Self Esteem and Psychological Distress among Patients with Tuberculosis and Fracture in Selected Hospitals in Enugu, Nigeria: A Comparative Study

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Authors' contributions

This work was carried out in collaboration between all the authors. Authors AO, EO and RU designed the study and wrote the protocol. Author AO preformed the statistical analysis, managed the literature search and wrote the first draft of the manuscript with assistance from authors EO, RU, DC, CA and MI. All the authors read and approved the final manuscript.

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ABSTRACT

Background: Diagnosis of tuberculosis and lower limb fracture and treatment can affect a patient's- psychological well being. Psychological problems can affect the overall well being of the patient and make palliation of physical symptoms more difficult. Psychological symptoms reflect on individuals self esteem and level of psychological distress.
Objectives: Aim of this study is to ascertain and compare the emotional health and self esteem in patients with tuberculosis and fracture admitted to chest units in University of Nigeria Teaching Hospital, Enugu State University Teaching Hospital, and the National Orthopaedic Hospital Enugu, Nigeria.

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Methods: Study population consisted of 126 patients with pulmonary tuberculosis receiving treatment at Direct Observed Treatment Short course (DOTS) clinics and 126 patients with lower limb fracture at emergency and out – patients clinic. Socio-demographic interview schedule was used to assess the socio- demographic characteristics of the respondents. Symptom Checklist-90 was used to assess the extent of psychological symptoms in both respondents and Index of Self Esteem was used to assess self esteem.

Results: A significantly higher prevalence of psychiatric disorders was found in the tuberculosis group (25.4%) than in the orthopaedic group (7.6%). Psychiatric disorders encountered included depression, anxiety, and paranoid ideation and interpersonal sensitivity (SCL-90). Low self esteem was more prevalent among patients with tuberculosis compare to fracture.

1. INTRODUCTION

There is a higher frequency of association between mental disorders and physical illness in patients presenting to settings outside psychiatry than in psychiatric clinical settings [1]. One out of three persons (33%) who develop physical illness will very likely have a mental disorder too [1]. This is significantly higher than the rate in general population which stands at one in five [1]. One possible mechanism of this association is the emotional response to physical illness.

Emotional health is deeply affected when a chronic condition becomes part of the fabric of daily life [1]. Patient is horrified by the thought of becoming a burden to someone. This feeling of burden may affect the person's self esteem which may result in difficulty to communicate their feelings and fears. Social life may diminish as a result of lack of energy, mobility, money, friendship and may lead a patient not wanting to continue contact with others. Bone, being a major skeletal organ of the human body, carries immense psychological significance. Disfiguring bone disorders like Tuberculosis and Fracture may pose some psychological sequel because they would have negative impact on the patient's body image [2], and may lead to problems of emotional health, adjustment and self esteem.

Tuberculosis is a disease of time. "It speeds up life, highlights it, and spiritualizes it" [3]. The causative organism for tuberculosis was discovered more than 100 years ago, which led to the discovery of highly effective drugs and vaccines. Advent of vaccines and drugs made tuberculosis a preventable and curable disease. But despite the above fact, tuberculosis still remains a worldwide public health problem [4]. Tuberculosis is a disease of poverty, affecting mostly young adults in their most productive age group [5]. Life style activities like activities of daily living, sleeping pattern, dietary requirements, compliance with medicine regime, management of financial burden, continuation of employment, social stigma attached to it may cause a lot of stress to these persons and their families. One study reported a prevalence rate of psychiatric morbidity among patients with tuberculosis in Ife, Nigeria, to be 30.2% [6].

Incidence of fractures to the limbs is higher in road traffic accidents than other forms of injury and studies have shown that limbs are more likely to be injured than any other region of the body [7]. Trauma from road traffic accidents (RTAs) in Nigeria is on the increase [7]. Fracture is the leading cause of functional limitation in adults younger than 45 years of age [8]. The treatments of such injuries are usually difficult and expensive and they have a high morbidity rate [9]. Aghanwa and Erhabor reported a prevalence rate of psychiatric morbidity among patients with fracture in Ife, Nigeria, to be 15% [6].

High self esteem may reduce emotional distress following these problems. There are few studies on the emotional health, and self esteem in people with tuberculosis and fracture in Nigeria. Most studies on tuberculosis, for instance, have largely focussed on compliance to Direct Observe Therapy Short [DOTS] course, knowledge about the disease and family pedigree [6]. Lliterature search show that though there are few studies related to the impact of pulmonary tuberculosis on the life style of people suffering from it, no literature was found related to the studies done to find out how do the impacts of tuberculosis affect their self esteem and adjustment.

