



## Comparative Study for the Assessment of Compliance in Alcoholics and Non-Alcoholic Patients on Anti-tubercular Therapy – A Prospective Observational Study

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### ABSTRACT:

**Background:** Compliance to Anti-tubercular therapy is very important for the treatment and also to prevent the relapse or failure of the treatment. Nevertheless, many people fail to adhere to the therapy and various factors play a role in the process. This study was undertaken to assess the adherence in alcoholics and non-alcoholic patients on Anti-tubercular therapy and to evaluate the factors affecting the compliance towards the therapy. **Materials and Methods:** It was a questionnaire based observational study where 100 patients (50 alcoholics and 50 non-alcoholics) receiving anti-tubercular therapy were interviewed using Morisky Medication Adherence Scale 4 and self-designed questionnaires. **Results:** In our study highest adherence was found in non-alcoholics compared to alcoholics. Level of adherence were High (14), Medium (30) and Low (6) in non-alcoholics whereas High (6), Medium (28) and Low (16) in alcoholics receiving anti-tubercular therapy. Reasons for non-adherence were described as Forgetfulness 3 %, Vomiting 2 %, travelling to other places 12 %, work 11%, far distance 5%, other reasons 3% by non-alcoholics as compared to 11%, 8%, 9%, 7%, 4% and 3% respectively by alcoholics. **Conclusion:** Our findings suggest that the adherence towards the anti-tubercular therapy were high in non-alcoholics as compared to alcoholics. So, the habit of consumption of alcohol is affecting the adherence towards the therapy. **Keywords:** Adherence, Anti-tubercular therapy, Morisky medication adherence scale

### INTRODUCTION

Tuberculosis is caused by bacteria (*Mycobacterium tuberculosis*) that most often affect the lungs. Other mycobacteria can also produce TB and these include *Mycobacterium africanum* and *Mycobacterium bovis*. Usually patient with pulmonary TB who have cavitory lesions are an important source of infection.

These patients are usually sputum smear-positive. Tuberculosis is curable and preventable. TB is an airborne disease and spreads from person to person through contaminated air. When people with pulmonary TB cough, sneeze or spit, they propel the Tb germs into the air. If a person inhales only a few of these germs he/she will become infected.<sup>1</sup>

According to the World Health Organization (WHO) about 8.6 million TB cases were estimated to have occurred in 2012 globally. Approximately 2.9 of who were in women. 12 million prevalent cases of TB were estimated in 2012, corresponding to about 169 cases per 100,000 populations. TB mortality was estimated at 1.3 million deaths in 2012. TB prevalence is declining globally since the early 1990s. Harmful use of alcohol increases the risk of TB threefold and is also a strong risk factor for poor TB treatment adherence.<sup>2</sup> The association between alcohol use and TB has been known ever before the etiology of TB became known. Benjamin Rush as early as 1785 listed TB as infectious sequel of sustained heavy drinking.<sup>3</sup>

It is very important to adhere to the therapy for the successful treatment of the patient and the factors affecting the adherence must also be evaluated in order to understand what is primarily affecting the adherence of the patients. For this reason, we intended to conduct this study.

**METHODOLOGY**

It was a prospective observational study and the study was carried out for 6 months. All the TB patients admitted to the wards and visiting OP TB department of general medicine were enrolled to the study. Only male patients more

than 18 years of age were included and patients with other comorbidities rather than TB were excluded from the study. Data was collected by using a self-designed data collection form for TB patients, which consists of details like age, sex, body weight, habits, laboratory details, drug therapy and other relevant information and by interacting with the patients, communicating with the physicians, nurses. The original version of the scale (MMAS-4) consisting of four items with a scoring scheme of “Yes” = 1 and “No” = 0 was used to assess the adherence of patients to medication. The items are summed to give a range of scores from low adherence to high adherence. This study data was entered and analyzed by using Microsoft excel. Descriptive statistical methods like measures of central tendencies and variance was performed using Micros.

**RESULTS**

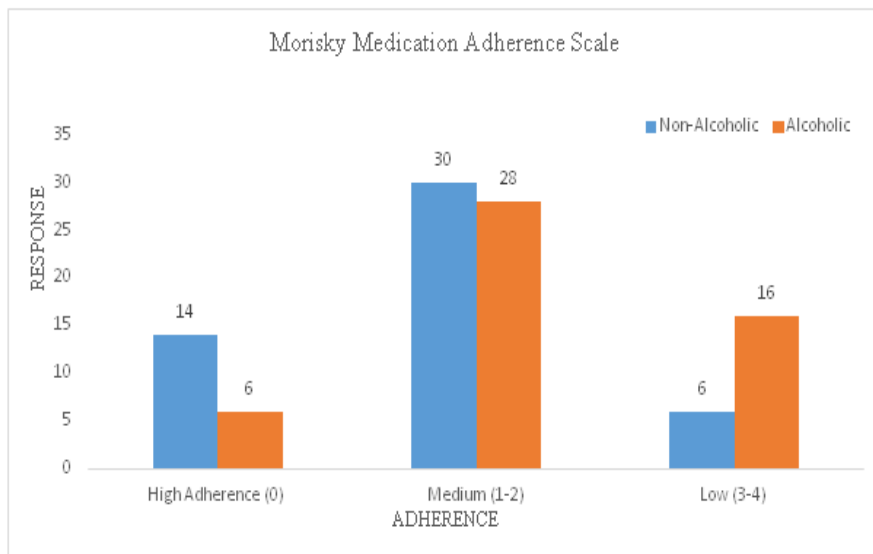
The questionnaires used in Morisky Medication Adherence scale are listed in Table 1. Morisky adherence scale questionnaire was asked to the 100 patients included in the study and the highest adherence was found in the non-alcoholic patients (14) and the low adherence (16) was seen in non-alcoholic patients receiving anti-tubercular therapy. The information is given in the Figure 1.

