

## Prevalence of Tuberculosis in District Buner Khyber Pakhtunkhwa, Pakistan

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**Abstract:** Tuberculosis is the leading cause of mortality worldwide. Current study was focused to evaluate the proportion of tuberculosis in district Buner. In this study 3378 patients were investigated in the 6 tehsils of district Buner (Daggar, Gadezi, Salarzai, Chamla, Gagra and Chagarzai). High disease burden was found in tehsil Daggar 2201 (65.15%) followed by Gadezi 347 (10.27%) and Chagarzai 258 (7.63%). The disease burden was recorded high in female that was 1753 (51.89%), than male 1625 (48.10%). Common symptoms were cough 1985 (58.76%), haemoptysis 1452 (43%) and fever (39%). Most of the patients 2703 (80.01%) were in view that tuberculosis spread through contact while 675 (19.98%) were in view that it spread through air. 2580 (76.37%) patients were taking dose regularly, while 798 (23.62%) were taking dose irregularly. The prevalence of tuberculosis was found high 2<sup>nd</sup> quarter (28.59%) and 4<sup>th</sup> quarter (60%) of the year. Awareness, illiteracy and smoking were the risk factors in the prevalence of tuberculosis in district Buner.

**Key words:** Tuberculosis • Perspective Study • Survey • Symptoms • Prevalence

### INTRODUCTION

*Mycobacterium tuberculosis* (TB) is a slow-growing facultative intracellular parasite. During infection it is exposed to many different environmental conditions depending on the stage and the severity of the disease [1]. TB is a major health problem worldwide with mortality ranging from 1.6 to 2.2 million lives annually. The situation had become worst due to increase in the incidence of drug resistant tuberculosis [2].

Tuberculosis remains a main health problem affecting about a third of the world population in spite of a number of preventive and control measures taken in the past few decades. It is accountable for an approximately 8.8 million cases and 1.4 million deaths worldwide [3, 4].

According to survey it is expected that Africa contributes about 29% and 34% of all tuberculosis related morbidity and mortality to the world wide load. In Ghana, tuberculosis remains a main reason of preventable adult morbidity and mortality [5-10].

More than any other single infectious agent it is believed that tuberculosis is responsible for more adult deaths each year [11]. Tuberculosis occurs at any stage of life, to any age group and can affect almost all organs of the body [12].

Tuberculosis being one of the world's leading infectious diseases had caused 8.7 million incident cases and 1.4 million deaths in 2010 approximately [13].

The major health problem and an important unnecessary risk for premature death is the use of tobacco. Relations between tobacco smoking and TB had been shown in wide research [14-17], and increased rate of death has been identified among smokers due to tuberculosis [18].

In China, tuberculosis is still an important issue. 1.4 existing tuberculosis and 1 million incidents had reported from China, in the most recent report from the World Health Organization [19].

Approximately 5-10% tuberculosis burden might be due to *M. bovis* [20]. Japan is still a medium prevalence country for TB, with an incidence of 18.2/100,000 in 2010 [21].

The highest rate of infection of TB is currently found in the less developed countries of Africa and Asia where the TB controlling efforts are held back by weak health systems and in some settings, by the high prevalence of co-infection with HIV [22].

In the developing countries, India, has serious burden of tuberculosis for centuries. Every year eight million people develop tuberculosis, among which nearly two-thirds live in Asia and the Pacific region [23].

The problem of tuberculosis had become further complicated by the rapid spread of human immunodeficiency virus (HIV) and the appearance of drug resistance. HIV play key role in increasing the incidence of tuberculosis as it makes the diagnosis of tuberculosis difficult [24, 25].

Pakistan ranks sixth among countries with a high burden of tuberculosis. In Pakistan tuberculosis is prevalent in 420,000 and incidence is 231 per 100,000 population [26] Pakistan is among the 27 countries with high burden of multi-drug resistant (MDR) TB [27]. According to a 2008 there were approximately 15000 MDR TB patients in Pakistan [26].

To the best of our knowledge not many studies have been conducted on assessing public awareness of tuberculosis in population setting in Pakistan [28].

Current study was carried out to evaluate the epidemiology, sex wise distribution and burden of disease in district Buner, Khyber Pakhtunkhwa Pakistan.

## MATERIALS AND METHODS

**Study Area:** The study was carried out in 6 tehsils of district Buner Khyber Pakhtunkhwa, Pakistan in the period from January 2012 to December 2013.

**Data Collection:** Total 3378 of patients were investigated in the study period. Data was collected through proforma containing the whole information about the patients, i.e gender, age, address, previous treatment and current treatment. The 12 months were divided in four quarters.

## RESULTS

**Burden of Infection Rate in Different Areas of Buner:** Buner District is a district of the Khyber Pakhtunkhwa (KPK) province of Pakistan. It is the beautiful district of Khyber Pakhtunkhwa due to its location and natural beauty. The total population of this area is 1,865 km<sup>2</sup> and the density of total population is 271/km<sup>2</sup>. District Buner is divided into 6 tehsils. Current study was focused in these 6 tehsils. The infection rate was 2201 (65.15%) in tehsil Daggar, 347 (10.27%) in tehsil Gadezi, 141 (4.17%) in tehsil Salarzai, 254 (7.25%) in tehsil Chamla, 186 (5.56%) in tehsil Gagra and 258 (7.63%) in tehsil Chagarzai, as shown in Table 1.1.

Age and sex wise distribution of the data was done in which 1753 (51.89%) were females and 1625 (48.10%) were males, as shown in Table 1.2.