The present study is designed to assess the impact of pulmonary tuberculosis on the

emotional health, and self esteem of patients suffering from it and compare with those of patients with fracture.

1.1 Aim and Objectives

The aim of this study is to ascertain and compare the emotional health and self esteem in patients with tuberculosis and fracture.

The specific objectives are to:

a) Determine the prevalence of psychological symptoms, and self esteem in patients with Pulmonary Tuberculosis admitted to chest units in University of Nigeria Teaching Hospital as well as Enugu State University Teaching Hospital, both in Enugu, Enugu State.
b) Determine the prevalence of psychological symptoms and self esteem in patients with lower limb fracture admitted to National Orthopaedic Hospital Enugu, Enugu State.
c) Compare correlates of psychological symptoms and self esteem in patients with pulmonary tuberculosis and lower limb fracture.

2. METHODOLOGY

This study is cross sectional comparative research design.

2.1 Ethical Issues

The study was non-invasive. All participants gave voluntary, informed consent before recruitment into the study. It was explained to them that they were free to withdraw from the study at any time, even after having initially consented. Ethical clearance was obtained from the authorities of University of Nigeria Teaching Hospital (UNTH), Enugu State University Teaching Hospital (ESUTH) and National Orthopaedic Hospital. The subjects were assured of the confidentiality of the information obtained.

2.2 Setting of the Study

The study was carried out at in the following three centres: The Chest Clinic at the Enugu State University Teaching Hospital, Enugu, Enugu State. The Chest Clinic at the University of Nigeria Teaching Hospital Complex, Ituku-Ozalla, Enugu, Enugu State as well as National Orthopaedic Hospital, Enugu, Enugu State, all in South East Nigeria.

2.3 Instruments and Measurements

2.3.1 Socio-demographic interview schedule

Socio-demographic information was obtained using a standard socio-demographic interview. The following demographic details were obtained: age, gender, religion, marital status, highest level of education, occupation, and income. Occupation was classified according to the International Standard Classification of Occupations (ISCO 88) [10] using the International Labour Organisation (ILO) classification of occupation which is predicated on the type of work and concept of skills.

2.3.2 The index of self–esteem (ISE)

It is a 25-item instrument developed by Hudson in 1982, [11]. It is designed to measure self-perceived and self-evaluative components of self-concept held by the individual. It can be administered individually or in groups. There is direct and reverse scoring of the items. Hudson obtained an alpha coefficient o f 0.93 and a two-hour test-retest coefficient of 0.92. A cut off of 30 was used in this study. Thirty and above shows low self esteem while below 30 shows high self esteem in this study.

2.3.3 Symptom checklist-90

Derogratis (1977) designed the SCL-90 [12]. It is a self report symptom questionnaire. It is a 90-item instrument with 10 subscales (A-J) to assess symptoms of psychological distress, the screening of mental health complication among subjects with primary medical problems, and the experience of anguish arising from the problems of living among people in the general population. The inventory measures psychological symptom and distress in terms of nine primary symptom dimensions of somatisation, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, Phobic anxiety, paranoid ideation, and psychoticism. It was used to assess psychological symptoms in this study. A cut off score of 97 was used. A total score below 97 indicate no psychological distress while above indicates increase psychological distress.

2.4 Sample Size Determination

Sample size was calculated using public domain software. Total of 252 participants were recruited.

2.4.1 Inclusion criteria

a) Patients with confirmed pulmonary tuberculosis coming for treatment at the chest clinics of both U.N.T.H and E.S.U.T.H.
b) Patients with diagnosed lower limb fracture, at the emergency and out-patients' wards of the National Orthopaedic Hospital Enugu.
c) Patients aged 18-64 yrs.

2.4.2 Exclusion criteria

a) Patients with past history of psychiatric illness
b) Patients who are too ill to participate.

2.5 Participant's Selection

This was based on simple random sampling. The patients with Tuberculosis were used as index participants while those with lower limb fracture, were used as comparative. From the clinic list for the day, all the patients that met the inclusion criteria were serially numbered. Their numbers were written on pieces of paper and all rumpled. Through a blind dip some papers were selected, a total of eight participants were selected on a daily basis. Those selected had their case note (medical reference) number coded and marked. The same was done to participants coming for treatment at the chest clinic of E.S.U.T.H. For each selected participant with Tuberculosis, a participant with fracture, matched for age (±5 yrs) and gender was selected.

