

Research Article

CONTRIBUTION OF NON- PHARMACOLOGICAL FACTORS IN NON- COMPLIANCE OF DOTS AMONGST TUBERCU- LOSIS PATIENTS

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Date Received: 1st September 2016; Date accepted:
29th September 2016; Date Published: 10th Oc-
tober 2016

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Abstract

Background: One of the important factors in control of tuberculosis is non-compliance has role in multi-drug resistant tuberculosis, poor treatment outcome and cause increased morbidity and mortality of tuberculosis.

Objective: This study explores the contribution of non-pharmacological factors in non-compliance of

directly observed treatment short course among tuberculosis patients.

Methodology: The Cross sectional prospective study was interviewed by using set of questionnaire with enrolled patients of TB at DOTS centre of LRS Institute of Tuberculosis and Respiratory disease New Delhi, India. The Patients who discontinued and interrupted treatment for more than 2 months were categorized as noncompliance cases.

Results: Five hundred sixty six patients TB patients enrolled during the study out of which forty non-compliance cases we observed. various factors and their contribution in noncompliance, the nuclear family have contribution 40 %, living life style of three member family in one room set contribute 42.5% role in non-compliance and types of patients who was new found 35% contribution in non-compliance. Beside these 10% of non-compliance TB patient have positive influence to tuberculosis treatment, as family and social factors have 70 % negative influence in non-compliance as well as psychological and their positive influence to non-compliance in tuberculosis treatment were only 40%.

Conclusion: Various factors contribute in non-compliance of tuberculosis treatment therefore more attention should be paid to psychological aspect in order to behavioral and life style modification during tuberculosis treatments.

Key Words: Tuberculosis, Non-Compliance, Psychological Factors, Personal Factors and Directly observed treatment short course

INTRODUCTION

Tuberculosis (TB) is a multi systemic disease with countless presentations and manifestations is the most common cause of infectious disease-related to worldwide mortality.¹⁻² The World Health Organization (WHO) has estimated that 2 billion people have latent TB globally in 2009 and it killed 1.7 million people.³⁻⁴

Globally, TB is most common in more common in developing countries including , India, Bangladesh, Pakistan, Indonesia, Philippines, Vietnam, Korea, China, Tibet, Hong Kong, Egypt, most sub-Saharan African countries, Brazil, Mexico, Bolivia, Peru, Colombia, Dominican Republic, Haiti, Honduras, and areas undergoing civil war. These coun-

tries are plagued with factors that contribute to the spread of TB, including the presence of limited resources, HIV infection, and multidrug-resistant (MDR) TB. Consequently, although international public health efforts have put a huge curb on the rate of increase in TB, these regions account for the continued increase in global TB.⁵⁻⁶ Hopes of totally controlling the disease have been dramatically dampened because of a number of factors, including the difficulty of developing an effective vaccine, the expensive and time-consuming diagnostic process, the necessity of many months of treatment, the increase in HIV-associated tuberculosis, and the emergence of drug-resistant cases.⁷⁻⁹

The most common cause of treatment failure is people's failure to comply with the medical regimen.¹⁰ This may lead to the emergence of drug-resistant organisms. You must take your medications as directed, even if you are feeling better.¹¹ Drug resistance is a major public health problem that threatens progress made in TB care and control worldwide. Drug resistance arises due to improper use of antibiotics in chemotherapy of drug-susceptible TB patients. This improper use is a result of a number of actions including, administration of improper treatment regimens and failure to ensure that patients complete the whole course of treatment. Essentially, drug resistance arises in areas with weak TB control programs. A patient who develops active disease with a drug-resistant TB strain can transmit this form of TB to other individuals.¹²

Engaging all relevant health care providers in TB care and control through public-private mix approaches is an essential component of the World Health Organization's (WHO's) Stop TB Strategy. Public-Private Mix (PPM) for TB Care and Control represents a comprehensive approach for systematic involvement of all relevant health care providers in TB control to promote the use of International Standards for TB Care and achieve national and global TB control targets.¹³

Patient noncompliance can take many forms; the advice given to patients by their healthcare professionals to cure or control disease is too often misunderstood, carried out incorrectly, forgotten, or even completely ignored.

