

# Knowledge, attitude and practice(KAP) of tuberculosis patients enrolled on treatment in Juba City, South Sudan 2010: a pilot study

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## Abstract

**Study setting:** Juba Teaching Hospital, Juba city, Republic of South Sudan, 2010.

**Objective:** To examine, knowledge, attitude and practices of tuberculosis (TB) patients enrolled on tuberculosis treatment, Juba, South Sudan.

**Design:** Descriptive study

**Results:** Knowledge in TB: Of the 102 patients interviewed; up to 80.4% were not knowledgeable on cause of TB, 52% did not know correct signs and symptoms of TB, 39.2% did not know overall treatment duration, 54.9% did not know the importance of strict adherence to treatment. Knowledge on correct diagnosis was 87.3% and on correct means of TB transmission was 79.4%.

**Practices and Attitudes:** On practices; 94.1% respondents were able to perform at least one task to stop spread of disease, access to free TB test occurred in 100% of cases and for free drugs in 99% cases. Health care workers correctly suspected TB on first contact in 95.1% of cases. Patients were offered health education on drug side effects in 93.1% of cases, on HIV testing and counselling in 74.5% of cases. Disclosure of TB diagnosis by patient to family or community did not occur in 91.2% cases. Family, community and employers offered support to patients in 92.2%, 95.1% and 98% of cases respectively.

**Conclusion:** We found key knowledge gaps among Juba TB patients enrolled on treatment. These knowledge gaps are probably responsible for the high treatment defaulter rates reported in Juba, South Sudan. Tuberculosis patients are still not interested to freely reveal disease diagnosis to members of the family and community at large.

## Background

The global burden of tuberculosis (TB) remains enormous according to the World Health Organization (WHO) 2013 report [1]. In this report, there were an estimated 8.6 million incident cases of TB and 1.3 million people died from the disease. Among the deaths were an estimated 170,000 from Multi Drug Resistant Tuberculosis (MDR-TB). Although, South Sudan is not listed among the top 22 high burden countries in the world, the WHO estimates incidence of the disease at 146/100,000 of the population (global report 2013).

The South Sudan National Tuberculosis Programme has documented an increasing trend in TB case notification [2]. The number of cases per 100,000 population was:

50 in 2008;

68 in 2009;

71 in 2010;

84 in 2011; and

96 in 2012.

Treatment success rate has generally been below national and WHO targets of at least 85% [2], that is:

77% in 2007;

78% in 2008;

78% in 2009;

79.4% in 2010; and

78% in 2011.

Treatment defaulting has been the major reason for the low treatment success rate (11.4%) in 2010. The three Tuberculosis Management Units (TBMU) in Juba alone accounted for 46% of all defaulters registered in South Sudan in 2010 Tuberculosis Report [3]. The reasons for the very high defaulter rates have not been systematically

documented. Moreover, interruption of TB treatment is a risk factor for the development of MDR-TB, a disease that is not only difficult and expensive to treat but also carries high mortality rate.

Thus, this study was designed to assess knowledge, attitude and practices of TB patients on treatment and find out if any gaps exists that could explain the high defaulter rates.

### Study objective

To examine knowledge, attitude and practices of tuberculosis patients enrolled on tuberculosis treatment.

### Materials and methods

#### Design and setting

This was a descriptive study, conducted from 5th Feb 2010 to 5th March 2010. The study was conducted in the three TBMs within Juba city: Juba teaching hospital, Kator and Munuki. Juba Teaching Hospital is one of three teaching hospitals in South Sudan, Kator and Munuki are Primary Health Care Centers (PHCCs) located in the suburbs of the city.

#### Eligibility criteria and sampling:

We sampled consecutively 102 tuberculosis patients from the three TBMs.

#### Data collection and management

For each study participant a questionnaire with relevant information was completed. Data collection was done by two doctors who work for the TB programme and one medical assistant who works as a state TB supervisor.

