

## THE DISTRIBUTION OF TUBERCULOSIS PATIENTS AND ASSOCIATED SOCIO-ECONOMIC RISK FACTORS FOR TRANSMISSION OF TUBERCULOSIS DISEASE IN FAISALABAD CITY

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### ABSTRACT

*This study describes the distribution of tuberculosis cases in the city of Faisalabad and the socio-economic status of TB patients. A sample size of 165 TB patients was selected and the data is collected through questionnaires. It was observed that the highest burden of tuberculosis disease has been found in Iqbal Town and Madina Town. More than 80% patients belong to age cohort 15-64 which is actually the most significant and productive demographically as well as economically and socially. Most of the TB patients being surveyed were found to be living in extreme poverty. There were 80% patients having their total family income of Rs.10,000 per month. To understand this situation internationally, we may say that, they have total family income of USD 110 per month from all the sources. Majority of the patients are illiterate due to which they are not aware of proper treatment and precautionary measures. Poor diet, and the stress caused by the fear of isolation and long term treatment are being faced by TB patients.*

**Keywords:** Tuberculosis patterns, socioeconomic factors, TB and poverty,

### BACKGROUND

Tuberculosis (TB) is a leading cause of mortality among infectious disease on the surface of the globe. Every minute eighteen people are affected with this disease and among them three die (Siddiqui et al, 2011). It is an infectious disease caused by Mycobacterium tuberculosis. At world level, among the worst morbidity causing diseases, the rank of tuberculosis is seventh. It is estimated that, at present one third of the Earth's population is infected with TB bacillus (WHO 2012). In the Eastern Mediterranean (EMRO) region, Pakistan is the leading country where the rate of tuberculosis disease is high. Approximately 44% tuberculosis cases are found in this area. Pakistan ranks 8<sup>th</sup> among the countries with the highest tuberculosis burden in the world. Nearly two million people die from tuberculosis worldwide, among these 70,000 from Pakistan. It is estimated that, 250,000 fresh cases of TB develop across the country every year, among these the major proportion is from the productive age group. Thus it is not only a disease of poverty but also causes poverty by infecting the working population of the country. As tuberculosis is an issue of global concern so the studies are carried out by a number of scholars from variety of

disciplines to control this disease. Among these, geographers are contributing by employing mapping and spatial analysis techniques to explore and visualize the disease patterns for the purpose of controlling and eradicate this disease (Munch et al. 2003).

The present research is an attempt to study the spatial distribution of TB disease in the city of Faisalabad, Pakistan, and to explore the socio-economic conditions of TB patients visiting public sector hospitals for treatment.

## METHODS

This prospective study was conducted in Faisalabad which is the third largest city of Pakistan. The district Faisalabad consists of eight towns which comprise Faisalabad city, and the surrounding large settlements (*Tehsils*) such as *Jaranwala*, *Samundri*, *ChakJhumra*, and *Tandlianwala*. This research is based on the primary data source. A sample size of 165 TB patients was selected from four major healthcare centers working under the supervision of Government of Pakistan: DHQ Hospital, Allied Hospital, District TB Hospital and Social Security Hospital. The patients were marked on the map according to their residential addresses. A pre-tested structured questionnaire was used for the purpose of data collection. The questions related to the socio-economic conditions of the patients were included in the questionnaire to get relevant information and to identify the stress faced by TB patients due to the stigma attached with this disease in third world countries. Statistical and mapping techniques were employed for the purpose of analysis and visualization.

