

## Original Research Article

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# Patient's satisfaction regarding directly observed treatment short course under RNTCP in a district of North India

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## ABSTRACT

**Background:** In 2015, RNTCP covered a population of 1.28 billion. A total of 9132,306 TB suspects were examined by sputum smear microscopy and 14, 23, 181 cases were registered for treatment. Most peripheral unit under the RNTCP network is the designated microscopy centre (DMC) which serves a population of around 100,000 (50,000 in tribal and hilly areas). Treatment compliance and patients satisfaction is important concern for quality service success of RNTCP. Objectives of this study were to assess the treatment compliance and patient's satisfaction regarding directly observed treatment short course chemotherapy (DOTS).

**Methods:** It was an observational study conducted among DMCs of Kanpur district. Multistage random sampling technique was used for selection of DMC in both rural and urban area. 300 subjects interviewed in this study.

**Results:** Most of the study subjects (87%) were satisfied with the services provided at the DMC. Compliant status was better in rural DMC (94.50%). Non-compliance was more in urban DMC (18.4%). Majority of the study subjects (67%) were satisfied due to availability of free medicines at the centres. Difficulty to come on alternate days was the most common reason for dissatisfaction among study subjects (43.6%) followed by wastage of time (23.1%).

**Conclusions:** About 13 percent patient was not satisfied with DMC services. Among urban DMCs 18.4 percent patient were not compliant where it was 5.5 percent among rural DMCs. About 22.0 percent patient was unaware about duration of treatment. Whereas important reason for dissatisfaction with service was 'difficulty to come on alternate day'.

**Keywords:** Patients satisfaction, DOTS, RNTCP, Noncompliance

## INTRODUCTION

As per WHO estimates, India's TB control programme is on track as far as reduction in disease burden is concerned.<sup>1</sup> There is 58% reduction in TB mortality rate by 2014 as compared to 1990 level.<sup>1</sup> Similarly there is 55% reduction in TB prevalence rate by 2014 as compared to 1990 level and also, the incidence is on declining trend.<sup>1</sup> According to RNTCP Tuberculosis prevalence per lakh population has reduced from 465 in year 1990 to 195 in 2013.<sup>1</sup> In absolute numbers,

prevalence has reduced from 40 lakhs to 25 lakhs annually.<sup>1</sup> Tuberculosis incidence per lakh population has reduced from 216 in year 1990 to 167 in 2014.<sup>1</sup> Tuberculosis mortality per lakh population has reduced from 38 in year 1990 to 17 in 2012.<sup>1</sup> In absolute numbers, mortality due to TB has reduced from 3.3 lakhs to 2.2 lakhs annually.<sup>1</sup>

India is a signatory to World Health Assembly which has endorsed sustainable development goals and global 'End TB strategy' that calls for a world free of tuberculosis,

with measurable aims of 50% and 75% reduction in incidence and related deaths, respectively, by 2025, and corresponding reductions of 90% and 95% by 2035 as well as zero catastrophic expenditure due to TB.<sup>2</sup> In 2015, RNTCP covered a population of 1.28 billion. A total of 9132,306 TB suspects were examined by sputum smear microscopy and 14, 23,181 cases were registered for treatment.<sup>2</sup>

The RNTCP laboratory network is composed of national reference laboratory (NRL) for annual On-site evaluation/supervisory visits to laboratories for assessing quality of microscopy, culture and DST, and for improvement of overall laboratory quality followed by intermediate reference laboratory (IRL) one per state, culture and DST laboratories(C & DST) in additional to IRLs followed by, district TB centre (DTC) which is the nodal centre for all TB control activities of a district.<sup>3</sup> At the DTC, all reports from the sub-districts are consolidated and sent to the next level.<sup>3</sup> Tuberculosis unit (TU) is a sub-district supervisory unit, established for 500,000 population and the most peripheral laboratory under the RNTCP network is the designated microscopy centre (DMC) which serves a population of around 100,000 (50,000 in tribal and hilly areas).<sup>3</sup>

Kanpur District covers maximum population under RNTCP (45 lakh) in Uttar Pradesh. More and more operational researches are needed at this juncture when it is moving from one phase to another to know whether it is heading towards the right direction as far as pace and quality of implementation of the programme are concerned. Keeping this in view, the present study was conducted to assess the treatment compliance and patients satisfaction regarding Directly observed treatment short course chemotherapy (DOTS) strategy at DMCs under RNTCP in Kanpur Nagar district.

