FACTORS RELATED TO DEFAULTERS OF TUBERCULOSIS PATIENTS IN DOTS PROGRAM IN WARANGAL DISTRICT

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ABSTRACT

OBJECTIVES

1. To determine the multiple factors responsible for defaulters of tuberculosis in DOTS.
2. To compare factors among defaulters in relation to urban, rural and tribal TB units.

METHODOLOGY

A cross-sectional study was conducted among defaulters of TB patients in 3 TB units out of 7 TB units in Warangal District during July 2013 to May 2014. The area covered by the 3 TB units consisting of urban area, rural area and tribal area attached to district Tuberculosis Centre. A pre-structured and pretested questionnaire was used to collect the data by "Interview technique."

RESULTS

In the present study, out of 106 defaulters majority were males 82.1% and 69.8% were in the age group of 26-55 yrs. which is economically productive years of life. Illiterates 37.7%, 20.7% were primarily educated and most of illiterates were in tribal area, (50%); 37.7% were unskilled workers, 68% belonged to upper lower and lower class, 90.6% of defaulters took treatment for only 2-3 months. Among comorbidities, diabetes was more common and also with HIV. Consumption of alcohol present in 70.8% and associated with default from treatment.

CONCLUSION

In DOTS defaulters, feeling well after 1-3 months of treatment and lack of knowledge about disease and treatment course period, side effects, habit of alcohol, initial private treatment, stigma, poverty and no food are the common factors to default from their treatment.

KEYWORDS

Defaulters, DOTS, Tuberculosis.

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INTRODUCTION

Tuberculosis (TB) is a major public health problem in the world with an estimated global incidence rate of 122 cases per 100,000 populations in 2012.¹ It causes ill-health among millions of people each year and ranks as the second leading cause of death from an infectious disease worldwide after Human Immunodeficiency Virus.² The latest estimates are that there were almost 8.6 million new cases in 2012 and 1.3 million TB deaths. Most of these TB cases and deaths occur among men. In 2012 there were an estimated 2.9 million cases and 410,000 TB deaths among women as well as an estimated 530,000 cases and 74,000 deaths among children.³

The WHO South-East Asia Region with an estimated 4.8 million prevalent cases and about 3.4 million incident cases and 4,50,000 deaths in 2012 carries about 39.5% morbidity and 48% mortality of the global burden of tuberculosis. Out of 22 high burden countries, India accounting for 26% of the world's incident cases.⁴

Poverty and tuberculosis are intimately connected. Death of one person for every two minutes in India (750 deaths everyday).⁵ Tuberculosis is a social disease with medical aspects.⁶ The available therapeutic regimens have inherent disadvantage of long treatment duration, results in patient's non-compliance and yields the risk of having the drug resistance. Hence new modalities of treatment that are potent active resistant against strain are needed to combat these diseases.⁷

MATERIALS AND METHODS

A cross-sectional study was conducted in 3 TB units, out of 7 TB units in Warangal District. Area covered by 3 TB units consist of Warangal TU (urban), Geesukonda TU (rural), Govindaraopet TU (tribal), attached to District Tuberculosis Centre (DTC) from July 2013 to May 2014. Lottery method was adopted for selecting three TB units (40%) out of seven in Warangal District. One TU from urban, one TU from rural and one TU from tribal area. For this study, only defaulters of DOTS who were enrolled in TB registers of concerned TB units were taken as study sample from selected TB units. The addresses of defaulters of DOTs were obtained from TB registers of concerned TB units. In 2013, total TB cases were registered in selected TUs were 1566 and 116 defaulters among them. The patients were contacted at their homes and informed about the study and obtained data from 106 defaulters (After excluding 5 migrated, 3 absconded and 2 died). Method adopted to obtain data has been the "Interview technique."

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Written consent was brought from each study participant after prospective participants had been fully informed on how the study would be carried out and how the collected data would be handled to ensure confidentiality and privacy. Each participant had a right to refuse to participate. A pretested and structured questionnaire was used to collect the data.

Topography of the District

Warangal District headquarters is situated at distance of 146 Kms. from Hyderabad City (Telangana) consists of 3 cities Warangal, Hanamkonda and Kazipet. DTC is 9 kms away from Kazipet Railway Junction from where different trains go to North, West and South India. The District Tuberculosis Centre has 7 TB units (TUs) and each is attached with 5 to 6 microscopy centres. Urban TU located at DTC, Warangal. Rural and Tribal TU areas located at a distance of 100 km from DTC. DTC covers total of 1097 villages.

