



# Pre-Treatment Loss to Follow Up of Tuberculosis Patients; Prevalence and Reasons for It in Central Karnataka, India

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## ABSTRACT

**Background:** Pre-treatment loss to follow up (PTLFU) is defined as diagnosed TB patients not initiated on treatment within 14 days of TB diagnosis. Bringing these PTLFU cases into care can reduce the disease transmission and mortality. The present study was undertaken with main objectives to study the prevalence of PTLFU in TB patients and to know the reasons for PTLFU.

**Methodology:** A cross-sectional study was conducted among 38 PTLFU TB patients of Davangere district, Karnataka from January to March 2019. Study participants were personally interviewed using pre-tested, semi-structured questionnaire. Data was analyzed using SPSS software.

**Results:** The prevalence of PTLFU in TB patients is 3.6%. The reasons for PTLFU were, out of the 38 study subjects, 17 (47%) of them were initiated on treatment in private sector but reported as PTLFU. 7 (18%) died in hospital before treatment initiation. 7 (18%) did not start the treatment because of fear of side effects following anti tuberculosis treatment, whereas 2 (6%) of them did not take treatment by seeing the side effects in others and 5 (13%) had alcoholic withdrawal effects.

**Conclusions:** Improvement in recording of contact details, biometric registration of all presumptive TB cases and pre-treatment counselling of all diagnosed TB patients may reduce PTLFU.

**Keywords:** Tuberculosis, Pre-treatment, Prevalence, Diagnosis

## INTRODUCTION

Tuberculosis (TB) is a common communicable disease caused by *Mycobacterium tuberculosis* and is ranked to be the top most infectious disease-causing deaths.<sup>1</sup> Sustainable development goals have set up a target of ending TB epidemic by 2030. <sup>2</sup> National strategic plans have set up a goal to achieve a rapid decline in burden of TB, morbidity and mortality while working towards elimination of tuberculosis in India by 2025.<sup>3</sup>

Early diagnosis and treatment are the only ways to

prevent progression and further spread of the disease.<sup>4</sup> Rapid case detection with sputum samples and early treatment initiation of smear-positive cases are key steps to control tuberculosis through national tuberculosis programmes (NTPs).<sup>5</sup> In the process, patients may drop out of care during the diagnostic process (loss to follow-up during diagnostic period) or before initiating treatment ("pre-treatment loss to follow-up", formerly known as "initial default") or after treatment has begun (loss to follow up). Patients diagnosed with smear-positive tuberculosis who do not initiate treatment represent an important failing

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in the provision of care.<sup>6,7</sup> High rates of mortality are reported in this group.<sup>8</sup> Moreover, bringing these patients into care could reduce tuberculosis transmission to others.<sup>9</sup> Patients with a diagnosis of tuberculosis who are lost to follow-up before they receive treatment are not included in routine reporting by NTPs. Thus, programme effectiveness may be overestimated.<sup>10</sup> Pre-treatment loss to follow up cases (PTLFU) represent the important failing of the health care. Bringing these patients in to care can reduce the disease transmission and mortality due to TB. However, there are limited studies to know the reasons for PTLFU in TB patients. With this background the present study was undertaken with main objectives to study the prevalence of PTLFU in TB patients and to know the reasons for PTLFU.

## METHODS

A cross-sectional study was conducted among the PTLFU TB patients of Davangere district, Karnataka after obtaining the institutional ethical committee clearance and permission from district TB office. Study was conducted from January 2019 to March 2019. Pre-treatment loss to follow up (PTLFU) is defined as diagnosed TB patients not initiated on treatment within 14 days of TB diagnosis.<sup>11</sup> The study included cases reported as PTLFU among all the TB patients from January 2018 to December 2018 in district National Tuberculosis Elimination Programme (NTEP). Whereas, patients with incomplete address or contact details were excluded from the study.

