Depression among general outpatients: A cross sectional study at Yobe State Specialist Hospital, Damaturu, North East Nigeria

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Abstract
Background: *Depression is the most common psychiatric disorder among general outpatients. It has been studied in most parts of Nigeria, however there is paucity of data in the insurgency ravaged geopolitical zone of Nigeria i.e north east Nigeria, hence the need to bring into limelight this public health problem.*
The objectives of the study were to determine the prevalence of depression, socio demographic and clinical variables associated with depression among general outpatients in Yobe State Specialist Hospital, Damaturu, North East Nigeria.
Materials and Methods: *A cross sectional descriptive survey was conducted between August and December 2017 among patients who attended the General Out Patient Department of Yobe State Specialist Hospital, Damaturu, Nigeria. Out of the 420participants recruited for the study, 404 respondents completed the study. Data was collected using a semi structured questionnaire for socio demographic characteristics of respondents and depression was assessed by the physicians using Patient Health Questionnaire-9.*
Results: *Data was analyzed using SPSS version 21. The age of the respondents ranged between 18 to 60*

years and above with a mean age of 41.2_+9.5years. The prevalence of depression was 65.3% among the study population. There was a statistically significant association between age (P=0.007), sex (P=0.004), marital status (P<0.001), educational status (<0.001), number of children (P<0.001), relationship tone with the spouse (P<0.001), family history of mental illness (P<0.001), monthly income (P<0.001) and depression in respondents. There was no statistically significant association between having a specific medical disorder and depression status of respondents (P=0.996).
Conclusion: *The study revealed the high magnitude of depression that goes undiagnosed and unmanaged. It was suggested that general medical practitioners do thorough assessment for early detection and prompt referral of patients with depression among general outpatients.*
Keywords: *Depression, General Outpatients, North East Nigeria.*

1. Introduction

Depression is predicted to become the second leading cause of the global disease burden by the year 2020[1]. According to the World Federation of Mental report of 2012, depression interferes with the daily life of people and causes pain for both patients and their carers[2]. Evidence indicates that mood disorders are among the most common problems that bring patients to doctors, thus literature from high income country suggest that almost 20% of adults will have a mood disorder requiring treatment during their lifetime while about 8% of adults will have a major depressive disorder during their lives [3].

Depression, a mood disorder is known to occur at high rates in patients who seek general medical care and nearly 70% of all antidepressants prescriptions are written by primary care physicians[4]. The World Health Organization report on mental health suggest that undiagnosed depression among general outpatients places a significant socio economic burden on individuals, families and communities, in terms of increased service needs, lost employment, reduced productivity and increased burden on caregivers[5].

The ability to detect depression by clinicians is sometimes affected by co morbidity. The co morbidity of physical illnesses and depression often complicates diagnosis, treatment and prognosis of depression[6].

The presence of multiple somatic symptoms in general medical practice further confuse the diagnosis and the priority of treatment given to the patients[7]. Somatic manifestations of depression also occurs across all cultures and contribute to the under recognition of depression in general practice[7]. Despite the findings on these studies on this co morbidity, little time is available to screen for mental disorders due to the workload at general medical outpatient clinics, hence depression may go undiagnosed. Notably, the prevalence of depression is higher in patients than in the general public[8], the underlying reasons include the illness itself and the heavy medical cost, unsatisfactory medical care service and poor doctor-patient relationship[9].

Depression among general outpatients has been studied by many researchers in Nigeria and other parts of the world. A study by Afolabi et al[10] reported the prevalence of depression as 59.6% on a sample of 250 patients at the family practice clinic of Obafemi Awolowo University Teaching Hospital, Ile Ife, Nigeria where they used Zung's Self Rating Depression Scale. Another study conducted by Michael Udedi[11] in 2014 found the prevalence of depression as 30.3% among 350 patients attending general outpatient at Matawale Health Centre in Zomba, Malawi using Self Reporting Questionnaire (SRQ-20) and Structured Clinical Interview for DSM-IV axis 1 Disorders Non Patient Version (SCID-NP). A more recent study by Salihu and Udofia[12] in Kano, North West Nigeria reported the prevalence as 49.8% and they found that depressed outpatient is more likely to be over 40years, female, married, having low level of education and suffering from chronic medical condition.