RESULTS

In this study majority of defaulters were males, i.e. 82.1%. Females were more in 10-25 yrs. of age; 59.4% had stopped drugs for feeling well after 1-3 months, lack of knowledge (43.4%), side effects (39.6%) and alcohol (38.7%). And factors like initial private treatment 34%, stigma 26.4%, poverty 25.5%, cost of travel 16% and many defaulters had more than one reason to stop anti-TB treatment. Majority were illiterates (37.7%) followed by primary education.

Illiterates were more in tribal area (50%). Among the study population 37.7% were unskilled workers followed by unemployed 21.7%. Among the defaulters with comorbidities, Diabetes (10.4%) was more common and 5.7% HIV. In this study, there were several responses from the patients when they were asked their opinion on what could be done to help TB patients complete their treatments. Most of defaulters told that provision of food (38.7%) followed by treatment for other diseases at same Centre, admission in hospital and incentives to their family along with medicine will be the better way to reduce defaults as most of them belongs to lower socioeconomic status.

AGE AND SEX DISTRIBUTION AMONG STUDY POPULATION			
Age	Sex		Total
	Female	Male	
10-25yrs	7(6.6%)	6(5.7%)	13(12.3%)
26-39yrs	6(5.7%)	29(27.4%)	35(33.0%)
40-55yrs	4(3.8%)	35(33.0%)	39(36.8%)
56-70yrs	2(1.9%)	17(16.0%)	19(17.9%)
Total	19(17.9%)	87(82.1%)	106(100%)

Chi-Square = 13.683 df = 3 p=0.003

REASONS FOR DEFAULT/DRUG INTERRUPTION AMONG STUDY POPULATION			
Reasons To Stop anti-TB treatment	Yes	No	Total
Feeling Well After 1-3 Months	63(59.4%)	43(41.6%)	106(100%)
Lack of Knowledge	46(43.4%)	60(56.6%)	106(100%)
Side Effects	42(39.6%)	64(60.4%)	106(100%)
Alcohol	41(38.7%)	66(61.3%)	106(100%)
Initial Private Treatment	36(34%)	70(66%)	106(100%)
Stigma	28(26.4%)	78(73.6%)	106(100%)
Poverty	27(25.5%)	79(74.5%)	106(100%)

Cost of Travel	17(16%)	89(84%)	106(100%)
Not Feel Better On Medicine	17(16%)	89(84%)	106(100%)
Lack of Family Support	14(13.2%)	92(86.8%)	106(100%)
No Food	11(10.4%)	95(89.6%)	106(100%)
Too Many Tablets	7(6.6%)	99(93.4%)	106(100%)
Inadequate Supply of Medicine	5(4.7%)	101(95.3%)	106(100%)
Others (Migration, Pregnancy, Etc.)	4(3.8%)	102(96.2%)	106(100%)

Feeling Well After 1-3 Months of Treatment as a Reason to Stop the Treatment among Study Population of 3 Tb Units

Feeling well after 1-3 months treatment	Name of TB unit			Total
	Warangal (Urban)	Thorrur (Rural)	Govindaraopet (Tribal)	
Yes	15 (14.1%)	21 (19.8%)	27 (25.4%)	63 (59.4%)
No	19 (17.9%)	14 (13.2%)	10 (9.43%)	43 (40.6%)
Total	34(32%)	35(33%)	37(35%)	106 (100%)

Chi-Square = 6.126, df = 2, p < 0.047

Lack of knowledge as a reason to stop Anti-TB treatment in Tus:

Knowledge about treatment course period	Name of TB unit			Total
	Warangal (Urban)	Thorrur (Rural)	Govindaraopet (Tribal)	
Yes	26 (24.5%)	20 (17.9%)	14(13.2%)	60 (56.6%)
No	9(7.5%)	16 (15.1%)	21(19.8%)	46 (43.4%)
Total	35(32%)	3(33%)	35(35%)	106 (100)

Chi-Square= 8.399, df= 2, p < 0.015

Initial Private Treatment as a Reason to Stop Anti-Tb Treatment

H/o Initial Private Treatment	Name of TB unit			Total
	Warangal (Urban)	Thorrur (Rural)	Govinda raopet (Tribal)	
Yes	17(16%)	12(11.3%)	7(6.6%)	36(33.9%)
No	17(16%)	23(21.7%)	30(28.4%)	70(66.1%)
Total	34(32%)	35(33%)	37(35%)	106(100 %)

Chi-Square=7.634, df= 2, p < 0.022

Alcoholism, As a Reason to Stop Anti-Tb Treatment in 3 Tb Units

Alcohol, a reason to stop treatment	Name of TB unit			Total
	Warangal (Urban)	Thorrur (Rural)	Govindaraopet (Tribal)	
Yes	8(7.5%)	13(12.3%)	20(18.9%)	41(38.7%)
No	26(24.5%)	22(20.7%)	17(16.1%)	65(61.3%)
Total	34(32%)	35(33%)	37(35%)	106(100%)

