

# Screening for Depression Requiring Emergency Intervention among Pulmonary Tuberculosis Patients in a Tertiary Health Care Center in Nigeria

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**ABSTRACT:** *Pulmonary tuberculosis which is a chronic lung disease, by the nature of the disorder, its course, as well as its treatment could be emotionally challenging and can lead to depression. This study sets out to screen patients with pulmonary tuberculosis for depression and to determine if there is an urgent need for intervention. The willing patients with Pulmonary Tuberculosis (PTB) attending the Respiratory clinic of the Consultant Out-Patient Department (COPD) of the University of Benin Teaching Hospital (UBTH) Benin City were studied. The socio-demographic characteristics of the patients was collected and the Patient Health Questionnaire-9 (PHQ-9) was administered to screen for and diagnose depression. The study showed that a larger group of PTB patients (74.8%) had depressive illness. The relationship between the expressed feeling of unhappiness and the screening diagnosis of depression was found to be statistically significant at  $p$ -value  $< .05$ . Though the majority of the patients (93.1%) had no need for urgent treatment, there was however a significant need for emergency treatment among the small group who had co-morbidities ( $X^2=21.21$   $df=1$   $p<.05$ ). Depressive illness is common among the patients with PTB as well as a need for urgent treatment among those with co-morbidities. Such patients should be given appropriate treatment in collaboration with the mental health team.*

**KEYWORDS:** *Depression, Screening, Pulmonary tuberculosis.*

## INTRODUCTION

Depression is a mood disorder characterized by the typical features of unhappiness, reduced energy and inability to enjoy previously pleasurable activities (De Zwart et al. 2018; Diagnostic and Statistical Manual of Mental Disorders 2013). The other features that can be found in individuals with depression include poor sleep, poor concentration, idea of worthlessness, helplessness and hopelessness among others (Gross, 2015). Suicidal tendency is also possible in depressive illness. In fact, 50% of individuals who die by suicide are said to have depressive illness (Bachmann, 2018).

Depression is a common mental disorder in the general population. The prevalence is 7.1% in all US adults, more in females compared to males (Major depression, 2019). A lifetime prevalence of 3.1% was found in Nigeria (Gureje et al. 2009). Furthermore, it is also known that individuals undergoing any long-standing problem are likely to come down with depressive features (Gureje et al. 2009). Long standing problems include chronic health problems such as pulmonary tuberculosis.

Pulmonary tuberculosis is a chronic lung disease caused commonly by the bacterial referred to as Mycobacterium Tuberculosis (World Health Organisation, 2015). The course of the condition as well as its treatment could be emotionally challenging and can lead to depression. As part of the management of such a chronic condition, it is expedient that a holistic evaluation of every individual with pulmonary tuberculosis be carried out. Screening such patients for depression is needed. Beyond this it is important to determine if such depressive features if found in the patient requires emergency intervention.

Emergency is seen as a need for urgent intervention as determined by the individual concerned, the family, health care providers or others (Allen et al. 2003). Among other possible reasons leading to the need for emergency intervention in depression, is suicidal tendencies among the depressed. In recent times the upsurge in the incidence of suicide has made it necessary to identify individuals who may be undergoing depressive illness before it escalates to suicidal intensity. Suicide is the deliberate termination of one's own life (Pickering et al. 2000).

Depression is rated in terms of severity (Sharp et al. 2002). The more severe it is the more the need for emergency care. This study sets out to screen patients with pulmonary tuberculosis

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for depression and to determine if there is an urgent need for intervention. Early detection and treatment of depression is of utmost importance (Halfin, 2007). Thus early identification of the need for emergency treatment would help to prevent complications of depression such as suicide and further improve the outcome of the treatment of tuberculosis in such patients.

## METHODS

The study was carried out at the Respiratory clinic of the Consultant Out-Patient Department (COPD) of the University of Benin Teaching Hospital (UBTH) Benin City. The patients who were recruited as participants in the study were those attending the clinic as a case of pulmonary tuberculosis. All the patients with a diagnosis of pulmonary tuberculosis who gave consent were included in the study. Patients who were unwilling to give consent or who were too ill to participate in filling the instruments were excluded.