## METHODS

It was an observational study conducted among DMCs of Kanpur district. The district has been divided in 9 TU for implementing the revised national tuberculosis control programme. Each tuberculosis unit covers four to five microscopic centres known as DMC and there are 37 DMCs working under the 9 tuberculosis units. Each microscopic centre is assigned a population of one lakh and caters to all DOTs centres falling under its jurisdiction.

It was a descriptive designated microscopy centre based study. Multistage simple random sampling technique was used to select the study subjects in the present study. All the patients who were registered in the selected DMCs in the last two quarters of the year (July to September 2013 and October to December 2013) were approached for the present study. Inclusion criteria was patient registered with selected DMCs. Patient who did not give consent to participate in the study, those who were seriously ill and not able to answer question, were excluded from the

study. In the first stage of sampling, two tuberculosis units (Kidwai Nagar and Chaubepur) were selected from the list of 9 tuberculosis units using simple random sampling without replacement technique. In the second stage of sampling, one DMC each (Jageshwar and Kalyanpur) was selected using simple random sampling from the identified two tuberculosis units.

Socio-economic status of patients is assessed by B G Prasad's classification.<sup>4,7</sup> Data was collected on predesigned and pretested questionnaire using direct personal interview method of patients at DMCs on the DOTS days of the week i.e. Monday, Wednesday and Friday. Informed consent of the study subjects was taken before interview.

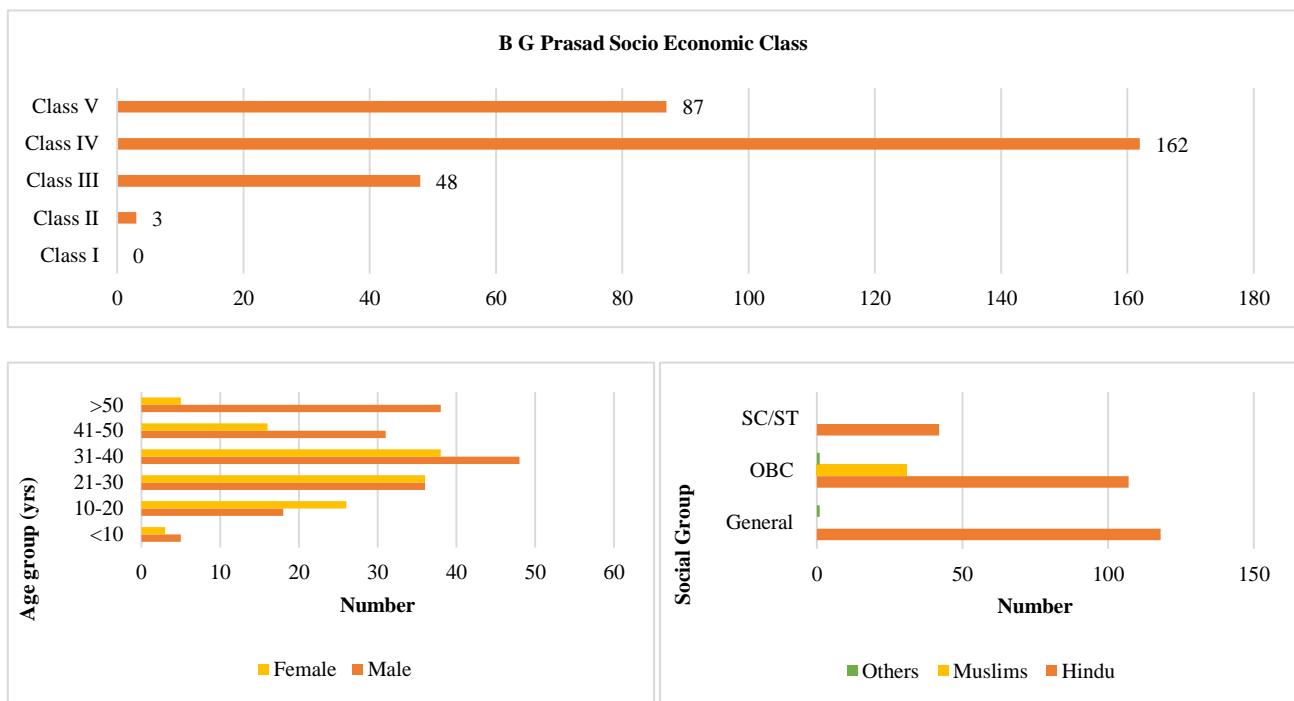
A total of 300 registered patients were interviewed and also the treatment card of patients was obtained from their respective DMCs. All the required information regarding patients was collected. Patients who defaulted on treatment were further traced in the community and interviewed thoroughly regarding reasons of default. Data was analysed using SPSS 17 statistical software. Level of significance was  $<0.05$ .

