



## Research Article

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# The response of patients with TB to the treatment in Isfahan province

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## Abstract

Tuberculosis is one of the well-known infectious diseases and one of the most important causes of mortality worldwide. Despite significant advances in medical science, the prevalence of tuberculosis in the world, especially in the developing countries as well as Iran, is significant. In this study, the response of patients with TB to the treatment in Isfahan province in september2014-september2019 has been evaluated. This study was as descriptive and cross-sectional. After submitting a questionnaire to the health center of Isfahan province, all the information about patients referring to this center. Studying the result of treatment of patients in terms of their sex showed that 419 cases (88.2%) of the men had successful treatment and 56 cases (11.8%) had failed treatment, and 356 cases (89.45%) of the women had successful treatment, and 42 cases (10.55%) had failed treatment. The results of treatment of none Iranian nationality patients based on positive sputum smear and negative sputum smear were evaluated. Out of 193 cases of positive sputum smear, 165 cases (85.5%) had successful treatment and 28 cases (14.5%) had failed treatment and, out of 73 cases of negative sputum smear, 56 cases (76.7%) were successful and 19 cases (23.3%) was failure to treatment. The results showed that the exact implementation of the defined strategy as well as following the treatment of none Iranian nationality patients are among the important factors in made the successful treatment in patient with pulmonary tuberculosis.

**Keywords:** Pulmonary tuberculosis, Response to treatment, Isfahan.

## INTRODUCTION

Tuberculosis (TB) is one of the famous infectious diseases and one of the most essential agents of mortality worldwide [1]. Despite significant advances in medical science, the prevalence of tuberculosis in the world, especially in the developing countries as well as Iran, is significant [2, 3]. The World Health Organization's statistical sources for treating patients with tuberculosis also indicate a lower rate of success in the treatment of positive TB cases in Iran in comparison with the regional average [4-8].

Today, with the increasing number of HIV cases, tuberculosis is becoming a major problem all over the world [9, 10]. Due to its growth in developing countries, the prevalence and spread of pulmonary tuberculosis and the consequences of the failure of the treatment of this disease, determining the success rate of treatment among the patient with tuberculosis and examining the number of treatment failures is very important [9, 11]. One of the causes of treatment failure is the incorrect use of anti-tuberculosis drugs (discontinuation or delay in the use of drugs) is a common phenomenon and discontinuation of anti-tuberculosis treatment is one of the main problems in the treatment of the disease [12, 13]. Other causes include multi-drug treatment and long duration of treatment [14].

Thus, this study was conducted to investigate the response of patients with TB to the treatment in Isfahan province, Iran during 2014 to 2019.

## MATERIALS AND METHODS

This study was as descriptive and cross-sectional. After submitting a questionnaire to the health centers of Isfahan province, all the information about patients referring to these centers was delivered to the researcher. Data was related to the period of the September 2014- September 2019. The sampling method is census. All patients with pulmonary tuberculosis were included in the study.

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To collect the required information, a questionnaire was prepared in which age, sex, nationality, place of tuberculosis (pulmonary and extra pulmonary), smear at the beginning of treatment, smear at the end of the second month, smear at the end of the third month, smear at the end of the fourth and fifth months, last culture In the third month, recurrences, deaths and treatment status of patients (treatment success, treatment failure, transfer to other centers, absence from treatment, under treatment, misdiagnosis) were recorded.

This study was presented in the ethics committee of Shahid Sadoughi University of Medical Sciences of Yazd and was approved. Analyze of the data was done using SPSS software (version 22).

## RESULTS

For this study, there were 1381 patients with pulmonary and extra pulmonary tuberculosis. Of these, 405 cases (29.3%) had extra-pulmonary tuberculosis and 976 cases (70.7%) had pulmonary tuberculosis.