2.6 Procedure

The recruitment of participants took place at the chest clinics of U.N.T.H, ESUTH and National Orthopaedic Hospital Enugu respectively. From the clinic list of the day, a participant who met the inclusion criteria was selected as described above. Each of the participants recruited for the study was approached and explanation was given on how he or she was selected and the reason for the study. Informed consent was obtained from the participant, and it was arranged to administer the study instruments before or after they had seen their doctor. First, socio-demographic questionnaire was administered. Thereafter, the Index of Self Esteem (ISE) then, the Symptom Checklist 90 (SCL-90) were administered in that order. In each case, the interviewer read out the questions and recorded the participant's responses accordingly on each questionnaire. Any

participant, who did not understand English Language, was administered the Igbo version of the instruments. In all, a total of fifty-six participants were interviewed with the Igbo version of the instruments.

2.7 Statistical Analysis

The Statistical Package for the Social Sciences, version 16 for windows was used for analysis. Basic descriptive statistics was used to present the socio-demographic and clinical profile. The scores of both groups on the Index of self esteem, and Symptom Checklist 90 were compared using student's t-test for continuous variables and chi square for dichotomous and categorical variables. Logistic regression was done for the items on the symptom check list.

3. RESULTS

The results obtained in this study are very clearly shown below.

3.1 Self Esteem and Psychological Distress

About a quarter of the participants (25.4%) in the tuberculosis group had psychological distress compared to (5.6%) in the fracture group ($\chi 2$=18.96, P<0.0001). Over half of the participants (65.1%) in the Tuberculosis group reported low self esteem as measured by the index of self esteem. Participants in the tuberculosis group were over twice as likely to report low self esteem compared to participants in the fracture group (OR 2.16,95% C.I=1.61-2.90,P<0.0001) Table 2.

3.2 Distribution of Participants According to Gender on the Symptom Checklist-90

Table 3 shows the scores of the participants (by gender) on the SCL-90. Using gender normative cut-off score for each of the domain, females in the tuberculosis group were more likely to have symptoms for all ten domains compared to their male counterparts. In the tuberculosis group the domains of interpersonal sensitivity (23.80%), depression (32.54%), anxiety (17.46%), psychoticism (15.87%) and paranoid ideation (16.66%) were more prominent in the female. For the comparison group (fracture) a reverse in gender distribution for the domain scores for the SCL-90 was observed. Interpersonal sensitivity (15.08%), anxiety (7.14%), somatisation (4.76%) and were more prominent in the male.

Table 1. Socio-demographic characteristics of respondents

Variables	Tuberculos n (%)	Fracture n (%)	Statistics
Age group (years)			
18-29	60(47.6)	57(45.2)	χ^2=9.16 P=0.68 df=12
30-39	42(33.3)	40(31.7)	
40-49	19(15.1)	22(17.5)	
50-59	4(3.2)	7(5.6)	
60-64	2(0.8)	-	t=39.67df-125 **P<0.001***
Mean .SD	31.72(8.97)	32.44(8.88)	
Educational attainment			
No formal education	10(7.9)	7(5.6)	χ^2=38.87,P=0.34,df=36
Primary completed	13(10.3)	8(6.3)	
Primary not completed	13(10.3)	9(7.1)	
Secondary completed	36(28.6)	41(32.5)	
Secondary not completed	5(4.0)	6(4.8)	
Tertiary completed	40(31.7)	48(38.1)	
Tertiary not completed	9(7.1)	7(5.6)	
Gender			χ^2=38.87,P=0.34,df=36
Male	50(99.7)	75(59.5)	
Female	76(60.3)	51(40.5)	
Employment status			
Unemployed	35(27.8)	14(11.1)	χ^2=17.1P=0.380 ,df=16
Self employed	40(31.7)	36(28.6)	
Civil Servant	41(38.1)	67(53.2)	
Retired	1(0.8)	2(1.6)	
Student	2(1.6)	7(5.6)	
Income			
Low	76(60.3)	63(50.0)	χ^2=0.591,P=0.96,df=4
Middle	36(28.6)	44(34.9)	
High	149(11.1)	19(15.1)	
Marital status			
Single	45(35.7)	42(33.3)	
Married	65(51.6)	68(54.0)	χ^2=15.21,P=0.509,df=16
Separated	9(7.1)	9(7.1)	
Divorced	1(0.81)	2(1.6)	
Widowed	6(4.8)	5(4.0)	
Religion			
Christian	109(86.5)	113	
Islam	9(7.1)	11	*χ^2=1.40,P=0,96,df=6
Traditional	6(4.8)	2	
Others	2(1.6)	_	
Ethnic group			
Igbo	102(81.0)	100(79.4)	
Hausa	12(9.5)	16(12.7)	χ^2=3.62,P=0.94,df=9
Yoruba	9(7.1)	9(7.1)	
Other	3(2.4)	1(0.8)	