## RESULTS

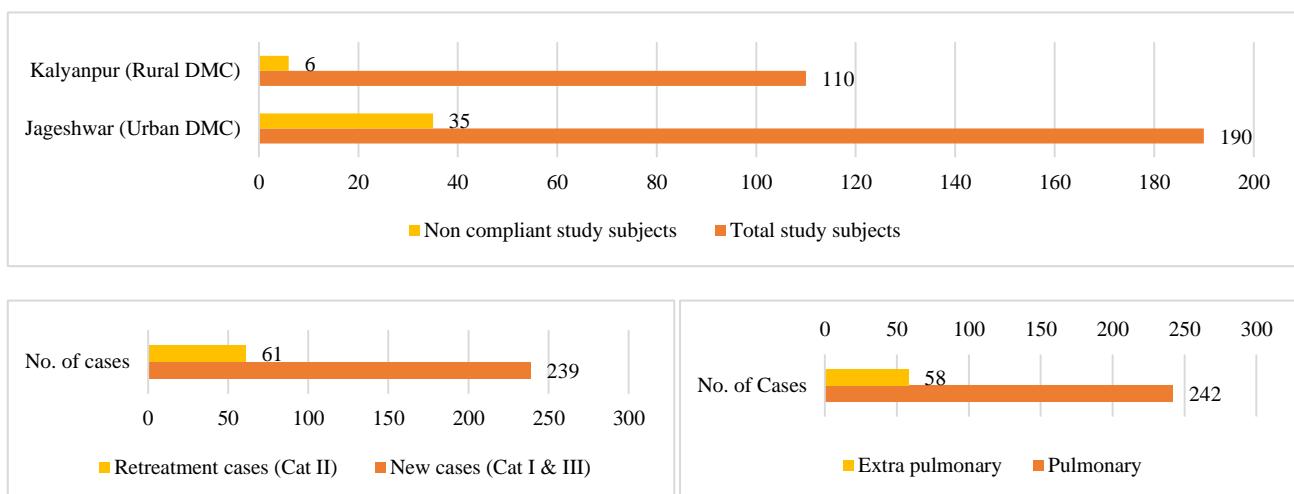
Maximum number of study subjects belonged to age group 31-40 years in both the sexes (male-27.30%, females-30.70%). Minimum number of study subjects was aged less than 10 years in both the sexes (male-2.80%, female-2.40%). Out of 267 Hindus, 44.20% belonged to general category, 40.10% to OBC category and 15.70% belonged to SC/ST. Out of 31 Muslims, all (100%) belonged to OBC category. Maximum (22%) of the study subjects were educated up to intermediate while 17% of them were illiterate. Maximum (62.40%) of the study subjects were unemployed while minimum (1.30%) were professionals. Maximum (54%) of the study subjects belonged to social class IV while no one belonged to social class I (Figure 1).

In 70% cases, no family history of tuberculosis was present. Most of the study subjects (74.70%) were not BCG vaccinated. Pre-treatment sputum positive for AFB was reported in most of the study subjects (79.70%) while 20.30% reported negative for AFB. Most of the study subjects (79.70%) were New cases (Cat I and Cat III) while 20.30% were in retreatment category (Cat II). Most of the study subjects (80.70%) were having pulmonary TB while 19.30% had extra pulmonary TB (Figure 2).