#### Data entry and analysis

The data was entered (double entry) into EpiData version 3.1 software and exported to SPSS (Statistical Program for Social Sciences) version 17.0 for analysis, while ensuring data quality.

Significance of dichotomous and categorical variables tested using chi-square tests; continuous variables tested using t-tests. An alpha level of  $<0.05$  was considered significant.

#### Ethical consideration

Authorization to conduct the study was obtained from the Ministry of Health, Directorate of Preventive Health Services. The administration in all three TBMs was notified and provided approval for the study. Only patients willing to be interviewed participated in the study.

## Results

### Characteristics of study participants

The total number of respondents was 102, consisting of 52.9% female and 47.1% male. All participants were over 15 years old. Almost seventy percent (69.9%) did not attain formal education.

Participants from the three centres in Juba were comparable except that more patients from Kator TBMU did not know about correct TB symptoms compared to those receiving TB treatment from Juba Teaching Hospital or Munuki TBMU. A greater proportion of patients from Munuki TBMU experienced discrimination from the community due to TB compared to those from Kator of JTH. More patients from JTH visited private practitioners compared to those from Kator or Munuki and more patients from Kator than JTH or Munuki had to remind the HCW to check for TB. The details of the findings is set out in Table 1.

### Knowledge of tuberculosis patients on disease TB and its management (see figure 1)

On cause of TB, 80.4% of patients interviewed did not relate causation of TB to a germ but rather to other causes such as cat fur. Eighty one (79.4%) respondents correctly related transmission of TB through coughing. Regarding knowledge of correct disease diagnosis, 87.3% knew they had TB. Regarding symptoms of TB, 52.0% were not knowledgeable of correct symptoms of TB such as prolonged cough. On treatment 39.6% did not know that TB treatment duration is six months. Fifty six respondents (54.9%) did not know the importance of adherence to treatment, that is, cure and or prevention of development of a form of TB that is difficult to treat/resistant TB or more dangerous form of disease.

### Attitude of TB patients (see figure 2)

Ninety six (94.1%) respondents believed that TB disease

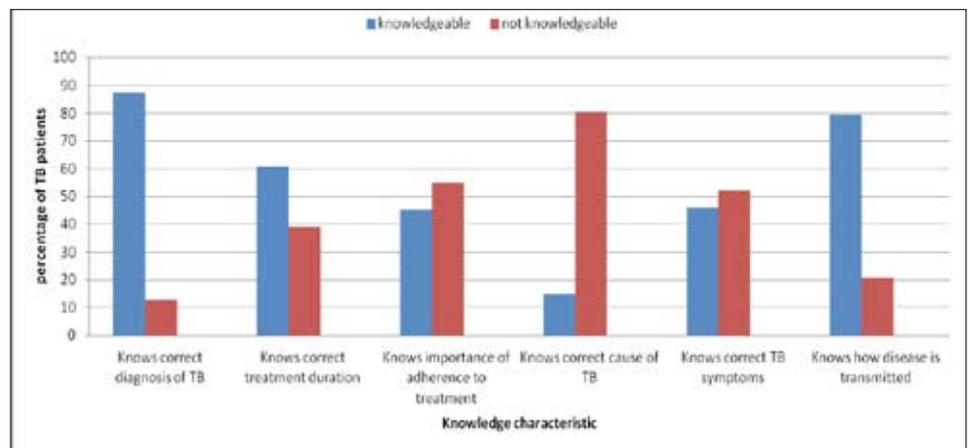


Figure 1. Graphic representation of knowledge of TB patients, Juba, South Sudan, N=102