Direct comparison of prevalence estimates for depressive disorders is difficult because of a lack of uniformity as studies differ in terms of culture, patient population, sociodemographic factors and

methodology[13]. This study seeks to to determine the prevalence of depression and the variables associated with depression among general outpatients in Yobe State Specialist Hospital, Damaturu, North East Nigeria.

2. Materials and Methods

2.1 Setting of Study

The location of the study was in the General Out Patient Clinic of the State Specialist Hospital, Damaturu in the North Eastern geographical zone of Nigeria. The hospital is a 339 bed general public hospital providing primary, secondary and tertiary health care needs of the population of Yobe State, neighbouring states and the West African sub region as well. It is among the busiest health facility in the north eastern region of Nigeria with an average outpatient attendance of 300patients per day. There are different units and clinics in the hospital providing specialist services for patients through the aid of full time and visiting consultants.

2.2 Study design

The study was a cross sectional descriptive survey of consecutive patients who presented at the General Out Patient Department of the hospital until the estimated sample size of 420 was obtained. The study was carried out between August 2017 and December 2017. All newly registered patients who attended the clinic during the period of the study were also included. Data was collected using questionnaire incorporating socio demographic variables and depression was assessed with the Patient Health Questionnaire-9. The primary clinical diagnosis of the patients was made by attending physicians and these were classified into: (1) Infectious diseases e.g malaria, typhoid and others not specific to any System (2) Cardiovascular disorders e.g hypertension (3) Respiratory disorders (4) Gastrointestinal disorders (5) Genitourinary diseases (6) Musculoskeletal disorders (7) Endocrine disorders e.g diabetes (8 and 9) Others including dermatological disorders, ear, eye, neurological and other non specific diagnoses.

2.3 Ethical consideration

An approval for the study was obtained from the Research and Ethical Committee of Yobe State Specialist Hospital, Damaturu. Participation was made voluntary and informed consent was freely obtained from the respondents. Confidentiality was also ensured and respondents were assured that their healthcare would not be affected by whether or not they participated.

2.4 Sample size determination

The sample size that was used for the study was computed based on the formula

$$n= Z^2 p(1-p)/d^2$$

n=minimum sample size

P=prevalence of depression among general outpatients

Z=the standard normal deviation at 95% confidence level (1.96)

d=maximum allowable margin of error which is set at 5% (0.05)

The prevalence rate of 49% of depression in general medical practice in Nigeria by Salihu and Udofia[12] was employed in this study. Thus

P=0.49

Z=1.96

d= 0.05

$$n= (1.96)^2 \text{ x } 0.49 \text{ x } 0.51/(0.05)^2$$

=384.01

Adjusting for non response rate of 10% gave a minimum sample size of 384.01 + 38.40=422.4

Approximately, an estimated sample size of 420 was obtained.

2.5 Inclusion and exclusion criteria

Respondents were eligible for participation if they:

1. Were 18years and above
2. Gave consent

Respondents were not eligible if they:

1. Were severely ill with debilitating illness

2. Were receiving treatment for any psychiatric disorder.
3. Refused to give consent.

2.6 Instruments
1. Socio demographic questionnaire
2. Patient Health Questionnaire-9 (PHQ-9)

The questionnaires were administered by the investigators and research assistants.

2.6.1 Socio demographic questionnaire
The semi structured socio demographic questionnaire was designed for the study to elicit information on socio demographic variables such as age, sex, religion, marital status, level of education and employment status. The questionnaire also contained questions on family size and relationship with spouses in the family.

2.6.2 Patient Health Questionnaire-9
This is a nine item depression scale screening instrument. It is useful in screening for depression as well as selecting and monitoring treatment. It scores each of the nine DSM-IV criteria as '0' (not at all) to '3'(nearly every day). It has been validated for use in Nigeria by Adewuya et al[15]. The PHQ-9 scores of 5-9, 10-14, 15-19 and 20-27 represent mild, moderate, moderately severe and severe depression respectively. In this study, a cut off of 5 was employed as cut off for depression as recommended by Adewuya et al[14].

2.7 Data collection and analysis
2.7.1 Pilot Study
The questionnaires were pre-tested using forty two patients (10% of the sample size) in Yobe State University Teaching Hospital, Damaturu who did not participate in the main study. The aim of this pilot study was to ensure that these questionnaires could reliably be used among the target sample to be recruited for the study.

