Journal of Academia and Industrial Research (JAIR)
Volume 3, Issue 6 November 2014

ISSN: 2278-5213

RESEARCH ARTICLE

Assessment of Mental Status of MDR Patients in Wardha District Using Global Mental Health Assessment Tool–Primary Care Version

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Abstract

Tuberculosis (TB) is a major global public health problem mostly in developing and under developed countries. TB is associated with psychiatric morbidity which has been recognized as a cause of poor compliance and a cause of increased morbidity and mortality from the disease. Thus, treating psychological problems in patients with tuberculosis may substantially improve treatment adherence, although further research is needed. This cross-sectional study estimated the prevalence of mental health disorders in tuberculosis patients using GMHAT/PC and compared the prevalence of various mental health disorders among TB patients across various socio-demographic variables, type of disease and regimen of treatment in Wardha district. The study included 267 patients, put on treatment under RNTCP from Wardha district. Data was collected from the selected patient by giving a home visit. Global Mental Health Assessment Tool (GMHAT/PC) Primary care version was used to collect data. It was observed that, the frequency of psychiatric morbidity in tuberculosis patients was 69.28%, among them, 51.89% patients were with depressive disorders, 37.29% with anxiety disorders, 8.10% had alcohol abuse, 1.08% had stress, 1.08% had hypochondriasis and 0.5% had obsessive compulsive disorder**.** It was noted that as age progresses, proportion of mental illness increases, age 46–60 years had more chance of mental illness, males were more prone to mental illness, category IV and duration of treatment >3 months were at higher risk of mental illness and were independently associated with mental illness. In the present study, high proportion of mental illness was observed among tuberculosis patients. Age 46–60 years and males had more chance of mental illness. Patients with category IV treatment and duration of treatment >3 months were significantly at high risk of mental illness.

Keywords: Psychiatric morbidity, cross-sectional study, GMHAT/PC, Wardha district, mental illness.

Introduction

Tuberculosis (TB) is a major global public health problem mostly in developing and under developed countries. It is one of the leading causes of mortality worldwide. The World Health Organization (WHO) reported that in 2010, there were an estimated 8.5-9.2 million cases and 1.2-1.5 million deaths (Baddeley *et al.,* 2011). 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 5th of the global burden of TB. It is estimated that 40% of Indian population is infected with TB bacillus (MOHFW, GOI, 2012). Medication non-compliance has been recognized as one of the drawbacks in the successful management of this disease (Issa *et al.*, 2009). TB is associated with psychiatric morbidity, particularly depressive disorder, and this has been recognized as a cause of poor compliance and a cause of increased morbidity and mortality from the disease (Issa *et al.*, 2009). Thus, treating psychological problems in patients with tuberculosis may substantially improve treatment adherence, although further research is needed.

Despite this recognition, little attention is paid to the identification of mental health problems among TB patients, particularly in the Directly Observed Treatment Shortcourse (DOTS) clinics that most of these patients attend. In our country, there is paucity of studies regarding the use of such tools and their usefulness in identifying the burden of mental illness in the community. Hence, a modest attempt is made to study the mental status of TB patients of Wardha district with the following objectives:

1. To estimate the prevalence of mental health disorders in tuberculosis patients using GMHAT/PC.
2. To find out and compare the prevalence of various mental health disorders among TB patients across various socio-demographic variables, type of disease and regimen of treatment.

Materials and methods

Study area and sampling: A cross-sectional study was conducted in Wardha district which had 8 Rural hospitals, 27 Primary Health centres and 2 medical colleges.

It has 232 Dots centres, 17 Designated microscopy centre (DMC). There are three tuberculosis units in Wardha district namely in Wardha, Arvi and Hinganghat. The population of Wardha district is 13,13,093 (census 2011), the total number of patients registered and undergoing treatment under RNTCP Wardha in 2011 was 1338. The study included 267 patients, including both new and retreatment tuberculosis patients, both patients in intensive phase and continuation phase and put on treatment under RNTCP from Wardha district (Sample size calculated with Relative precision-10%, Prevalence-60% got after a pilot study of 50 patients, Confidence level- 95%). Sampling was done in two phases:

1. Wardha district has three Tuberculosis Units (TU) at Wardha, Arvi and Hinganghat. Wardha TU was randomly selected for the study.
2. Once the patients are registered under RNTCP for treatment, their details are entered in TB register by the Senior Treatment Supervisor (STS) of respective TU and each registered patients is given the unique TB number. Participants registered during July 2012 to July 2013 were selected. As the Total number of registered patients in Wardha district was around 600 in the previous year, every 2nd participant was picked up for the study using the systematic random sampling from the TB register of Wardha TU.