Table 1 Characteristics of study participants, Juba, South Sudan, N= 102

Characteristic	JTH, N=40 n (%)	Munuki TBMU N=32, n (%)	Kator TBMU N=30, n (%)	P-value
<b>Sex</b>				
F	24 (60.0)	15 (46.9)	15 (50.0)	0.502
M	16 (40.0)	17 (53.1)	15 (50.0)	
<b>Knows correct diagnosis</b>				
Yes	33 (82.5)	28 (87.5)	28 (93.3)	0.404
No	07 (17.5)	04 (12.5)	02 (06.7)	
<b>Knows treatment duration</b>				
Yes	20 (50.0)	23 (61.9)	19 (63.3)	0.158
No	20 (50.0)	09 (28.1)	11 (36.7)	
<b>Knows cause of TB</b>				
Yes	06 (15.0)	06 (18.8)	03 (10.0)	0.275
No	30 (75.0)	25 (78.1)	27 (70.0)	
Undecided	04 (10.0)	01 (03.1)	00 (00.0)	
<b>Knows correct TB symptoms</b>				
Yes	24 (60.0)	16 (50.0)	07 (23.3)	0.050
No	16 (40.0)	14 (43.7)	23 (76.7)	
<b>Knows transmission prevention</b>				
Yes	31 (77.5)	24 (75.0)	26 (86.7)	0.488
No	09 (22.5)	08 (15.0)	04 (13.3)	
<b>Reported contact with a case of TB</b>				
Yes	11 (27.5)	04 (12.5)	05 (16.7)	0.250
No	29 (72.5)	28 (87.5)	25 (83.3)	
<b>Presented Sputum for follow up</b>				
Yes	24 (60.0)	6 (50.5)	14 (70.0)	0.500
No	16 (40.0)	16 (50.0)	16 (30.0)	
<b>Experienced stigma due to TB</b>				
Yes	01 (02.5)	04 (12.5)	00 (0.00)	0.05
No	39 (97.5)	28 (87.5)	30 (100)	
<b>Point of first stop</b>				
Public	30 (75.0)	31 (96.9)	29 (96.7)	0.023
Private modern	08 (20.0)	01 (03.1)	01 (03.3)	
Traditional	02 (05.0)	00 (0.00)	00 (0.00)	
<b>Has at least primary education</b>				
Yes	13 (32.5)	11 (34.4)	07 (23.3)	0.597
No	27 (67.5)	21 (65.6)	23 (76.4)	
<b>Paid for TB test</b>				
Yes	00 (0.0)	0 (0.00)	00 (0.00)	-
No	40 (100)	32 (100)	30 (100)	
<b>Paid for TB drugs</b>				
Yes	01 (02.5)	00 (0.00)	00 (0.00)	0.457
No	39 (97.5)	32 (100)	30 (100)	
<b>TB affected Job</b>				
Yes	11 (27.5)	07 (21.9)	06 (20.0)	0.738
No	29 (72.5)	25 (78.1)	24 (80.0)	
<b>Knows TB is curable</b>				
Yes	37 (92.5)	29 (90.6)	30 (100)	0.344
No	02 (7.5)	03 (09.4)	00 (0.0)	
<b>Received family support</b>				
Yes	36 (90.0)	30 (93.6)	28 (93.3)	0.808
No	04 (10.0)	02 (06.4)	02 (06.7)	
<b>Mobilized community to fight TB</b>				
Yes	37 (92.5)	30 (93.8)	29 (96.7)	0.760
No	03 (07.5)	02 (06.3)	01 (03.3)	

<b>Counseled for HIV testing</b>				
Yes	25 (62.5)	25 (83.3)	26 (80.0)	
No	14 (37.5)	07 (16.7)	04 (20.0)	0.172
<b>HCW suspect TB in the first time</b>				
Yes	37 (92.5)	31 (96.9)	29 (96.7)	
No	03 (07.5)	01 (03.1)	01 (03.3)	0.621
<b>Counseled on TB drugs</b>				
Yes	37 (92.5)	30 (93.8)	28 (93.3)	
No	03 (07.5)	02 (6.2)	02 (0.7)	0.977
<b>Disclosed TB to family/friends</b>				
Yes	06 (15.0)	01 (03.1)	02 (06.7)	
No	34 (85.0)	31 (96.9)	28 (93.3)	0.185

is curable and 98% thought that modern health care facilities were the places to seek cure from as opposed to traditional settings.