Non-compliance compromises patient outcomes in many different ways but is most obvious when patients fail to take medications that likely would

cure or at least effectively manage their illnesses.¹⁴

Some people start feeling well early on during treatment and they stop taking medication before all the TB germs are dead. Other patients forget to take their treatment or delay going back to the clinic or hospital. It is important to ask your health care provider about your treatment. If any Patients forget or skip treatment do not be afraid should to go back to the clinic and continue their medication because they are not cured.¹⁵⁻¹⁶

With the development of effective treatment strategies, the focus of TB management also required shift from the prevention of mortality to the avoidance of morbidity¹⁷. There are numerous aspects of active TB that may lead to a reduction in Quality of life in Treatment of active TB. As it requires prolonged therapy (at least 6 months) with multiple, potentially toxic drugs that can lead to adverse reactions in a significant number of patients Also, considerable social stigma associated with active TB leaving the individual feeling shunned and isolated from their friends and families. Finally, lack of knowledge regarding the disease process and its treatment which may contribute to feelings of helplessness, anxiety and contribute in non-compliance of TB treatment.¹⁸⁻¹⁹

MATERIAL AND METHODS

Study was conducted to find out the contribution of psychological factors in non-compliance of DOTS amongst tuberculosis patient registered under RNTCP for DOTS. These patients were going to treatment under LRS-RNTCP defined area of south Delhi, India

Total patients enrolled in LRS-RNTCP defined area for treatment were 566 out of which 80 were enrolled in our study. 40 patients contributes as control (i.e. group I) & 40 patients as cases (i.e. group II). The group I received chemotherapy as per RNTCP guidelines and was categorized as compliance under DOTS. The group II received same medication as per RNTCP guidelines but due to some reason/factors interrupt the short course chemotherapy and patient fall under non-compliance. the criteria for non-compliance was "a patient who interrupted treatment for more than 2 months consecutively at any time during the treatment periods".

Study Design

GROUPS	DRUG TREATMENT
Group I (Control n = 40)	Anti-tuberculosis therapy was given and patient to compliance.
Group II (Control n = 40)	Patients were interrupted Anti-tuberculosis therapy and fall under criteria of non-compliance.

Where 'n' is the number of patient per group.

Enrollment Procedure

The patients of LRS, RNTCP defined area enrolled under DOTS therapy was included in the study, divided into equal number of control (group-I) and case (group-II) and each patient gone a set of Questionnaires when ever non-compliance issue found. Investigator visited to non compliance patient residence and on the basis of interview to the patient observed the factors responsible for non-compliance of TB treatment. All the observations were recorded in a simple pre-designed and pre-tested semi structured standard monitoring formats. All the possible factors were recorded and analyzed in three forms i.e. Negative influence (considered as no influence) Intermediate influence (very minimal influence) and positive influence.

Data Collection

Patient's demographic profile (age, gender, address, etc). Information on family, social and socioeconomic status etc. Sources of Data

Patient's treatment card.

Patient's I. Card.

Individual interview from patients.

Statistical Analysis

The factors contributing to non-compliance of DOTS amongst tuberculosis patient in cases i.e. Group II, was compared with that of control i.e. Group I. T-test was used for comparing the means of the two groups. The number and proportions were compared with P- value.

RESULTS

The Non-compliance in TB patients was more in nuclear family (60 percent) as compared to joint family (40percent).

Distribution of patients according to crowding

The distribution of the non-compliance in TB Pa-

tients according to crowding. Majority of TB patients belongs to socioeconomic strata. Living in one room set among them a considerable number of patients are migratory therefore they are living in one room set on rent. In present study non-compliance were observed highest in the patients living 3 persons in 1 room (42.5 percent).

Table 1: Distribution of the TB Patients according to Types of family

Types of family	No. of Patients	% of Patients
Nuclear	24	60
Joint	16	40
Total	40	100

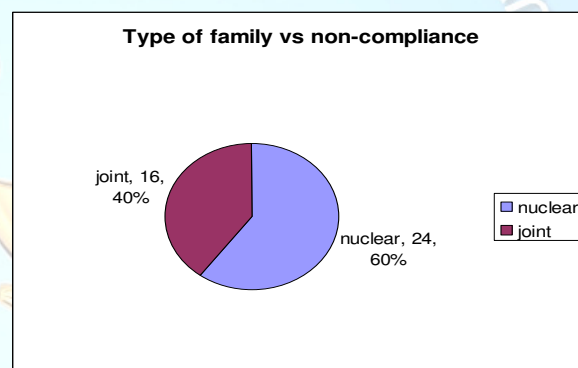


Fig. 1: Number and Percentage of non-compliance in TB patients according to Type of family.

Distribution of Non-compliance in TB patients according to types of patients

Table VII depicts the distribution of TB patients according to types of patients. The patients were more in newer types of patients (35 percent) then in treatment after default type of patients (20 percent) and Relapse patients (20 percent).