Data collection: Data was collected from the selected patient by giving a home visit. Written informed consent was obtained for the data collection. Global Mental Health Assessment Tool (GMHAT/PC) Primary care version was used to collect data. The GMHAT/PC tool was developed in UK and was approved by WHO in 2000 as a comprehensive tools for mental health assessment. The tool was extensively studied and validated in different settings in India and abroad. Currently the tool is translated in seven languages and validated. For this study, a validated Hindi version of the tool will be used.

Inclusion criteria: All tuberculosis patient (including TB+HIV, TB+DM and MDR TB) over 15 years of age registered under RNTCP for treatment will be included in the study.

Exclusion criteria: Critically ill tuberculosis patients and children less than 15 years of age were excluded from the study. Tuberculosis patients with the history of mental health disorder/psychiatric disorder/currently on any psychiatric medications were excluded as well. Patients who do not give consent were not considered for the study.

Main outcome measures: The main outcome variable was prevalence of various mental disorders in tuberculosis patients. Prevalence of mental health conditions in tuberculosis patients with various socio-demographic characteristics (particularly age and gender), type of tuberculosis and regimen used was estimated as well.

Statistical analysis: Prevalence (95% Confidence Interval) of various mental health conditions was estimated for overall tuberculosis patients. Prevalence (95% Confidence interval) of mental health disorder was estimated across various socio-demographic characteristics, type of disease and regimen used. Prevalence between various sub-groups was compared by appropriate test of significance. Logistic regression analysis was performed to find out the independent association of various predictors on mental health problems in tuberculosis patients.

Results

In the present study, majority of the tuberculosis patients were in the age group of 15-30 Years, 105(39.33%), males 170(63.67%), Hindu 244(91.38%) and OBC 172(64.41%). Most of them were from urban areas 185(69.28%), had studied up to middle school 108(40.07%), unemployed 91(34.08%) and married 182(68.16%). Duration of tuberculosis was 3 or less than 3 months in 143(53.56%) and most of them were taking category I treatment 157(58.80%) (Table 1). Among the study group, 96(35.95%) had depression, 69(25.84%) had anxiety, 15(5.61%) had alcohol abuse, 2 had (0.74%) stress, 2(0.74%) had hypochondriasis and 1(0.37%) had obsessive compulsive disorder (Table 2). In the present study, it is noted that as age progresses proportion of mental illness increases, age 46-60 years has 33.5 times more chance of mental illness, males are more prone to mental illness, chances of mental illness increases with occupations like clerk/farmer/shop owners, as compared to category I, other categories are significantly and independently at high risk of mental illness, category II and category IV are 5.4 and 7.3 times at higher risk of mental illness as compared to category I and duration of treatment >3 months is independently associated with mental illness, they have 27.7 times more chance of mental illness (Table 3).

Discussion

The present study shows psychiatric morbidity in tuberculosis patients from Wardha district. It also shows the relationship between socio-demographic variables like age, sex, marital status, domicile, education, religion, occupation, socio-economic status and clinical variables like duration of illness and type of treatment of tuberculosis. In the present study, 165(61.79%) patients, with tuberculosis have psychiatric disorders as co-morbidity. Among them, 51.89% patients were with depressive disorders, 37.29% with anxiety disorders, 8.10% had alcohol abuse, 1.08% had stress, 1.08% had hypochondriasis and 0.5% had obsessive compulsive disorder. The above result are comparable with studies by Basu *et al*. (2012) (62%), Purohit *et al*. (1978) (54.17%), Gupta *et al.* (1981) (41.6%), Meghnani *et al*. (1988) (53.6%).

Table 1. Socio-demographic profile, duration of treatment and type of treatment of tuberculosis patients (n=267).

Variables	Frequency	Percent
Age (Years)		
15–30	105	39.33%
31–45	97	36.33%
46–60	44	16.48%
≥61	21	7.87%
Sex		
Male	170	63.67%
Female	94	36.32%
Category		
Category I	157	58.80%
Category II	79	29.59%
Category IV	31	11.61%
Religion		
Hindu	244	91.38%
Muslim	23	8.61%
Caste		
General	36	13.48%
OBC	172	64.41%
SC	42	15.73%
ST	17	6.36%
Education		
Illiterate	48	17.98%
primary school	55	20.60%
Middle school	48	17.98%
High school	63	23.60%
PUC/diploma	44	16.48%
Degree	9	3.37%
Occupation		
Unemployed	91	34.08%
Unskilled worker	85	31.84%
Semiskilled	50	18.73%
Skilled	10	3.75%
Clerk/farmer/shop	31	11.61%
Socio-economic status(SES)		
SES II	4	1.49%
SES III	40	14.98%
SES IV	223	83.52%
Location		
Urban	185	69.28%
Rural	82	30.71%
Marital status		
Married	78	29.21%
Other	182	68.16%
Single	4	1.49%
Duration of treatment		
<3 months	143	53.56%
>3 months	124	46.44%

Table 2. Mental status in patients with tuberculosis.