Support during treatment as viewed by the patient was positive/acceptable from family (92.2%), community (95.1%) and employers (98%).

### Practices of TB patients and health workers in TB facilities (see Figure 3)

On prevention on the spread of TB 94.1% respondents were able to perform at least one task to stop spread of disease and 79.4% used a form of personal protective measure like a handkerchief when coughing. Accessing free TB testing was practiced in 100% of cases and on access to free drugs in 99% of cases.

Health care workers correctly suspected TB on first contact in 95.1% of cases. On health education, 93.1% of patients were educated on TB drug side effects, but 24.5% were not educated by the health worker on the need to have a HIV test following TB diagnosis. A total of 93 respondents (91.2%) did not disclose to members of the community or family that they have the disease TB but rather preferred to call their illness other names such as chronic cough or chest disease.

## Discussion

### Knowledge of TB patients

In this pilot study we documented a pattern showing gaps in tuberculosis patients' knowledge on TB. We found eight in ten of the patients not knowing that TB is caused by a germ or an agent that is transmissible from an infected person to another. They rather related it to community beliefs such as inhalation of fur of cats. However, despite lack of knowledge about the aetiological agent, nearly 80% had knowledge about transmission of TB, as they were able to relate it to cough. In addition, about 87% still knew that the disease they were suffering from was TB. In a related study carried out in East Shao Zone of Ethiopia during the same year, a smaller number of respondents (69%) did not relate TB to a germ as an aetiological agent [3]. Knowledge gaps on the cause of TB could be related

to low literacy rates in this country. South Sudan has literacy rates of only 27% in those 15 years and older according to the World Bank [4]. Similarly, in this study we also found out that about 70% of the respondents did not attain formal education (not enrolled into primary school).

Juba city accounted for 46% of all defaulters notified to the National Tuberculosis Control Program in the 2010 report [2]. Treatment default in Juba has been linked to the city status of the town with difficult access to the suburbs and the very high number of organized forces who are highly mobile. However, critical gaps in knowledge of patients on treatment may suggest otherwise. In this study we found out that about 40% of the respondents did not know that the duration for TB treatment was at least six months and about 55% did not know the importance of strict adherence to treatment. Key knowledge gaps in TB treatment could be responsible for the high treatment default rates witnessed in Juba prior to the study. Despite the low literacy rates in the country, we suggest that rigorous health education by health care workers on TB during the time of enrollment to treatment may improve patients' knowledge thus improvement in treatment outcomes and overall TB control.

### Attitude and practices of TB patients and health workers

Tuberculosis carries a high stigma not only in South Sudan but globally, partly due to its association with HIV/AIDS and the chronic nature of the illness. Anecdotal evidence suggests that in some communities in South Sudan, presence of a TB patient in a family may deter members of the community from marrying from such a family. In this study although, 94% of the respondent believed that TB is curable, up to 91% did not disclose to members of the community or family that they have the disease TB, but rather preferred to call their illness other names such as chronic cough or chest disease. We fell short of exploring further reasons into this diversion, but could be linked to awareness of stigma within the community. Thus, it is not surprising that families, communities and the employers provided sufficient support to the patients