Personal Factors

The distribution of the non-compliance in TB Patients according to Personal Factors. Positive influence to non-compliance is 10 percent which the patients told never in response to individual personality attributes.

Family and Social factors

The non-compliance in TB Patients according to Family and Social factors. Positive influence to non-compliance is 2.5 percent, intermediate influence to non-compliance is 27.5 percent and nega-

tive influence to non-compliance is 70 percent.

Psychological Factors

the non-compliance in cases according to Psychological Factors. Positive influence to non-compliance is 40 percent. Which is considerably higher as compared to study done by Jaggarajamma et al., (2007) who found 24 percent positive

influence in non-compliance. This higher percentage is because cosmopolitan city where the people remain under stress as compared to small city due to various reasons.

Table 2: Patients according to crowding

groups	2 persons in 1 rooms		3 persons in 1 room		4 persons in 2 rooms		7 persons in 3 rooms		10 persons in 4 rooms	
	No of patient	%	No of patients	%	No of patients	%	No of patients	%	No of patients	%
group I	10	25%	12	30%	15	37.5%	2	5%	1	2.5%
group II	4	10%	17	42.5%	16	40%	2	5%	1	2.5%

P < 0.05, statistically significant

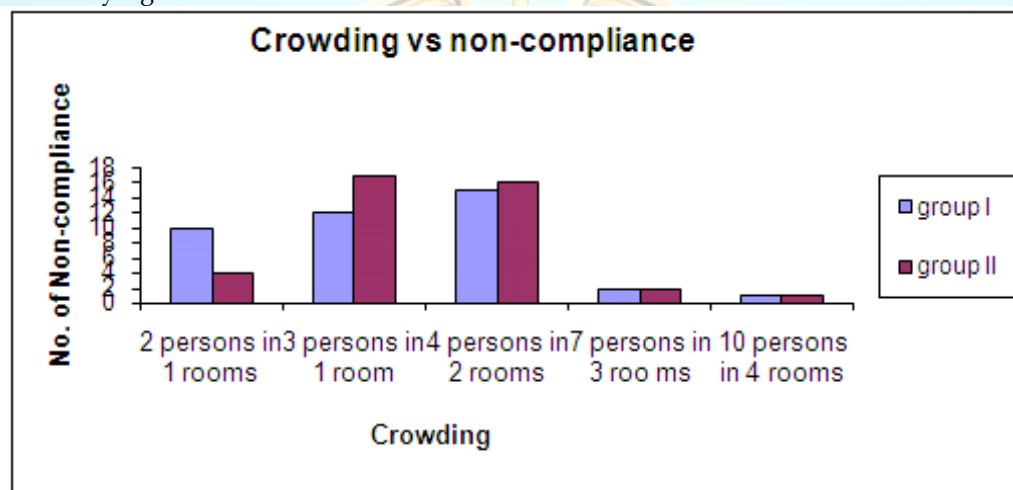


Fig. 2: Bar graph crowding vs. non-compliance

Table 3: Distribution of the TB Patients according to Types of patients

Types of patients	No of patients	% of non-compliant patients
new	14	35
Transfer	0	0
TT after default	8	20
Relapse	6	15
Failure	8	20
Other	4	10

