Ukraine, the majority of respondents (88%) preferred to seek TB treatment at polyclinics or hospitals (21). Similarly, in our survey, 88% of respondents decided to be admitted to the hospital right after being diagnosed with tuberculosis.

There is a statistically significant relationship between age and understanding about tuberculosis. Individuals aged 20-30 likely to have more knowledge than those under 20 or aged 30-40. A comparable statistically significant effect with younger age was discovered in a study conducted in West Ethiopia (pvalue 0.066). Similarly, in the same study conducted in West Ethiopia, the p value for occupation was 0.001, whereas in our research, it was 0.004, indicating a strong link between occupation and knowledge of tuberculosis. (14)

A study conducted in Saudi Arabia found a link between education level and respondents' knowledge with a p-value of 0.8, however in our study, education level is statistically significant connected with knowledge of tuberculosis (p-value = 0.001). Individuals who are illiterate or have only had primary education are more likely to have inferior knowledge than those who have completed secondary or higher education. (15)

5. Conclusion

Our study revealed strong awareness of TB's effects on lungs ,other organs and its transmission which is essential for early detection and adherence to treatment. Most respondents were familiar with Kyrgyzstan's USAID TB program, indicating successful awareness efforts. Additionally,majority of respondents (97.7%) showed positive health-seeking behavior for TB treatment. Overall, there's a positive inclination towards seeking care at healthcare facilities, reflecting trust in the system and proactive TB management.

Limitations

Assessment was based on participants self-reports, which may lead to recall bias. Additionally, the study's sample size was limited due to the short duration of the research period.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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