

# Prevalence of Tuberculosis with Clinical Implications in District Sargodha

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## ABSTRACT

In Pakistan, there is no screening for active or latent Tuberculosis in the health care system. This study serves to measure the prevalence of Latent tuberculosis infection in District Sargodha, Pakistan and evaluate possible clinical implications and treatment strategies for latent tuberculosis. This study also finds out the risk factors of Latent tuberculosis infection in District Sargodha. A structured questionnaire, administered in the supervision of research committee, Department of Zoology, The University of Lahore, Sargodha Campus, included information on latent tuberculosis infection, social contact, BCG, skin reaction, drugs, HIV, immune response, kidney, diabetes, food, intestinal, night sweats, fatigue, weight loss, chest pain, fever, breath, drug addiction, appetite, anorexia, tenderness, spinal problems, use of allopathic and homeopathic medication, rash, partsia, sneezing and isonized, Interviews were conducted in private counseling rooms and the questionnaire were filled face to face with no correctional officer present to assure privacy and reduce perceived coercion. Results show that 67% of interviewers agreed that as a result of tuberculosis they face symptoms of TBI. 70% of patients of tuberculosis had experienced different allergies and reactions. 66% respondents agreed that they think that BCG can be the cause of Tuberculosis. Keeping in view the symptoms of contact almost 67% were respondents agreed with it that they think in the present research 64% agreed with it while 34% people thought that drugs cannot be the reason of Tuberculosis. Another important reason of different diseases 'HIV/AIDS' was also one of the parameter of the present study. 68% HIV/AIDS is the reason of Tuberculosis. Disturbance in the immune system can also give birth to a number of diseases. In case of tuberculosis 72% disturbance in immune system may be the cause of tuberculosis. 67% disturbance in kidney can be the cause of tuberculosis. The data suggests that people who have more contact with tuberculosis patients are at a high danger of building up this disease.

**Keywords:** Prevalence; Risk factors; Clinical implications

## INTRODUCTION

Tuberculosis is a chronic or acute contagious disease caused by a bacterial infection. Tuberculosis basically influences lungs and causes respiratory tuberculosis. The most common symptoms of latent tuberculosis are chronic cough, fever, blood in sputum, sudden weight loss. The illness can multiply to different areas of the body and named as extra respiratory tuberculosis. Extra pneumonic tuberculosis for the most part influences the lymph hubs, pleura, bones and joints, the genitourinary framework and delicate tissues [1]. Different exogenous and endogenous danger factors add to tuberculosis contamination and sickness. Young age, contacts with tuberculosis persistent and different other social components have been appeared to expand the vulnerability to contamination. Human Immunodeficiency Infection (HIV), unhealthiness, diabetes, utilization of immunosuppressive medications, smoking

and liquor use debilitates the host safeguard against tuberculosis disease [2]. The main cause of LTBI is *Mycobacterium tuberculosis*, a small non motile bacillus [3].

As per WHO, an expected 13.7 million populace has dynamic TB with 9.3 million new cases and 1.8 million passings. The commonness of inert tuberculosis contamination in Pakistan positions 6th among the 22 nations and has 44 percent TB trouble in Eastern Mediterranean Region of WHO. There are 4% enrolled instances of TB in kids in Pakistan, 2.5% are in danger of getting disease. Just 5%-10% of contaminated youngsters will advance to essential reformist infection while 80%-90% will get idle TB. This study is designed to find out the prevalence of latent tuberculosis infection in District Sargodha and to find out the methods of diagnosing.

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## MATERIALS AND METHODS

### Study site and duration

The patients with latent tuberculosis infection from District Sargodha Hospitals were included in the study. Random sampling technique was used. Random sample of 300 patients were collected from Out-Patient Door (OPD) of tuberculosis in District Head Quarter Hospital in District Sargodha, Pakistan.