## RESULTS AND DISCUSSION

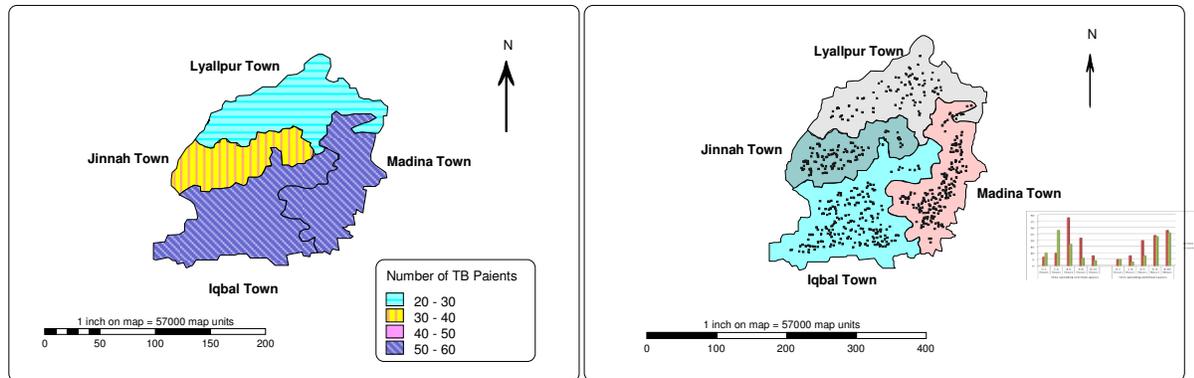
In the city of Faisalabad, the highest number of TB patients was found in Iqbal Town and Madina Town each having 34% of the total patients being surveyed while the Lyallpur Town shows the less proportion of TB patients as compared to the other three Towns (14%).

Table 1: Geographical Patterns of TB in Faisalabad City

Towns of Faisalabad	TB Patients	Percentage
Iqbal Town	56	34
Jinnah Town	30	18
Lyallpur Town	23	14
Madina Town	56	34
<b>Total</b>	<b>165</b>	<b>100</b>

Source: Primary Data Collection (2011)

Figure 1: Special Distribution of TBC Cases in Fasilabad City



Among these patients the proportion of female is significantly higher than males. Although females have to face certain problems to visit a healthcare center but still the higher proportion shows that the disease rate is much higher in females as compared to males. The analysis of age structure of TB patients revealed alarming results as more than 80% patients belong to age group 15-64 years. This age cohort is actually the most significant and productive demographically as well as economically. The male members support whole of the family while the females in this age group are mainly involved in household activities and are in close contact with children. Thus the higher proportion of TB patients in this age group is not only the problem of individual patient but also poses a serious threat for whole of the family. Table 2 shows the age and sex composition of TB patients being surveyed.

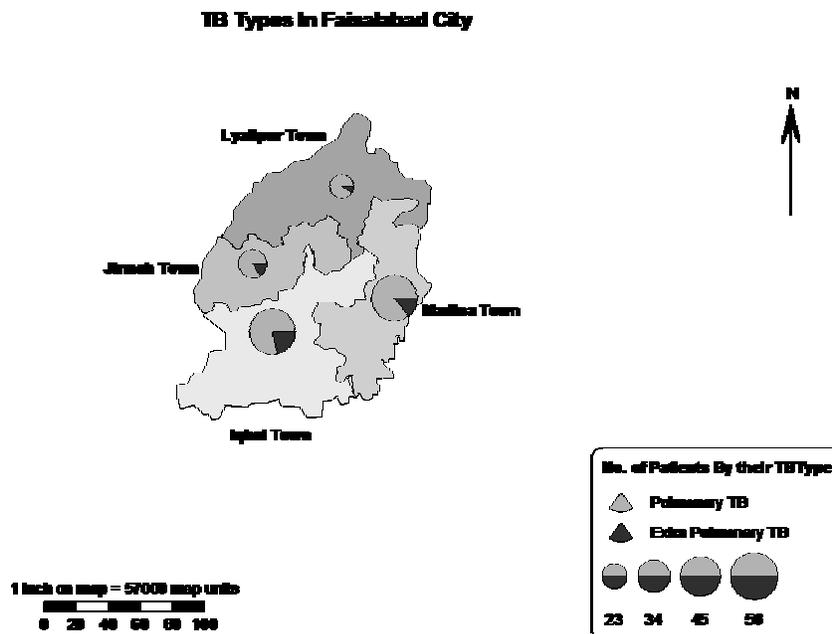
Table 2. Number of Male and Female TB Patients in Faisalabad City