**Table 1:**

<b>MMAS-4</b>
Do you ever forget to take your medicine?
Are you careless at times about taking your medicine?
Sometimes if you feel worse when you take the medicine, do you stop taking it?
When you feel better do you sometimes stop taking your medicine?

**Table 2:**

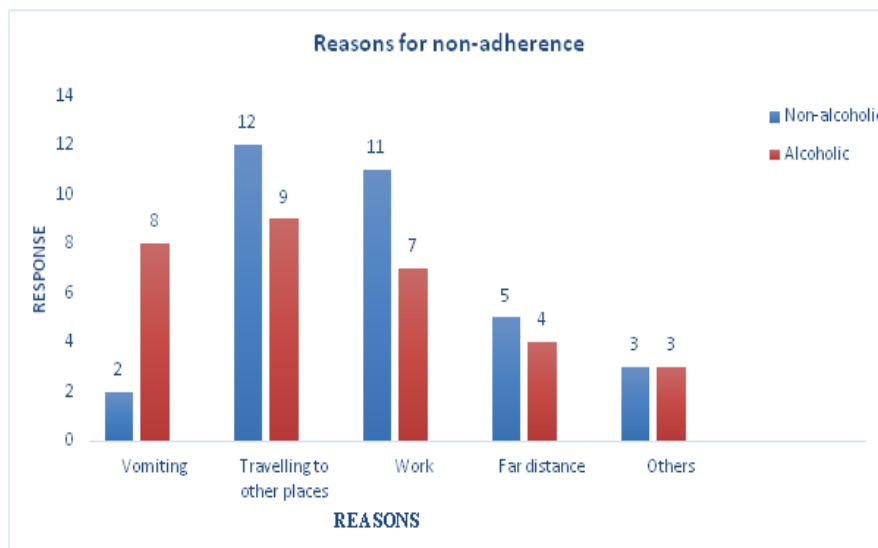
ADHERENCE	MMAS-4 SCORE
High Adherence	0
Medium Adherence	1-2
Low adherence	3-4



**Fig. 1: Morisky medication adherence scale**

The 100 patients receiving anti-tubercular therapy were interviewed regarding the reason for their absence for receiving the therapy. The highest factor for non-adherence in non-alcoholics was travelling to other places (12)

and the lowest was vomiting (2) whereas in case of alcoholics the highest reported reason for non-adherence was forgetfulness (11) and the lowest was others. The information is given in figure 2:



**Fig. 2: Reasons for non-adherence in patients receiving anti tubercular therapy**

## DISCUSSION

Several studies have been published on the association between alcohol use and tuberculosis in various countries at different times. However the comparison in patient compliance to anti tuberculosis therapy among alcoholics and non-alcoholic study is a newer aspect and interesting but should be made cautiously. In spite the several attempts by Governmental and Non-Governmental organizations regarding the importance of adherence of tuberculosis, it is evident that people still lack awareness. So, the relevance of this study is in its attempts to establish the level of awareness among alcoholics and non-alcoholics about the various factors affecting compliance with anti-tuberculosis therapy. This study was conducted among 100 patients receiving anti tuberculosis treatment of DOTS regimen. Patients were interviewed based on clinical and laboratory data collected, out of which patient consuming alcohol specifically was considered to be non-adherent with the anti-tuberculosis therapy. There are various factors associated with the reduced patient compliance to the anti-tuberculosis treatment in alcoholic as well as non-alcoholic patients which included hygiene practices, poor knowledge about tuberculosis and symptoms, poor eating habits, alcohol, smoking, chewing pan masala, spitting sputum. This result is contrast with other 2 studies, conducted by *Bagchi S et al.*, (2010) which show significant nonadherence due to various factors affected day to day activities of study subjects<sup>4</sup> and to the of study conducted by *Getachew et al.*, (2015) conducted a study on Level of Patient Adherence to Anti-Tuberculosis Treatment in Mekelle Tuberculosis Direct Observed Therapy Centres, Tigray, North Ethiopia<sup>5</sup>. In our study where Morisky adherence scale questionnaire was used to analyze the medication adherence pattern of study subjects which was asked to the 100 patients included in the study and the highest adherence was found in the non-

alcoholic patients (14) and the low adherence (16) was seen in non-alcoholic patients receiving anti-tubercular therapy. During data collection, education regarding tuberculosis was provided to all study subjects included in the study. Questions and doubts raised during interview were clarified and awareness on tuberculosis was provided among all the study subjects enrolled.

Our findings suggest that the medication adherence seen among patient receiving anti-tubercular therapy were found to be medium. Many reasons for non-adherence were found among which majority of the alcoholics reported forgetfulness as a main reason and in case of non-alcoholics majority of the patient reported traveling to other places. High Compliance to the Anti-Tubercular therapy was seen in Non-alcoholics as compared to Alcoholics.

## CONFLICT OF INTEREST

The authors have no conflict of interest

## ACKNOWLEDGEMENTS

We acknowledge to all the patients who had participated in our study.

## ABBREVIATIONS

**OP:** Out Patient; **TB:** Tuberculosis; **DOTS:** Direct Observed Treatment Short course; **MMAS:** Morisky Medication Adherence Scale; **WHO:** World Health Organization

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