

Article

Prevalence of depression in tuberculosis patients in comparison with non-tuberculosis family contacts visiting the DOTS clinic in a Nigerian tertiary care hospital and its correlation with disease pattern

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ABSTRACT

Background Individuals with chronic diseases such as tuberculosis often have comorbid depression that requires frequent hospitalisations. This poses great challenges to the care of such patients.

Objective This study aimed at determining the prevalence of depression in tuberculosis patients in comparison with non-tuberculosis controls, and its correlation with disease pattern.

Method Eighty-eight patients with tuberculosis and 81 family members visiting the DOTS Centre at University College Hospital Ibadan Centre were screened for depression. Severity of depression was assessed using the Hamilton Depression Scale and was compared with severity of pulmonary tuberculosis.

Results The prevalence of depression was 45.5% among patients and 13.4% among family mem-

bers. Depression was more prevalent among patients that were elderly ($P = 0.001$), with extensive disease ($P = 0.01$), of long duration ($P = 0.03$), those with category 2 tuberculosis ($P = 0.003$), those from a nuclear family ($P = 0.01$) and patients that were unmarried ($P = 0.02$).

Conclusion The impact of chronic diseases such as tuberculosis extends beyond physical impairment. It includes behavioural consequences, in this instance depression, for both the patient and the primary care givers. Thus, the care of patients with tuberculosis should be comprehensive and include consultative-liaison psychiatric care.

Keywords: consultative-liaison psychiatry, depression, tuberculosis

Introduction

Tuberculosis (TB) is a chronic disease of the utmost public health concern in Nigeria. Nigeria has the second highest TB disease burden in Africa and ranks fifth among the 22 highest TB burden countries in

the world.¹ Despite progress in expanding the DOTS strategy, the global TB incidence rate continues to grow by 1% each year. The annual toll of new TB cases is nine million and nearly two million patients

die each year from TB.² This represents an intolerable burden of human suffering, and an unacceptable barrier to socioeconomic development,³ especially when there is co-infection with HIV.⁴ Comorbidity of TB and depression is common,⁵⁻¹⁰ the prevalence of comorbid depression with a chronic physical condition ranges between 25 and 33%; the risk increases with the severity of the illness¹¹ and this frequently presents a management challenge to physicians. The cause of the comorbidity remains unclear. Chronic psychogenic and somatic pain, frequent hospital admissions and hospital dependency are factors related to depression among persons with chronic pulmonary diseases.¹² Furthermore, it has been reported that 30% of patients with moderate respiratory failure have depression.¹³ Psychosocial stressors, such as the death of a spouse or divorce, are closely related to relapses and aggravations of respiratory diseases, especially in men, pointing to a link between psychological factors and chronic pulmonary disease.¹⁴ Current psychiatric practices have valid ways to diagnose depression, especially in chronic somatic patients and the elderly; a group in which depression often escapes diagnosis. Beyond that, depression may be a very important negative factor for treatment adherence in patients with TB and may hinder adaptation to illness conditions, which is a crucial survival factor in chronic diseases.¹⁵

Despite the high prevalence of TB in Nigeria, there is a dearth of information on the prevalence of depression among patients suffering from TB, hence the justification for this study.

Objective

We aimed to study the prevalence of depression in TB patients in comparison with non-tuberculous controls and its correlation with TB disease pattern. We hypothesised that depression would be significantly more prevalent among patients with TB than among family members, who served as the control.

Methods

Study design

This is an on-going prospective study. However, recruitment into this study was between January and November 2010.

Place of study

The study took place at the Directly Observed Therapy Short-course (DOTS) Clinic of the Medical Out-patient Department of University College Hospital Ibadan. Consent was obtained from each participant.

Inclusion

Patients with TB attending DOTS Clinic, who consented to participate in the study, served as cases. Accompanying family members who consented to participate in the study served as controls.

Exclusion

Patients and family members who were not literate in the language of instruction (English), patients or family members who did not give consent, and patients with a diagnosis of or who were undergoing treatment for depression prior to the onset of TB were excluded from the study.

Category I TB was defined as:

- freshly diagnosed smear-positive pulmonary TB
- smear-negative pulmonary TB with extensive parenchymal involvement
- new cases with severe forms of TB, e.g. miliary TB, tuberculous meningitis, tuberculous pericarditis, tuberculous peritonitis, intestinal TB, genitourinary TB, bilateral or extensive TB pleurisy, spinal disease with neurological complications.

Category II TB was defined as:

- relapsed and treatment failure (smear-positive) cases
- treatment after substantial interruption.

These patients are at risk of developing multidrug resistant TB (MDR-TB).

