Prevalence of depression in tuberculosis patients: An experience from a DOTS clinic

Basu G, Chatterjee C, Singh R, Biswas S

ABSTRACT

Background: In India, Tuberculosis (TB) carries a social stigma even today. Long duration of treatment and attached stigma predisposes a patient to many psychiatric illnesses.

Aim: To find out the prevalence of depression and factors associated with it in TB patients currently on DOTS (Directly Observed Treatment, Short-course).

Methods: The cross-sectional observational study was conducted in a DOTS clinic during Jan to Mar'2012. The sample size was determined by assuming percentage of depression in tuberculosis patient to be 48% and the absolute error of 10% was 96. A total of 110 patients were included for study. Patient Health Questionnaire-9 was used to assess the depression and its severity.

Results: The mean (SD) PHQ-9 score of all respondents was 7.95. 62% patients were depressed with PHQ-9 score of 5 and above. Two third of the depressed patients were suffering from mild to moderate depression whereas 5.5% patients were severely depressed. Elderly were most affected.

Conclusion: The prevalence of depression is high in TB patients currently on DOTS. There is an urgent need of more such studies and introduction of counseling services at DOTS clinic.

Key words: tuberculosis, depression, PHQ-9, stigma, DOTS

INTRODUCTION

Tuberculosis (TB) remains a leading infectious cause of morbidity and mortality throughout the world. India produces the maximum new cases of TB each year than any other country and accounts for one-fifth of global TB burden.[1] About 40% of the Indian population is infected with TB bacillus. It is the leading cause of death among women in the reproductive age group. As with psychiatric illnesses, tuberculosis also carries social stigma in India. Few section of the society considered it to be incurable and the patient endures neglect and psychological trauma once diagnosed. It is highly probable that this trauma may predispose them to psychiatric disorder later in life.

Anxiety disorders and depression are the most frequently occurring mental disorders in the general population. Depression, among the other psychiatric morbidities, has a lifetime prevalence of 10%.[2] It has a point prevalence of 2.3% to 4.9% in the general population.[3] A disease condition increases the probability of depression in a patient. It is estimated that 20% of patients with somatic disease suffer from major depression.[4] According to Global Burden of Disease (GBD) study, depression is the fourth most important cause of global disability-adjusted life years (DALY).[5] It is predicted to advance to the second most important cause by year 2020.[6] Many a times, it is associated with other medical conditions which may worsen if the patient is depressed and risks of suicide exist.[7] The socioeconomic status of the patients deteriorates from functional impairment.[8] When TB and depression coexist, the risk for developing co morbidities, suffering of patients and associated costs escalates. Therefore, it is relevant to establish prevalence of depression in the tuberculosis patient.

MATERIAL AND METHODS

This cross sectional observational epidemiological study was conducted from January to March 2012, in a sub-divisional hospital located in district North-24 Parganas of West Bengal. The sample size was determined based on the prevalence of depression in pulmonary tuberculosis patients found out in a related study conducted in Jaipur, India.[9] The sample size calculated by assuming percentage of

depression in tuberculosis patient to be 48% and the absolute error of 10% was 96. Taking 10% as non-response the final sample size came out to be 106.

A semi-structured, closed ended, pre-designed questionnaire was used to assess the knowledge, awareness and their attitude about the disease. Their treatment seeking behaviour, and stigma associated with the disease was also explored. The data about the basic socio-demographic and economic status was collected to correlate depressions with these factors. The subjects were enrolled after obtaining verbal informed consent. The prevalence of depression was assessed using a nine-item Patient Health Questionnaire (PHQ-9). PHQ-9 has good psychometric properties when compared to other validated instruments and has been widely used in clinical practice and research.[10,11] It is a nine-item self-reported questionnaire that asks participants to rate how they have been bothered by any of the listed problems during the previous two weeks. The score of each question varied from 0 to 3 (0 = not at all, 1=several days, 2=more than half the days, and 3=nearly every day) with a result range of 0–27. These nine items reflects the DSM-IV criteria for major depressive disorder. The interpretation of the scores rates the severity of depression. A score of 1-4 indicates minimal depression; 5-9 mild depression; 10-14 moderate depression; 15-19 moderately severe depression; and 20-27 severe depression. The study protocol was approved by institutional ethics committee of the hospital of the researchers. The data collected was entered in the MS Excel 2010 sheet. The Statistical Package for the Social Sciences (SPSS) version 16.0 was used for statistical analysis. Results were calculated as frequencies (%), means and standard deviations. The Chi-square test was used to calculate the differences between groups at a 5% level of significance. All tests were two-tailed.

Inclusion criteria: The patients registered in the DOTS clinic, and currently on treatment of anti-tubercular drug for at least one month duration.

Exclusion criteria: Patients with severe physical and mental weakness who cannot comprehend the questions asked and answer properly were excluded.

RESULTS

The mean (SD) age of the respondents were 35 (14.58) years. Sixty six (60%) were males. The age of the youngest participant was 11 years and the oldest 70 years of age. Seventy (63.6%) of them were married, 33 (30%) never married and rest 7 (6.3%) were either separated or widow/er. The median (inter quartile range) per capita income was INR 1250.00 (1271.00). Majority (77.3%) of the respondents belongs to nuclear family. Eighty eight (80%) patients were suffering from pulmonary tuberculosis while 22 (20%) were cases of extra-pulmonary tuberculosis. Eighty nine (80.9%) patients were on category 1 and 21 (19.1%) were on category 2 DOTS treatment. The mean (SD) PHQ-9 score of all respondents was 7.95 (6.21). The range of the score was 0 to 23. Sixty two per cent of the patients currently on treatment were depressed with PHQ-9 score of 5 and above (Table 1). Majority (74%) of the depressed patients belonged to the mild and moderate depression category. Six (5.5%) patients were severely depressed.