Chi-Square= 7.012, df = 2, p < 0.030

Knowledge of Tb Treatment Duration among Study Population According to Their Previous Place of Treatment

Duration Of TB Treatment	Private Hospital	(Govt. Higher Centres & PHC)	Other Medicine	Total
6 months	8(7.5%)	24(22.6%)	1(0.9%)	33(31.1%)
Until feeling well	10(9.4%)	12(11.3%)	7(6.6%)	29(27.4%)
Until doctor/ health worker's advice	4(3.8%)	10(9.4%)	43.8%	18(17%)
No idea (Do not know)	14(13.2%)	11(10.4%)	1(0.9%)	26(24.5%)
Total	36(34%)	57(53.7%)	13(12.3%)	106(100%)

History of Taking Alcohol among Study Population

Age	Alcohol		Total
	Yes	No	
10-39 yrs.	27	21	48(45.3%)
40-70 yrs.	47	11	58(54.7%)
Total	74(70.8%)	32(29.2%)	106(100.0%)

Chi-square = 7.655, df = 2, p < 0.010

Opinions of Patients to Complete Their Treatment in 3 Tus

Patient's Opinion	Name of TB unit			Total
	Warangal (Urban)	Thorrur (Rural)	Govindaraopet (Tribal)	
Provision of Food	10	13	18	41(38.7%)
Treatment For Other Diseases At Same Centre	8	5	6	19(17.9%)
More Staff	6	5	6	17(16.1%)
Admission In Hospital	6	6	4	16(15.1%)
Incentives To Family	4	6	3	13(12.3%)
Total	34	35	37	106(100%)

DISCUSSION

In the present study 36.8% of TB patients were in the age group of 40-55 years, followed by 33.0% of TB patients in the age group of 26-39 years, which is known to be the most economically productive period of life. Mahesh Kumar et al. found that age group between 35-44 years was more non-compliant which happened to be similar to this study finds, which is 25.4%.⁸ Pranab Chatterjee et al. found that defaulter significantly increased with age. Maximum age was being in 45-49 years.⁹

In the present study among the 106 patients from Warangal (Urban), Thorrur (Rural) and Govindaraopet (Tribal), males 87(87.9%) were more than females 19(17.1%). A study in Dindigul and Pudukcherry Districts of Tamil Nadu in 2010 reported that among defaulters males were (78%) more than females (22%).¹⁰ In the present study majority of defaulters in this study were 39.6% of the defaulters were unskilled workers (daily labour), 19.8% unemployed. Unemployment, being a pensioner, homelessness and overcrowded living conditions were revealed as important default predictors (Jakubowiak et al. 2007; Hasker et al. 2008).¹¹

In the present study illiterates 37.7%, 20.7% were primarily educated and most of illiterates were in tribal area, (50%). Among defaulters, urban area had fewer illiterates than tribal area. Literacy has a bearing on the diagnosis and treatment of TB patients. Vijay kumar et al. and Chadha SL have indicated in their study.¹²

In the present study, socio-economic status majority of defaulters in this study was 68% were upper lower and lower class. Besides the disease burden, TB also causes an enormous socio-economic burden as most of them were unskilled workers (Daily labour) and most of them were in productive years of life (26-55 years). According to Lamsal et al. (2009:26), poverty and TB are closely connected. The poor have higher contact rates due to crowded homes, more active infection due to sub-optimal nutrition and working conditions, they may have less flexibility regarding work and clinic attendance and less ability to pay for medications and transport.¹³

In this study, 70.8% of defaulters were alcoholics. This habit increases with age. The observed difference between age groups was found to be statistically significant (p<0.010). These findings are not consistent with a study in Dindigul and Pudukcherry Districts of Tamil Nadu in 2010, found that more than half (70.75%) of the patients did not consume alcohol, (29.25%) patients had the habit of consuming alcohol.¹⁰

In this study also 74% treatment interruption occurred during continuation phase of treatment. In other studies in India 20% defaulted, out of them 91% treatment interruption occurred during continuation phase of treatment.¹⁴

In the present study feeling well after 1-3 months of treatment, lack of knowledge, side effects with drugs, initial private treatment, alcohol, stigma, cost of travel, no proper food, lack of family support and others were the main reasons. Among the various reasons for defaulting, the important ones were indifference after improvement in symptoms, distance from treatment centre and lack of motivation. A variety of other reasons have been stated by other workers, such as family events, financial difficulty, carelessness, forgetfulness, lack of time, etc.¹⁵

In this study most common reason for default from treatment is feeling well after 1-3 months of treatment. Among the study participants it was a reason for default of treatment seen more in tribal area (25.4%). The observed difference between 3 study populations was found to be statistically significant (p< 0.047). Demissie and Kebede 1994; Jaiswal et al. 2003; Bam et al. 2006; Shargie and Lindtjorn 2007 studies reported that default has been linked to the length and complexity of treatment as well as to the fact that most patients feel markedly better after the first or second month of treatment.¹⁶

In the present study, 43% of defaulters did not have knowledge about disease and treatment course period. Illiterates were more in tribal TU as compared to rural and urban TUs. The observed difference between groups was found to be statistically significant (p< 0.015).

