



## Health Literacy Amongst Tuberculosis Patient in a General Hospital in North Central Nigeria

Oladunjoye A.O, Adebisi A.O, Cadmus E.O, Ige O.K, Oladunjoye O.O

Department of Community Medicine, University College Hospital, Ibadan, Nigeria

### KEYWORDS

Health  
Literacy,  
Tuberculosis,  
General  
Hospital,  
Nigeria

### ABSTRACT

**Background:** Healthy literacy has been shown to improve health care access and adherence to Tuberculosis (TB) treatment. Still it remains largely unstudied in many high risks, underserved and low literacy African populations. This study aims to bridge the existing knowledge gap by assessing health literacy among patients with TB in a rural town in Northern Nigeria.

**Methodology:** A cross sectional study was conducted among patients who attended the TB clinic of a secondary health care facility in Babura, Jigawa State, Nigeria between Oct 2008 and March 2009. All patients who visited the TB clinic during this period were interviewed.

**Result:** Many (71.6%) reported having been educated about TB by a health worker, mostly on predisposing factors 43.2%, general facts (31.1%) and disease process (21.6%) but less on patient's role in disease management (1.4%). Functional health literacy was high; mean score was  $7.9 \pm 0.3$  out of 10. Knowledge about the disease process, diagnostic requirements and treatment regimen were the highest. However 97.3% felt drugs were no longer necessary once symptoms abated. Patient involvement in treatment decisions was also suboptimal as only 52.7% reported making a joint decision about drug "pick up" options with their physicians.

**Conclusion:** Very high functional literacy score seemed to have been achieved among these rural low literacy TB patients even without a structured health literacy program. However patient participation in treatment seems to be underemphasized and was thus suboptimal. An important gap in patient education regarding continued TB treatment was identified and should be targeted for intervention.

*Correspondence to*

Dr A.O.Oladunjoye,

Department of Community Medicine, University College Hospital,  
Ibadan, Nigeria

+2348033774391, funsodunjoye@yahoo.co.uk

### INTRODUCTION

Nigeria has the world's fourth largest tuberculosis (TB) burden in the world and the largest burden in Africa (1). TB has therefore been declared a national emergency and the National TB-HIV/AIDS Working Group was inaugurated in 2006 in a bid to contain the TB epidemic. The control program has however been limited by widespread misconceptions about the disease even among TB infected patients.(2)

In many countries health literacy has been recognized as a major component in disease control programs. Health literacy is the ability of a patient to obtain, process and understand basic health information and services needed to make appropriate health decisions.(3) (4) There is increasing evidence that inadequate health literacy can result in difficulty in accessing health care,

following instructions from a physician, and taking medication properly.(5) These are all central to TB control especially because of the social stigma associated with the infection and the prolonged treatment plan (6).

Challenges with processing health information is not peculiar to Africa, it has been documented that as many as 90 million Americans have difficulty understanding and acting on health information (7) and up to 48% of English-speaking patients in America do not have adequate functional health literacy(8). In many developing countries including Nigeria there are few comparable studies on functional health literacy. The high sophistication of communication technology in western countries further limits comparability of the levels of functional health literacy in sub Saharan Africa. The inapplicability and unavailability of these high technology resources therefore makes health literacy

among the high risk, underserved and low literacy African populations of particular concern. Since health information is mostly restricted to the brief interactions with health workers in the process of care there is a need to evaluate health literacy levels among patients in these settings in Nigeria for a priority disease like TB. This study aims to bridge the existing knowledge gap by assessing health literacy among patients with TB in a rural town in North Central Nigeria.

## **METHODS**

The study was cross sectional in design and was conducted among TB patients accessing care at a TB clinic within the State General Hospital, Babura, Jigawa State, Nigeria. All 74 patients who attended the clinic between October 2008 and March 2009 were interviewed. Informed consent was obtained from all participants and confidentiality of information was maintained. Approval was obtained from the Head of the institution before the study was commenced. Information on respondents characteristics, disease history, knowledge of TB and health literacy were obtained with the aid of interviewer administered questionnaires. SPSS version 15 software was used to analyze data. The functional health literacy score (FHLS) was computed from 10 items on disease process, diagnosis, treatment and drugs therapy. Correct responses were scored 1 while incorrect ones were scored 0. The maximum obtainable (FHLS) score was 10. The Student T tests were used to test associations between variables of interest as appropriate