Table 1. Depression in TB patients

Diagnosis	Number (%)	Mean PHQ-9 score (SD)	Range
No depression	19 (17.3)	0	0
Minimal depression	23 (20.9)	3.22 (.9)	1-4
Mild depression	24 (21.8)	7 (1.32)	5-9
Moderate depression	26 (23.6)	11.81 (1.2)	10-14
Moderately severe depression	12 (10.9)	16.50 (1.57)	15-19
Severe depression	6 (5.5)	21.33 (1.37)	20-27

To see the association between the depression and clinical and socio-demographic variables, the depression category of PHQ-9 score were re-categorized as follows: nil depression (score 0-4), mild (score 5 - 14) and moderate (score 15- 27). Thirty six (54.5%) of the males were depressed compared with thirty two (72.7%) of the females (Table 2).

Table 2. Association of severity of depression with socio-demographic variables

Variable	Severity of depression			P Value
	Nil	Mild	Moderate	
Gender				
Male	30	28	8	.109
Female	12	22	10	
Age group pf the patients				
15-34 years	14	24	6	
35-54 years	19	17	7	.591
55-74 years	5	7	4	
Marital Status				
Single	27	33	19	.727
Married	15	17	8	
Report of side effects of drugs				
Yes	10	30	17	.000
No	32	20	1	
Financial status (Prasad socioeconomic class)				
Class 1 (PCI ≥3653)	1	5	1	
Class 2 (PCI 1826-3652)	8	14	5	.028
Class 3 (PCI 1096-1825)	6	10	8	
Class 4 (PCI 548-1095)	20	11	4	
Class 5 (PCI < 548)	7	10	0	

PCI. Per Capita Income in Indian National Rupees (INR)

The severity of depression was not statistically related to the gender of the respondents. Depression was most common in the elderly age group (more than 54 years) but no significant trend is shown as age advances. Equal proportions of individuals in married and single group were depressed. Depression was significantly seen more (82%) in patients reporting side effects of the anti-tubercular drugs. The per capita income of the respondents was categorized into different classes based on Prasad's classification of socioeconomic status. Interestingly depression is significantly more seen in persons who are relatively well-off. No association was found between the duration of treatment and prevalence of depression (table 3).

Table 3. Association of depression with duration of treatment

Duration of treatment	Nil depression	Mild depression	Moderate depression	P value
Less than 3 months	18 (37.5)	19 (39.6)	11 (22.9)	.200
3 to 6 months	18 (35.3)	26 (51.0)	7 (13.7)	
7 months and more	6 (54.5)	5 (45.5)	0 (0)	

DISCUSSION

The current study attempts to find out the prevalence of depression amongst TB patients registered in a DOTS clinic of a sub-divisional hospital of West Bengal. PHQ-9, a validated tool widely used in screening depression was used to diagnose depression. More than 60% of the patients currently on treatment with anti-tubercular drugs (ATD) were suffering from depression. The factors associated with depression were side effects of the drugs and the socio-economic status of the individuals. While depression was inversely related with the socio-economic status; it was more common in individuals reporting side effect of ATD.

A study conducted amongst the hospitalized TB patients in Pakistan showed the prevalence of depression to be 80% using the Beck's Depression Inventory. Similar to our study, depression was more common in younger and elderly population.[11] Our findings are consistent with a study where women had higher depression scores than men. A similar study conducted in Nigeria showed the prevalence of depression to be 28%, using PHQ-9.[12] They could not found any association between depression and the genders and marital status in TB patients. A significant relationship is established between the reported side effects of ATD and depression in our study which is not, however, reflected in the compared study. The most probable reason for these discrepancies could be the sample size of respondents.

In a study conducted by Natani et al., (using Beck Depressive Inventory) depression was observed in 49% of the patients; more among elderly persons and in females. Contrary to our findings, depression was more common in individuals with low per capita income. The severity was directly related to the duration of illness, severity of disease and response to chemotherapy.[9]

CONCLUSION

A considerable proportion of patients seeking DOTS suffer from depression of varying severity which could be attributed to the long term nature

of the treatment and stigma associated with it. Though the Revised National Tuberculosis Control Programme is a huge success and helped reducing the associated stigma through wide dissemination of information, education and communication strategy, but never has any attempt been made to address the issues related to depression in these patients. Counselling in terms of HIV testing at Integrated Counselling and Testing Centres (ICTC) is needed at DOTS clinic. More such studies are needed to highlight the shortcomings of the current RNTCP policy and introduce counseling at DOTS clinic.

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AUTHOR NOTE

Gandhari Basu, Assistant Professor, Community Medicine. Contact: 9433345782,
Email- gandhari.basu@gmail.com,
(Corresponding author)
Chitra Chatterjee, Associate Professor, Community Medicine
Ritesh Singh, Assistant Professor, Community Medicine
Subikash Biswas, Associate Professor, Surgery
College of Medicine and JNM Hospital, Kalyani, West Bengal.

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