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DETERMINE THE FACTORS INFLUENCING DOTS COMPLIANCE AMONG TUBERCULOSIS PATIENTS OF SELECTED DOTS CENTERS OF LUDHIANA, PUNJAB

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ABSTRACT

India has more new TB cases annually than any other country. The present study aimed to determine the factors influencing compliance to DOTS in tuberculosis patients and to ascertain the relationship of factors with selected variables. The Quantitative research approach and non-experimental exploratory research design was used and study carried out in selected DOTS centers. Total 110 tuberculosis patients taking DOTS were chosen by Purposive sampling technique. Self structured checklist was used to determine the factors influencing DOTS compliance among tuberculosis patients. Interview schedule was used as method of data collection. Conclusion drawn were based on findings that factors influenced to DOTS compliance were self motivation, physical/physiological, technical, social, economical factor among these the mean Percentage score was highest (97.64) among Self motivational factors followed by Technical factors (97.62%), Physical/physiological (97.2%), Social (96.29%) and least (60.4%) among Economical Factors. Socio-demographic variable of the study had no relation with factor influencing compliance to DOTS. Hence it can be concluded that self motivational factor had the highest influence on compliance to DOTS but economical factors were influenced not to comply with DOTS and in context to factors compliance, it was not affected by socio demographic variables.

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INTRODUCTION

Among all infectious diseases, Tuberculosis is one of the six killer disease caused by Mycobacterium tuberculosis. The disease primarily affects lungs and causes pulmonary tuberculosis. It can also affect intestine, meninges, bones and joints, lymph glands, skin and other tissues of the body (Park 2013). The global burden of TB remains enormous. In 2012 there were an estimated 8.6 million incident cases of TB and 1.3 million people died from the disease (940,000 deaths among people who were HIV-negative and 320,000 among people who were HIV-positive).Among these death there were an estimated 170,000 from MDR-TB, a relatively high total compared with 450,000 incident cases of MDR-TB. (WHO Global tuberculosis report, 2013).

India is the second-most populous country in the world; India has more new TB cases annually than any other country. In 2009, out of the estimated global annual incidence of 9.4 million TB cases, 2 million were estimated to have occurred in India, thus contributing to a fifth of the global burden of TB. It is estimated that about 40% of Indian population is infected with TB bacillus. The incidence of TB in India is estimated based on findings of the nationwide annual risk of tuberculosis infection study conducted in 2000-2003. The national annual risk of tuberculosis infection being 1.5%, the incidence of new smear positive TB cases in the country is estimated as 75 new smear positive cases per 100,000 populations. The prevalence of TB has been estimated at 3.8 million bacillary cases for the year 2000.

However the recent estimate by WHO gives a prevalence of 3 million (Revised national tuberculosis control programme annual status report, 2011).

Need of the study

Globally, the DOTS (Directly observed treatment, short course) strategy has been recognized as the best cost-effective approach to tuberculosis control, to reduce the disease burden and to reduce the spread of infection. DOTS is the only means by which a cure can also be ensured. The challenge is to expand the coverage of DOTS so that the most patients get effective treatment. Tuberculosis is a specific infectious disease caused by Mycobacterium tuberculosis. The disease primarily affects the lungs and causes pulmonary tuberculosis. It can also affect the intestine, meninges, bones and joints, lymph glands, skin and other tissues of the body. Tuberculosis is a worldwide public health problem despite the fact that the causative organism was discovered more than 100 years ago and highly effective drugs and vaccine are available making tuberculosis a preventable and curable disease. Despite the fact that TB is a treatable disease, it has assumed epidemic proportions in India (Park K, 2007).

In different parts of community area people are not compliance with DOTS. So there is desperate need to determine the factors influencing compliance to DOTS, which helps to educate the people about DOTS programme, Experience with patients in community area, DOTS centers, observation and interview with patients, patient's relatives and health team members related to DOTS, motivated the researcher to determine the factors influencing compliance to DOTS among tuberculosis patients. The investigator also felt that it is very essential to educate the TB patients regarding treatment of Tuberculosis. This will improve the patient's compliance to DOTS, quality of life and behavior. All these observations, experience, curiosity and interest in the field prompted the researcher to undertake this study.

Objectives

- To determine the factors influencing compliance to DOTS among tuberculosis patients.
- To ascertain the relationship of factors influencing compliance to DOTS with Age, Gender, Qualification, religion, Occupation, Marital status, Income, Source of information.
- To prepare pamphlet on Tuberculosis and DOTS.

Delimitations

The study was limited to:

- Tuberculosis patients who were in Continuation phase treatment of DOTS.
- Tuberculosis patients who were taking treatment from DOTS centers.