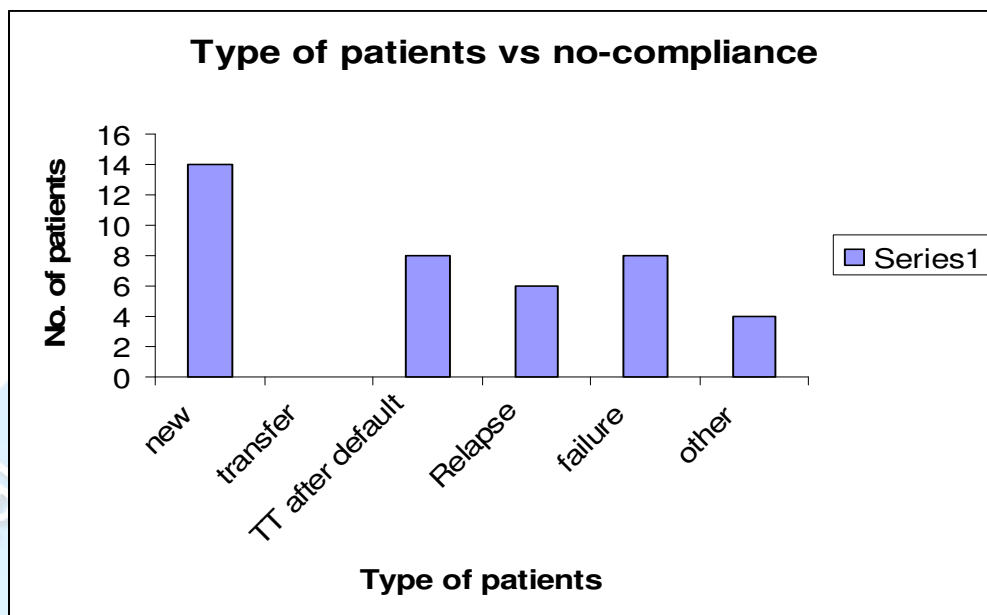


Fig. 3: Number and Percentage of non-compliance in TB patients according to Type of Patients Enrolled under DOTS treatment.

Table 4: patients according to Personnel Factors

Groups	Always		Often		Sometimes		Never	
	No. of patients	%	No. of patients	%	No. of patients	%	No. of patients	%
Group I	5	12.5%	10	25%	25	62.5%	1	2.5%
Group II	5	12.5%	9	22.5%	22	55%	4	10%

P<0.05, statistically significant

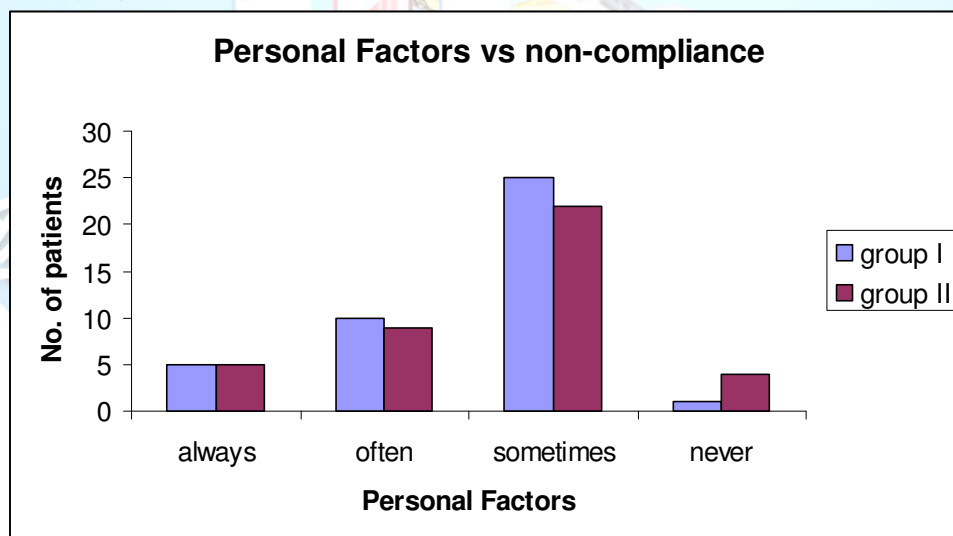
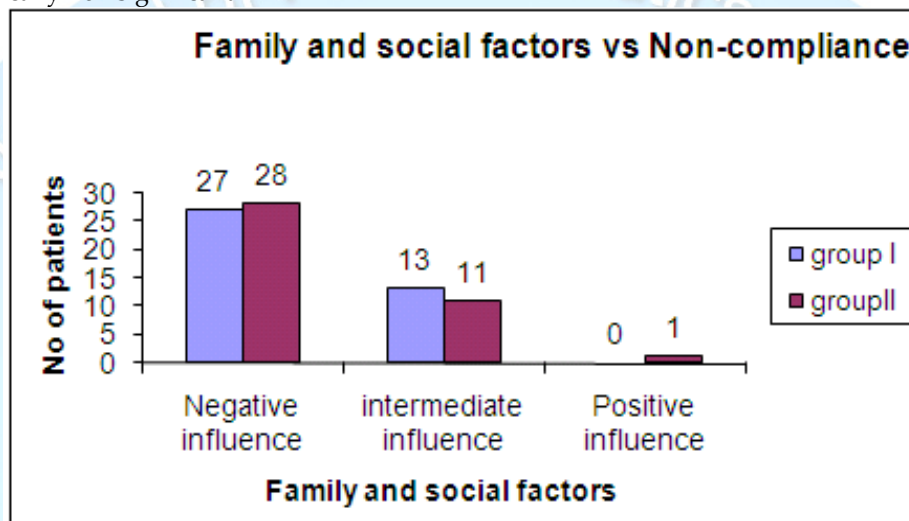


