SHORT ARTICLE

Perceptions on Pulmonary Tuberculosis among DOTS Patients: A Quantitative Study

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ABSTRACT

Introduction: Knowledge and stigma with respect to tuberculosis plays a profound role in the health seeking behaviour of the population. The present study aimed to assess knowledge and stigma regarding the disease among pulmonary tuberculosis patients in a metropolitan city and to study their association with delays in seeking care and treatment. **Materials and Methods:** A cross sectional study was conducted among newly diagnosed pulmonary tuberculosis patients registered for intensive phase of Category 1 ATT during the study period in Zone VIII of Chennai Corporation. The sample size was 197. A standardised WHO interview schedule was adapted and used for the study. **Results:** The proportion of population knowing basic facts about tuberculosis ranged from 100 % (that the disease is curable) to 61.4% (that it is contagious). Women had significantly higher levels of stigma than men. There was no significant difference in knowledge between those who seek care earlier and those who delay seeking care. **Conclusion:** The present study demonstrates the gaps in knowledge regarding tuberculosis. A concerted effort starting from the grassroots level needs to be employed to improve knowledge and dispel myths.

Key-words: tuberculosis, knowledge, stigma, delays

INTRODUCTION

Despite being a preventable and curable health problem, tuberculosis is one of the top 10 causes of death worldwide. India accounts for 20-25% of the global burden of tuberculosis with respect to prevalence, incidence and mortality. The situation is further aggravated by its association with multidrug resistance, HIV/AIDS, Diabetes mellitus, prevalence in the paediatric age group, smoking, malnutrition and other immune-compromised states.[1]

Around 25% of the world's population and an even higher proportion of Indian population have latent tuberculosis. People infected with Mycobacterium tuberculosis have a 5-15% lifetime risk of falling ill with the disease. Furthermore people with active tuberculosis can infect 10-15 other people through close contact over a course of a year.

In view of the infectivity of untreated cases, it has been recognised that the most effective intervention is early case detection with prompt management to decrease infectivity and the risk of exposure. One of the major factors which impairs these interventions is the lack of knowledge and abundance of stigma surrounding the disease. Tuberculosis was and is viewed as a 'dirty disease', often associated by the general public with factors which themselves create stigma: HIV, poverty, drug and alcohol misuse, homelessness, refugee status, overcrowding. Furthermore women in India are more vulnerable to such lack of information because of various socio-cultural problems. These cause a delay in seeking care and poorer treatment outcomes, feeding the myth that tuberculosis is not curable. The treatment for tuberculosis is relatively long and arduous, which further complicates the situation. The vicious cycle is perpetuated and strengthened by local traditions and beliefs.

The present study was conducted in one particular zone within the Chennai Corporation. It aimed at assessing knowledge and stigma regarding the disease and how they influence delay in seeking care. Very few similar studies have been conducted previously.

MATERIAL AND METHODS

A cross sectional study was conducted from September 2015 to August 2016 among newly diagnosed pulmonary tuberculosis patients registered for intensive phase of Category 1 ATT during the study period in Zone VIII of Chennai Corporation. Only patients above 18 years of age were included. Those with HIV/TB co-infection were excluded since they were being screened for chest symptoms during their visits to the ART clinics.

Approval was obtained from the Institutional Ethics Committee. Necessary permissions were procured from

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Corporation of Chennai and the Medical Officers for TB control.

Sample Size: Studies have shown that around 69.4% of the patients were not diagnosed at their first point of contact with a health facility[2]. Hence P is taken as 69.4% with 5% alpha error and relative precision (E) of 10%, the sample size was calculated to be 177. Assuming a non-response rate of 10%, the corrected sample size was 197.

Sampling Technique: Around 20 patients were being registered every month at the three Tuberculosis Units of Zone VIII. The Tuberculosis Units were visited by the investigator, to enroll relevant patients who satisfy the inclusion criteria. Patients were interviewed when they came for DOTS packages to their respective centres, after obtained informed consent. The procedure was continued till the desired sample size was reached.