*Yate corrected (χ^2) **Low<N18000,***Middle>N18000<N50000,****High>N50000*

3.3 Mean Scores of Symptom Checklist-90 (SCL-90) by Gender Profile of the of Tuberculosis Participants

Table 4 shows the distribution of the tuberculosis participants according to symptom checklist-90 by gender profile. Females had higher mean scores on the various domains of the SCL-90. A significant difference was found in the domain of obsessive compulsive disorder when male (mean 3.34±4.81) where compared with female (6.01±8.96), "t"= -1.931, P<0.03) in the tuberculosis group.

Table 2. Showing self esteem and psychological distress of participants

Variable	Tuberculosis (n/%)	Fracture (n/%)	Odd ratio (OR) (95% confidence interval (C.I)	Statistics
Psychological distress				
Present	32(25.4)	7(5.6)	5.79	χ2=18.96,p<0.0001, df=1
Absent	94(74.6)	119(94.4)	(2.36-16.14)	
Self esteem				
Low	82(65.1)	38(30.2)	2.16	χ2=30.80,P<0.0001, df=1
High	44(34.9)	88(69.8)	(1.61-2.90)	

Table 3. Table showing gender distribution for domains on the symptom checklist – 90 (SCL-90)

Variable	Tuberculosis (n/%)		Fracture (n/%)	
SCL-90	M	F	M	F
Somatisation				
Present	6(4.76)	15(11.90)	6(4.76)	3(2.38)
Absent	44(34.92)	61(48.20)	69(54.76)	48(38.09)
OCD				
Present	6(4.76)	14(11.11)	8(6.35)	2(1.59)
Absent	44(34.92)	62(49.20)	67(53.17)	49(38.89)
Interpersonal sensitivity				
Present	15(11.90)	30(23.80)	19(15.08)	13(10.32)
Absent	35(27.78)	46(36.51)	56(44.44)	38(30.16)
Depression				
Present	23(18.25)	41(32.54)	15(11.90)	17(13.49)
Absent	27(21.42)	35(27.78)	50(39.68)	34(26.98)
Anxiety				
Present	8(6.35)	22(17.46)	9(7.14)	5(3.97)
Absent	42(33.33)	54(42.86)	66(52.38)	46(36.51)
Hostility				
Present	6(4.76)	16(12.70)	7(5.56)	8(6.35)
Absent	44(34.92)	60(47.62)	68(53.97)	43(34.13)
Phobic anxiety				
Present	6(4.76)	16(12.70)	6(4.76)	4(3.17)
Absent	44(34.92)	60(47.62)	69(54.76)	47(37.30)
Paranoid ideation				
Present	6(4.76)	21(16.66)	10(7.94)	10(7.94)
Absent	44(34.92)	55(43.65)	65(51.59)	41(32.54)
Psychoticism				
Present	8(6.35)	20(15.87)	10(7.94)	10(7.94)
Absent	42(33.33)	56(44.44)	65(51.59)	41(32.54)
Neuroticism				
Present	4(3.17)	15(11.90)	6(4.76)	6(4.76)
Absent	46(36.51)	61(49.20)	69(54.76)	45(35.71)

*m (male), *f (female)

3.4 Mean Scores of Symptom Checklist-90 (SCL-90) by Gender Profile of the Fracture Participants

Table 5 shows the distribution of the fracture participants according to symptom checklist-90 by gender profile. Females had higher mean scores on the domains of Somatisation, interpersonal sensitivity, anxious, paranoid ideation and psychoticism of the SCL-90. No significant difference was found in the various domains when males were compared with females in the fracture group.