## **RESULTS**

### **Socio demographic characteristics of study participants**

A total of 74 patients were interviewed over the 6 month study period, of these 39 (52.7%) were males and 35 (47.3%) females. The median age was 25 years (range 10-70years), 28.4% were children < 18years. A little over half (55.4%) had primary education and 40.5% had no formal education. (See Table 1)

### **Disease and treatment history**

More than half of patients (63.5% and 59.5%) had been ill for less than 6 months and had been on anti-tuberculosis treatment for less than two months respectively. (See Table 2)

### **Knowledge and sources of information about TB**

Majority (83.3%) of patients were aware of their diagnosis. Many (71.6%) reported having been educated about TB by a health worker while others (28.4%) reported their source of information on TB to be the mass media such as radio and television. The content of such health education from health worker and others sources such as mass media consisted mostly of information about the TB risk factors (43.2%) and disease causation and transmission (31.1%) as shown in Fig 1.

### **Functional health literacy about TB**

In assessing health literacy, all (100%) patients were knowledgeable about the disease process, and the diagnostic requirements for TB. Almost everyone knew about the treatment regimen (97.3%) but the vast majority did not know the treatment requirements as 97.3% felt drugs were no longer necessary once symptoms abated. Of a total functional literacy score of 10, a mean score of  $7.9 \pm 0.3$  was derived. (see Table 3)

The mean FLS was compared for patient subgroups as shown in Table 4. Mean FLS did not vary significantly by age, sex or level of education ( $P > 0.05$ ).

### **Patient involvement in treatment decisions**

Patient involvement in treatment decisions was suboptimal as only 52.7% reported making a joint decision about drug “pick up” options with their physicians and 44.6% had treatment decision made solely by health providers.

Almost everyone 73(98.6%) reported being satisfied with the information received from health care providers.

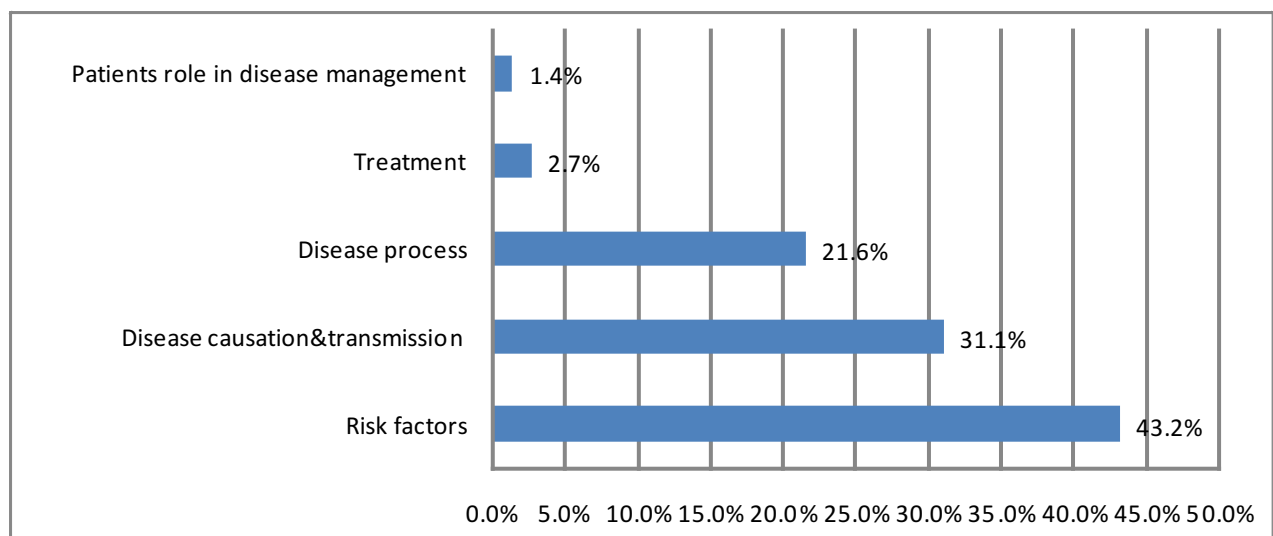
Table 1: Socio demographic characteristics of TB patients