2.7.2 Data collection
With the informed consent of each consecutive respondent, the proforma for socio demographic data was administered by the authors and depression was assessed using Patient Health Questionnaire. This was done in the consultation rooms of the clinic every day until the desired sample size of 420 was obtained.

2.7.3 Data analysis
Data analysis was carried out using the Statistical Package for Social Sciences version 21 software. Appropriate descriptive and inferential statistics were used for the data collected to achieve the objectives of the study. Univariate analysis was used to determine the prevalence of depression and this was expressed in percentages. Association of bivariate levels was assessed using t test, chi square and Pearson's correlation coefficient based on the type of variable.

3. Results
Four hundred and twenty (420) participants were selected for the study. However, four hundred and four (96.2%) of them finally participated and had complete data sets without any missing data on the variables.

The mean (SD) age of respondents was 41.2 (9.5) years. Table 1 shows most respondents were females (63.7%), majority were muslims (83.2%), were married (74.0%) and a high proportion were of the Kanuri ethnic group (56.2%). About a third had no formal education (33.4%) and more than half (53%) of the respondents were unemployed. A significant proportion of the respondents came from polygamous family settings (62.1%) and most respondents (59.9%) had monthly income below Nigerian minimum wage of 50USD. The mean (SD) USD monthly income of respondents was 64.90 (76.96) and the median monthly income was 50USD only.

Table 1a: Socio-demographic characteristics of respondents (n=404)

Characteristic	Frequency	Percent
Ages (yrs)		
<30	62	15.3
30 – 39	129	31.9
40 – 49	143	35.4
50 – 59	48	11.9
60 and above	22	5.4
Mean (SD) yrs	*41.2(9.5) yrs*	
Sex		
Male	146	36.1
Female	258	63.9
Religion		
Islam	336	83.2
Christianity	65	16.1
Other	3	00.7
Marital status		
Single	30	07.4
Married	299	74.0
Separated	26	06.4
Divorced	23	05.7
Widowed	26	06.4
Ethnic group		
Kanuri	227	56.2
Hausa	98	24.3
Fulani	41	10.1
Yoruba	16	4.0
Igbo	10	2.5
Others	12	3.0
Educational status		
No formal education	135	33.4
Primary	107	26.5
Secondary	81	20.0
Tertiary	81	20.0
Employment status		
Employed	190	47.0
Unemployed	214	53.0
Family Type		
Polygamous	251	62.1
Monogamous	153	37.9
No. of children		
None	7	1.7
1 – 4	149	36.9
5 – 8	107	26.5
9 and above	141	34.9
Monthly income (USD)		
<50USD	242	59.9
50USD and above	162	40.1

Table 1b: Summary statistics of select numeric variables

Variable	Mean	SD	Median
Age (in yrs)	41.2	9.5	41.0
Monthly salary (in USD)	64.90	76.96	50.00
Depression score	6.0	2.8	6.0

Table 2 shows majority of respondents reported no family history of mental illness (79.5%) and almost half of the respondents reported a chronic medical condition (49.5%). Most respondents reported a cordial relationship tone with their spouses (54.2%) and most respondents, following

assessment, were reported as depressed (65.3%). The prevalence of depression among respondents

was 264 (65.3%)

Table 2: Health related characteristics of respondents (n=404)

Characteristics	Frequency	Percent
Family history of mental illness		
Yes	83	20.5
No	321	79.5
Chronic medical condition		
Yes	200	49.5
No	204	50.5
Relationship tone with spouse		
Not applicable	45	11.1
Cordial	219	54.2
Not cordial	140	34.7
Depression status		
Non depressed	140	34.7
Depressed	264	65.3

Table 3 shows a little above a third of respondents presented on account of infective disorders (33.4%), followed by cardiovascular (23.3%) and others including dermatological disorders, ear, eye, neurological and other non specific diagnoses (9.2%)

Table 3: Distribution of medical disorders among patients attending the outpatient clinic

Characteristics	Frequency	Percent
Infective disorder	135	33.4
Cardiovascular disorder	94	23.3
Endocrine disorder	36	8.9
Gastrointestinal disorder	29	7.2
Respiratory disorder	27	6.7
Musculoskeletal disorder	26	6.4
Genitourinary disorder	20	5.0
Others	37	9.2
Total	**404**	**100.0**

Table 4 shows there was a statistically significant association between age (P=0.007), sex (P=0.004), marital status (P<0.001), educational status (<0.001), number of children (P<0.001), relationship tone with spouse (P<0.001), family history of mental illness (P<0.001), monthly income (P<0.001), family type (P< 0.001), employment status (P< 0.001) and depression in respondents.

