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# A study to assess the factors associated with non-compliance of DOT'S treatment among the tuberculosis patients attending the DOT'S center of Rahata Taluka.

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***Abstract***

***Background of study:*** *According to Global tuberculosis report-2017 by WHO, Tuberculosis (TB) has approximately 10 million people each year and is one of the top ten causes of death worldwide.[1] Many times it is observed that people not showing compliance to treatment due to various factor like side effects of treatment, ignorance etc. The present study was conducted with objective of assessment of factors associated with non-compliance of DOTS treatment.* ***Objectives: 1.****To assess the clinical profile of tuberculosis patient with non-compliance to DOTS. 2. To identify the factors associated with non- compliance to DOTS.3. To co-relate factors associated with non-compliance to the selected demographic variables.*

***Methods:*** *A descriptive study design with cross sectional survey approach was used. The data was collected from 30 treatments after default (TAD) patients from all tuberculosis units of Rahata Taluka who fulfill inclusion criteria. The samples were selected by universal sampling technique & data was collected by semi structured interview schedule using open ended questionnaire.* ***Result:*** *Inadequate knowledge about treatment, side effects, treatment progress, social stigma were the major factors associated with non-compliance to the DOTS treatment among tuberculosis patients.* ***Conclusion:*** *The major conclusion drawn from this study is non- adherence to tuberculosis treatment is an issue of concern; it's expensive in terms of losing life's, huge budget expenses and socio-economic progress of the community.*

***Keywords:*** *assess, factors, non compliance DOT's treatment, tuberculosis patient, DOT'S treatment.*

## I. Introduction

India has landed the dubious distinction of being number one in the world for deaths from tuberculosis: 423,000 TB patients died in the year 2016. That's a third of the world's
million death toll.[2] The World Health Organization (WHO) TB statistics for India for 2015 give an estimated incidence figure of 2.2 million cases of TB for India out of a global incidence of 9.6 million.[3] In Maharashtra, as per TB India report, 2017, for the year 2016, 52106 cases were registered for treatment. Among these 89% cases completed treatment, 4% were defaulter, 2% transfer out and 4% were died.[4] Factors that remained independently associated with non- compliance were: place of residence, literacy, travelling time, waiting time, employment,

living status, family support, stigma, khat chewing and patients' knowledge of TB.[5] Noncompliance of tuberculosis treatment which may leads to further complication. Present study aimed at identifies the factor responsible for non compliance of tuberculosis treatment among treatment after defaulter (TAD) patients of Rahata Taluka.

**I.1 Statement of problem**

"A study to assess the factors associated with non-compliance of DOTS treatment among the tuberculosis patients attending the DOTS centre of Rahatataluka".

**I.2 Objectives**

**1.** To assess the clinical profile of tuberculosis patient with non-compliance to DOTS

**2.** To identify the factors associated with non- compliance to DOTS.

**3.** To co-relate factors associated with non-compliance to the selected demographic variables.

## II. Materials and methods

**II. 1. Study design and participants:** Mixed method descriptive study design with cross sectional survey approach used for the present study. There are 10 PHI, 6 PHCs, 3 RH, 5 DMC and 1 medical college as a tuberculosis treatment unit in Rahata taluka. The data was collected by universal sampling method from 30 treatments after default (TAD) patients from all tuberculosis units of Rahata Taluka who fulfill inclusion criteria. The data was collected from the defaulters between the periods of Jan 2013 to December 2017. The data was collected from 5th March 2018-27th April2018.

**II.2 Methods of data collection**

Permission to conduct study was obtained from Taluka medical officer (TMO) of Rahata tehsil of Ahmednagar district Maharashtra. Information about treatments after default (TAD) patients from all tuberculosis units obtained from rural hospital of Rahata Taluka. It contains bio-data, unit currently they are taking treatment and mobile number. After taking prior appointment on mobile, interview was conducted on visiting day of their respective DOT unit. Those who fulfill inclusion criteria and willing to participate in study were selected as study participant after obtaining written consent. The data was collected by interview method. Before starting interview participant made calm and comfortable. The data collection tool was consisting of two sections. Section A and B. **Section A** consist of two parts, **Part I-** Socio-demographic data of the tuberculosis patients. This part was dealing with patient's demographic variables age, gender, marital status, education, occupation, socioeconomic status, number of members in family.