Measures

Consecutive patients and their relatives were interviewed using a pre-coded and pre-tested questionnaire that had previously been administered to a dyad of 10 patients with chronic obstructive pulmonary disease (COPD) and their relatives (not part of this study). The questionnaire also obtained information about the sociodemographic characteristics of respondents.

Screening for psychiatric morbidity

Each patient/relative dyad was screened for psychiatric morbidity using the GHQ-12.¹⁶ Scoring was done in the conventional way in which scores >2 are regarded as positive.

Depression

The depression module of the Structured Clinical Interview for DSM-IV Axis I Disorder (SCID)¹⁷ was used to obtain a 12-month diagnosis of depression.

The Hamilton Depression Rating Scale¹⁸ was also administered to assess and rate depression severity. A score of 10–13 was rated as mild depression, 14–17 was rated as moderate depression and scores >17 were rated as severe depression.

Tuberculosis

TB severity was assessed according to National Tuberculosis Programme and WHO¹⁹ guidelines which are based on bacillary load, disease extent and anatomical site that carries a significant acute threat to life, a risk of subsequent severe handicap, or both.

Analyses

Data were analysed using SPSS 10.²⁰ Pearson's chi square or Fisher's exact test (where one or more of the cells in the 2×2 table had an expected frequency of five or less) were used to compare categorical variables, whereas the Student's *t*-test was used to compare continuous variables such as mean age and mean illness duration. The level of statistical significance was set at 0.05 for all the bivariate analyses.

Results

Eighty-eight TB patients were included in the study and 81 non-TB accompanying family members were included as controls. Both groups were statistically matched in terms of demographic characteristics. Mean age was 27.09 ± 14.29 years for patients and 39.89 years for the control group. The mean age of patients was statistically lower than that of controls ($t = -11.09$, $P < 0.001$, not shown). Significantly more of the control group (care givers) were older ($P = 0.002$) and married ($P = 0.02$) (Table 1).

The majority (70.5%) of patients had pulmonary TB. Treatment category I was prescribed for 84.1% of patients. The vast majority of patients (95.5%) had mild or moderate disease (Table 2).

A significantly higher proportion (75%) of patients had a positive GHQ score compared with the control group (50.6%; $P = 0.002$). Depression was present in 45.5% of patients and 13.4% of controls ($P < 0.001$). The prevalence of mild depression in TB patients was 13.6%, the prevalence of moderate depression was 11.4% and the prevalence of severe depression was 20.5%. Among family care givers, the prevalence of mild depression was 4.9% and the prevalence of moderate depression was 8.6% (Table 3).

Depression was significantly more prevalent in older patients ($P = 0.001$), patients from a nuclear family ($P = 0.001$), patients with long duration of tuberculosis ($P = 0.03$), ($P = 0.005$), patients having pulmonary TB ($P = 0.003$), patients with moderate and severe disease (more than a zone of pulmonary involvement) ($P = 0.001$) and patients receiving category II treatment ($P = 0.003$) (Table 4).

Discussion

This study which was aimed at determining the prevalence of and risk factors for depression among TB patients reported a prevalence of 45.5% among patients and 13.4% among primary care givers. Our study also highlighted older age, extensive pathology, long illness duration and unmarried status as risk factors for depression in patients, and older age of patient and long illness duration as risk factors for depression in primary care givers.

The prevalence of depression in TB patients obtained in this study (45.5%) is lower than the 52.5% reported in an earlier study in Nigeria,⁷ lower than a rate of 54.2% reported by Purohit *et al*¹⁰ in India and also much lower than a rate of 68% reported in South Africa.⁶ However, in terms of severity, our findings contrast with those of Natani *et al*⁸ who found that only 8% of TB patients were severely depressed compared with a rate of 22.5% for severe depression reported in this study. The implication for this group of severely depressed TB patients is a high risk of suicide. Thus, the TB clinic is potentially a place where depression can be detected in patients. Often depression in such patients is untreated, moreover this is not their primary reason for seeking medical attention.

The finding by Natani *et al*⁸ that depression is significantly associated with older age, disease extent and long illness duration is replicated in this study. In terms of gender, our study was similar to that of Issa *et al*,²¹ but contrasts that of Natani *et al*⁸ in that was no gender difference in the prevalence of depression among TB patients.

