



## GENDER DIFFERENCES IN PROFILE OF TUBERCULOSIS PATIENTS

## Community Medicine

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## ABSTRACT

This cross-sectional descriptive study was conducted on 87 tuberculosis patients (46 females: 52.88% and 41 males: 47.12%) at a DOTS centre in a hospital in Western India to determine the gender differences in their profile. Data were collected by interviewing patients and scrutinizing patients' case records. The mean age of female and male participants was 28.22 +/- 13.23 years and 36.51 +/- 17.89 years, respectively, with significant gender difference in mean age ( $Z=2.432$ ;  $p=0.014$ ). The mean gap in initiation of treatment after diagnosis was 4.52 +/- 3.78 days and 4.29 +/- 3.92 days, respectively for female and male participants, without significant gender difference ( $Z=0.277$ ;  $p=0.781$ ). A significantly higher ( $Z=2.400$ ;  $p=0.016$ ) number of male patients had relapse. 23 female participants and 30 male participants had no known contact with tuberculosis patients, with significant gender difference ( $Z=2.211$ ;  $p=0.027$ ). Female patients had significantly more contacts among family ( $Z=2.470$ ;  $p=0.013$ ) and friends ( $Z=2.204$ ;  $p=0.027$ ).

## KEYWORDS

DOTS, Gender, Hospital-based study, Profile, Tuberculosis

## INTRODUCTION

Tuberculosis (TB), caused by *Mycobacterium tuberculosis*, [1] continues to be a global public health problem despite the fact that the causative organism was discovered more than 100 years ago and tuberculosis is a preventable and curable disease. [2] In addition to adversely affecting physical health, tuberculosis also affects socio-economic and psychological well-being. [3] Households are adversely affected because the disease affects the economically active age group, resulting in social ramifications, such as, divorce, ostracism by family members and the local community, and loss of housing. [4] Psychosocial outcomes include increased anxiety, depression and lower life satisfaction due to higher unemployment and lower income. [5]

India carries the triple burden of tuberculosis, drug-resistant tuberculosis, and HIV-tuberculosis co-infection. [6] India alone accounts for 27% of global TB burden, with an estimated 2.7 million new TB patients. [7]

Under the Revised National Tuberculosis Control Programme (RNTCP), an "Initial Defaulter", or "Pretreatment Loss To Follow-Up (PTLFU)" is a patient who was diagnosed as a sputum smear-positive case at the RNTCP laboratory but who had not been placed on RNTCP treatment regimen and also had not been referred for treatment outside the district. [8] RNTCP has been re-named as National Tuberculosis Elimination Programme. [8] PTLFU may be particularly challenging in metropolitan cities since patient mobility may complicate the initiation of treatment in diagnosed patients. [9] Information about treatment initiation should be available for all the diagnosed sputum positive pulmonary tuberculosis patients to reduce ongoing disease transmission by bringing them under treatment cover. [10]

A Chennai-based study [11] on health seeking behaviour of chest symptomatics – conducted after the implementation of the Revised National Tuberculosis Control Programme (RNTCP) – reported that when compared to the findings of pre-RNTCP studies, there had been an overall increase of chest symptomatics seeking care for their chest symptoms in government facilities. [12]

The objective of the present study was to determine the gender differences in profile of tuberculosis patients.

## MATERIALS AND METHODS

This cross-sectional descriptive study was conducted at a DOTS centre

in a teaching hospital in Western India. Primary data were collected by interviewing patients and supplemented with information from patients' case records (secondary data). The data were entered in Microsoft Excel spreadsheet (Microsoft Corporation, Redmond, WA, USA) and analyzed using SPSS statistical software Windows Version 25.0 (IBM Corporation, Armonk, NY, USA). For discrete data, the percentage of responses and the standard error of difference between two sample proportions were calculated. For continuous data, the standard error of difference between two means was calculated. 95% Confidence interval (CI) was stated as: [Mean-(1.96)\*Standard Error] - [Mean+(1.96)\* Standard Error]. The statistical significance was determined at  $p<0.05$ .

## RESULTS AND DISCUSSION

In all, there were 87 participants (46 females: 52.88% and 41 males: 47.12%).

**Demographics:** The mean age of female and male participants was 28.22 +/- 13.23 years (95% CI: 24.39 – 32.04 years) and 36.51 +/- 17.89 years (95% CI: 31.03 – 41.99 years), respectively. The gender difference in mean age was significant ( $Z=2.432$ ;  $p=0.014$ ). The minimum age was higher for female participants. But, the first quartile, median age, third quartile and maximum age was higher for male participants (Fig-1). The gender difference in religion-wise distribution was not significant ( $Z=0.146$ ;  $p=0.880$ ).