Sample size: 38 PTLFU patients. In the mentioned time period, 1886 patients were diagnosed with TB. Out of 1886 patients, 1818 were started on anti-tuberculosis treatment. Remaining 68 patients were reported as PTLFU. Out of 68 PTLFU patients, 30 patients couldn't be traced due to incorrect address and contact details. So, 38 PTLFU patients were interviewed to explore the reasons for PTLFU. (Figure 1)

Data collection: After informing the objectives of the study to the participants, a written informed consent was taken. Study participants were personally interviewed using pre-tested, semi-structured questionnaire containing socio demographic details, past and personal history and also reasons for non-initiation of treatment. If the PTLFU patient had died, then spouse/children/parents were interviewed to know the reason for non-initiation of treatment.

Data analysis: Prevalence of PTLFU was calculated as percentage of PTLFU TB patients among the total diagnosed TB patients in the specific time period. Data was entered in MS excel 2016 and analyzed using SPSS software v16.0 and results are presented in the form of frequency and percentage.

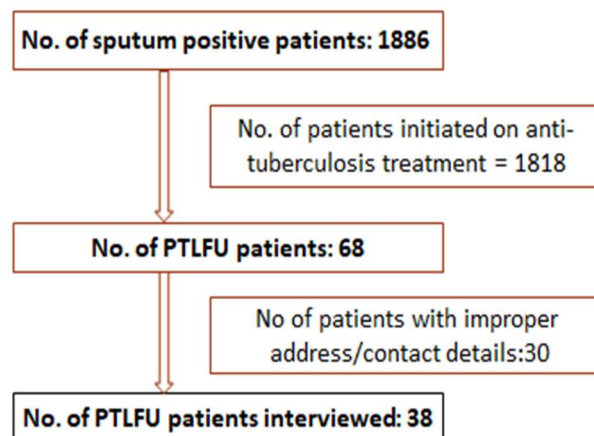
## RESULTS

Out of 1886 diagnosed TB patients, 68 were not initiated on anti-tuberculosis treatment. So, the preva-

lence of PTLFU among diagnosed TB patients is 3.6%.

Among the traced 38 PTLFU patients, the mean age of study participants was 42.61±17.84years. Out of 38 PTLFU patients, 29 (76%) of them were males and 9 (24%) of them were females. 19 (50%) of them were literate. Based on the residency, 29 (76%) of them were from rural area and 9 (24%) of them were from urban area. In the present study, 17 (45%) of the study participants had history of smoking and 9 (24%) used smokeless tobacco. About the comorbidities, 10 (26%) had history of diabetes mellitus and 13 (34%) had previous history of TB. (Table 1)

Out of the 38 interviewed PTLFU TB patients, 17 (47%) of them were initiated on treatment in private sector but reported as PTLFU as the data from the private sector was not shared with the district TB centre. 7 (18%) died in hospital before treatment initiation, these patients were diagnosed as TB in the later stages of the disease but patients lost their life before treatment initiation. 7 (18%) did not start the treatment because of fear of side effects following anti tuberculosis treatment (ATT) in their previous episode of treatment, whereas 2 (6%) of them did not take treatment by seeing the side effects in others, 5 (13%) had alcoholic withdrawal effects so patient and their relatives refused to take treatment. (Table 2)



**Figure 1: PTLFU patients interviewed**

\*PTLFU: Pre-treatment loss to follow up

**Table 1: Socio-demographic details of study participants (N= 38)**

Socio- demographic features	Cases (%)
Male	29 (76.3)
Illiterate	19 (50)
Urban	9 (23.7)
Alcoholic	17 (44.7)
Smoking	17 (44.7)
Smokeless tobacco	9 (23.7)
Diabetes Mellitus	10 (26.3)
Previous history of TB treatment	13 (34.2)

**Table 2. Reasons for PTLFU (N =38)**

Reasons for PTLFU	Cases (%)
Initiated on treatment in private sector	17 (44.7)
Died in hospital before initiating treatment	7 (18.4)
Fear of side effects due previous ATT	7 (18.4)
Alcoholic	5 (13.2)
Side effects of ATT in others	2 (5.3)