The instrument used for the study comprised of three sections. The first section was used to gather the relevant sociodemographic characteristics of the patients. The second section was used to collect information about the pulmonary tuberculosis status of the patient, while section three was the Patient Health Questionnaire (PHQ). The PHQ is a multiple-choice self-report inventory which was designed to screen and diagnose a number of mental disorders including depression. It was copyrighted by Pfizer inc. in the mid-1990s (Arroll et al. 2010; Spitzer et al. 1999). The nine-

item version (PHQ-9), was designed specifically for depression (Kroenke, 2010). It has satisfactory validity and reliability characteristics (Fang-Ju et al. 2014; Chen et al. 2006; Adewuya et al. 2006). The outcome of the use of the PHQ enables patients' severity of depression to be grouped into None, Mild, Moderate, Moderately Severe and Severe depression based upon the score from the PHQ. Individuals with a score of 0-4 were in the "None" group with regards to the severity of depression; a score of 5-9 conferred mild depression while individuals who had a score of 10-14 had moderate depression; Those with a score of 15-19 had moderately severe depression and a score of 20-27 was for Severe depression (Patient Health Questionnaire, 2019).

## RESULTS

A total of 131 participants were studied.

**SOCIO-DEMOGRAPHIC CHARACTERISTICS:** The age range of the respondents was 18 to 70 years. The mean age was 36.35±1.16. The modal age was 30 years while the median age was 32 years. Males were 58%, while females were 42%. Half of the respondents (50.4%) were single in terms of marital status. The other larger group were the married (42.7%). Majority (89.3%) were of the Christian faith. Most of the respondents (77.1%) reside in Benin City. Those of Benin ethnicity made up 45.0%. Igbos made up 20.6%, while the Yoruba and Ishan made up 8.4% and 7.6% respectively Table 1.

**Table 1.**  
Socio-demographic characteristics of respondents.

	Frequency	Percent	Cumulative Percent
Single	66	50.4	50.4
Married	56	42.7	93.1
Separated	2	1.5	94.7
Divorced	2	1.5	96.2
Widowed	5	3.8	100.0
Total	131	100.0	
<b>Religion</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Christianity	117	89.3	89.3
Islam	11	8.4	97.7
African Traditional Religion	3	2.3	100.0
Total	131	100.0	
<b>Place of Residence</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Benin City	101	77.1	77.1
Outside Benin City but in Edo State	24	18.3	95.4
Outside Edo State	6	4.6	100.0
Total	131	100.0	
<b>Ethnicity</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Benin	59	45	45.0
Igbo	27	20.6	65.6
Yoruba	11	8.4	74
Ishan	10	7.6	81.6
Isoko	7	5.3	86.9
Urhobo	7	5.3	92.2
Hausa	5	3.8	96.0
Others	5	3.8	99.8
Total	131	100.0	

The study showed that a larger group of PTB patients (74.8%) had depressive illness. Only 25.2% of the respondents did not meet the diagnostic criteria for depression (Table 2). Furthermore, Table 3 showed that 96.1% of 51 patients who reported a feeling of unhappiness met the diagnosis of depression, while 61.3% of those who reported a feeling of happiness met the diagnosis of depression by the screening instrument used. The relationship between the expressed feeling of unhappiness and the screening diagnosis of depression was found to be statistically significant at  $p$ -value  $< .05$ .

The need for urgent treatment and Severity of depression. The majority of the patients (93.1%) had no need for urgent treatment. This group of patients were made up of individuals with the severity of the depression rated as none-minimal (27.1%), mild (27.1%) and moderate (29.5%) (Table 4).

Presence of other health problems and the need for urgent treatment. Table 5 showed that there were 19 patients who had other health problems co-existing with PTB. Among these patients, the presence of other health problems along with PTB significantly conferred a need for urgent treatment ( $X^2=21.21$   $df=1$   $p<.05$ ).