Table 1: Infection rate in different areas of Buner

Tehsil	Positive Cases	Percentage
Daggar	2201	65.15%
Gadezai	347	10.27%
Salarzai	141	4.17%
Chamla	254	7.25%
Gagra	186	5.56%
Chagarzai	258	7.63%
Total	3378	100%

Table 2: Age and sex wise distribution of patients (n= 3378)

Age (Years)	Male	Female
01 - 30	27 (0.61%)	145 (1.24%)
31 - 60	1771 (40.50%)	4788 (41.17%)
Above 60	518 (11.84%)	1401 (12.04%)
Total	1625 (48.10%)	1753 (51.89%)

Table 3: Number and percentage of disease common signs and symptoms (n= 3378)

Symptoms	Frequency	Percentage
Fever	1317	39%
Haemoptysis	1452	43%
Cough	1985	58.76%

Table 4: Treatment of the patients (n=3378)

Treatment	Frequency	Percentage
Regular	2580	76.37%
Irregular	798	23.62%

Table 5: Opinion of patients about the spread of infection (n=3378)

Opinion	Frequency	Percentage
Contagious	2703	80.01%
Through air	675	19.98%

The common symptoms presented by the patients were cough 1985 (58.76%), haemoptysis 1452 (43%) and fever 1317 (39%), as shown in Table 1.3.

In current study it was found that some patients were taking their dose regularly while some were not taking their dose regularly. The treatment of the patients is shown in Table 1.4.

Most of the patients were in fact that tuberculosis spread through contact, while some were in view that it spread through air. The opinions of the patients regarding the awareness of patients about the spread of infection, are shown in Table 1.5

**Month Wise Infection of Tuberculosis:** The infection was recorded more in quarter 4 that was 980 (60%), followed by quarter 2 that was 966 (28.59%) and quarter 1 that was 775 (22.94%), while in quarter 3 it was 657 (19.44%). Month wise collection of tuberculosis is shown in Figure 1.

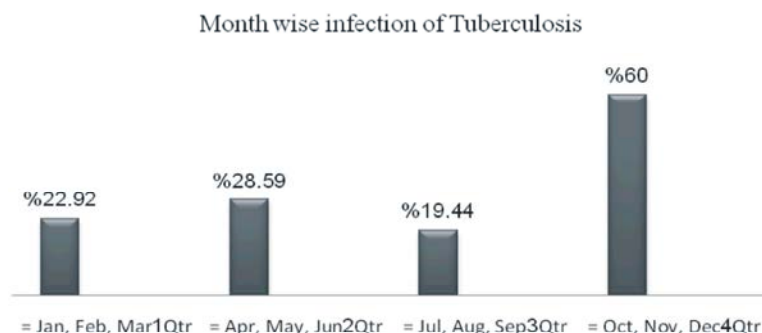


Fig. 1: Month wise infection of Tuberculosis

## DISCUSSION

Tuberculosis (TB) is among the world's leading infectious diseases. In the TB burden countries Pakistan is at sixth rank [26]. According to Ayaz *et al.* [29] high incidence of tuberculosis was recorded in female that was (16/78) 33.33 % than male that was (23/75) 30.66%. According to Ahmad *et al.* [30] ratio of tuberculosis was higher in female as that of male population and the recorded ratio of amount was (60/110) 54.55% and (50/110) 45.45% respectively. According to Ullah *et al.* [31] the numbers of male patients were 176 and female patients were 349. Regarding the previous literatures the ratio of females was found higher than male that were 1753 (51.89%) females and 1625 (48.10%) males as they are much associated with environment.

According to Gilani and Khurram [32] about 1817 (73%) respondents were in fact that tuberculosis is a contagious disease, 447 (18%) were in view it is not contagious, and 212 (9%) did not know about it. Among the respondents who regarded tuberculosis to be a contagious disease, 1207 (66%) said that it can be transmitted through saliva, 767 (42%) through breath, 665 (37%) through used eating utensils, 633 (35%) via blood, and 167 (9%) by sharing clothes/everyday items and casual contact with patient. 117 (9%) said that tuberculosis can be transmitted from an infected mother to child and 18 (1%) were not aware of any mode of transmission. In our study it was found that 2703 (80.01%) patients were in view that tuberculosis spread through contact and 675 (19.98%) were in view that it spread through air.

Lack of awareness has been associated with the health-seeking behaviors [33, 34]. According to the previous studies in Pakistan [35, 36] the awareness was not strong especially in rural areas. Most of the patients respond the complaint of cough in consistence with a Chinese study [37], most of the patients were not aware

that an experience of cough lasting longer than 3 weeks that was an alarm sign for tuberculosis. Common symptoms associated by respondents were cough (59%), haemoptysis (51%) and fever (40%) [32]. Similarly in our study the symptoms recorded were cough (58.76%), haemoptysis (43%) and fever (39%).

About 91% of patients favoured to continue TB treatment according to doctor's advice, 4% thought it can be stopped within 1-2 months of resolution of symptoms [32]. In our study it was found that the high disease burden was due to the unawareness about the disease, most patients stop their treatment by recovering of the symptoms and the disease do not recover fully until the full dose had been used. Smoking was also one of the effective risk factor for the prevalence of tuberculosis in district Buner.

A high prevalence 17 (37.77%) was recorded in the month of July, followed by May 18 (34.61%) and June 14 (25%) of Ayaz *et al.* [29]. In this study high rate of infection was recorded in the 4<sup>th</sup> quarter (60%), followed by quarter 2<sup>nd</sup> (28.59%), quarter 1<sup>st</sup> (22.92%) and lowest rate was recorded in 3<sup>rd</sup> quarter (19.44%).

## CONCLUSION

This survey shows that the people are unaware about tuberculosis in many aspects i.e. symptoms, diagnosis, treatment and transmission. Government has to educate people through media, seminars etc. The TB awareness programs should be initiated in order to aware the people about its signs and symptoms, transmission, treatment etc.

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