### Data collection

A structured questionnaire, administered in the supervision of research committee, Department of Zoology, The University of Lahore, Sargodha Campus, included information on prevalence (among natives and visitors during last five years) risk factors (age, social interaction, urbanization, race, gender, poverty and HIV) and clinical implications (BCG, drug addiction and reaction, use of allopathic and homeopathic medication, allergic reactions, etc) of LTBI. Active TB symptoms were assessed using the standardized WHO TB symptom screening assessment. Interviews were conducted in private counseling rooms and questionnaires were filled face to face with no correctional officer present to assure privacy and reduce perceived coercion. Ethical approval was taken out from medical superintendent of DHQ, Sargodha. The criteria included Diagnosed or treated for TB in DHQ, Sargodha, Pakistan. Persons exposed to TB index case and Consent to participate and excluding Patient (or patient's guardian if patient is <21 years old) does not provide consent and Patients aged 8 to <21 years old who do not provide assent.

## RESULTS

### Prevalence of tuberculosis

The Data was analyzed by using percentage analysis and mean analysis. According to the survey, the results showed that 67.8% of natives of district Sargodha were suffered from tuberculosis. The susceptibility of tuberculosis among the visitors or non-natives were low as compared to the natives, that reflect the life histories of native peoples were the important factor in spread of this contiguous disease. The results also showed that the people that whom lived in district Sargodha from last six years were more susceptible to tuberculosis. The prevalence of tuberculosis among people whom lived in district Sargodha from less than six years was low. In the population of district Sargodha the overall prevalence of LTBI was 66.8% (Table 1).

Table 1: Prevalence of tuberculosis.

| S. No. | Indicators                         | Response |
|--------|------------------------------------|----------|
| 1      | Natives                            | 67.80%   |
| 2      | Visitors                           | 32.20%   |
| 3      | Period of stay at least six years  | 66.80%   |
| 4      | Period of stay less than six years | 33.20%   |
| 5      | Chance of positive LTBI test       | 66.80%   |
| 6      | Chance of negative LTBI test       | 33.20%   |

### Risk factors

Social interaction and HIV were the most prominent risk factors that were mainly contribute in to spread of LTBI. According to results 67.3% people were agreed that the social interactions, living style of the people and HIV were the major risk factors in LTBI (Table 2).

Table 2: Susceptibility of patients to different symptoms.

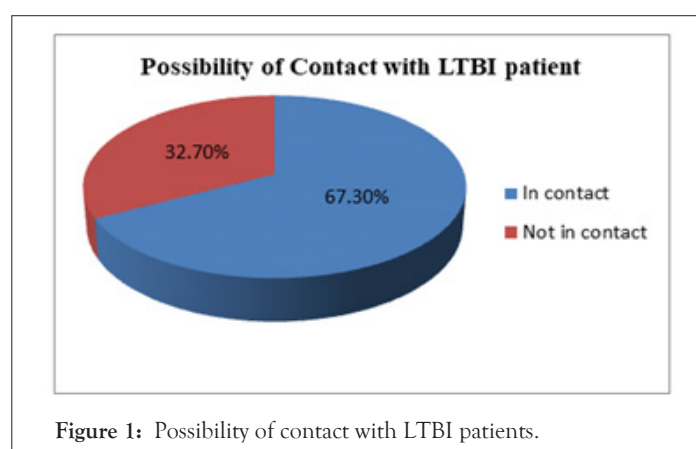
| S. No. | Indicator          | Response |
|--------|--------------------|----------|
| 1      | Social interaction | 67.3     |
| 2      | HIV/Aids           | 67.3     |
| 3      | Living style       | 67.3     |

### Social interaction

About 67.3% population of District Sargodha had a contact with latent tuberculosis infection patients statistically; this high percentage depicts the high susceptibility of population of Sargodha to LTBI (Table 3 and Figure 1).

Table 3: Possibility of contact with latent tuberculosis infection patient.

| Valid | Frequency | Percent | Valid percent | Cumulative percent |
|-------|-----------|---------|---------------|--------------------|
| 0     | 134       | 67.3    | 67.3          | 67.3               |
| 1     | 65        | 32.7    | 32.7          | 100                |
| Total | 199       | 100     | 100           |                    |