PTLFU: Pre-treatment loss to follow up; ATT: Anti tuberculosis treatment

## DISCUSSION

The present study was an attempt to know the prevalence of PTLFU and its reasons. PTLFU is an obstacle in the path of achieving TB elimination and it also increases the mortality and morbidity<sup>12, 13</sup> among the TB patients not initiated on treatment, further spreading the disease to their close contacts. In our study we found that the prevalence of PTLFU was 3.6%. In the similar studies conducted by Thomas et al<sup>11</sup>, Kurd SA et al<sup>14</sup>, Divija et al<sup>15</sup> and Mehra D et al<sup>16</sup> the prevalence of PTLFU was 22.1%, 18.9%, 15.3% and 24% respectively. PTLFU was comparatively low in the present study. However, it was almost similar to the findings in the study conducted by Pithadia PR et al<sup>17</sup> where the prevalence of PTLFU is 5.15%. Since PTLFU rate is a record-based indicator, the findings of our study may be due to better documentation of treatment initiation and it plays an important role. This reflects on the efficiency of the feedback mechanism and documentation. Coordinated efforts at the district level among program managers are essential to achieve appropriate information on patients referred outside the district. This emphasizes the need for indicators at the Tuberculosis unit (TU) level to closely monitor treatment initiation of all diagnosed smear-positive TB patients.

Among the interviewed PTLFU patients, majority (76%) of them were males. Similarly, the study conducted by Thomas et al<sup>11</sup> also showed the male predominance. But the study conducted by Kurd SA et al<sup>14</sup> showed the female predominance of 60%.

The various reasons for PTLFU patients were 47% of patients-initiated treatment in private sector and were wrongly reported as PTLFU, 18% died in the hospital before treatment initiation, 18% had fear of side effects following ATT and 6% did not take treatment by seeing side effects in others and 13% had habits like alcoholism. It is imperative that reasons are documented for all diagnosed patients not started on treatment under program settings. Since PTLFU is an important issue for good TB control at facility, national and global level more attention has to be paid to find out what happens to smear-positive patients.<sup>6</sup> Poor quality of patient contact information in DMC registries is a major factor associated with PTLFU. Missing or incomplete information could partly be related to lack of phone access or lack of a stable home address on the part of patients. Having a prior history of TB treatment is one of the most concerning factors associated with PTLFU from a

public health perspective, because these patients are at higher risk for having and transmitting drug-resistant TB.<sup>18, 19</sup>

In a similar study by Thomas et al<sup>11</sup>, 27.6% died before treatment initiation and 72.4% were loss to follow up due to incomplete contact details and residential address, which is similar to the present study findings. In a study conducted by Babu SB et al<sup>20</sup>, 47.5% of them were on treatment and wrongly reported as PTLFU. 22% died before treatment initiation and 13.5% of them refused treatment on their own. Similarly, in our study 47% of the PTLFU patients were on treatment in private sector and wrongly reported as PTLFU and 18% of them died before treatment initiation.

In a similar study conducted by Divija et al<sup>15</sup> various factors responsible for PTLFU were lack of family support, longer distance to the health facility, being advised against alcohol consumption, job constraints, monetary constraints and stigma related to TB.

## CONCLUSION

Prevalence of pre-treatment loss to follow up was 3.6% and major reasons for PTLFU were initiation of treatment in private sector, death of the patients before initiation of treatment, fear of side effects due to previous anti-tuberculosis treatment and side effects in others and alcoholism. Therefore, improvement in recording of contact details, biometric registration of all presumptive TB cases and linking with Aadhar number and/or Arogya Karnataka ID may assist retrieve these patients for treatment initiation, hence reduce PTLFU. A pre-treatment counselling should address all the patient related queries to prevent PTLFU.

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