

## Epidemiologic consideration of Tuberculosis in East Health Center of Ahvaz in 2010

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### Abstract

**Introduction:** Tuberculosis is a contagious disease and a main cause of mortality in humans thus the World Health Organization has declared it as a global emergency. The aim of this study was to evaluate the prevalence of tuberculosis and involving factors in patients referring to the diagnosis laboratory of tuberculosis in Ahvaz East Health Center.

**Materials & Methods:** The present study is a retrospective and descriptive - analytical investigation that 1173 people referring to East Health Center of Ahvaz in 2009 in term of tuberculosis were studied, After Ziehl Neelsen stained sputum samples, 97 patients with tuberculosis were diagnosed. Finally, individual and social variables were collected from patients' records and analyzed.

**Results:** Prevalence of tuberculosis was about 8.3% which 67% of them were males and 33% were women. Prevalence of factors such as smoking, drug addiction, and prison history was 72, 50 and 33 respectively. The highest prevalence was found in the age group 25-34 years. And 80 percent of patients were rural and 20 percent were urban.

**Conclusion:** These studies showed that the risk of TB have been influenced by two important factors including individual factors in addition to social factors, and Smoking, history of prison and drug addiction are the most important factors affecting tuberculosis.

**Keywords:** Tuberculosis, Drug addiction, Smoking, History of prison, Ahvaz.

### Introduction

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*. 85% of cases occur as pulmonary and 15% occur as non-pulmonary form (1). The disease has a long history. Whereas there are new ways to fight against the disease, it is still a widespread outbreak (2, 3). Furthermore, TB is the largest cause of death from the single agent disease (even more than AIDS, malaria and measles) in the world and is ranked tenth in the world. The more important point is that it is expected to continue maintain its current position with 2020, still even up to the rank seventh. That is

why the TB World Health Organization has declared it to the world as a global emergency in 2007 (1). According to the reports of National Institute of Health, after HIV, TB is the second cause of death in the 2012, 8.7 million people were infected with TB and 4.1 million died of the disease. Over 95 percent of deaths are due to TB with low and middle income countries (1).

The annual number of new cases of TB in the Eastern Mediterranean region is about half a million of which approximately 44% is in Pakistan, 10% in Afghanistan, 6% in Iran and 6% in Iraq. According to statistics, 6% of the

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cases are in eastern Mediterranean region. Epidemiologic studies and significant rate of TB in Iranian border province of Sistan and Baluchestan and Golestan proves significant impact of immigration on the prevalence of tuberculosis in our country (4). It is necessary to declare that TB has had Uptrend in Afghanistan in 2008, and its incidence is approximately 8-times more than Iran.

Since fighting against TB in order to control the disease is a health priority throughout the world, it poses health problems to communities all over the world, given the high incidence of the disease in our country and the epidemiology of the disease and also the special geographical conditions and the rate of infection in different people in different regions of the country, it is essential to do community-based studies in environmental and geographical conditions of each region (1,3). Since TB studies have not received enough attention in Khouzestan province, this study is to investigate and compare statistics of the TB cases with other areas.

The important role of migration in the transmission of TB and proximity of Iran to Afghanistan, Pakistan and Iraq that are among the 22 countries with the highest burden of the disease in the world (5), demonstrates the necessity of paying attention to TB in this province, next to Iraq that new cases of TB has been detected 2.5 times more than Iran (6). Due to the geographical and cultural situation of the province and the high rate of migrations of Iraqi and others and also several different ethnic groups living in the province, this study is conducted in the East health center of Ahvaz.

### Materials and Methods

The present study is retrospective and descriptive - analytical which is performed in the diagnosis laboratory TB in East Health Center. Using the records of suspected patients

to TB from April to march in 2009 in this Center of Ahvaz, 1173 patients with a suspected case of TB symptoms such as cough for more than three weeks, night sweats, fever, loss of appetite and weight loss, and hemoptysis has been studied. Conventional laboratory diagnosis methods of using stained samples (three samples of sputum) in Ziehl Neelsen method and observing acid-fast bacilli under the microscope were performed.

Extracted variables from patient records and standardized tests including individual variables such as gender, age, personal habits for instance smoking and substance abuse, and social variables such as habitation, incarceration records (biographies contained in the file), were examined. All the pieces of information on a checklist of pre-planned tests were recorded, then relative and descriptive abundance distributions were calculated.

### Ethical considerations

This study was conducted after obtaining the confirmation of the Ahvaz Jundishapur Ethics Committee.

