

## Clinical Profile of Tuberculosis Patients in a Tertiary Care Hospital of Bangladesh

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### Abstract

### Original Research Article

**Background:** Despite noteworthy socio-economic development and advancement of medical science, till now tuberculosis (TB) is considered a major public health problem. Although TB is a curable disease, still millions of people suffer from TB every year and a number of them die from this infectious disease. Now a day, the prevalence and nature of tuberculosis are not in a consistent stage. We need more current information regarding this issue. **Aim of the study:** The aim of this study was to determine the clinical profile of tuberculosis patients. **Methods:** This study was a prospective, observational study which was conducted in the Department of Internal Medicine, US-Bangla Medical College, Narayanganj, Bangladesh during the period from January 2020 to December 2020. In total 73 diagnosed patients with tuberculosis, treated in this hospital were selected as the study subjects. Properly written consent was taken from all the participants before data collection. All data were processed, analyzed, and disseminated by using MS Office and SPSS version 23 as per need. **Results:** In this study, the majority of the participants were from the >40 years age group. One-third (34%) of participants were primary level educated whereas one-fourth (25%) were secondary level educated. The majority (56%) of the patients were found as 'never smokers'. 'Never drinker' (Alcohol) was found 86%. Among the highest number of participants, pulmonary Koch's was found which was in 42%. Among all the participants, cough and fever were found as two more frequent symptoms which were found in 96% and 86% patients respectively. As the final treatment outcome, we observed, 42% (n=31) patients were fully cured. Treatment was continued on 53% of patients and 4% (n=3) death cases were found. **Conclusion:** According to the findings of this study we can conclude that fever and cough are the two most frequent symptoms in tuberculosis patients. Although the death rate among TB patients is not alarming, the treatment success rate of the first treatment attempt is not satisfactory in tuberculosis patients.

**Keywords:** Clinical profile, Tuberculosis, TB, Outcome, Cough, Fever.

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## 1. INTRODUCTION

Although TB is a curable disease, still millions of people suffer from TB every year and a number of them die from this infectious disease. Now a day, the prevalence and nature of tuberculosis are not in a consistent stage. In the year 2017, an estimated 1.3 million people died due to tuberculosis (TB) making it (TB) one of the leading causes of death because of an infectious agent worldwide [1]. The end TB target of

the World Health Organization (WHO) is a reduction of 95% in the number of deaths because of active TB between the years 2015 and 2035 [2]. A review study [3] on the risk factors associated with death during anti-TB treatment, included human immunodeficiency virus (HIV) positivity, comorbidities, old age, and use of alcohol and drugs. They also indicated that there are differences in risk factors among regions with low and high incidences of TB. Moreover, the causes of

tuberculosis mortality may differ on the phase of anti-TB treatment; however, there are only a few studies reported early deaths, defined as death occurring within the first 2 (Two) months of anti-TB treatment [4, 5]. One of the major impediments in controlling tuberculosis TB worldwide is the default because of treatment interruption. Repeatedly it has been proven that at least one-third of patients do not take the full course of treatment of TB although medicines are available free of cost, treatment is convenient, and adequate health education is given [6]. Several attempts have been taken to assess the extent of problems of "treatment interruption" by patients and to define the reason for it [7, 8]. These include low literacy rate, large family size, lower monthly income, loss of wages, long waiting hours, inconvenient clinic timings, and non-availability of medicines. Other reasons were impolite behavior of staff [9], social stigma [10], social belief and poor knowledge about this disease among patients, and inadequate understanding of the treatment regimens. Besides these, discontinuation may be due to feeling well, the disappearance of symptoms and pain as well as suffering associated with injectable with side effects. It is only natural to enjoy retrieval and stop receiving medication [11].