Table 1 Socio-demographic characteristics of patients and family caregivers (controls)

	Patients <i>n</i> = 88 Frequency	%	Control <i>n</i> = 81 Frequency	%	<i>P</i> Value
Age					
<25	21	23.9	9	11.1	0.002
25–34	25	28.4	10	12.3	
35–44	19	21.6	20	24.7	
45–54	19	21.6	34	42.0	
>54	4	4.5	8	9.9	
Gender					
Male	28	31.8	29	35.8	0.7
Female	60	68.2	52	64.2	
Education					
No formal	48	54.5	61	75.3	0.02
Some primary	10	11.4	4	4.9	
Primary	16	18.2	4	4.9	
Some secondary	8	9.1	8	9.9	
Secondary	4	4.5	4	4.9	
Post secondary	2	2.3	–	–	
Marital status					
Single	34	38.6	16	19.8	0.02
Married	54	61.4	65	80.2	
Employment status					
Employed					0.2
Unemployed	28	31.8	35	43.2	
	60	68.2	46	56.8	
Type of family					
Nuclear	44	50	32	30.8	0.2
Extended	44	50	49	69.2	

Table 2 Characteristic of tuberculosis in patients

Diseases classification	Frequency	%
Pulmonary	62	70.5
Extra-pulmonary	26	29.5
Category		
I	74	84.1
II	14	15.9
Disease extent*		
Mild	38	43.2
Moderate	46	52.3
Severe	4	4.5

* mild: located to a zone; moderate: more than a zone but one side of the lung; severe: both lungs

The finding that 13.4% of primary care givers, in this instance family members, had depression is of utmost public health importance. The psychological distress associated with the care of chronic physical illness is enormous. For many family members, care giving becomes a full-time job.^{22–24} Given the magnitude of services provided and the sacrifices made by family care givers,^{23,25} the adverse consequences of care giving have emerged as a serious public health concern, making depression very common among care givers,^{26,27} a finding that has been replicated in this study. However, these individuals, whose need for treatment is evidenced by their clinical diagnosis, may be disinclined to discuss their mental health concerns when faced with the demands of care giving. Of further concern is the fact that the majority of care givers who meet the criteria for a psychiatric diagnosis, but do not access a mental health intervention, usually have no con-

Table 3 Psychiatric morbidity among respondents

Measures	Patients (<i>n</i> = 88) Frequency	%	Control (<i>n</i> = 81) Frequency	%	<i>P</i> Value
Positive GHQ	66	75.0	41	50.6	0.002
DSM IV Depression	40	45.5	11	13.4	<0.001
Hamilton Rating Scale					
Mild	12	13.6	4	4.9	0.09
Moderate	10	11.4	7	8.6	0.7
Severe	18	20.5	–	–	–

Table 4 Severity of depression and different variables among TB patients

Variable	Severity of depression				<i>P</i> value
	Nil <i>n</i> =48 (%)	Mild <i>n</i> =12 (%)	Moderate <i>n</i> =10 (%)	Severe <i>n</i> =18 (%)	
Age					
<25	22.9	–	–	5.6	0.001
25–34	22.9	8.3	10.0	16.7	
35–44	16.7	25.0	20.0	16.7	
45–54	12.5	33.3	30.0	22.2	
>54	12.5	33.3	40.0	38.9	
Gender					
Male	29.2	16.7	60.0	33.3	0.7
Female	70.8	83.3	40.0	66.7	
Marital status					
Single	33.3	16.7	80.0	55.5	0.1
Married	66.7	83.3	20.0	44.5	
Type of family					
Nuclear	33.3	66.7	60.0	88.9	0.01
Extended	66.7	33.3	40.0	11.1	
Employment status					
Employed	29.2	16.7	60.0	33.3	0.7
Unemployed	70.8	83.3	40.0	66.7	
Mean duration of disease (Years)	5.6 ± 2.1	5.9 ± 2.3	8.9 ± 3.3	13.8 ± 4.5	0.03
Disease classification					
Pulmonary	62.5	50.0	100.0	88.9	0.1
Extra-pulmonary	37.5	50.0	–	11.1	
Disease extent					
Mild	54.2	50.0	22.2	0.01	0.01
Moderate	45.8	33.3	60.0	77.8	
Severe	–	16.7	20.0	–	
Disease category					
Category 1	95.8	83.3	60.0	66.7	0.003
Category 2	4.2	16.7	40.0	33.3	

cerns about their mental health.²⁸ Our study supports the notion that an extended family system offers some protection against depression.^{29,30}

Conclusion

In conclusion, depression is highly prevalent among patients in treatment for TB, most particularly among the elderly, those with extensive disease, those with a long illness duration, those with category II TB, those from a nuclear family and unmarried patients.

This study has a number of limitations which must be addressed. A regression analysis was not carried out. Some of the factors associated with depression in TB such as unmarried status and older age are also associated with depression in non-TB patients, thus interpretation of the findings from this study needs great caution. Some of the cells were too small for any meaningful analysis. Future studies need to take these confounding factors into consideration.

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Ethical approval was obtained from the ethical review committee of the Research Division of the University College Hospital, Ibadan and was in accordance with the ethical principles of the Committee on Publication Ethics (COPE), anonymity was also maintained.

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CONFLICTS OF INTEREST

None.

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