Variables	n (%)
<b>Gender</b>	
Male	39(52.7)
Female	35(47.3)
<b>Age groups</b>	
<18	21(28.4)
18-40	36(48.6)
>40	17(23.0)
<b>Education</b>	
No formal education	30(40.5)
Primary education	41(55.4)
Secondary or higher education	3(4.1)

Table 2: Disease and treatment history

Variables	n(%)
<b>Duration of illness</b>	
<6months	47(63.5)
= 6 months	27(36.5)
<b>Duration of treatment</b>	
<2 months	44(59.5)
3-5 months	20(27.0)
=6 months	10(13.5)

Figure 1: Content of health information received by patients



**Table 3: Functional TB health literacy among study participant**

<b>Variables</b>	<b>Correct responses n (%)</b>
<b>Disease process</b>	
TB is caused by a germ	74 (100)
TB hereditary	74 (100)
TB is spread by close contact with those infected	74 (100)
TB cannot be cured	74 (100)
<b>Diagnostic requirements</b>	
A chest X-ray is important for diagnosis	74 (100)
Sputum test is necessary for diagnosis	73 (98.6)
<b>Treatment regimen</b>	
Sputum test needs to be repeated at intervals to assess cure	74 (100)
For complete cure one has to take drugs for 8 months	72 (97.3)
One of the drugs can turn urine red	74 (100)
<b>Treatment requirement</b>	
After symptoms have disappeared it is not important to take the drug again.	2 (2.7)

**Table 4: Comparison of mean functional health literacy score**

<b>Variable</b>	<b>n</b>	<b>Mean± Standard deviation</b>	<b>T test (P value)</b>
<b>Sex</b>			
Male	39	7.97±0.28	0.419 (0.676)
Female	35	8.00±0.24	
<b>Age</b>			
<18 years	21	7.95±0.22	1.028 (0.308)
= 18 years	36	8.03±0.29	
<b>Education</b>			
No formal education	30	7.93±0.25	1.456(0.150)
Some education	44	8.02±0.26	

## DISCUSSION

This study evaluated functional health literacy among patients with tuberculosis attending a rural general hospital in Northern Nigeria. Similar to reports from other developing countries, information on TB was obtained mostly from health workers, few reported receiving information from the media (9-10). Some studies from low income countries had indicated that patients are often ignorant about the cause of TB, ascribing disease to ancestral problems or diabolical individuals (11-12), all the patients in this rural clinic however recognized that TB was caused by a germ. This finding is consistent with those of another

Nigerian study (13) and perhaps may reflect the tremendous effort in recent years by the National Tuberculosis Control Programme in this regard.

The understanding of health conditions and the role of medication is central to treatment success(14). The emphasis in TB health education as reported by patients appeared to be on the disease process and less on treatment requirements. Inadequate health literacy about treatment requirements has been shown to be a major pitfall in treatment adherence (15). This may have dire consequences in Nigeria with the increasing threat of Multidrug Resistant TB. Patient education programs need to focus not only on teaching symptoms of disease processes but also

on treatment literacy to help patient understand the need for long-term treatment for tuberculosis and their role in treatment. This deficiency in health education was evident in the functional health literacy. Suffice it to say that health literacy is a key outcome of health education. Even though nearly all patients knew drugs were to be used for at least 8 months for cure, the same proportion of patients failed to internalize this as they also felt drugs were no longer necessary once symptoms resolved. Studies have implicated this popularly held belief that symptom resolution implied cure as a reason for treatment interruption which is a central factor to the development of MDR(9, 16).