## 2. METHODOLOGY

This study was a prospective, observational study which was conducted in the Department of Internal Medicine, US-Bangla Medical College, Narayanganj, Bangladesh during the period from January 2020 to December 2020. In total 73 diagnosed patients with tuberculosis, treated in this hospital were selected as the study subjects. Properly written consent was taken from all the participants before data collection. As per the inclusion criteria of this study tuberculosis patients of both gender and several ages, diagnosed at this hospital were included as the study population. On the other hand, according to the exclusion criteria patients not willing to give consent for the study, patients with MDR-TB and XDR-TB, and congenital tuberculosis were excluded. After taking proper written informed consent demographic data, family history, detailed clinical history as well as physical examination for each patient were recorded in a predesigned questionnaire. Complete blood count, chest X-ray, and Mantoux test were done for all the cases. Interpretation of the Mantoux test (1TU) and complete blood count was done using the standardized methods. Skin TB tests were mandatory for all the participants. Fine needle aspiration cytology (FNAC), abdominal paracentesis, ultrasound abdomen, x-ray chest and spine, computed tomography (CT), lumbar puncture, MRI, and other relevant investigations were performed. Sputum examination was performed on all the suspected patients in case considering age. If sputum collection was not feasible then gastric lavage was performed for acid (AFB) fast bacilli staining. All diagnosed patients of tuberculosis (TB) were put on anti-tuberculosis treatment. Follow-up was done every

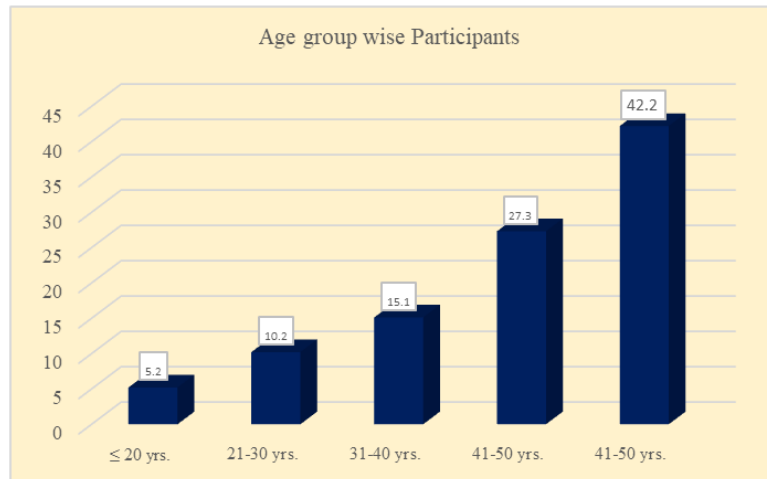
month for 12 months, if they do not turn up telephonic reminder was given. All data were processed, analyzed, and disseminated by using MS Office and SPSS version 23 as per need.

## 3. RESULTS

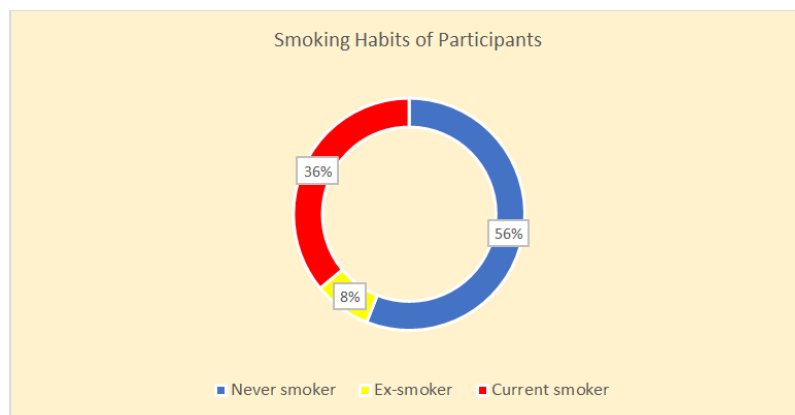
In this study, 62% of participants were male whereas the rest 38% were female. The majority of the participants were from the >40 years age group. Among them, 27% were from 41-50 and 42% were from >50 years' age groups. One-third (34%) of participants were primary level educated whereas one-fourth (25%) were secondary level educated. Among all the participant's majority (56%) of the patients were found as 'never smokers. On the other hand, 8% were 'ex-smoker' and 36% were current smokers. Besides these, 'never drinker' (Alcohol) was found 86%. Among all the participants, the BMI (Kg/m<sup>2</sup>) was found  $\geq 18.5$  in 59% and < 18.5 was found in 41% of patients. Among the highest number of participants, pulmonary Koch's was found which was in 42%. Besides this, CNS Tuberculosis, abdominal Koch's, and TB lymphadenitis were found in 22%, 14%, and 12% of participants respectively. In this study, among all the participants, cough and fever were found as two more frequent symptoms. Which were found in 96% and 86% of patients respectively. Besides these loss of appetite, loss of weight, hemoptysis, breathlessness, chest pain, and hoarseness of voice were found in some patients. In this study, as the final treatment outcome, we observed, 42% (n=31) patients were fully cured. Treatment was continued on 53% of patients and 4% (n=3) death cases were found.