**Part II -** Clinical profile of the tuberculosis patients: This part consist of period of duration of tuberculosis, phase of treatment, duration of non-compliance to DOTS, nourishment of patient, smoking habit, alcohol habit

**Section B:** Open ended questionnaire to assess the factors associated with non-compliance to DOTS treatment. This was divided into five major areas, Awareness of treatment, Side effects, Treatment progress, logistical factors, Social stigma and cultural factors and other factors.

Interview was recorded on mobile and after that data was written in question and answer form. Answer given by patients written in verbatim form.

**II. 3 Data management system:** Socio-demographic and clinical profile data was entered in excel sheet and presented as per frequency and percentage. Qualitative data obtained by interview method about non compliance of DOT analyzed by content analysis. It consist of breaking down data into smaller units, coding and naming the units according to the content they represent and grouping coded material based on shared concepts. As per central theme and grouping of data. It was presented in frequency and percentage. Representative data presented in verbatim form as per central theme.

**II. 4 Ethical consideration:** Institutional ethical committee permission was obtained [Registration No. PIMS/CON/R/IEC/PG/005/2017] prior to the data collection. Written permission was obtained from TMO, Rahata Taluka, Ahmednagar District. The written informed consent was taken from the defaulters of DOTS treatment who were willing to participate in the study and who fulfilled the eligibility criteria.

**III. Results**

Results were presented as per socio-demographic profile, clinical profile and factor associated with non compliance of DOT.

**III. 1 Socio-demographic profile:** Majority of 50% samples under study was in the age group of 31- 40 years, 80% were male and 67% were married. Occupation of majority 40% of samples was agriculture, 63% of samples belongs to lower socio-economic class, 80% samples belongs to nuclear family and having 3-6 child. Significant 47% patients were smoker and 54% were alcoholics.

**III. 2 Clinical profile:** Significant proportion 43% and 40% patients had duration of illness 3-6 months and ≤3 months respectively. Majority of (63%) samples discontinued treatment after 2 months of regular treatment while one third (33%) left the treatment after 1-2 month of regular treatment and 73% were belongs to continuation phase of treatment and 27% samples were from intensive phase. There was equal distribution of well nourished and poorly nourished sample under study as assessment of BMI.

**III. 3. Assessment of factor responsible for non compliance of DOT**

Content analysis was used for qualitative data and further it was presented in frequency and percentage. Representative data presented in verbatim form as per central theme.

Following were the factor for noncompliance of DOT treatment.

**A. Side effects**

Majority (70%) of tuberculosis patients experienced side effects of DOTS treatment. Among 21(70%) patients 60% samples had weakness and fainting after taking DOTS treatment followed by (30%) patients suffered from fever and shivering and(23%) lose their weight during treatment. Significantly (76%) samples were unable to tolerate the side effects of DOTS treatment and which was the reason for their non-compliance to the DOTS treatment.

From above findings it can be interpret that side effect of DOTS treatment is one of the major factor associated with non-compliance of DOTS treatment.

The following statements were expressed by patients

*'You know I experienced the severe side effects after taking this treatment. I look very thin and feeling of without energy. I was unable to walk due to the weakness, have vomited the food soon after taking the tablet. I have to take repeated treatment in private hospital for weaknesses'.*[35 years female patient]

*'I have unbearable side effects like red color micturition, vomiting, weakness. I have the joint pain also which make me to sit or sleep at a same place and interrupt my day to work also'.*[51 years male patient]

**B. Treatment progress**

Majority of samples 18 (60 %) didn't observe improvement in health condition after DOTS treatment while 12 (40%) believed that there was improvement in health after taking DOTS treatment. Among 18(60%) patients 12 (67 %) left treatment because of no improvement in health condition and among 12(40%) patients 7 (58%) samples left the treatment due to early improvement. Some patients reported *'No hope'* in the treatment, was important factor for non compliance of treatment.

It interprets that treatment prognosis of illness were strongly associated with non-compliance with the DOTS treatment.

**The following statements were expressed by patients**

*'There was no improvement in my health condition. This was the critical stage of my life. I experienced that the side effects were increasing. I was thinking that if there is no improvement then what is the use of taking treatment?'* [38 years male patient]

*'I felt that there is no use to take these medicines as I was not able to stable physically for work as well as daily activities, so I quit the treatment.'* [40 years male patient]

*'Yes, there was improvement in my health and sign and symptoms were lessened day by day. I felt better so I stopped to take the medications'.* [55 years male patient]

**C. Stigma and cultural factor**

Significant percent 8 (27%) tuberculosis patients didn't got support from family members during treatment while 6 (20%) tuberculosis patients felt that tuberculosis is a social stigma.

