

## Original Research Article

**A descriptive study of socioeconomic factors among nonsmoking rural female tuberculosis patients****Premkumar. S<sup>1\*</sup>, Padmavathi Ramaswamy<sup>2</sup>, Priscilla Johnson<sup>3</sup>, Santu Ghosh<sup>4</sup>, Sankar Sambandam<sup>5</sup>, Kalpana Balakrishnan<sup>6</sup>, Vijayalakshmi Thanasekaraan<sup>7</sup>**<sup>1</sup>Assistant Professor, Department of Physiology, Saveetha Medical College, Tamilnadu, India<sup>2</sup>Professor and Head, Department of Physiology, Sri Ramachandra University, Porur, Chennai, Tamilnadu, India<sup>3</sup>Professor and Department of Physiology, Sri Ramachandra University, Porur, Chennai, Tamilnadu, India<sup>4</sup>Assistant Professor, Department of Environmental Health Engineering, Sri Ramachandra University, Chennai, Tamilnadu, India<sup>5</sup>Professor & Head Department of Environmental Health Engineering, Sri Ramachandra University, Porur, Chennai, Tamilnadu, India<sup>6</sup>Professor, Department of Environmental Health Engineering, Sri Ramachandra University, Porur, Chennai, Tamilnadu, India<sup>7</sup>Professor, Department of Chest Medicine, Sri Ramachandra University, Chennai, Tamilnadu, India**\*Corresponding author**

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**Abstract:** India carries the world's largest burden of TB. The purpose of this study was to examine the socioeconomic factors among non-smoking rural women with pulmonary tuberculosis. 109 women between the ages 20-65 years of age were recruited. Cases were newly diagnosed smear-positive female TB patients. A standardized questionnaire was administered to all participants in their homes to obtain the detail of the socioeconomic factors. 70.6% were illiterate patients where as 29.4% were literates; 31% of patients were employed and worked outdoors whereas 69% were housewives; 63% of patients gave a history of contact with patient with tuberculosis where as 37% did not give the history of contact with TB patient. In this pilot study the socioeconomic factors for tuberculosis has been evaluated. Among the factors examined illiteracy, indoor occupation and contact with tuberculosis was found significant. It is essential to understand the socio-economic dimensions of the disease in a community to enable implementation of appropriate interventions to reduce the morbidity and mortality due to TB.

**Keywords:** Tuberculosis, Rural women, socioeconomic factors.

**INTRODUCTION:**

Tuberculosis is an important health problem in India and 1/3rd of global TB cases are in South East Asian region with an estimated 7,50,000 deaths due to TB. India has the largest pool of people infected with mycobacterium tuberculosis. More than half of the adult population is infected with the tuberculosis bacterium. The overall prevalence of TB in Tamilnadu is 479 persons per 100,000 persons according to the NFHS survey conducted in 1999 [1]. The prevalence is higher in rural areas and the prevalence in women is 301 per 100,000 population and in men is 660 per 100,000(NFHS). Social factors include poor quality of life, poor housing and overcrowding, population explosion, under nutrition, lack of education, large families, early marriage, and lack of awareness of cause

of illness. Poverty, mal nutrition, immune suppression make population more vulnerable to TB. Thus TB is a multifactorial disease which includes host factors, environment factors and the actual causing agent i.e Mycobacterium Tuberculi. Host-related and environment-related factors have been shown to play a role in the development of tuberculosis (TB), in resource-poor countries [2]. Survey to profile the socioeconomic factors needs to be done periodically as economic situations keeps changing in the country and the tuberculosis is reemerging. Hence, a survey was designed to profile the socioeconomic factors among patients with pulmonary tuberculosis [3].

**MATERIALS AND METHODS**

Hospital-based screening study was designed to assess various socioeconomic factors for pulmonary tuberculosis. Females between the ages 20 – 65 yrs with newly diagnosed sputum positive tuberculosis were screened. RNTCP protocol was followed for the diagnosis of Tuberculosis. 109 female tuberculosis patients were screened for this study. Data that was collected for this study included health information from the case sheet of the patient at Thiruvallur DOTS centers which would include information on the health status of the patient, sputum results, Chest X ray results, clinical examination findings. Information on socioeconomic factors of TB using a standardized pre-tested questionnaire. Questionnaire included the details such as age, nutritional status, anaemia, smoking, ETS, alcohol, occupation, socioeconomic status, overcrowding, family history of TB, HIV, hygiene, immuno suppressive therapy and diabetes. In this paper the socioeconomic variables have been presented. All the data recorded on data forms were checked at the end of each day of field work and the data were entered.