Overall functional health literacy was found to be high in this rural population with minimal education. Such high health literacy has not been previously documented in rural populations in sub-Saharan Africa and may be attributable to the structured TB treatment program in Nigeria. A more complex evaluation of health literacy in a nationwide American study found that 14 percent of adults had below basic health literacy. However comparability is limited as assessment was not disease specific and was in a non patient population. The variations by age and education found in the American study was not apparent in this study(17)

Functional health literacy should lead to improved participation in treatment. However in this population patients' involvement in treatment decisions was suboptimal as only about half reported making a joint decision about treatment plans with their physicians with many reporting that treatment decision was made by the health care provider alone. The tendency for health care providers to undermine patient's ability to make health care decisions particularly when patients are uneducated remains a barrier to patient involvement. In addition to health literacy, active participation of the patient in designing a treatment plan is another vital step to treatment success and should be encouraged(18)

## CONCLUSION

Very high functional literacy score seemed to have been achieved among these rural low literacy TB

patients even without a structured health literacy program. However patient participation in treatment seems to be underemphasized and was thus suboptimal. An important gap in patient education regarding continued TB treatment was identified and should be targeted for intervention.

## REFERENCES

1. USAID/NIGERIA. HIV/AIDS and Tuberculosis.<http://nigeria.usaid.gov/>(Accessed [05/06/2011])
2. Javaid A, Muhammad I, Amna Z, Madiha B, Rizvi N. Knowledge, Attitude and Misconceptions regarding Tuberculosis in Pakistani Patients. *J Pak Med Assoc.* 2006;56:211.
3. National Network of Libraries of Medicine. *Health Literacy*. <http://nnlm.gov/outreach/consumer/hlthlit.html> (Accessed [05/06/2011]).
4. World Health Organization (WHO). *Health Literacy and Health Behaviour*.<http://www.who.int/healthpromotion/conferences/7gchp/track2/en> (Accessed [05/06/2011]).
5. Safer RS, Keenan J. Health Literacy: The Gap Between Physicians and Patients. *Am Fam Physician.* 2005;72(3):463-8.
6. Juniarti N, Evans D. A qualitative review: the stigma of tuberculosis. *J Clin Nurs.* 2011;20(13-14):1961-70.
7. Davis T, Wolf M. Health Literacy: Implications for Family Medicine. *Fam Med.* 2004;36(8):595-8.
8. Andrus M, Roth M. Health literacy: a review. *Pharmacotherapy.* 2002;22(3):282-302.
9. Javaid A, Muhammad I, Amna Z, Madiha B, Nadeem R. Knowledge, Attitude and Misconceptions regarding Tuberculosis in Pakistani Patients. *J Pak Med Assoc.* 2006;56:211.
10. Karim F, Johansson E, Diwan V, Kulane A.

Community perceptions of tuberculosis: A qualitative exploration from a gender perspective. *Public Health*. 2011;125(2):84-9.

11. Singh M, Bano T, Pagare D, Sharma N, Devi R, Mehra M. Knowledge and attitude towards tuberculosis in a slum community of Delhi. *J Commun Dis*. 2002;34:203-14.
12. Buregyeya E, Kulane A, Colebunders R; et al. Tuberculosis knowledge, attitudes and health-seeking behaviour in rural Uganda. *Int J Tuberc Lung Dis*. 2011 15(7):938-42.
13. Fatiregun AA, Ejekam CC. Determinants of patient delay in seeking treatment among pulmonary tuberculosis cases in a government specialist hospital in Ibadan, Nigeria. *Tanzan Journal Health Res* April 2010;12(2):1-9.
14. Mulenga C, Mwakazanga D, Vereecken K; et al. Management of pulmonary tuberculosis patients in an urban setting in Zambia: a patient's perspective. *BMC Public Health*. 2010;10:756.
15. Elbireer S, Guwatudde D, Mudiope P, Nabbuye-Sekandi J, Manabe Y. Tuberculosis treatment default among HIV-TB co-infected patients in urban Uganda. *Trop Med Int Health*. 2011.
16. Gupta S, Gupta S, Behera D. Reasons for interruption of anti-tubercular treatment as reported by patients with tuberculosis admitted in a tertiary care institute. *Indian J Tuberc*. 2011;58(1):11-7.
17. Kutner M, Greenberg E, Jin Y, Paulsen C. *The Health Literacy of America's Adults: Results From the 2003 National Assessment of Adult Literacy (NCES 2006483)*. Washington, DC: National Center for Education Statistics 2006.
18. Bello SI, Itiola OA. Drug adherence among tuberculosis patients in the University of Ilorin Teaching Hospital, Ilorin, Nigeria. *Afr J Pharm Pharmacol*. 2010;4(3):109-14.