**Table I: Socio-demographic & others characteristics of participants (N=73)**

Characteristics	n	%
Age (in years)		
≤ 20 yrs.	4	5.2%
21-30 yrs.	7	10.2%
31-40 yrs.	11	15.1%
41-50 yrs.	20	27.3%
>50 yrs.	31	42.2%
Educational status		
Illiterate	9	12%
Primary level	25	34%
Secondary	18	25%
Higher Secondary	13	18%
Graduation	8	11%
Smoking habit		
Never smoker	41	56%
Ex-smoker	6	8%
Current smoker	26	36%
The habit of alcohol taking		
Never drinker	63	86%
Ex-drinker	4	5%
Current drinker	6	8%
BMI distribution		
$\geq 18.5 \text{ kg/m}^2$	43	59%
< 18.5 kg/m <sup>2</sup>	30	41%



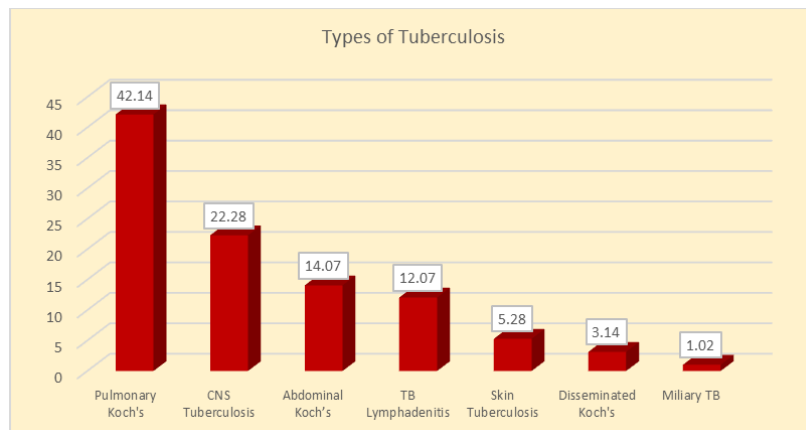
**Figure I: Participants group-wise age (N=73)**



**Figure II: Participants Smoking Habits (N=73)**

**Table 2: Types of TB among participants (N=73)**

Types	n	%
Pulmonary Koch's	31	42.14%
CNS Tuberculosis	16	22.28%
Abdominal Koch's	10	14.07%
TB Lymphadenitis	9	12.07%
Skin Tuberculosis	4	5.28%
Disseminated Koch's	2	3.14%
Miliary TB	1	1.02%



**Figure III: Participants Types of Tuberculosis (N=73)**

**Table 3: Symptom distribution among participants (N=73)**

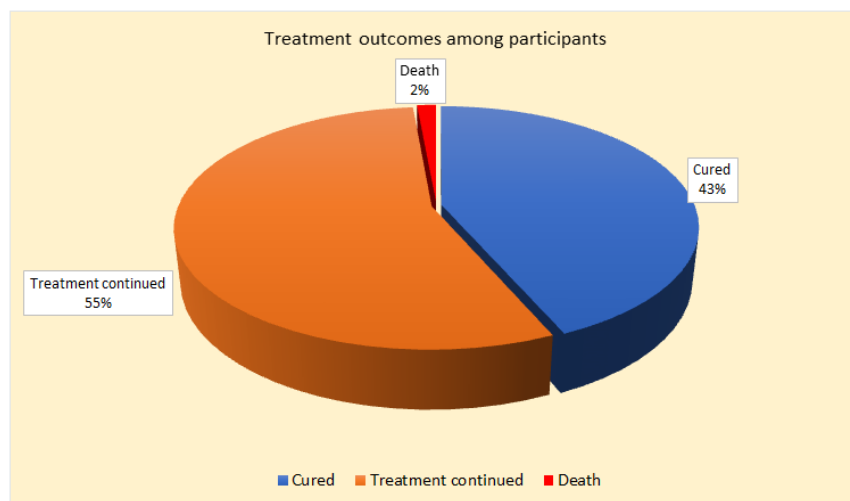
Symptoms	n	%
Cough	70	96%
Fever	63	86%
Loss of appetite	32	44%
Loss of weight	23	32%
Hemoptysis	14	19%
Breathlessness	13	18%
Chest pain	8	11%
Hoarseness of voice	2	3%