## DISCUSSION

This study showed that the majority of the pulmonary tuberculosis (PTB) patients in this study were identified to have depressive illness. This is expected because the condition and all the other activities surrounding the treatment could have a negative effect on the emotion of the individual concerned (Dodor, 2012). PTB presents with pains in the patient, distressing cough, sputum production etc (Lawn, 2011). All these make the patients to be unhappy. Furthermore, the chronic nature of the illness makes the patient to have depressive symptoms (Dodor, 2012). The finding of 74.8% prevalence of depression in these patients was way in excess of 45.5% found by Ige et al. among patients with tuberculosis attending the Directly Observed Treatment (DOT) center at the University College Hospital (UCH) in 2011. The difference in the findings could be as a result of the difference in instruments used as well as the fact that there are possibly more stressors in everyday life now in 2019 compared to 2011 when the UCH study was carried out (Ige et al. 2011). The higher incidence of depression in this group of patients suggests that appropriate management for depressive illness should always be considered alongside the treatment for PTB in these patients. More so, with the upsurge

**Table 2.**  
Diagnosis of Depression among PTB patients.

	Cumulative Percent	Frequency	Percent
None-Minimal	25.2	33	25.2
Mild	53.4	37	28.2
Moderate	80.9	36	27.5
Moderately Severe	93.1	16	12.2
Severe	100.0	9	6.9
Total		131	100.0

**Table 3.**  
Cross tabulation of the Feeling of unhappiness/happiness against the diagnosis of Depression.

Do you feel happy generally		Depression	
		Absent	Present
Yes	80	31(38.7%)	49(61.3%)
No	51	2(3.9%)	49(96.1%)
Total	131	33(25.2%)	98(74.8%)

**Table 4.**  
The need for urgent treatment and Depression Severity.

Do you think that you need any urgent treatment	Depression Severity					Total
	None-Minimal Severe	Severe	Mild	Moderate	Moderately	
Yes	9(6.9%)	0(0%)	4(44.4%)	0(0%)	4(44.4%)	1(11.2%)
No	122(93.1%)	33(27.1%)	33(27.1%)	36(29.5%)	12(9.8%)	8(6.6%)
Total	131	33	37	36	16	9

**Table 5.**  
Cross tabulation of the need for urgent treatment against the presence of other health problems apart from Tb.

Do you think that you need any urgent treatment	Are there other health problems apart from Tb		Total
	Yes	No	
Yes	6	3	9
No	13	109	122
Total	19	112	131

$X^2=21.21$   $df=1$   $p<.05$

of suicidal acts in recent times (Reddy, 2010), patients with PTB would need to be carefully followed up. This could be applicable to all chronic medical and surgical disorders. It is known that in a situation of chronic medical problems, depression is common (Vannoy et al. 2006; Katon, 2003).

The need for urgent or emergency treatment in any health problem can be determined by all parties concerned (Allen et al. 2003). Thus, the need for urgent treatment can be determined by the patient, relations, other caregivers or health care professionals. In the current study, the patients through the self-report done by the instruments filled, were able to express if there was a need for urgent treatment or not. There was no need for urgent treatment of either the PTB or the comorbid depressive illness in the majority (93.1%) of the patients. This may appear to be good news but, it is possible for the patients to express more severity in their health problems tending towards an emergency need for intervention as time goes on. Follow-up is crucial in these patients like any other chronic disease (Grabowski et al. 1998; Mehta et al. 2019). Thus, the patients would need to be carefully followed-up to forestall any further morbidity or mortality that may arise from the failure to give urgent medical attention should the need arises in the course of their treatment. Meanwhile for the patients who already have detectable depressive illness, appropriate management of the depression should be instituted along with the management of the PTB. This will bring about a better outcome of the individual patient's management of their illness. Appropriate management of comorbid conditions, though challenging, has been known to be quite rewarding and bring about a better treatment outcome of the primary health problem (Back et al. 2009; Jakovljevic et al. 2013).

When a patient has a comorbidity with PTB, the possibility of depression would be expected to be more as well as the possibility of the need for urgent treatment in the course of time. In this study, the patients with comorbidity significantly saw a need for urgent treatment. Comorbidities have been documented to be more in older adults and this affects their quality of life (Mujica-Mota et al. 2015). This is why it is required that the patients with PTB be screened for any comorbidities requiring urgent care. Furthermore, emergency presentations of comorbidities have been known to escalate morbidity and mortality (Renzi, 2019). Thus forestalling this, by screening patients with PTB and identifying individuals with a need for urgent treatment will in no doubt improve the patients' outcome.

## CONCLUSION

Depressive illness is common among the patients with PTB. A need for urgent treatment of depression is not common if the patient has depression alone with PTB. However there is a need for urgent treatment among those with depression along with co-morbidities in the setting of PTB. Such patients should be given appropriate treatment in collaboration with the mental health team.

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## DECLARATIONS

The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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