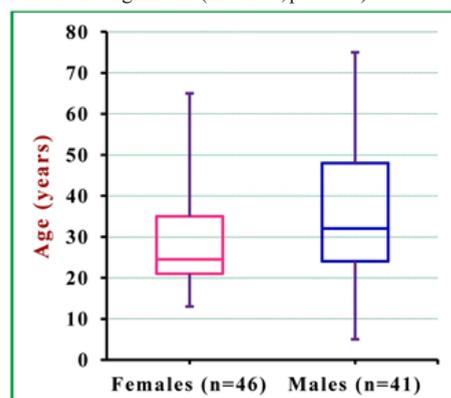


Fig-1: Box plot depicting age distribution

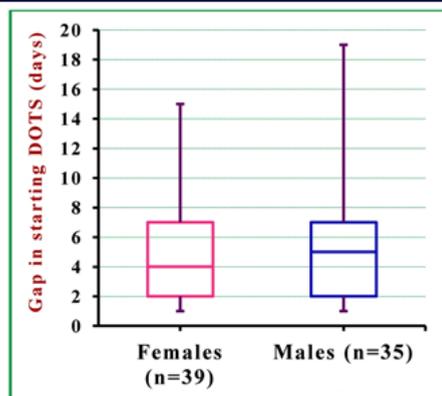


Fig-2: Box plot depicting gap in initiation of DOTS

**Gap in initiation of treatment:** DOTS initiation gap was seen in 39 (84.78%) females and 35 (85.36%) males while in the remaining patients, treatment was initiated on the day of diagnosis. As regards the gap in initiation of treatment, the minimum, the first and third quartiles were identical for patients of both genders. However, the median gap and maximum gap were higher for male patients (Fig-2). The mean gap in initiation of treatment after diagnosis was 4.52 +/- 3.78 days (95% CI: 3.43 – 5.61 days) and 4.29 +/- 3.92 days (95% CI: 3.09 – 5.49 days), respectively for female and male participants, without significant gender difference ( $Z=0.277$ ;  $p=0.781$ ). Studies have reported that patients met several health care providers before getting diagnosed and starting with the TB treatment. [13-15] The delay in getting diagnosed and starting treatment ranged 25 to 120 days in a study from Ukraine [14] In a Chennai-based study, the mean patient delay in seeking care was 18.3 days and was more among literates, unemployed people, males and patients with low monthly per capita income while patients with extra-pulmonary TB had significantly ( $p<0.0001$ ) more mean patient delay as compared to the patients with pulmonary TB. [16]

Table-1: Gender differences in clinical profile of participants

Parameter	Females (n=46)	Males (n=41)	Z value	'p' value
Category-1	39 (84.78%)	34 (82.93%)	0.235	0.810
Category-2	07 (15.22%)	07 (17.07%)	0.235	0.810
New patient	40 (86.96%)	31 (75.61%)	1.363	0.173
Relapse	01 (02.17%)	07 (17.08%)	2.400	0.016 *
Other	05 (10.87%)	03 (07.31%)	0.572	0.568
EPTB	23 (50.00%)	18 (43.90%)	0.568	0.568
PTB	23 (50.00%)	23 (56.10%)	0.568	0.568
BCG Scar seen	28 (60.87%)	25 (60.97%)	0.010	0.992

EPTB = Extrapulmonary tuberculosis; PTB = Pulmonary tuberculosis  
Z = Standard error of difference between two proportions; \*Significant

**Clinical profile:** The gender differences in clinical profile of patients are outlined in Table-1. As compared to female patients, a significantly higher ( $Z=2.400$ ;  $p=0.016$ ) number of male patients had relapse. It is noteworthy that BCG scar was visible in nearly two-thirds of both female and male tuberculosis patients. In the present study, 50.00% females and 56.10% males had pulmonary TB, while in a Chennai-based study on 300 patients, 219 (73.0%) patients had pulmonary TB. [16]

**Doses missed during intensive phase:** The mean doses missed during intensive phase of DOTS by female participants ( $n=7$ ) was 3.57 +/- 3.86 (95% CI: 0.71 – 4.39), while that missed by their male counterparts ( $n=6$ ) was 2.66 +/- 1.75 (95% CI: 1.26 – 4.06), exhibiting non-significant gender difference ( $Z=0.560$ ,  $p=0.575$ ).

**Doses missed during continuation phase:** The mean doses missed during continuation phase of DOTS by female participants ( $n=13$ ) was 1.62 +/- 0.65 (95% CI: 1.26 – 1.96), while that missed by their male counterparts ( $n=7$ ) was 2.14 +/- 2.03 (95% CI: 0.64 – 3.64), exhibiting non-significant gender difference ( $Z=0.672$ ;  $p=0.501$ ).

**Contact with tuberculosis patients:** 23 female participants and 30 male participants did not reveal history of contact with tuberculosis patients, with significant gender difference ( $Z=2.211$ ;  $p=0.027$ ). The mean duration of contact for female patients ( $n=23$ ) was 2.86 +/- 1.60 months (95% CI: 2.21 – 3.51 months), while that for their male

counterparts ( $n=11$ ) was 4.09 +/- 3.05 months (95% CI: 2.29 – 5.89 months), exhibiting non-significant gender difference ( $Z=1.257$ ;  $p=0.208$ ) in the mean duration of contact. The gender differences in contacts were not significant as regards colleagues in the patients' workplaces ( $Z=0.837$ ;  $p=0.400$ ); but as compared to their male counterparts, female patients had significantly more tuberculosis contacts among family members ( $Z=2.470$ ;  $p=0.013$ ) and friends ( $Z=2.204$ ;  $p=0.027$ ). The mean time elapsed since the contact was declared cured of tuberculosis was 1.50 +/- 1.67 years (95% CI: 0.82 – 2.18 years) and 2.58 +/- 3.44 years (95% CI: 0.55 – 4.61 years) for females and males, respectively, without significant gender difference ( $Z=0.987$ ;  $p=0.323$ ).

## CONCLUSION

Measures to ensure adherence and compliance of tuberculosis treatment ought to include quality assurance, patient-friendliness, screening of contacts, forestalling of delays in initiation and delivery of more personalized patient care, ensuring availability of clinic staff and ascertain that the working hours of tuberculosis clinics are convenient to patients. It is also necessary to increase the levels of awareness on tuberculosis and its treatability amongst the low socio-economic groups and the elderly.

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