Maximum number of study subjects (63%) got their medicines within 15-30 min of waiting time. Almost all the study subjects (99.30%) reported that the attitude of DMC staff was cooperative. Most of the study subjects (87%) were satisfied with the services provided at the DMC (Table 1).



**Figure 1: Socio-demographic profile of subjects.**



**Figure 2: DMC relates parameter of subjects.**

**Table 1: Distribution of Study subjects according to DMC services.**

Variables related to DMC services	Study subjects	
	No.	%
Waiting time in minutes	<15	59
	15-30	189
	>30	52
	Total	300
Attitude of DMC staff towards study subjects	Cooperative	298
	Non cooperative	2
	Total	300
Satisfaction with services of DMC	Yes	261
	No	39
	Total	300

**Table 2: Comparison between urban and rural DMC.**

		Urban		Rural		Total	
		No.	%	No.	%	No.	%
Patient Compliance status	Compliant	155	81.6	104	94.5	259	86.3
	Non-compliant	35	18.4	6	5.5	41	13.7
	Total	190	100	110	100	300	100
Satisfaction with service	Yes	167	87.9	94	85.4	261	87
	No	23	12.1	16	14.6	39	13
	Total	190	100	110	100	300	100
Information provided about duration of treatment	Yes	145	76.3	89	80.9	234	78
	No	45	23.7	21	19.1	66	22
	Total	190	100	110	100	300	100

**Table 3: Distribution of study subjects according to reasons for satisfaction.**

Reasons for satisfaction*	Study subjects (n=261)	
	No.	%
Improvement of symptoms	103	39.50
Free medicines available	175	67.00
Behaviour of staff is good	16	6.10
Medicine available nearby	45	17.20
All of the above	75	28.70

\*Multiple responses

**Table 4: Study subjects according to reasons for dissatisfaction & non-compliance.**

Reasons for dissatisfaction	Study subjects	
	No.	%
Symptoms not improving	3	7.70
Difficulty to come on alternate days	17	43.60
Long distance to travel to DOTS Centres	5	12.80
Wastage of time	9	23.10
Financial loss	4	10.30
Others	1	2.60
Reasons of Non- compliance	Non-compliant study subjects	
Too sick	0	0
Out of station	0	0
Symptoms relieved	30	73.20
Could not tolerate medicines	10	24.40
Symptoms not relieved	1	2.40
Total	41	100

Compliant status was better in rural DMC (94.50%). Non-compliance was more in urban DMC (18.40%). 87.90% of the study subjects of the urban population and 85.40% of the rural study subjects were satisfied towards the services provided at the DMC. About 80.90% of the rural and 76.30% of the urban study subjects were aware of correct duration of treatment for TB under DOTS (Table 2).

Majority of the study subjects (67%) were satisfied due to availability of free medicines at the centres. Improvement of symptoms was another important reason for satisfaction among the study subjects (39.50%) (Table 3).

Difficulty to come on alternate days was the most common reason for dissatisfaction among study subjects (43.60%) followed by wastage of time (23.10%). Among the non-compliant study subjects who missed the doses, maximum (73.20%) were those who missed the doses because they found relief (in symptoms) followed by those who could not tolerate the medicines (24.40%) (Table 4).

## DISCUSSION

The present study shows that the maximum number of study subjects (28.70%) belonged to 31-40 years of age

group followed by 41-50 years age group (15.70%). In a study in Lucknow showed that majority of the patients (81 %) belonged to age group of 15-44 years and only 18.10% were aged more than 45 years.<sup>8</sup> In a study in Kottayam, Kerala 64 % patients were found in the economically productive age group (20-50 years) followed by 27 % in age group of 60-80 years.<sup>9</sup> In the present study, 89 % study subjects were Hindus and 10.30% were Muslims and remaining 0.70 % belonged to other religions. This observation corresponds with the religion wise distribution of the population of Kanpur Nagar. In a study in Lucknow 68% were Hindus, 31% Muslims and 1% belonged to other religion while another study of Meerut, Uttar Pradesh 60.50% were Hindus and 39.50% Muslims.<sup>8,10</sup> In the present study, maximum (22%) of the study subjects were educated up to intermediate followed by illiterate (17%) and rest were educated up to primary level 16%, high school 16.30%, graduation 12% and post-graduation 3%. While in a study it was observed that Maximum (46%) were illiterate and 32% were educated up to primary school, while junior high school and high school found above were 11% each.<sup>8</sup> In the present study, according to Prasad socioeconomic class, maximum subjects (54%) belonged to socio economic class IV, 29% to socioeconomic class V, 16% to socioeconomic class III, only 1% to socioeconomic class II. and no one to class I. These results are in conformity with the findings of other studies.<sup>11,12</sup>