Table 4. Showing the distribution of mean scores on symptom checklist-90 (SCL-90) by gender profile of the tuberculosis participants

Variable, SCL-90	Male, mean (S.D)	Female, mean (S.D)	t	P
Somatisation	6.32 (6.90)	7.63 (9.53)	-0.838	0.37
OCD	3,34 (4.81)	6.01 (8.96)	-1.931	0.032*
Interpersonal sensitivity	4.86 (6.14)	6.55 (7.88)	-1.284	0.18
Depression	10.94 (11.22)	14.29 (12.75)	-1.512	0.123
Anxious	4.46 (6.72)	5.66 (7.13)	-.944	0.342
Hostility	2.20 (2.89)	2.87 (4.90)	-.870	0.338
Phobic anxiety	1.96 (2.31)	2.43 (3.83)	-.786	0.338
Paranoid ideation	2.54 (3.66)	3.43 (4.81)	-1.118	0.239
Psychoticism	3.68 (5.78)	4.71 (6.71)	-.890	0.361
Neuroticism	3.18 (4.17)	4.41 (6.31)	-1.213	0.191

Table 5. Showing the distribution of mean scores on symptom checklist-90 (SCL-90) BY gender profile of the fracture participants

Variable, Scl-90	Male, mean (S.D)	Female, mean (S.D)	t-test	P
Somatisation	4.75 (6.69)	5.27 (5.60)	-0.463	0.633
OCD	2.89 (6.34)	2.69 (4.27)	0.204	0.827
Interpersonal sensitivity	4.19 (6.65)	4.41 (5.96)	-.194	0.843
Depression	6.51 (8.92)	6.29 (7.38)	.141	0.884
Anxious	3.31 (5.29)	3.51 (5.19)	-.395	0.692
Hostility	1.41 (3.27)	1.78 (2.52)	-.683	0.475
Phobic anxiety	1.71 (2.01)	1.43 (1.86)	-.777	0.432
Paranoid ideation	2.03 (4.07)	2.10 (2.95)	-.107	0.909
Psychoticism	2.57 (5.14)	2.94 (4.86)	-.403	0.684
Neuroticism	2.93 (5.10)	2.86 (3.88)	-.469	0.930

3.5 Index of Self Esteem (ISE) by Socio-demographic Profile of the Participants

For the Tuberculosis group, being less than 32 years (mean 46.29±19.85) t=2.122, p<0.04), having spent less than 12 years in formal education (mean 46.44±18.89, t=2.195 p<0.03) and earning less than 18,000 naira (mean 48.47±20.57, t=3.728, p<0.0001) Table 6 was significantly associated with poorer emotional health (increase in psychological symptoms).When compared with fracture group, no significant difference was found in the age, formal education and income.

3.6 Symptom Checklist-90 (SCL-90) by Socio-demographic Profile of the Participants

Table 7 shows the distribution of the participants according to Symptom checklist-90 (SCL-90) by Socio- demographic profile of the participants.

Participants in the *tuberculosis group* had significantly higher scores on the symptom checklist -90(SCL-90) when compared with socio-demographic variables of age (p<0.0001), education (p<0.0001) employment (p<0.008) and income (p<0.0001). In the *fracture group*, participants less than 32 years of age (p<0.0001), who were unemployed (p<0.03) and low income (p<0.004) had significantly higher scores (increase in psychological symptoms as measured by the symptom checklist-90.

3.7 Linear Logistic Regression Analysis between Symptom Checklist-90 and Socio-demographic Profile of the Participants

Table 8 show the distribution on the linear regression analysis between Symptom Checklist-90 and Socio-demographic profile of the participants. The significant independent variables of age, education, employment status and income were entered into a linear regression

model, with total symptom checklist-90 score as the dependent variable using the forced entry method. The model accounted for 40.6% of the variant(R=0.406, R^2=0.165).The variable of age (P<0.05) was found to be significant predictor of poor emotional health among participants with tuberculosis.

4. DISCUSSION

4.1 Socio-demographic Characteristics of Participants

Majority of the participants in the Tuberculosis group (60.3%) when compared to the fracture group (40.5%) were mostly females. This finding is in agreement with previous report [13]. One reason may be partly because of stigma [14] as well as fear of being cast out of the social sphere than males [15].