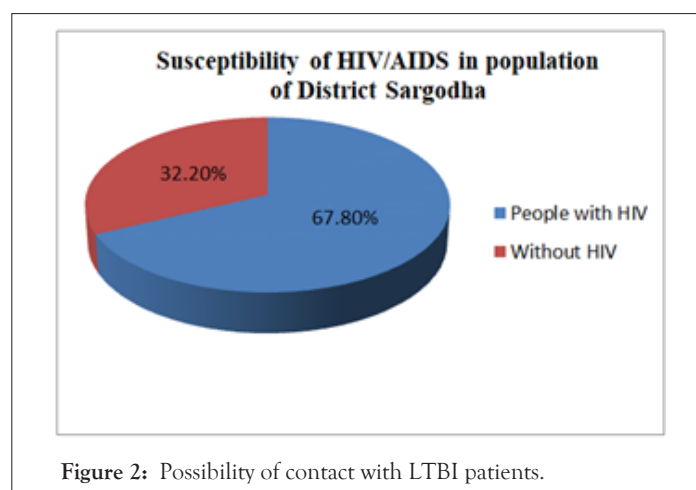


### Patients with HIV history

According to statistical analysis, approximately 67.8% population of District Sargodha had HIV/AIDS in their life history (Table 4 and Figure 2).

Table 4: Susceptibility of HIV/AIDS in population of district Sargodha.

| Valid | Frequency | Percent | Valid percent | Cumulative percent |
|-------|-----------|---------|---------------|--------------------|
| 0     | 135       | 67.8    | 67.8          | 67.8               |
| 1     | 64        | 32.2    | 32.2          | 100                |
| Total | 199       | 100     | 100           |                    |



## Clinical implications

It is expounded that 66% population of District Sargodha were susceptible to LTBI due to negligence in taking dose of BCG in early age. Around 64% of individuals have developed drug resistance or develop a drug resistance that's why encountering the LTBI in their life. The results report that about 72% of LTBI patients were already suffering from different immune system anomalies. 67% of patients had suffered from renal dysfunction. 69% patients had diabetic issues. 67% population that had used low quality and insufficient food intake were also suffered from LTBI. 67% LTBI patients experienced the night sweats and fever in their life frequently. 64% patients of LTBI were suffered from gastro intestinal problems. 63% people experienced the muscular fatigue. 68% patient's veteran the chest pain and had dark urine. 66% patients frequently lose their weight and experienced loss of appetite. 54% patients had anorexia and 55% had felt tenderness.

## DISCUSSION

The study was designed to estimate the prevalence, risk factors and clinical implications of latent tuberculosis experienced by the patients attempted to determine that either these risk factors influenced the impact of latent tuberculosis infection at the population level. This study provided estimates of the prevalence of latent tuberculosis infection in district Sargodha, Pakistan.

The prevalence of latent tuberculosis infection among patients in DHQ, Sargodha, Pakistan is remarkably high (67%) according to a report among people of developing countries globally. Much debate remains about the BCG-vaccinated populations due to the immunogenic effects of BCG vaccination. There About 66% percent population is vaccinated with BCG. The WHO, therefore supports that the use of BCG as a useful tool to detect latent tuberculosis infection. However, there is a paucity of data regarding the effect of late BCG vaccination (in this case at age 12), and it is unclear whether the conclusions about the waning of BCG effect is applicable with later vaccination [4].

Presence of other clinical issues additionally builds the danger of tuberculosis. Human Immunodeficiency Infection (HIV), diabetes mellitus and different illnesses which stifle the insusceptible framework are sorted in endogenous danger elements of tuberculosis [4]. It is accounted for in WHO that around 33% individuals living with HIV are contaminated with *Mycobacterium tuberculosis*. Individuals who are idly contaminated with TB microorganisms and HIV are at multiple times more danger to create dynamic tuberculosis infection than individuals without HIV [5]. Also diabetes impedes the inborn and versatile resistant reactions and diabetic patients are at three folds expanded danger of creating tuberculosis [2]. Our results are in accordance with these previous studies which elucidate that around 68.8% people of latent tuberculosis infection in Sargodha had also suffered of diabetes.

The use of homeopathic or allopathic medication has been seen that produce drug resistance patients of tuberculosis [6]. In our investigation, we additionally found that about 64% of tuberculosis patients utilized this medicine and had created drug obstruction. In one of the past investigation, it has demonstrated that drug opposition is more normal in guys. These patients were likewise enduring stuffed everyday environments, lack of education, and poor financial status and smoking propensities [7-15].

## CONCLUSION

From the above observations, the data suggests that people who have more contact with tuberculosis patients are at a high danger of building up this disease.

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