In the present study, pulmonary TB was found in 80.70 % and extra pulmonary in 19.30% patients which is almost similar to the finding of another study conducted in Thailand where corresponding figures were 77% and 23% respectively.<sup>13</sup> Similar trend was revealed in a study conducted in Meerut (PTB 91.70% and extra pulmonary in 8.30%)<sup>10</sup> and in another study of Howrah (pulmonary cases 86.70% and extra pulmonary cases 13.30%).<sup>14</sup>

In the present study, 79.70% patients belonged to the category of new cases (old Cat. I and Cat III combined) according to the new classification followed by 20.30% in category of retreatment cases. The study in Meerut, revealed that 42.50% belonged to category-I (158 new sputum smear positive, 9 seriously ill smear negative pulmonary and 3 seriously ill extra pulmonary), and 35.50% to Cat-III (104 smear negative non seriously ill & 30 extra pulmonary not seriously ill) and the total of both is almost similar to the result of our study for the category of new cases (Cat-I and Cat-III of old classification combined).<sup>10</sup> In the same study around 24% were from Cat-II (21 relapse,10 failure,& 61 TAD) which corresponds well with our finding of 20.30% cases in the category of retreatment cases (Cat-II of old classification).<sup>10</sup> In conformity with the finding of present study, a study by Bangalore Mahanagara Palike revealed that 40.80% patients each belonged to category I and category III; the remaining 18.40% patients belonged to category II.<sup>15</sup> Almost similar trend was revealed by another study (with 36% category I, 22% category II and

42% category III).<sup>14</sup> Almost similar trend of compliance rate (89.40%, 86% and 93% respectively) were observed in different studies.<sup>8,12,16</sup>

In the present study, 87% of the study subjects were satisfied with the services provided at DOTS centres while 13% patients were not satisfied with treatment. Majority of patients were satisfied as no expenses was incurred on cost of treatment (67%), improvement of symptoms (39.50%), easy accessibility of DOTS centre (17.20%). The most common reason for not being satisfied was difficulty to come on alternate days (43.60%), wastage of time (23.10%), lack of improvement of symptoms (7.70%).

Majority of the patients (91%) were satisfied with their treatment in the study of Kottayam (Kerala) which may be due to early improvement of symptoms, and treatment free of cost.<sup>9</sup> The few 6% who were dissatisfied gave lack of improvement (4%) and annoying side effects (2%) as the reasons. In the study of Meerut, majority of patients (67.80%) were highly satisfied, 16.70% were just satisfied and 15.50% were not satisfied.<sup>10</sup> The major factors of satisfaction were treatment free of cost, easy availability of the medicine from DOTS centre. The reasons for dissatisfaction were difficult to come on alternate days, rude behaviour of health staff, long distance of DOTS centre, symptoms not improving.

In the present study, the attitude and behaviour was cooperative according to majority (99.30%) and non-cooperative in just (0.70%) of the study subjects. While in other study behaviour of the provider was good according to 81.80% patients, normal according to 12.20% and uncooperative or rude according to 6% patients and in another study majority (87%) of patients were happy with the attitude and behaviour of DOTS workers.<sup>10,12</sup>

## CONCLUSION

About 13% patient was not satisfied with DMC services. Among urban DMCs 18.4% patient were not compliant whereas it was 5.5% among rural DMCs. About 22% patients were unaware about duration of treatment. Most important reason for dissatisfaction with service was 'difficulty to come alternate day'.

## Recommendations

IEC activity should be promoted at DMCs to improve satisfaction and compliance. More and more DOTS provider should be incorporated in chain to increase treatment completion rate.

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*Ethical Committee*

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