**ORIGINAL ARTICLE**

# Demographic Factors in Paediatric Tuberculosis

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## ABSTRACT

**Aim:** To enlist the demographic factors of Pediatric tuberculosis.
**Study design:** Cross Sectional study
**Place and duration of study:** Children ward, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan from 1st November 2014 to 17th September 2016.
**Methodology:** In this study 553 Pediatric TB patients were included, and their parents were interviewed according to the given Performa.
**Results: It** was noted that 286 (51%) mothers and 192 (35%) fathers were illiterate. It was also noted that 241 (43%) were Seraiki and 163 (29%) were Punjabi by ethnicity. Regarding occupation 370 (66%) mothers were house wives and 336 (60%) patients were from rural areas
**Conclusion:** We found that illiteracy among mothers, Seraiki ethnicity, rural residence, low family income are most frequent factors found among pediatric TB
**Keywords:** Demographic factors, Frequency, Pediatric Tuberculosis

## INTRODUCTION

Even in this civilized world, tuberculosis is still one of the most important infectious diseases in terms of morbidity and mortality particularly in the children'. The risk is greater in infants & young children specially those with malnutrition or immuncompromised[2]. The greatest burden of tuberculosis infection and mortality is in the developing countries.Worldwide the distribution of tuberculosis is not uniform. In many Asian and African countries about 80% of the population is positive for tuberculin tests, while only 5–10% of the United States population has positive results. Indeveloping countries, most of the people contract tuberculosis because of compromised immunity, largely due to high rates of HIV infection.

According to the WHO, 30% of the world's population (2 billion people) is infected with M. tuberculosis. Infection rates are highest in Africa, Asia, and Latin America[3]. One third of human population is thought to have been infected with M. tuberculosis, with new infections occurring in about 1% of the population each year. In 2007, an estimated 13.7 million people were suffering from chronic active cases of tuberculosis, while in 2010, there were an estimated 8.8 million new cases. There are 1.5 million deaths, mostly in developing countries.

The tuberculosis is caused by various strains of mycobacterium, usually Mycobacterium tuberculosis. It commonly infects the lungs, but can also affect any part of the body. The active TB infection has a droplet spreads by coughing, sneezing, or otherwise transmit respiratory fluids through the air. In certain settings it may not be essentially a household contact. A contact in the crowded day care center or in class room or in the close neighbor hoods of urban slums, where a large number of people are living together in small poorly ventilated room[1].Most of the infections are latent, but about one in ten latent infections eventually progresses to active disease which increases the morbidity and mortality.

The classic symptoms of pulmonary tuberculosis are a chronic cough with blood-tinged sputum, fever, night sweats, and weight loss. Infection of other organs causes a wide range of symptoms which are according to the organ system involved.Active tuberculosis can be diagnosed onradiology (e.g; X-rays chest in pulmonary tuberculosis), as well as microscopic examination of the specimen and microbiological culture of body fluids (e.g., pleural effusion in pulmonary tuberculosis). Latent TB can be diagnosed by tuberculin skin test(Monteux) and/or blood tests.Treatmentis difficult and requires prolong administration of antituberculous therapy. Social contacts are also screened and treated if necessary. Resistance of antituberculous therapy is a growing problem resulting in multiple drug-resistant tuberculosis (MDR-TB) infections. Mass screening programs and vaccination with the bacillus Calmette–Guérinvaccine (BCG) can prevent the disease.

## METHODOLOGY

This cross sectional study was conducted in Children ward, Sheikh Zayed Medical College, Rahim Yar Khan from November 2014 to September 2017 on 553 consecutive patients of pediatric tuberculosis. Parents of these children were interviewed to note

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information on different variables. The patients included were from indoor and outdoor of the Paediatric Department.

**Inclusion Criteria:**

- Children below 14 years of age suspected to be suffering from pulmonary tuberculosis, tuberculous meningitis, tuberculous lymphadenitis or abdominal tuberculosis.
- History suggestive of tuberculosis
- Prolonghistory of fever, cough, respiratory distress, sputum with or without tinge of blood (pulmonary tuberculosis)
- Prolonghistory of fever, headache, vomiting, anorexia, weight loss, seizures, insomnia, neurological deficit (CNS involvement)
- Prolonghistory of fever, vomiting, anorexia, weight loss, abdominal discomfort, constipation and /or diarrhea, abdominal distention, recurrent abdominal pain(abdominal tuberculosis)
- Strong positive history of contact with tuberculous patient.
- No BCG vaccination
- Examination finding support one or more organ system involvement
- CBC, ESR, Chest x-ray, PPD, Gene expert

Patients not fulfilling the inclusion criteria were excluded.

## RESULTS

The variables included in this study were parent's education, parent's occupation, fathers' ethnicity, living (rural / urban), mean age, sex andmonthly income.The data is analyzed by using SPSS version 19. A total of 553 pediatric TB patients were included in this study. Among them, boys were 329(59%) and 262(47%) were of 5-10 years of age (Table I)

It was noted that 286(51%) mothers and 192(35%) fathers were illiterate. It was also noted that 241(43%) were Seraiki and 163(29%) were Punjabi by ethnicity (Table I). Regarding occupation 370(66%) mothers were house wives and 336(60%) patients were from rural areas.