MATERIALS AND METHODS

A Non experimental exploratory research design and Quantitative research approach was considered appropriate for the study. Target Population consisted of the pulmonary and extra pulmonary tuberculosis patients. Purposive sampling technique was used to select a sample of 110 tuberculosis patients.

The purpose and objective were discussed with the District tuberculosis officer, civil hospital, Ludhiana, Head of Chest and T.B department, Christian Medical College & Hospital, Ludhiana and written permission was obtained to collect the data. Investigator selected main four government register DOTS centers. Self Structured checklist was prepared to determine factors influencing compliance to DOTS. Interview schedule was used as method of data collection. Content validity of the tool was confirmed by expert opinion regarding the relevance of items. Reliability of the self structured checklist was computed by applying Split-Half method and calculated by Karl Pearson's Co-efficient correlation and Spearman Brown Prophecy formula and results shows tool was reliable. An analysis of data was done on the basis of objectives of the study. Data was analyzed by using descriptive and inferential statistics.

Description of the tools

The tool was divided into 2 parts:

- **Part I:** This part include socio demographic variables of participants which include age, gender, qualification, religion, occupation, marital status, family income & source of information

- **Part II:** This part involve self structured checklist to determine factors influencing compliance to DOTS among tuberculosis patients. It consist of 30 items, each statement had two options 'Yes' and 'No'. Correct answer carried 1 score and wrong answer carried 0 score and total compliance score determine the factors influencing high compliance and low compliance.

RESULTS

Finding related to Information about Illness : Majority of the tuberculosis patients 91.81% were diagnosed for T.B at government hospital, 92.72% identified diagnosis by X-ray and sputum, 95.45% were not suffering with any other illness, 51.81% patients had lung T.B and 97.27% patients had no family history of tuberculosis.

Finding related to Factors influencing compliance: Majority (88.18%) of tuberculosis patients had high compliance with score ≥ 27 and 11.81% had low compliance with score < 27.

- Highest (97.64%) mean Percentage score regarding factors that influence compliance to DOTS was Self motivational factor and least (60.4%) mean Percentage score among Economical Factor.
- Self motivational factor had the highest influence on compliance to DOTS and economical factors had influence not to comply with DOTS.
- On the other hand, selected variables had no impact on factor influencing compliance to DOTS

Finding related to ascertain the relationship of factors influencing compliance to DOTS with selected Socio-demographic variables

1.Self Motivational Factor : Highest mean compliance score of tuberculosis patients were in the age group of 26-35, among male, qualified up to primary-middle, were labourer & were

married, had monthly family income of Rs 5001-10,000 and had health professional as source of information.

Physical/Physiological factors : Highest mean compliance score of tuberculosis patients were in the age group of >45years, among males, were Illiterate, labourer, married, had monthly family income Rs 5001-10,000 and had health professional as source of information

Technical factors: Highest mean compliance score of tuberculosis patients were in the age group of >45 years, among male, were illiterate, were labourer, were married, had monthly family income of Rs 5001-10,000 and had health professional as source of information

Social factors: Highest mean compliance score of tuberculosis patients were in the age group of <16 years, among females, qualified up to primary-middle, were labourer, married, had monthly family income of Rs 5001-10,000 and had television as source of information.

Economical factors: Highest mean compliance score of tuberculosis patients were in the age group of <16 years, among female, were qualified up to graduate & above, were professional, unmarried, had monthly family income Rs ≤ 5000 and had television as source of information.

Objective.1 To determine the factors influencing compliance to DOTS in tuberculosis patients.

Table 1. Mean, Mean percentage and Rank order of Factors influencing compliance of Tuberculosis patients towards DOTS

N=110

Factors Influencing Compliance	Factors Compliance score			
	Max.score	Mean	Mean %	Rank order
a. Self Motivational	5	4.88	97.64	1
b. Physical/Physiological	5	4.86	97.2	3
c. Technical	8	7.81	97.62	2
d. Social	7	6.74	96.29	4
e. Economical	5	3.02	60.4	5

Maximum Score = 30
Minimum Score = 0

Table 2. Frequency & Percentage distribution of Tuberculosis patients according to level of compliance

N =110

Level of compliance	Tuberculosis Patients		
	Score	f	%
a. High Compliance	≥ 27	97	88.18
b. Low Compliance	< 27	13	11.81

Maximum Score = 30
Minimum Score = 0

Table 1 depict Mean, Mean percentage and Rank order of Factors influencing compliance of tuberculosis patients towards DOTS. The mean Percentage score was highest (97.64) among Self motivational factors followed by Technical factors (97.62%), Physical/physiological (97.2%), Social (96.29%) and least (60.4%) among Economical Factors. Thus, it can be concluded that self motivational factor had the highest influence on compliance to DOTS and economical factors were influenced not to comply with DOTS.