Study Tool: A standardised WHO interview schedule adapted from a study in the Eastern Mediterranean region[3] was used for this study. It was translated into the vernacular language, with the help of an expert on Tuberculosis and a language professor. It was then back translated and compared. A pilot test was conducted to check for discrepancies and modified.

Statistical Analysis:

The collected data was entered in Microsoft Excel and analysed using the Statistical Package for Social Sciences trial v.22.

RESULTS

A total of 197 patients were interviewed. The socio-demographic profile of the study population is given in table 1a and 1b.

Table 1a – Socio-demographic profile of the study population

Characteristics	Mean ± SD, n(%)
Age (yrs)	43.23±12.52
Gender	
Men	122(61.9)
Women	75(38.1)
Education	
College/higher secondary	74(37.6)
Primary/middle/high school	87(44.2)
Illiterate	36(18.3)
Occupation	
Skilled	32(16.2)
Semi-skilled	74(37.6)
Student	36(18.3)
Unemployed/home maker	8(4.1)

The mean age was 43.52 years with a range of 18 to 70 years. Roughly 62% of them were men. Most of the population were educated (82%) and married (82%). Nearly all (96%) were employed.

Table 1b. Socio-demographic profile of the study population

Characteristics	Mean ± SD, n(%)
Socio-economic status	
Upper middle	59(29.9)
Lower middle	91(46.2)
Upper lower	31(15.7)
Lower	16(8.1)
Marital status	
Married	161(81.7)
Single	16(8.1)
Divorced/separated	8(4.1)
Widowed	12(6.1)
Residence	
Urban	142(72.1)
Urban slum	55(27.9)

The following table (table 2) summarises the proportion of patients correctly responding on knowledge regarding tuberculosis. When compared across gender, it was observed that there is no significant difference between males and females on knowledge about tuberculosis. It is to be noted that all patients were aware about tuberculosis being a curable disease. Only 61.4% of the respondents knew that the disease is contagious and 70% knew the correct duration of anti-tuberculosis treatment. 81.2% knew the nature of their affliction and more than 92% knew that tuberculosis was not hereditary.

Table 2 - Patients' knowledge about tuberculosis across genders (Table 3)

Questions	Men	Women	Chi square	df	p value
What kind of a disease do you have?	103 (64.4)	57 (35.6)	2.162	1	0.141
Is TB hereditary?	115 (63.2)	67 (36.8)	1.604	1	0.21
Is TB contagious?	77 (63.6)	44 (36.4))	0.388	1	0.533
Duration of Anti-Tuberculosis Treatment?	101 (73.2)	37 (26.8)	24.77	1	<0.01

Table 3. Source of information on tuberculosis

Source	n(%)
Govt. campaigns/media	38(19.3)
Educational institutions	24(12.2)
Friends/relatives	64(32.5)
Tuberculosis patients	24(12.2)

Stigma regarding tuberculosis was determined with respect to the following aspects: feeling ashamed of having tuberculosis, having to hide the diagnosis from others, the extent to which the disease affects their work performance, family life and relations with others, whether a girl is unable to decide to get treated for tuberculosis etcetera. The mean scores on stigma were compared across genders using independent samples t-

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test. It was observed that women have a significantly higher levels of stigma than men.

**Figure 1 – Stigma scores about tuberculosis compared across genders**
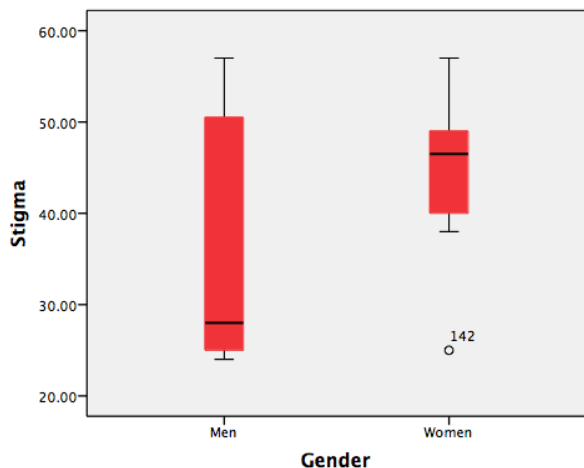
It was observed that the mean delay from onset of symptoms to the start of treatment was 46.72 days (with a median of 39 days). The major chunk of this delay was the mean time taken for the patient to come into contact with the health system, which was around 42 days. For bivariate analysis, total delay was classified according to median cut-off as <39 days (longer delay) and ≥39 days. The knowledge about tuberculosis was compared across the two categories of delay using chi-square test. Overall, there is not much difference in knowledge between those who seek care soon and those who delay seeking care.