Of the 976 cases of pulmonary TB, 529 cases (54%) were men and 447 cases (46%) were women. As regard the treatment status of patients, 775 cases (79.55) had succeeded treatment and 98 cases (10%) had failed treatment and 79 cases (8%) had transmitted to other centers.

Of the 976 patients with pulmonary tuberculosis, 24 cases (2.45%) died, all of whom died albeit for the problems other than tuberculosis.

Considering the fact that all deaths have been for the reasons other than tuberculosis, and there is no information about the result of treatment who transmitted to other center 873 cases of patients whose treatment status were well-defined, have been reviewed in terms of the treatment status. Thus, out of 873 patients with pulmonary tuberculosis, 775 cases (88.7%) were successful and 98 cases (11.3%) had failure.

To study the treatment status of the patients in terms of their age, they have been divided in four age groups. As a result, in the group under 30 years, 151 cases (92.1%), in the age group 30 to 50 years, 262 cases (81.9%), in the age group 51 to 70 years, 183 cases (87.55%), and in the age group over 70 years, 179 cases (99.45%) were reported to have successful treatment.

Studying the result of treatment of patients in terms of their sex showed that 419 cases (88.2%) of the men had successful treatment and 56 cases (11.8%) had failed treatment, and 356 cases (89.45%) of the women had successful treatment, and 42 cases (10.55%) had failed treatment.

The results of treatment of patients based on positive sputum smear and negative sputum smear were evaluated. Out of 666 cases of positive sputum smear, 602 cases (90.4%) had successful treatment and 64 cases (9.6%) had failed treatment and, out of 207 cases of negative sputum smear, 173 cases (83.6%) were successful and 34 cases (16.4%) was failure to treatment.

Out of 873 patients, 266 patients were none Iranian nationality. Studying the result of treatment of them in terms of their sex showed that 106 cases (78.5%) of the men had successful treatment (Table 1).

**Table 1:** Frequency of treatment outcome for non-Iranian patients with pulmonary tuberculosis based on sex

Sex		Treatment status	Success of treatment	Treatment failure	Total
		Number			
Male	Number	106	29	135	
	Percent	78.5	21.5	100	
Female	Number	113	18	131	
	Percent	86.25	13.75	100	

The results of treatment of none Iranian nationality patients based on positive sputum smear and negative sputum smear were evaluated. Out of 193 cases of positive sputum smear, 165 cases (85.5%) had successful treatment and 28 cases (14.5%) had failed treatment and, out of 73 cases of negative sputum smear, 56 cases (76.7%) were successful and 19 cases (23.3%) was failure to treatment.

## DISCUSSION

In the present study, 54% of the total cases of pulmonary tuberculosis were men and 46% were women. In Chaharmahal and Bakhtiari study, 53.8% were men and 43.92% were women [15].

In the present study, 2.45% of patients died within 5 years, none of which was due to tuberculosis. In Chaharmahal and Bakhtiari, 9.9% of deaths occurred among patients during 6 years, all of them for reasons other than pulmonary tuberculosis [15].

In the present study, 88.7% of treatment success and 11.3% of treatment failure were reported in the treatment status of patients with pulmonary tuberculosis. In Chaharmahal and Bakhtiari, 96.5% of treatment success and 3.5% of treatment failure were reported regarding the treatment status of patients with pulmonary tuberculosis [15].

In the present study, the results of patients' treatment with positive sputum smear showed that 90.4% had treatment success and 9.6% had treatment failure. In a study conducted in Taiwan, the success rate of treatment of positive sputum smear patients was 72%. In this study, the treatment failure rate in these patients was 6.5% [16].

## CONCLUSION

Considering the fact that the number of failure in Iranian nationality were lower than none Iranian nationality in this study, it can be inferred that the exact implementation of the directly observed treatment, short-course strategy as well as following the treatment of none Iranian nationality patients are among those important factors in made the successful treatment in patient with pulmonary tuberculosis.

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## Conflict of Interest

We declare that we have no conflict of interest.

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