Fig. 4: Bar Graph Personal factors vs. non-compliance

Table 5: patients according to Family and social Factors

Groups	Negative influence		Intermediate influence		Positive influence	
	No. of patients	%	No. of patients	%	No. of patients	%
Group I	27	67.5%	13	32.5%	0	0%
Group II	28	70%	11	27.5%	1	2.5%

P> 0.05, statistically non significant

**Fig. 5: Bar Graph Family and social factors vs. non-compliance****Table 6: Patients according to Psychological Factors**

Groups	Negative influence		Intermediate influence		Positive influence	
	No. of patients	%	No. of patients	%	No. of patients	%
Group I	3	7.5%	24	60%	13	32.5%
Group II	5	12.5%	19	47.5%	16	40%

P> 0.05, statistically non significant

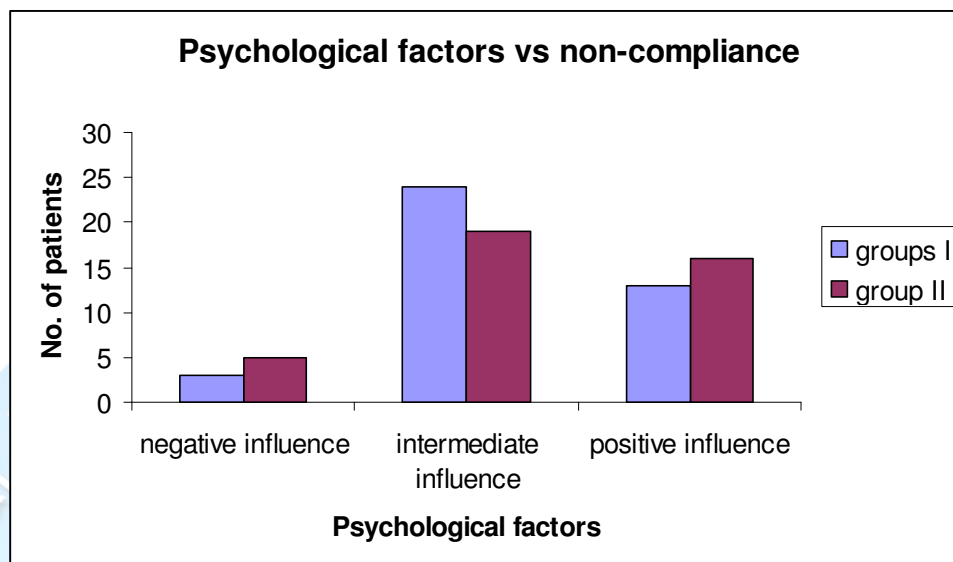


Fig. 6: Bar Graph Psychological factors vs. non-compliance

DISCUSSION

The study explore that the Psychological and family-Social factors were had association with compliance of treatment in tuberculosis. It was found that the Non-compliance was more in nuclear family as compared to joint family.²⁰

Crowding and a family of three members living in one room set contribute maximum role in non-compliance of tuberculosis treatments²¹ and types of patients who was newer contribute maximum in non-compliance than Transfer patients, defaulter patients and relapse case patients.²²

The non-compliance in TB Patients according to Personal Factors found that 10 % of study population has Positive influence towards non-compliance in treatments they said that never in response to individual personality attributes and the distribution of the non-compliance in TB Patients according to Family and Social factors were 70 % that's have negative influence to treatments non-compliance as well as distribution of the non-compliance in cases according to Psychological Factors were 40 % have Positive influence to non-compliance which was considerably higher as compared to previous study.²³

CONCLUSION

The Treatment of TB under DOTS-RNTCP program was good and that's why compliance rate of south Delhi region, India was similar to India scenario. Although various factors contribute in non-

compliance of tuberculosis treatment therefore more attention should be paid to psychological aspect in order to behavioral and life style modification during tuberculosis treatments.

ACKNOWLEDGEMENTS

We thank the clinicians, DOTS volunteers as well as Social workers of LRS-RNTCP specified area for their enthusiastic co-operation and grateful to district tuberculosis officer Dr. Khalid U Khayyam for his continued encouragement. We also thank Sanjay Saroj, Sanjay Mishra, Kusum, and Babita for their secretarial help. We are very grateful to the project coordinator and staff of all DOTS centre of LRS institute for their full co-operation and support. The study would not have been successfully completed without the help of our study patients and their families. We also thanks to Dean, College of Pharmacy Al-Dawadmi, Dr. Abdulmohsen H. Alroraimi for his encouragement and support in writing this paper. and in last but not least we thanks to Dr. Mohd. Faiz Arshad for his co-operation and support in writing of paper.

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