Table 4. Knowledge and delay

Questions	<39 days	≥39 days	Chi square statistic	df	p value
What kind of a disease do you have	84 (52.5)	76 (47.5)	6.24	1	<0.01*
Is TB hereditary?	85 (46.7)	97 (53.3)	2.21	1	0.14
Is TB contagious?	56 (46.3))	65 (53.7)	0.474	1	0.49
Duration of anti-tuberculous treatment	60 (43.5)	78 (56.5)	4.155	1	0.04*

Figure 2 – Stigma scores compared with total delay
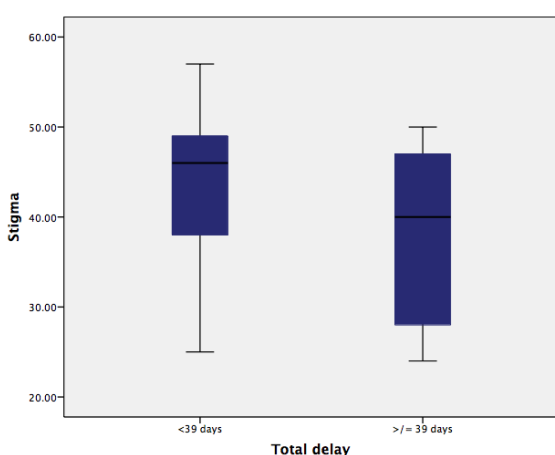
Similarly, the mean scores on stigma were compared across the two categories of delay. Though the level of stigma among those with prolonged delay seems to be lower, the statistical significance is close to 0.05.

DISCUSSION

It was found that women had a higher level of stigma than men. This is in contrast to the WHO 2006 study[3], where women had a higher correct knowledge of tuberculosis than men. There was no significant difference across genders on knowledge regarding tuberculosis. It is notable that all the study participants understood tuberculosis to be a curable disease. In contrast, only 61.4% of them knew that tuberculosis is contagious and 70% knew the correct duration of anti-tuberculous treatment. In contrast, Zhang et al found that only 40% of their respondents knew that tuberculosis is transmitted by close interaction with an affected patient.[4]

The association between stigma levels and delay in seeking care was not significant, as opposed to studies by Mesfin et al, Biya et al and Osei et al[5,6,7]. Similarly the present study did not find a significant association between knowledge about the disease and delay, unlike some other studies[5,7,8].

Conclusion

Although it is satisfying to find all participants knowing that tuberculosis is curable, the gaps in knowledge with respect to contagiousness, treatment duration etcetera need to be rectified. The stigma attached to the disease together with the lack of basic knowledge adds to the vicious web of events which lead to delay in seeking care and treatment. This compromises the very core strategies of tuberculosis control, which are early diagnosis and prompt treatment. Therefore more aggressive campaigns to educate the patients on at least the basic facts of the disease need to launched, starting from the grassroots level of the primary healthcare providers.

Declarations

Ethical approval: Approved by Institutional Ethics Committee in Government Kilpauk Medical College, Chennai, India

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Conflict of Interest: None

Source of funding support: Nil

How to cite this article: Priya Senthilkumar, Jebamalar J, Mary Ramola K. Perceptions on Pulmonary Tuberculosis among DOTS Patients: A Quantitative Study. Nat J Res Community Med 2018;7(4): 242-245.