### Results

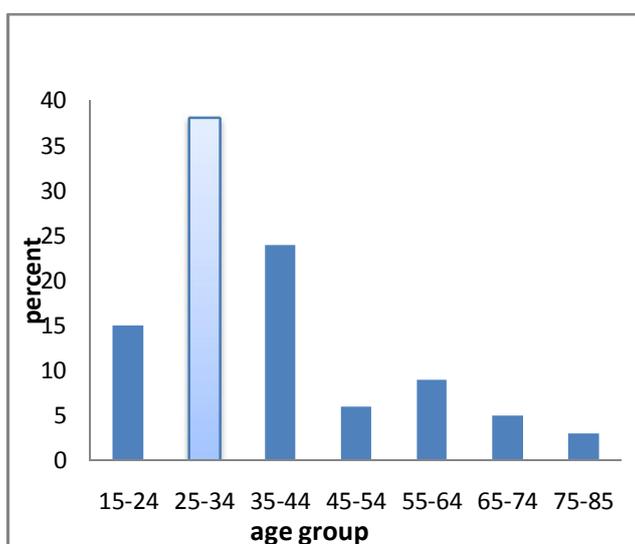
Out of 1173 suspected cases, 97 patients (3.8 %) were affected by TB disease. Out of this number 80% were urban and 20% rural. 32 (33%) of cases were females and 66 (33%) male (Table 1). Prevalence of factors such as smoking was 72% whereas the other two factors, namely drug addiction and incarceration of cases with TB are respectively 50% and 33% (Table2). Investigation of different age groups with TB shows that most vulnerable age groups are 25-34 years, 35-44, 15-24, and 55-64 respectively (Figure 1).

**Table1: Individual variables in cases with TB**

TB (Percent)	Variable	
15	15- 25	Age
77	26- 65	
8	>65	
33	Female	Gender
67	Male	
20	Rural	Habitation
80	Urban	

**Table 2: Risk factors in people with TB**

Risk factors	TB ( Percent)
Smoking	72
Drug addiction	50
Incarceration record	33



**Figure 1: Percent of TB in different age group**

## Discussion

This study shows that, age affects the risk of TB. Other studies support this conclusion (3). The most prevalent age group is 25-34, which is active socially. The study results are in agreement with the Metanat and colleague's result. Influence of other variables such as gender and habitation displayed that the number of affected men is twice more than women. The study of Gholami et al at the West Azerbaijan Province shows that total numbers of affected men are about twice more than affected women, too. The study of Mohamadi et al, in Damghan suggests that the numbers of affected men are more than women (6). Considering habitations, the numbers of affected rural patients were one-third of urban patients (8).

In this study, smoking is one of the most important affecting factors. 72% of patients were smokers. This finding is consistent with the results of other studies including Mirsaedi, Pora and Lin and colleagues (9, 10).

Other factor affecting TB is drug addiction. 50 percent of people with TB are addict. Regarding this factor the results suggesting addiction is one of the most important factors affecting the risk of TB are consistent with those of Talebi Taher and the survey of Tabarsi (11, 12).

Incarceration record is a factor affecting TB. 33% of TB patients have had incarceration record. Other studies indicate a high prevalence of TB in people with incarceration record. Due to the long duration of treatment (6months), daily use of drugs, drug intolerance by the patient, patient's lack of compliance, the release of prisoners with TB cause a high prevalence of TB in prisons and the

incarcerated on the one hand, and difficulties to fight against the disease on the other hand. Mousazadeh and colleagues performed a study on the incarcerated in Mazandaran. The incidence of TB was reported about 7.17 – times more than the normal people (13, 14).

### Conclusion

Being afflicted by pulmonary TB is influenced by two groups of significant factors: one personal and the other, social factors. Individual factors include gender, age, underlying disease, such as diabetes and infection with the HIV virus, and personal habits such as smoking and addiction, and social factors are also consisting of habitation, history of incarceration have been discussed in this study.

Because the prevalence of the disease in men is twice more than women and the incidence of TB is higher among 25-34 and 35-44 age groups, taking the controlling measures against the disease, more attention to these gender and age group may be useful to reduce outbreaks.

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Generally, because of including a number of different ethnic groups and receiving frequent migrants from Iraq, this province is of great significance to the study of the prevalence of TB.

One of the limitations of this study is the exclusion of other factors such as the rate of HIV infection and diabetes in patients with TB. In short, given the increasing prevalence of smoking people in the society, especially among the youth, and the incarceration records and intravenous drug addiction in populations exposed to TB, allocate a fairly substantial ratio in the community, it is suggested that people with risky factors, are considered as vulnerable to active TB disease.

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