

Original Research Article

A cross-sectional study to assess the perceptions and experiences of tuberculosis patients about directly observed treatment in an urban slum, in Mumbai, Maharashtra, India

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ABSTRACT

Background: India accounts for one-fifth of the global incident cases of Tuberculosis. The country presently has the world's largest directly observed treatment, short course (DOTS) programme that has shown impressive results. However, to sustain the high treatment adherence & cure rates, awareness among patients about regular and complete treatment and availability of accessible DOT services are vital, especially in urban slum areas. The objectives were (1) to study the socio- demographic profile of patients diagnosed at Urban Health Center; (2) to assess their knowledge and perceptions about TB treatment; (3) to ascertain the accessibility of DOT services and the problems faced at DOT center and; (4) to find willingness of patients for private practitioner as a 'DOT provider'.

Methods: The cross sectional study is being conducted among TB patients diagnosed & taking DOT treatment at Urban health center, located in Malvani slums in Mumbai. All the patients (65), willing to participate, over 3 months of duration are included. A semi-structured and pretested questionnaire is used to interview the patients after obtaining their consent. The data is analyzed using SPSS version 16.

Results: 76.9% of the patients were in economically productive age group (15-45 year), disease distribution was found slightly higher in males. Among total patients 35.4% were house wives, 20% were unemployed & 9% were students. All patients were aware that they are suffering from TB. 92.5% of new patients were as 96% among re-treatment category were aware about duration of treatment. 33.84% patients faced poor accessibility to take DOT from the existing DOT center. 33.8% patients preferred to take DOT from private practitioners in their area.

Conclusions: Almost 1/3 patients cited inconvenience in accessing DOT services due to their work hours, long distance and expressed willingness for community DOT providers including private practitioner. These patients, in the circumstances, may not pursue Directly Observed Treatment under supervision, resulting in poor treatment adherence and drug resistance.

Keywords: TB, DOTS, DOT provider

INTRODUCTION

Though India is the second-most populous country in the world, India has more new TB cases annually than any other country. In 2009, out of the estimated global annual

incidence of 9.4 million TB cases, 2 million cases were estimated to have occurred in India, thus contributing to a fifth of the global burden of TB.¹ It is estimated that about 40% of Indian population is infected with TB bacillus.² The National Annual Risk of TB Infection

being 1.5%, the incidence of new smear positive TB cases in the country is estimated as 75 new smear positive cases per lac population and total TB cases as 249 per lac populations.³

In terms of treatment of TB patients, Revised National Tuberculosis Control Program in India is the largest and the fastest expanding programme in the world. From 1.29 million TB patients in 2005, the programme has put 1.53 million patients on treatment in 2009. With this, RNTCP has achieved the new smear positive Case Detection Rate of 72% and treatment success rate of 87%, in line with the global targets for TB control.⁴ However to achieve universal access & coverage of DOTS, the programme needs to focus more on vulnerable populations including urban slums.

It is estimated that about a third of the total tuberculosis cases of India are located in urban areas: metropolitan cities, their suburbs and slums. Risk factors for urban tuberculosis infection like malnutrition, overcrowding, ill ventilated houses, cramped and poorly ventilated work places and stress are highly correlated to the living conditions of the urban poor.

It is also observed that patients started on DOTS in the urban slums are more likely to default on treatment due to various social-economic reasons. . Therefore to sustain the high treatment adherence & cure rates, awareness among patients about regular and complete treatment and availability of accessible DOT services are vital, especially in the urban slum areas.

Aim : A cross-sectional study to assess the perceptions and experiences of Tuberculosis patients about 'Directly Observed Treatment' in an urban slum, in Mumbai, Maharashtra.

Objectives

- To study the socio- demographic profile of TB patients diagnosed at Urban Health Centre
- To assess their knowledge and perceptions about TB treatment
- To ascertain the accessibility of DOT services and the problems faced at DOT centre
- To find willingness of patients for private practitioner as a 'DOT provider'

METHODS

A cross sectional Study was conducted among TB patients recently diagnosed & taking DOT treatment at Urban Health Centre, located in Malvani slums in Mumbai.

Malvani, is a densely populated slum area with approx 2.5 lac population, situated in the north-west suburb of Mumbai. Urban health centre of the teaching medical college is providing comprehensive primary health care

services to the population and include TB OPD & Designated Microscopy Centre for sputum microscopy services, Chest symptomatic Patients are screened in TB OPD at UHC and are diagnosed using RNTCP diagnostic algorithm. The diagnosed patients, depending on their address, are referred for treatment to DOT centres at two health posts under public health dept situated in Malvani. One such DOT centre at Malvani Health Post-I is located in the premises of Urban Health Centre.