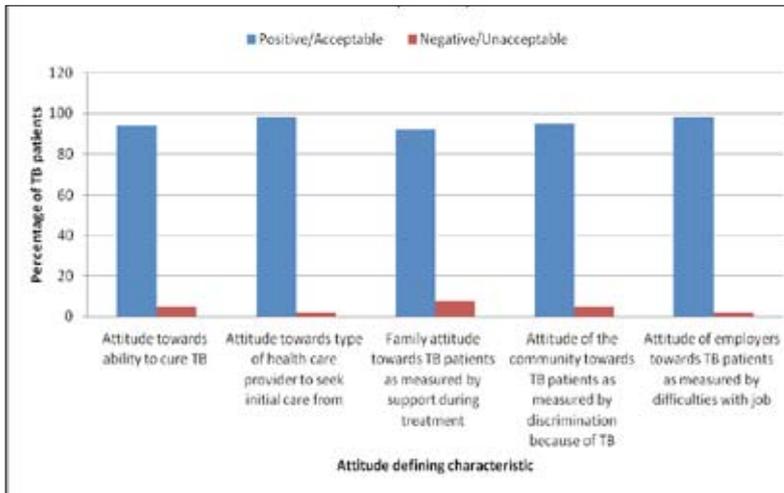


Figure 2. Graphic representation of attitude defining characteristic, Juba, South Sudan, 2010, N=102

during the course of illness [support during treatment as viewed by the patient was positive from family (92.2%), community (95.1%) and employers (98%)].

The National Tuberculosis guidelines South Sudan; recommends health workers in the TB programme provide health education to TB patients on such things as type of disease, cause, transmission, treatment duration, drugs used and side effects and provide HIV/AIDS Provider Initiated Counselling and Testing (PITC). In this study it was evident that patients are being provided services free of charge as 100% of the respondents were not charged for TB test and 99% for treatment. In addition, 94% of the patients performed at least one task to prevent TB spread and 79% used protective items to stop spread of disease. However, one in four were not offered the opportunity to test for HIV by the health worker despite the fact that the guidelines recommends that all patients be offered PITC at enrollment. In the National Program report 2010, only 57% of patients in South Sudan knew their HIV/AIDS status [3]. One of the reasons for the low testing is probably related to health care workers not offering the test to the patients despite other reasons like irregular supply of kits and lack of human resources.

**Conclusion**

We found key knowledge gaps among Juba TB patients enrolled on treatment. These knowledge gaps are probably responsible for the high treatment defaulter rates reported in Juba, South Sudan. Tuberculosis patients are still not interested to freely reveal disease diagnosis to members of the family and community at large.

**Recommendations**

- Use of Standard Operating Procedures (SOPs) for nurses in the TB program on health education for TB patients at the three Juba centers.
- Monthly support supervision visits from the central unit of the TB program in the Ministry of Health to the three TB units,
- A Tuberculosis Knowledge Attitude and Practice (KAP) study to be carried out involving the entire country with emphasis on stigma and discrimination.

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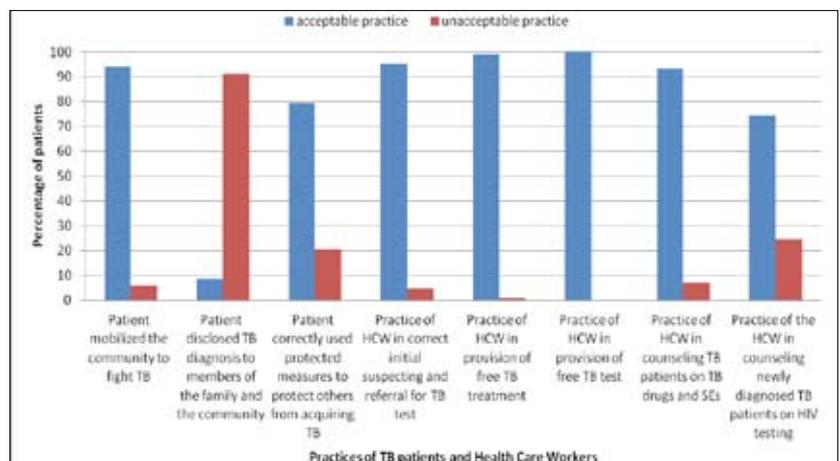


Figure 3. Practices of TB patients, Juba, South Sudan, 2010, N=102