**Table 4: Biochemical findings among participants (N=73)**

Tests	Mean ( $\pm$ SD) value
Hemoglobin (g/dl)	11.02 $\pm$ 1.63
Platelet count (10 <sup>5</sup> /mm <sup>3</sup> )	4.17 $\pm$ 1.76
ESR (mm at end of 1 h)	43.73 $\pm$ 33.55
White cell count (10 <sup>3</sup> /mm <sup>3</sup> )	12.47 $\pm$ 5.48
Lymphocyte (%)	42.29 $\pm$ 15.93
SGOT (IU/L)	51.57 $\pm$ 29.44
SGPT (IU/L)	33.16 $\pm$ 25.46
Albumin (g/dl)	3.8 $\pm$ 0.72
TST positive (%)	16.72 $\pm$ 4.73

**Table 5: Treatment outcomes among participants (N=73)**

Status	n	%
Cured	31	42%
Treatment continued	39	53.3%
Death	3	4.7%

**Figure IV: Treatment Outcome among the Participants (N=73)**

#### 4. DISCUSSION

The aim of this study was to determine the clinical profile of tuberculosis patients. In this study, among all the participant's majority (56%) of the patients were found as 'never smokers'. On the other hand, 8% were 'ex-smoker' and 36% were current smokers. Although several global initiatives address the importance of decreasing malnutrition [12] and smoking [13], which have been clearly related to excess TB mortality and such key determinants of tuberculosis (TB) mortality are still under-emphasized at the country

level. A weak as well as an underinvested public health system, especially in lower-income countries, is another vital issue and has led to a suboptimal cascade of the care for tuberculosis patients [14]. In this study, 62% of participants were male whereas the rest 38% were female. This distribution was near about similar to a study done in Bhutan where 57% of participants were male and 43% were female [15]. In a Nepali similar study, 58.5% of participants were male and 41.5% were female [16]. In our study, among the highest number of participants, pulmonary Koch's was found which was in

42%. Besides this, CNS Tuberculosis, abdominal Koch, and TB lymphadenitis were found in 22%, 14%, and 12% of participants respectively. Another study had 51% patients with extra-pulmonary tuberculosis (TB) and 49% patients with pulmonary tuberculosis and TB lymphadenitis (54%) was the most common form of extra-pulmonary tuberculosis [17]. In a study of Delhi, extra-pulmonary tuberculosis (TB) was found in 63.3% and pulmonary tuberculosis (TB) in 36.7% [18]. In this study, among all the participants, cough and fever were found as two more frequent symptoms. Which were found in 96% and 86% of patients respectively. In a study conducted at the Philippines, the most frequent symptoms were fever (86.6%), cough (76.1%), weight loss (50.7%), malnutrition (52.3%), anorexia (44.8%), and breathing difficulty (28.4%) [16]. In this study, as the final treatment outcome, we observed, 42% (n=31) patients were fully cured. Treatment was continued on 53% of patients and 4% (n=3) death cases were found. Satyanarayana S et al., had found 95% of the patients reported having been successfully treated, i.e., completed or cured. Other outcomes death (0.6%), defaulted (2.6%), transferred out (0.4%) were noted [19]. The rates for default, failure, and death in some studies were found 3%, 1.9%, and 1% respectively [20]. A study conducted in Bhutan had a 93% overall treatment success rate and the death and failure rates were 2% and <1% respectively [21].

#### Limitation of the study

Though this was a single-centered study with a limited sample size so, the findings of this study might not reflect the exact scenario of the whole country.

#### 5. CONCLUSION & RECOMMENDATION

According to the findings of this study, we can conclude that fever and cough are the two most frequent symptoms in tuberculosis patients. Although the death rate among TB patients is not alarming, the treatment success rate of the first treatment attempt is not satisfactory in tuberculosis patients. Smoking may be considered as a potential risk factor for tuberculosis and aged patients are more vulnerable to tuberculosis. For getting more specific findings we would like to recommend conducting similar studies with larger-sized samples in several places.

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