The majority of participants in both groups were educated, with many having attained tertiary level. This may probably be due to the fact that it is the most developed and transit city in South Eastern Nigeria where you have more tertiary institutions and Federal as well as State Secretariats. A third of participants (31.7%) of the Tuberculosis group and nearly one of four of the fracture group (38.7%) respectively, complete tertiary education.

In the tuberculosis group, majority of patients fall within the 18-29 age group. This is within the economically productive age group. This finding is in consonance with previous findings [5]. The majority of participants were Christian, probably because Christianity is the major religion on the study site. The majority of the participants in the study were Igbo, which is the major tribe of the people being served by the institutions.

About half (51.6%) of the participants with Tuberculosis were married which is similar to previous findings [16,17].The majority (60.3%) of the participants in the Tuberculosis group earn less than 18,000 naira which contrasted with 50% in the fracture group. About a quarter of those in the tuberculosis group and a tenth of the fracture were unemployed. This is similar to previous findings were tuberculosis was found as a disease of poverty and mostly affecting young people in their economic productive group [5], when compare with fracture that can be found in any group [6].

Table 6. Showing index of self esteem (ISE) by Socio- demographic profile of the participants

Variables	Tuberculosis (ISE: m (SD)	Statistics	Fracture (ISE: m (SD)	Statistics
Age				
<32 years	46.29(19.85)	t=2.122	31.97(9.46)	t=0.868
>32 years	38.71(18.90)	P<0.04*	30.32(11.87)	P<0.387
Gender				
Male	41.96(18.14)	t= -0.664	31.93(12.01)	t=0.893
Female	44.36(20.83)	P<0.51	30.22(8.07)	P<0.373
Religion				
Christian	44.59(18.90)	t=1.664	31.65(10.69)	t=1.159
Others	36.28(23.70)	P<0.09	28.38(9.70)	P<0.25
Marital status				
Married	40.46(19.50)	t= -1.739	30.17(10.88)	t= -1.244
Others	46.54(19.72)	P<0,08	32.53(10.17)	P<0.22
Education				
<12 years	46.44(18.89)	t=2.195	31.41(10.78)	t=0.204
>12 years	38.63(20.35)	P<0.03*	31.02(10.42)	P<0.390
Employment				
Unemployment	48.46(7.82)	t=1.817	37.00(12.04)	t=2.163
Employment	41.34(20.30)	P<0.07	30.59(10.24)	P<0.033
Income				
Low	48.47(20.57)	t=3.728	32.14(10.50)	t=0.972
Middle+High	35.70(15.77)	P<0.0001*	30.31(10.58)	P<0.33

32 years is the overall mean age score for both group.
Low<N18000, ***Middle>N18000<N50000,**High>N50000

Table 7. Showing the distribution of symptom checklist-90 (SCL-90) by socio- demographic profile of the participants

Variables	Tuberculosis (SCL-90): m (SD)	Statistics	Fracture (SCL-90): m (SD)	Statistics
Age				
<32 years	65.81(58.89)	t=3.616,p<0.0001*	44.51(44.97)	t=3.99, p<0.0001*
>32 years	30.19(43.87)		17.70(25.07)	
Gender				
Male	43.48(45.516)	t= -1.424, p<0.157	32.12(42.25)	t=-0.163,
Female	58.00(61.896)		33.29(35.88)	P<0.871
Religion				
Christian	53.81(52.57)	t=0.765,p< 0.446	34.30(40.69)	t=1.27
All Others	42.83(75.78)		20.88(30.06)	P<0.21
Marital Status				
Married	43.90(55.250)	t= -1.730, p<0.086	29.51(44.20)	t= -0.96,
All Other	61.11(56.350)		36.33(33.34)	P<0.34
Education				
<12 years	66.12(62.01)	t=3.64, p< 0.0001*	34.77(43.96)	t=0.700,
>12 years	30.43(36.76)		29.77(33.46)	P<0.49
Employment				
Unemployed	73.89(60.64)	t=2.70, p<0.008*	53.64(60.75)	t=2.150,
Employed	44.39(52.53)		29.75(35.80)	P<0.034
Income				
Low	66.59(61.51)	t=3.71, p< 0.0001*	42.56(43.55)	t=2.954
Middle+High	30.42(38.32)		22.31(32.41)	P<0.004*

32 years is the overall mean age score for both group.
Low<N18000, ***Middle>N18000<N50000,**High>N50000