Data analysis was done using standard statistical packages (R software). Chi Square test was used to understand differences between variables. Statistical significance was taken at 5% level.

**RESULTS:**

109 tuberculosis patients were screened as per the selection criteria. Table 1 shows descriptive data for the tuberculosis patients. Among the 109 tuberculosis patients, 44% lived in Kutcha house where as 56% lived in Pucca house; 70.6% were illiterate patients where as 29.4% were literates; 48% lived in less crowded houses where as 52% lived in overcrowded houses; 74% patients had low annual income where as 26% had annual income of more than 25,000 rupees; 31% of patients were employed and worked outdoors whereas 69% were housewives; 63% of patients gave a history of contact with patient with tuberculosis where as 37% did not give the history of contact with TB patient. Among the all parameters evaluated illiteracy, staying indoors and contact with TB were significant.

**Table 1: Socioeconomic Factors among Tuberculosis Patients**

Variable	TB patients (109) N (%)	P Value
Income		
≤25,000	81 (74.3)	0.09
>25,000	28 (25.7)	
Person per room		
>2	52(47.7)	0.1
≤2	57(52.3)	
Literacy		
Illiterate	77 (70.6)	0.0001
Literate	32 (29.4)	
TB Contact		
Yes	69 (63.3)	0.0004
No	40 (36.7)	
Main occupation		
Housewife	75 (68.8)	0.003
Outdoor	34 (31.2)	
House type		
Kutcha (hut)	48 (44)	0.6
Pucca (concrete)	61 (56)	
Marital Status		
Married	98 (89.9)	0.7
Unmarried	11 (10.1)	

Chi square test was performed.

## DISCUSSION:

In this pilot study the socioeconomic factors for tuberculosis has been evaluated. Among the factors examined illiteracy, indoor occupation and contact with tuberculosis were found significant [4]. It is essential to understand the socio-economic dimensions of the disease in a community. In this study, we found a strong association for TB in patients with poor literacy status and a higher level of education was significantly protective against TB which was consistent with the study and an age- and sex-matched case control study from Africa [5]. This could be attributed to the increased awareness among the literates. TB is a disease of poverty, associated with resource poor countries [6] Similar distribution has been observed in another region of Tamilnadu [7]. In this study, household income, was one of measure for socio-economic status [8]. More number of tuberculosis patients belong to the poor income highlighting that the income is a significant risk factor for developing tuberculosis [9]. Women whose primary occupation was home makers were more than the patients having outdoor occupation [10]. Women may be more likely to be infected within the home than outside it, with a corresponding higher infectious dose, which could also contribute to this excess in cases of disease among women who work at home [11]. Tuberculosis was associated with having a family or household contact with tuberculosis. For women contacts outside the close family and household were also a risk factor for tuberculosis [12]. It is well known that the risk of infection with *Mycobacterium tuberculosis* depends on closeness of contact with an index case .Moreover, studies conducted earlier showed that the risk of TB infection was increased among contacts of TB cases as compared with the general population and that the risk of infection increased with the intimacy of contact with the case [13]. This has been confirmed in recent studies conducted in children in New York City in which contact with a TB case came out as the strongest risk factor for TB infection [14]. Women who stay indoors and at home along with an infected person tend to be at higher risk .TB being an air borne disease; contact with infected person is an important and significant risk factor. Overcrowding is known risk factor [15]. In Guinea- Bissau study, adult overcrowding was a risk factor for TB .Despite effective case finding and therapeutic tools and decline in morbidity and mortality rates in some countries; TB appears to continue as an important communicable disease problem, worldwide, for several decades to come. Study has also shown the socioeconomic impact among patient due to tuberculosis [16].This study has demonstrated three important risk factors such as contact with known tuberculosis cases, literacy status and socioeconomic status among non smoking rural women with TB, interventions for TB needs to be provided appropriately for those most at risk [17]. As shown by this study they need to be sensitive to other

health care needs of TB patients such as socio-demographic status and literacy status as poverty is a traditional risk for tuberculosis, attributed to malnutrition, overcrowding and lack of access to health care. This pilot study results can be used for planning future studies in this region with specific risk factor and also for implementation of intervention and assessment of effectiveness of the intervention [18].

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