The cross-sectional study was conducted among all 65 patients diagnosed and stated on treatment during December 2011 and January 2012. Patients put on DOTS and, attending the DOT Centre of Malvani health Post-I for their intensive phase treatment on every alternate day were interviewed using a Semi structured pre-tested questionnaire after taking informed consent. The questionnaire assessed their awareness about treatment duration, importance of DOT and any inconvenience faced during DOT treatment.

The study period was December 2011 to January 2012. The data is analysed using SPSS version 16.

RESULTS

Socio- demographic profile of TB patients

76.9% of the patients were in economically productive age group (15-45 year) (Table 1). Disease distribution was found slightly higher in males than female gender (Table 2).

Table 1: Age distribution of patients.

Age group (years)	Frequency (n=65)	Percent (%)
1-15	4	6.2
16-30	32	49.2
31-45	18	27.7
46-60	8	12.3
61	3	4.6

Table 2: Sex distribution of patients

Sex	Frequency (n=65)	Percent (%)
Male	33	50.8
Female	32	49.2

Table 3: Occupation profile of the patients.

Occupation	Frequency (n=65)	Percent (%)
Unemployed	13	20.0
Housewife	23	35.4
Student	06	09.2
Unskilled worker	14	21.5
Semiskilled worker	03	04.6
Skilled	06	09.2

35.4% were house wives, 20% were unemployed & 9% were students. Amongst employed patients, 21% were unskilled workers and 14% were skilled workers (Table 3).

Disease distribution among patients

61.5 % patients were New TB patients and 38.5% were Retreatment TB cases. 53.8% were smear +ve pulmonary TB patients while 24.6% were smear-ve pulmonary TB patients and 21.5% had extra-pulmonary TB (Table 4).

Awareness about DOTS treatment

All patients were aware that they are suffering from TB. 92.5% of new patients were aware about duration of treatment as 6-7 months and 96% patients of Retreatment category were aware of their treatment duration (Table 5).

Also all the patients knew that treatment for first 2-3 months in the Intensive phase has to be under direct observation.

Table 4: Type and category of disease.

Type		Frequency			Total (%)
		Smear+ve	Smear-ve	Extra-pulmonary	
New		22 (55%)	9(22.5%)	09 (22.5%)	40 (61.5%)
Re-treatment	Defaulter	08 (12.3%)	0	0	8 (12.3%)
	Relapse	04 (6.2%)	0	0	4 (6.2%)
	Other	01 (7.69%)	7(53.84%)	05 (38.47%)	13 (20.0%)
Total		35(53.8%)	16(24.6%)	14 (21.5%)	65 (100.0%)

Table 5: Duration of DOTS treatment.

Type	Duration (months)			Total (n=65)
	6-7	8-9	Don't know	
New	37 (92.5%)	0	3 (7.5%)	40 (100%)
Retreatment	0	24 (96%)	1 (4%)	25 (100%)

Accessibility of DOT services

20% patients required up to 10mins to reach DOT facility in the centre while near about 80% patients had to walk for more than 10mins to reach the centre of which nearly 17% required more than 20mins (Table 6).

Table 6: Time to reach DOT centre.

Time	Frequency (n=65)	Percent (%)
<10min	13	20.0
11-20min	41	63.1
>20min	11	16.9

Among 65 patients, 30 patients were employed. Amongst employed patients, 56.7% had their work timing from 11am to 8pm. 40% had to work from 9 am to 5 pm (Table 7).

22 patients (33.84%) among 65 patient faced poor accessibility to take DOT from the existing DOT centre due to either clash with work hours (54.5%) or too far to reach requiring more than 20 min (36.4%) and 2 patients (9%) were physically handicapped (Table 8).

Table 7: Work timings of the patients.

Timing	Frequency (n=30)	Percent (%)
9am to 5pm	12	40.0
11am to 8pm	17	56.7
8pm to 8am	01	03.3

Table 8: Accessibility of DOT centre for TB patients.

Reason for poor accessibility	Difficulty	
	Frequency (n=22)	Percent (%)
Work timing	12	54.5
Centre far away	08	36.4
Personal health problem	02	09.10

Availability of dot services at dot centre

67.7% patients said that they get DOT medicine within 10min after reaching the DOT centre. 32.3% patients had to wait for more than 10 minutes.

All patients mentioned availability of drinking water for taking medication at the DOT centre (Table 9).

Table 9: Waiting time for DOT medicines.