Finlay et al. (2012:5) reported that cases in their study conducted in South Africa were more likely to report that they had not received enough education about TB at the beginning of their treatment, that they were not told why treatment would take six or more months and lacked counsel and information about TB treatment in general.¹⁷ In the present study, 90.6% of study participants experienced side effects of which vomiting and abdominal pain (GI upset) was most common (49.1%) followed by giddiness (43.4%). Most of them experienced more than one side effect. This is consistent with a study conducted in Ethiopia by Tekle et al. (2002) found side effects to be statistically significant (OR: 4.20, CI: 1.51, 11.66) predictors of default.¹⁸

The present study showed that 53.6% were diagnosed at Govt. Health Centres, 34.9% were at private hospitals and 12.26% were diagnosed at other sectors (traditional healers). Similar findings in a cross-sectional study done in Ethiopia by Wondimu, Michael, Kassahun et al. (2007:149-150) showed that in general 35.6% of patients reported first to drug shops, private clinics or private hospitals upon recognition of symptoms; 40% of patients reported first to either health centres or government hospitals and 4.1% reporting first to traditional/spiritual healers.¹⁹

In this study population with H/o initial private treatment as a reason for default, which was seen more in urban area as compared to tribal area. The observed difference between 3 groups was found to be statistically significant ($p < 0.022$). The private sector in India is highly unorganized with a lack of regulation in both prescribing practices as well as the qualifications of those prescribing anti-TB drugs without being qualified to do so.²⁰

In this study alcohol 70.8% had habit of alcohol and also a reason to default. Statistically significant difference was present between urban, rural, tribal study groups ($p < 0.030$). This is similar with other studies, alcohol abuse, smoking and substance abuse such as smoking hallucinogens like cannabis is associated with TB default (Lönnroth et al. 2008 and Pinidiyapathirage et al. 2008).²¹⁻²² In present study 26.4% respondents did not disclose their TB status to anyone giving "No one to trust" and "Fear of being isolated by family and friends" as the reasons. Disclosure status did not show any significant difference between the 3 study groups. Kaona et al. (2006:68) study reported stigma and discrimination of TB patients as affecting treatment compliance.²³

In the present study, 6.6% of patients defaulted due to too many tablets as many of them had other comorbidities. A study by Gebremariam et al. (2010:4) showed that patients attributed pill burden to be one of the major challenges to treatment. They used expressions such as "Becoming a drug bag" and "Becoming a pharmacy."²⁴ In present study 3.8% of patients defaulted due to other reasons (Migration, pregnancy, etc.) and migration was mainly due to work related reasons. In a study of Jaggarajamma, Muniyandi, Chandrasekaran, Sudha, et al. (2005:35) confirmed that their study showed that migration was a significant factor for treatment default (24% of the defaulters had migrated) in Tamil Nadu.²⁵ In this study in defaulters with comorbidities, Diabetes (10.4%) is more common.

In the present study there were several responses from the patients when they were asked their opinion on what could be done to help TB patients complete their treatments; 38.7% of defaulters wanted food to be made available for patients taking treatments followed by 17.9% wanted medicines to be provided in one place for those with other comorbidities; 16% wanted more staff at TB clinic; 15.1% of patients to admit in hospital until they complete treatment; and 12.3% asked to provide incentives to family to complete their treatment.

The patient responses reinforced the need to address food shortages and also to improve economic status as most of them unskilled workers and belong to upper lower and lower socio-economic status.

CONCLUSION AND SUMMARY

Thus from the above findings it can be concluded that default is a major barrier in the success of RNTCP program. It was observed that operational factors such as feeling well after 1-3 months of anti-TB treatment, lack of knowledge, side effects, alcohol, initial private treatment, stigma, poverty, lack of family support, no food, too many tablets, inadequate supply of medicine and others (Migration etc.) were associated with defaulting. Patient factors such as lack of knowledge on treatment duration, migration, male sex, occupation and

literacy status had a bearing on the behavior of defaulting. Literacy, economic status, knowledge about disease and treatment course period was low in tribal TU area as compared to rural and urban TU areas. Tuberculosis is an infectious disease and it has a devastating impact on the economic well-being of individual, their families. TB is one of the major public health problems in India. It is important to study and understand the magnitude of risk factors for defaults of treatment in TB patients is an important work for making policies, programmes and strategies.

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