It interprets that support from family members and social stigma were the factors associated with non-compliance with DOTS treatment.

The following statement was run across through interview.

*'I find it difficult to talk with others including my spouse though they attend me, still I feel lonely and different from others, while I rate myself lower than others'.* [34 years male patient]

*'Madam, I have very bad experience about my family as well as society. Everyone was neglecting me and avoid talking with me. I was not interested to attend the family and social functions as I feel ignored'*.[63 years female patient]

*'I got support from my family members but not from society. My family members were with me throughout the treatment so I never feel helpless. But the other people behavior was totally changed after my diagnosis. I was worried that they will never accept me'.*[55 years male patient]

**D. Logistic and other factors**

Significant number of 13(43%) patients said they do not have proper transport facility, 6(20%) says loss of job due to the treatment and 2(7%) patient said expenses and Non availability of drugs was factor for non compliance.

Some of the patients expressed other associated factors which were not included in questionnaire. The some of the quotes by the patients were

*'Meanwhile I dropped out my treatment for a month when my mother was died but my symptoms get aggravated so I again continue the treatment'.*[42 years male patient]

*'The size and number of tablet should be minimizing so the patients will not get agitated to take the treatment'.*[35 years male patient]

## IV. Discussion

**Assessment of side effects of DOTS treatment**

Overall majority (70%) of tuberculosis patients experienced side effects of DOTS treatment. Similar study conducted by Pandit N, Choudhary SK revealed that majority (12/19, 63.2%) of patients on DOT stopped treatment because of side effects of drugs.[6]

Among 21(70%) patients 60% samples had weakness and fainting after taking DOTS treatment followed by (30%) patients suffered from fever and shivering and (23%) lose their weight during treatment. It was supported by Sarpal SS, Goel NK, Kumar D and Janmeja AK who also observed that most common side effects of treatment

complained by the patients were GI upset (62.5%), fatigue (59.4%), drowsiness (34.4%) and itching (31.3%). 46.8% believed thatATT induced side-effects were the main reason for treatment interruption.[7]

**Treatment prognosis**

Majority of samples 18 (60 %) didn't observe improvement in health condition after DOTS treatment while 12 (40%) believed that there was improvement in health after taking DOTS treatment. It was in line with the study findings by Gorityala SB, Mateti UV,KonuruV and Martha S that the most common reason for the treatment interruptions were felt well with TB treatment.[8]

**Logistic factor**

20% tuberculosis patients lost their job due to the DOTS treatment and left the treatment due to job loss. About 7% samples faced unavailability of the drugs of DOTS therapy and expenses for travelling was the reason for their non-compliance with treatment. Similarly Tang Y, Zhao M also noted lack of knowledge about TB treatment and longer travel time to the nearest community health centers are significant predictors for non-adherence.[9]

**Stigma and cultural factor**

Significant percent 8 (27%) tuberculosis patients didn't got support from family members during treatment while 6 (20%) tuberculosis patients felt that tuberculosis is a social stigma.

Similarly Xu W, Lu W, Zhou Y, Zhu L, Shen H and Wang J Social stigma was potential factor accounted for non-adherence.[10]

**Study limitations:** Open ended questionnaire helps to throw light on important factor from patient point of view for non compliance of DOTS treatment. But some of the limitations concluded at the end of the study were study participants limited to Rahata Taluka only and treatment after default (TAD) patient only.

## V. Conclusion

These Findings revealed that the majority of the respondents were noncompliant to DOTS treatment because of side effects of drugs, early improvement and no improvement in health condition, social stigma and lack of family support. There is a need to overcome barriers at the community and family level which is an area that is relatively under-researched, but it can provide effective tools to use with current approaches to ensure adherence and completion of treatment. Novel approaches are to be finding out to overcome stigma and tackle obstacles for improvement in health status after treatment. New policies can be introduced through health ministry which need experimental and quasi- experimental research studies to improve the adherence to DOTS regimen and ensure that policies are according to clients needs. It will be helpful to controlling patients by responding to patient's health-care requirements to help them choose to complete treatment themselves.

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