Table 2 depict Frequency & Percentage distribution of Tuberculosis patients according to level of compliance. Maximum 97 (88.18%) tuberculosis patients had high compliance and 13 (11.81%) had low compliance. Hence it was concluded that majority of tuberculosis patients had high compliance.

DISCUSSION

Based upon findings from analysis of data and review of literature, discussion of present study was done in accordance with the objectives of research problem. The findings of the study are discussed with reference to the results observed by other investigators. The present study was done to determine the factors Influencing DOTS Compliance among Tuberculosis patients of selected government registered DOTS Centres, which were situated in Field Gang, Basti Jodhewal, Shivpuri and CMC & Hospital of Ludhiana, Punjab. The present study indicated that self motivational like taking medicine as prescribed, willingly and regularly, follow instructions, coming for treatment without being encouraged were influential factors for compliance to DOTS. The mean compliance score of self motivational factor was 97.64% followed by other factors. In contrast to the present study, Khatiwada et al. (2012) showed most of the patients said that they had impaired self-esteem, felt shamed or embarrassed and felt less respect from others in the society. One of the patient said he is even treated badly even by his own wife since he couldn't earn money because of the disease. Another study conducted by Sinha & Tiwari (2010) showed that out of the 232 patients,140 (60.34%) patients failed to comply simply because of lack of information whereas 7.75% and 31.89% were non compliant because of lack of motivation and different obstacles, respectively. In the present study physical/physiological factor like relief from symptoms, other health problems, side effect of medicines that influence the DOTS compliance and mean compliance score was 97.2%. Finding supported by cross-sectional study conducted by Bam Chand & Shrestha (2005)[5] related to factors responsible for non-compliance, found that 48% of non-compliant TB patients would discontinue TB treatment once they felt better and were free of symptoms, as they thought they were cured. Several other studies had similar findings about feeling better being associated with stopping TB treatment and non-compliance Wright (2000).

The present study indicated Technical factor like distance and timing of centre, weather, skipping and forgetting medicine, duration of treatment, receive medicine on time, health worker visits/calls, when fail to go to DOTS centre were influential for compliance to DOTS. The mean compliance score of Technical factor is 97.62%. In accordance to present study Eastern Mediterranean Health Journal (2013) showed unsuitable opening time of the clinic was the most frequently cited reason for defaulting, accounting for over a quarter of the reasons (28.2%). Another most common reasons were the distance of clinic from home, long waiting times before examination and being unaware of the need to complete the treatment; each accounted for 12.6%. Another study conducted by Lenganji Sikaona (2004) indicated that most females reported that forgetting to take the medicine (32.0%). In the support of present finding of technical factor, a study conducted by Ahmad (2009) found that health care worker attitudes in the clinic where patients receive their TB treatment is associated with non compliance to TB treatment. In the

present study Social factor like household work, encourage by family/friend/relatives, feel ashamed, family support, outstation visit that influence the DOTS compliance and mean compliance score is 96.29%. In support to present study Tenni B (2013) showed in their study that nearly all regulars had supportive families, while three of the 15 defaulters were widowed or abandoned and 14% defaulters who visit outstation frequently which sometime hinder their continuity to treatment initially disagree and cited this later and admitted that they feared scolding. Another study that support present study finding in relation to feeling shame conducted by Eastern Mediterranean Health Journal (2013) indicated that patients feeling shame about TB and patients fearing information leakage were more likely to default. The present study indicated Economical factor like travelling cost, free medicine, diet, earning of the day or absent from school/college, support from government were highly influential factors for compliance to DOTS. The mean compliance score of Economical factor were 60.4%. In accordance to present study, a study conducted by WHO (2006) indicates financial issues creating a delay in accessing health facility were the reason given by 16% patients. In contrast to this a study conducted by Pandit N & Choudhary (2006) shows that 93% of population was compliant to the DOT. The traditional risk factors for noncompliance like socio-demographic factors, timing, travel, cost of investigation and cost of therapy and long waiting period; were not major hurdles for treatment adherence. The toxicity of drugs was the major reason for defaulting for treatment.

Conclusion

The study shows that majority of the patients were diagnosed at government hospital identified the disease by X-ray, sputum and not have any other illness. Most of them did not know which body part was affected with illness. Maximum patients had no family history of tuberculosis. Factors that influencing compliance were self motivational, physical/physiological, technical, social, economical factor among these factors self motivational factor and Economical factor had the highest influence towards compliance & non-compliance to DOTS. Pamphlet prepared regarding knowledge on tuberculosis and DOTS to increase the level of knowledge of tuberculosis patients taking DOTS.

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