Mental status	Frequency	Percent
Depression	96	35.95%
Anxiety	69	25.84%
Alcohol abuse	15	5.61%
Obsessive compulsive disorder	1	0.37%
Stress	2	0.74%
Hypochondriasis	2	0.74%
No mental health problem	82	38.20%
Total	267	100%

Table 3. Association of socio-demographic factors, duration of treatment and type of treatment with mental disorder.

Variables	Mental illness (No)	%	Sig.	Odds ratio	Lower bound	Upper bound
Age (Years)						
15–30 (n=105)	59	56.19		1[a]		
31–45 (n=97)	72	74.23	.008	2.245	1.237	4.077
46–60 (n=44)	43	97.73	.001	33.525	4.448	252.664
≥61 (n=21)	11	52.38	.749	.858	.335	2.194
Sex						
Male (n=170)	124	72.94		1[a]		
Female (n=97)	61	62.89	.088	.629	.369	1.071
Category						
Category I (n=157)	88	56.05		1[a]		
Category II (n=79)	69	87.34	.000	5.410	2.596	11.275
Category IV (n=31)	28	90.32	.002	7.318	2.135	25.079
Religion						
Hindu (n=244)	168	68.85		1[a]		
Muslim (n=23)	17	73.91	.616	1.282	.486	3.379
Caste						
General (n=36)	21	58.33		1[a]		
OBC(n=172)	123	71.51	.122	1.793	.855	3.761
SC(n=42)	28	66.67	.448	1.429	.568	3.593
ST(n=17)	13	76.47	.205	2.321	.631	8.534
Education						
Illiterate (n=48)	32	66.67		1[a]		
primary school(n=55)	46	83.64	.049	2.556	1.005	6.496
Middle school(n=48)	39	81.25	.107	2.167	.846	5.552
High school(n=63)	44	69.84	.721	1.158	.517	2.592
PUC/diploma(n=44)	20	45.45	.042	.417	.179	.969
Degree (n=9)	5	44.44	.214	.400	.094	1.697
Occupation						
Unemployed (n=91)	48	52.75		1[a]		
Unskilled worker (n=85)	66	77.65	.001	3.112	1.616	5.994
Semiskilled (n=50)	39	78.00	.004	3.176	1.448	6.967
Skilled (n=10)	5	50.00	.869	.896	.243	3.307
Clerk/farmer/shop (n=31)	27	87.10	.002	6.047	1.958	18.679
SES						
SES II (n=4)	3	75.00		1[a]		
SES III (n=40)	31	77.502	.909	1.148	.106	12.427
SES IV (n=223)	151	67.71	.758	.699	.071	6.838
Location						
Urban (n=185)	128	69.19		1[a]		
Rural (n=82)	57	69.51	.958	1.015	.577	1.785
Marital status						
Married (n=182)	139	76.37		1[a]		
Other (n=7)	4	57.14	.258	.412	.089	1.915
Single (n=78)	42	53.85	.000	.361	.206	.633
Duration of treatment						
<3 months (n=143)	66	46.15		1[a]		
>3 months (n=124)	119	95.97	.000	27.767	10.704	72.030

1[a] – Reference category.

Mathai *et al*. (1981) found 28.87% psychiatric morbidity among them depressive neurosis constituted (55%), anxiety neurosis (25%), hysterical neurosis (5%), alcohol dependence (10%) and Schizophrenia (5%). Westaway and Wolmarans (1992) found 68% of depression, among them, 22 with mild depression, 38 with moderate depression and 8 with severe depression. In Immerman and Pankratova (1988) study, psychiatric morbidity was 64.7%, among them those with depression was 84.7%. Vinogradov *et al.* (1991) found 18.4% anxiety-depressive reaction, hypochondriac (13.6%), and paranoid (9.1%) as psychiatric morbidity. Manoharam *et al.* (2001) found 17.3% psychiatric disorders in pulmonary tuberculosis patients. Depression was the common diagnosis. There were more number of males, majority were at the age of 40 years, married, widows, illiterates and those having financial problems had more depressive disorders.