Time	Frequency (n=65)	Percent (%)
<10min	44	67.7
11-20min	18	27.7
>20min	3	4.6

67.7% patients didn't experience any side effects. Most common side effect observed in 18.5% patients was vomiting (Table 10).

Table 10: Adverse reactions experienced by patients on DOTS treatment.

Side effects	Frequency (n=65)	Percent (%)
Vomiting	12	18.5
Itching	05	07.7
Abdominal pain	03	04.6
Weakness	01	01.5
No side effects	44	67.7

Private practitioners as DOT provider

33.8% patients preferred to take DOT from private practitioners in their area and provided the names of PPs in their area (Table 11).

Table 11: Patients willing to take DOT from private practitioners.

Willingness	Frequency (n=65)	Percent (%)
Yes	22	33.84
No	42	64.6
Don't know	01	01.5

When these private practitioners were contacted to assess their willingness to become DOT provider, 55% (11) private practitioners were willing to give DOT and 45% (9) practitioners declined (Table 12).

Table 12: Private practitioners' willingness to become DOT provider.

Willingness	Frequency (n=20)	Percent (%)
Yes	11	55.0
No	9	45.0

DISCUSSION

In our study it is found that 76.9% of the patients were in economically productive age group (15-45 year). Also study carried out in Anand district, state Gujarat by N. Pandit, S.K. Choudhary shown majority of study population (85%) was in age group of 15-55 years, which is the productive age.⁴

Disease distribution was found slightly higher in males than females. National prevalence reports higher proportion of TB among males.⁵

In present study 53.8% were smear +ve pulmonary TB patients while 24.6% were smear-ve pulmonary TB patients and 22.5% had new extra-pulmonary TB. Retreatment patients with relapse were 6.2% and patients with treatment after default were 12.3%. As per RNTCP:

Annual Status Report 2011, new smear +ve patient were 54%, smear -ve patients were 31%, new extra pulmonary TB patients were 20%. Amongst retreatment patients, Treatment after default 6%, relapse is 9%.¹ As per Bulletin of the World Health Organization medication side-effects were also found to be significantly associated with defaulting.⁶

Most of the TB patients were aware that they were suffering from TB, knew about duration of treatment & importance of direct supervision. Study done in Ethiopia (2002) revealed that adequate knowledge about disease was found to be protective factor for defaulting to therapy.⁷

80% patients had to walk for more than 10mins to reach the centre of which nearly 17% required more than 20 mins.

33.8% faced poor accessibility to take DOT from the existing DOT centre due to either clash with work hours or too far to reach requiring more than 20mins and 2 patients were physically handicapped.

Most of the patients (67.7%) got DOT medicine within 10mins after reaching the DOT centre. All patients mentioned availability of drinking water for taking medication at the DOT centre.

33.8% patients facing inconvenience with existing DOT centre preferred to take DOT from private practitioners in their area. Half of these Private practitioners showed willingness to become DOT provider while remaining denied becoming DOT provider due to their busy OPD hrs.

CONCLUSION

TB is most commonly found among economically productive age group, with male preponderance.

Most of the TB patients were aware about duration of treatment, importance of DOT and this highlights patient counselling by UHC staff.

For most of the patients, DOT centre is easily accessible with respect to timing and distance to reach the centre. Very few patients suffered minor adverse reactions during treatment.

Almost 1/3 patients cited inconvenience in accessing DOT services due to their work hours, long distance and expressed willingness for community DOT providers including private practitioner. These patients, in the circumstances, may not pursue Directly Observed Treatment under supervision, resulting in poor treatment adherence and drug resistance.

About half the private practitioners agreed to become DOT provider when approached.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. TB India 2011, RNTCP: Annual Status Report. <http://tbcindia.nic.in/index1.php?sublinkid=4160&level=1&lid=2807&lang=1>
2. Directorate General of Health & Family Welfare-Central TB Division, Government of India — Minutes of the expert committee meeting to estimate TB burden in India, March-2005. New Delhi: Government of India, 2005.
3. WHO Global TB Report, 2010. http://apps.who.int/iris/bitstream/10665/44425/1/9789241564069_eng.pdf.
4. Pandit N, Choudhary SK. A Study of Treatment Compliance in Directly Observed Therapy for Tuberculosis. *Indian J Community Medicine*. 2006;31(4):241-3.
5. Park's Textbook of Preventive and Social Medicine.
6. Bulletin of the World Health Organization: Anti-tuberculosis medication side-effects constitute major factor for poor adherence to tuberculosis treatment.
7. Tekle B, Mariam DH, Ali A. Defaulting from DOTS and its determinants in three districts of Arsi zone in Ethiopia. *Int J Tuberc Lung Dis*. 2002;6:573-9.

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