Table I: Demographic factors of pediatric tuberculosis

| Characteristic | Number of subjects (%) |
|---|---|
| **Fathers' education** | |
| Illiterate | 192(35%) |
| Primary | 173(31.28%) |
| Matric | 132(23.86%) |
| Inter and above | 56(10.12%) |
| **Mothers' education** | |
| Illiterate | 286(51.71%) |
| Primary | 125(22.60%) |
| Matric | 77(13.92%) |
| Inter and above | 65(11.75%) |
| **Fathers' occupation** | |
| Unskilled labor | 147(56.58%) |
| Government service | 69(12.47%) |
| Private Service | 73(13.2%) |
| Business | 54(9.76%) |
| Skilled labor | 64(11.57%) |
| Unemployed | 53(9.58%) |
| Farming | 93(16.81%) |
| **Fathers' ethnicity** | |
| Punjabi | 163(29.47%) |
| Saraiki | 241(43.58%) |
| Urdu speakers | 47(8.49%) |
| Balochi | 25(4.5%) |
| Sindhi | 56(10.12%) |
| Pathan | 21(3.79%) |
| **Mothers' occupation** | |
| Housewives | 370(66.90%) |
| Skilled labor | 87(15.73%) |
| Unskilled labor | 73(13.20%) |
| Government Service | 23(4.15%) |
| **Residence** | |
| Rural | 336(60.75%) |
| Urban | 217(39.24%) |
| **Mean Age** | |
| 1 uptill 5 years | 173(31.28%) |
| 5 uptill 10 years | 262(47.37%) |
| 1k80 uptill 15 years | 118(21.33%) |
| **Sex** | |
| Male | 329(59.49%) |
| Female | 224(40.50%) |
| **Family Income (PKR/Month)** | |
| ≤10,000 | 357(64.55%) |
| 10,000 to 20,000 | 111(20.08%) |
| > 20,000 | 85(15.37%) |

## DISCUSSION

Sheikh Zayed Medical College and Hospital, Rahim Yar Khan is situated at remote corner of southern part of Punjab and it is catering population of this district as well as adjoining areas of Sindh and Baluchistan provinces.

Tuberculosis is one of the most common diseases in this area affecting both paediatric and adult population. The risk factors for tuberculosis include lower socioeconomic status, migrant work, HIV infection, drug use, homelessness, travel to high-prevalence countries, history of incarceration, and occupations with exposure to high-risk population[4]. In a study Shetty N, Shemko M et al found similar to our study, low education level as a significant risk factor[3]. Do Thi Quynhet al found that low socioeconomic status, closed contacts with tuberculosis cases, having parents with tuberculosis, delay in the diagnosis of tuberculosis and the density of bacteria in sputum seem to contribute to the spread of infection[6], F Cantwell Michael, T. Mckenna Matthew et al found that the risk of TB increases with lower

socioeconomic status due to crowding, poverty and poor education; these findings are similar to our study. Moreover tuberculosis is me common in blacks than in whites[7]. Muhammad A. Khan_ et al showed that low socioeconomic status, overcrowding, under nutrition, lack of health education , smokingand addiction were the major contributing factors in the spread of tuberculosis[8]. The study by Ogboi S. J., Idris S. H etal showed that there was a positive relationship between sputum positive, unemployment, education and occupational status[9], The risk of tuberculous infection is increased in the presence of these factors. Similar to our study Hamid Shamila et al found that poverty and illiteracy are important risk factors for tuberculosis[10]. G.R. Kerriet al found that tuberculosis is more common in low socioeconomic group of the population[11].TB is a multifactorial disorder, in which environment and host-related factors interact with each other. The study done by C Lienhardt, K Fieldinget al[12]provided useful information for the assessment of host and environmental factors of TB for the improvement of TB control activities. Regarding the risk of tuberculosis, significant differences can be found on the pattern of language groups, employment groups and meat and chicken consumption. A tendency can also be observed below primary school education[13]. Comparable to our study, different factors as gender, urban/rural residence, non adherence to national health policies, poor knowledge about TB, migration, and socio-economic status are contributing risk factors for tuberculosis[14].In their study Liu, J. J, Yao[15] concluded that with socio-economic development, correlation between the socio-economic indices and the TB epidemic becomes more significant.

Tuberculosis may be associated with low education level, urbanization and a changing economic climate[16]. Risk factors for extra pulmonary tuberculosis vary according to area of birth. People born in Asia or North Africa were at a higher risk of developing extra pulmonary tuberculosis. In Sub-Saharan Africa, age was associated with extra pulmonary tuberculosis[17]. Low socioeconomic status is a risk factor for pulmonary tuberculosis[18]. Similarly low education level is also a risk factor of tuberculosis[19]. James A Seddon, Anneke C Hesseling et al[20] found similar to our study that boys are more affected than the girls[20].

## CONCLUSION

In our study, we found that illiteracy among mothers, Seraiki ethnicity, rural residence, low family income are most frequent factors found among pediatric TB. We will recommend the higher authorities to improve the literacy and general living condition of the people. We recommend to address these risk factors to control the childhood tuberculosis effectively.

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