In the present study, it is noted that as age progresses proportion of mental illness increases, age 46-60 years has 33.5 times more chance of mental illness, which is comparable to Issa *et al.* (2009), Sriram *et al.* (1986) in which psychiatric disorders among medical outpatients showed high morbidity in 26-35 years of age group and in those above 55 years, Panchal *et al.* (2011) noted depression as more common in 46-55 years (82%) and Bhatia *et al.* (2000) found those in the age group of 25-30 years, 38% had more illness. It differs from the study by Purohit *et al*. (1978), Yadav *et al.* (1980), Mathai *et al*. (1981) and Manoharam *et al.* (2001). In this study, it was observed that males were more prone to mental illness. Issa *et al.* (2009) also found higher prevalence in males i.e. 31(86.1%). It is comparable with studies by Gupta *et al.* (1981), Sriram *et al.* (1986), Bagadia *et al.* (1986), Manoharam *et al.* (2001) and Sulehri *et al*. (2010) and not comparable with studies by Panchal *et al.* (2011) where depression was more common in females (82%), Purohit *et al*. (1978), Yadav *et al.* (1980) and Mathai *et al*. (1981). Higher prevalence of depression in males could be attributed to more vulnerability to TB and depression due to their mobile life style, exposure to predisposing factors like smoking, alcohol intake and drug abuse. They have to bear more economic burden and stress of excessive responsibilities of their families. They have to face more stigmatization due to more exposure in the community (Issa *et al.,* 2009). In this study, prevalence of mental illness was more in Muslims (73.91%). Panchal *et al.* (2011) also found higher prevalence in Muslims (81%). In the present study, higher proportion of psychiatric disorders was seen in higher socio-economic status SES III and II.

In this study, prevalence of mental illness was found maximum in patients who studied up to primary/middle school. It is comparable with studies by Panchal *et al.* (2011) who found that maximum prevalence of depression was seen in patients who studied up to middle school (79.8%), Yadav *et al.* (1980) and Mathai *et al*. (1981) and not comparable with the study by Purohit *et al*. (1978), Manoharam *et al.* (2001) where more illiterates are depressed. In this study, it was found that chances of mental illness increased with occupation such as clerks/farm owners /shop owners, who were six times more prone to mental illness. It is comparable to studies by Panchal *et al.* (2011) who found that proportion of depression patients were maximum(49%) among business persons. Purohit *et al*. (1978) noted that more farmers were depressed. In Yadav *et al.* (1980) study, farmers, labourers and house wives have more psychiatric disorders. In this study, it was observed that prevalence of mental disorders was more among married (76.37%). It is comparable with studies by Issa *et al.* (2009) who found married patients were more depressed (62.5%), Purohit *et al*. (1978), Yadav *et al.* (1980) and not comparable with studies by Mathai *et al*. (1981) where more number of singles were depressed (55%), Sriram *et al.* (1986) and Manoharam *et al.* (2001).

In this study, duration of treatment >3 months was independently associated with mental illness. The longer the duration, the more prominent are the depressive disorders. Prolonged duration of illness could cause helplessness, can also lead to financial burden. Patient might develop fearfulness towards tuberculosis leading to more depressive illness. It is comparable with studies by Purohit *et al*. (1978), Mathai *et al*. (1981), Bhatia *et al.* (2000), Panchal *et al.* (2011), Ige and Lasebikan (2011) and it differs from Yadav *et al.* (1980) study in which duration of illness was not related to the psychiatric morbidity. In the present study, as compared to category I, other categories were significantly and independently at high risk of mental illness, category II and category IV were 5.4 and 7.3 times at higher risk of mental illness as compared to category I. It is comparable with studies by Panchal *et al.* (2011) and Ige and Lasebikan (2011). The possible reasons as to why patients on category IV regimen are having more depressive disorders are probably because the duration of treatment is more and usually they are patients who are defaulters and INH induced psychosis could be the cause.

Conclusion

In the present study, high proportion of mental illness was observed among tuberculosis patients. Age 46-60 years and males had more chance of mental illness. SES IV were more prone to mental illness compared to SES II, chances of mental illness increases with skilled occupation, as compared to category I other categories were significantly and independently at high risk of mental illness and duration of treatment >3 months was independently associated with mental illness.

Recommendations: Mental health assessment of all tuberculosis patients. GMHAT-PC is a tool that is easy to use. The average time taken was around 13 min, making it feasible to use in a Primary care setting and outreach clinics. Any health care professional (not necessarily psychiatrists) with adequate training can use it.

Acknowledgements

I would like to express my heartfelt gratitude to my respected teachers, Dept. of Community Medicine, Jawaharlal Nehru Medical College Sawangi (Meghe) Wardha. I am also grateful to my family.

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