Table 8. Showing the distribution of linear regression analysis between symptom checklist-90 and socio-demographic profile of the participants

Model	Unstandardized coefficient		Beta	P
	B	**SE**		
Constant	135.781	17.75		
Age (≤32 yrs/≥32 yrs)	-20.949	10.719	-.182	.05
Education (≤12 yrs/≥12 yrs)	18.421	11.769	-.160	.120
Employ (Unemployed/Employed)	-1.973	2.651	-.065	.458
Income (low/middle/high)	-18.125	11.597	-.158	.121

4.2 Psychological Distress

A quarter (25.4%) of the participants in the tuberculosis group and nearly 8 of 10(7.6%) of participants in the fracture group had diagnosable psychological distress as measured on the SCL-90.This findings is in agreement with a previous study [18], which found the same prevalence of 19% in tuberculosis new cases, 21.6% in tuberculosis old cases, 25.6% in multi-drug resistant tuberculosis, and 41.3% in patients with chronic obstructive airway disease, Bhatia, 2000, who found psychological distress (78%) [19] in patients with tuberculosis and Aghanwa &Erhabor,1998 found 30.2% in patients with tuberculosis and 15% in patients with fracture in South West Nigeria [6]. One possible explanation for the high level of psychological distress may be partly due to profound social consequences of contacting tuberculosis and the patients' perception of the disease as a life threatening one. Participants in the tuberculosis group were significantly and nearly six times as likely to have psychological distress compared to the fracture group.

4.3 Psychological Distress and Participants' Characteristics

Majority of the participants in both groups reported psychological distress. Females in the Tuberculosis group were more likely to have

psychological distress for all domains in the SCL-90 using gender normative cut-off score compare to their male counterparts. This finding is in agreement with previous study [6]. In the Tuberculosis group, the domain of interpersonal sensitivity, depression, anxiety psychoticism and paranoid ideation were prominent. This is in consonance with findings by previous authors that patients with tuberculosis have a higher prevalence of psychological distress than the general population [6,19,20,21].

Equal proportions of males and females in the fracture group had symptoms in both the psychoticism and paranoid ideation domain. In the fracture group, participants less than 32 years of age (p<0.0001), who were unemployed (p<0.03) and low income (p<0.004) had significantly higher scores (increase in psychological symptoms) as measured by the SCL-90.It is possibly due to poverty occasioned by participants, poor living condition and unemployment may be responsible.

4.4 Self Esteem

Over half (65.1%) of the participants with tuberculosis reported low self esteem. This finding is in agreement with previous study [22]. One possible reason may be partly a perception of the disease as causing social stigmatisation and life threatening circumstances [6]. Participants with tuberculosis were over twice as likely to report low esteem when compare to the fracture group. Perceived stigma may accentuate low self esteem [23]. People with poor self esteem experience negative feelings and thoughts that constantly plague them [21]. The findings on the mean scores on the ISE and the SCL- 90 subscales of depression, anxiety, hostility, and neuroticism in our study is in keeping with previous studies [24], as well as emotional pain.

4.5 Self Esteem and Participant Characteristics

Analysis of the mean scores of the ISE by socio-demographic characteristics in the tuberculosis participants shows that being age < 32 (P<0.04), having had less than 12 years of formal education (P<0.03) and earning less than 18000 naira, was significantly associated with poorer emotional health (increase in psychological symptoms). This finding is in agreement with previous studies [14], which reported that chronic disorders such as pulmonary tuberculosis, which

affect important body image areas cause profound lowering of confidence and self-esteem [22]. People with low education tend to be deprived of basic social amenities and may be more likely to live in poor accommodation and unfriendly environment [25].

5. CONCLUSION

In this study, the level of psychological distress was higher in patients with tuberculosis compared with patients with fracture (p<0.001). The diagnosis of tuberculosis may lead to a host of anxiety and worries among patients. For a stigma-ridden disease like tuberculosis, the intensity of emotional reactions may be much high. We also found that tuberculosis patients being of a younger age was significantly associated with poorer emotional health and that low self esteem was more prevalent among participants with tuberculosis compared to those with fracture (P<0.0001).

6. LIMITATIONS

1. The findings from this study are not generalizable to the general population, since it was hospital based study.
2. Comparing distinct and markedly different diseases like Tuberculosis and Fracture will result in many unaccounted cofounders.

Despite these caveats, the findings from this study may serve as a baseline data for comparison in the future.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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