Age Groups (Years)	Male TB Patients	No. of Female TB Patients	Total	Percentage
0-14	4	15	19	11
15-64	53	85	138	84
65 and Above	4	4	8	5
<b>Total</b>	61	104	165	100

Source: Primary Data Collection (2011)

In the city of Faisalabad, it was found in this study that the proportion of extra pulmonary TB cases is 16% of the total TB patients. However, the proportion varies in the four towns of Faisalabad city as shown in Figure 2. In Iqbal town there was the highest number of patients with extra pulmonary TB. Out of total 56 patients 44 were pulmonary cases while 12 patients had extra pulmonary TB. While in Medina town there were 48 pulmonary and 8 extra pulmonary cases. There were 25 pulmonary and 5 extra pulmonary cases in Jinnah town while in Lyallpur town extra pulmonary cases were found only 2 and 21 patients with pulmonary tuberculosis.

Figure 2 Type of TB in the Town of Faisalabad City



The information provided by the patients regarding their economic status revealed that majority of the patients belongs to the poor strata of the society. The patients were asked about their total family income from all sources. More than 60% patients were living in extreme poverty having their total family income less than Rs.5000 per month. There were 80% patients having their total family income of Rs.10,000 per month. To understand this situation internationally, we may say that, they have total family income of USD 110 per month from all the sources. There were only 7% patients having their family income more than Rs. 20,000 per month. As the patients are very poor so they cannot afford a healthy diet recommended by the doctor. That is why majority of them (63%) admitted that they don't take the recommended diet which their doctor has advised them.

Table 3: Socio-economic Conditions of TB Patients in Faisalabad City

		No. of TB Patients	Percentage
<b>Monthly Income</b>	<Rs.5000	102	61.8
	Rs.5001-10000	33	20.0
	Rs.10001-15000	14	8.48
	Rs.15001-20000	5	3.03
	Rs.20000 and above	11	6.66
<b>Literacy</b>	Illiterate	68	41.2
	Primary	42	25.6
	Middle	13	7.9
	Metric	24	14.5
	Intermediate	12	7.3
	Graduates	6	3.6
<b>Use of Recommended Diet</b>	Yes	63	38.1
	No	102	61.8
<b>Stress</b>	Yes	136	82.4
	No	29	17.5
<b>Smoking Trend in Male TB Patients</b>	Yes	32	52.4
	No	29	47.5

Source: Primary Data Collection (2011)

Another serious concern regarding TB patients in Faisalabad is their illiteracy. More than 40% patients are illiterate. Among those who are literate, almost 25% have spent less than five years at school. There were six patients who have graduation degree. The high rate of illiteracy in TB patients might not only be an indirect reason for disease occurrence in them but also causes a great danger of the people around a TB patients as in most the cases the illiterate patients are not aware of precautionary measures during smear positive stage of the disease. As the smoking increases the chances of lung diseases, it was found during this study; almost 53% male TB patients were regular smokers. The habit of smoking is restricted mainly to the male members of the society in Pakistan. There was not found any single female TB patient with smoking habit.

Due to the illiteracy, lack of knowledge and poor quality health services many patients are afraid that TB is not completely curable. So they face continuous stress and loneliness due to isolation in the family especially the elderly patients. More than 80% patients claimed that they face stress and isolation threat from the family and people around them. Still the stigma is attached with this disease in this society so the patients especially the females are very sensitive to reveal others that they are suffering from this disease. Thus a large number of females are discouraged to take such a long treatment. These socio economic and cultural factors associated with this disease in the traditional society of Faisalabad are appearing as hindrances to combat and eradicate the disease completely.

## CONCLUSION

This study has identified some specific areas of increased tuberculosis risk in Faisalabad city, which were Iqbal Town and Madina Town with the high incidence rate of TB patients. It has been observed that tuberculosis disease has severely affected the adults and economically productive age group in Faisalabad city. Poverty, illiteracy, and lack of knowledge regarding the treatment and precautionary measures of disease might be putting a large number of people on risk who are around TB patients. The disease control efforts should be targeted to the areas where the concentration of TB patients is higher and ideal socio-economic conditions exist for tuberculosis to grow rapidly.

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