Table 4: Socio-demographic characteristics and Depression status in respondents

Characteristic	Non depressed n (%)	Depressed n (%)	X^2	P-value
Age (in years)				
< 30	22 (35.5)	40 (64.5)	13.992	*0.007
30 – 39	58 (45.0)	71 (55.0)		
40 – 49	43 (30.1)	150 (69.9)		
50 – 59	15 (31.3)	33 (68.8)		
> 60	2(09.1)	20 (90.9)		
Sex				
Male	64 (43.8)	82 (56.2)		
Female	76 (29.5)	182 (70.5)	8.512	*0.004
Religion				
Islam	115 (33.8)	225 (66.2)		
Christianity	24 (39.3)	37 (60.7)	0.698	0.705
Others	1 (33.3)	2 (66.7)		
Marital status				
Unmarried	15 (14.3)	90 (85.7)		
Married	125 (41.8)	174 (58.2)	25.991	*<0.001
Ethnic group				
Kanuri	83. (36.6)	144 (63.4)		
Hause	35 (35.7)	63 (64.3)	4.013	0.548
Fulani	9 (22.0)	32 (78.0)		
Yoruba	6 (37.5)	10 (62.5)		
Igbo	4 (40.0)	6 (60.0)		
Others	3 (25.0)	9 (75.0)		
Educational status				
No formal educ.	98 (72.6)	37 (27.4)		
Primary	2 (1.9)	105 (98.1)	159.398	*<0.001
Secondary	8 (9.9)	73 (90.1)		
Tertiary	32 (39.5)	49 (60.5)		
Employment status				
Employed	124 (65.3)	66 (34.7)		
Unemployed	16 (7.5)	198 (92.5)	148.412	*<0.001
Family Type				
Polygamous	33 (13.1)	218 (86.9)		
Monogamous	107 (69.9)	46 (30.1)	135.368	*<0.001
No of children				
None	3 (42.9)	4 (57.1)		
1 – 4	117 (78.5)	32 (21.5)		
5 – 8	16 (15.0)	91 (85.0)		
9 and above	4 (2.8)	137 (97.2)	218.71	*<0.001
Relationship tone with spouse				
Not applicable	7 (15.6)	38 (84.4)		
Good	128 (58.4)	91 (41.6)	121.729	*<0.001
Poor	5 (03.6)	135 (96.4)		
Family history of mental illness				
Yes	15 (18.1)	68 (81.9)		
No	125 (38.9)	196 (61.1)	12.683	*<0.001
Monthly income (USD)				
< 50	4 (01.7)	237 (98.3)		
>50	136 (84.0)	26 (16.0)	289.372	*<0.001

*Significant at P<0.05

Table 5 shows there was no statistically significant association between having a specific medical disorder and depression status of respondents.

Table 5: Medical disorders and depression among patients attending the outpatient clinic (n=404)

Characteristics	Non depressed n (%)	Depressed n (%)	Frequency (%)
Infective disorder	48 (35.6)	87 (64.4)	135 (33.4)
Cardiovascular disorder	31 (33.0)	63 (67.0)	94 (23.3)
Endocrine disorder	10 (37.0)	17 (63.0)	36 (8.9)
Gastrointestinal disorder	10 (34.5)	19 (65.5)	29 (7.2)
Respiratory disorder	7 (35.0)	13 (65.0)	27 (6.7)
Musculoskeletal disorder	9 (34.6)	17 (65.4)	26 (6.4)
Genitourinary disorder	14 (38.9)	22 (61.1)	20 (5.0)
Others	11 (29.7)	26 (70.3)	37 (9.2)
Total	**140 (34.7)**	**264 (65.3)**	**404 (100.0)**

X^2= 0.915, Df=7, P= 0.996

Table 6 shows that after entering the possible predictors of depression into the logistic regression model, the significant predictors of depression were educational status OR (95%CI)= 0.5 (0.323-0.774), family type OR (95%CI)= 0.264 (0.121-0.578) , number of children OR (95% CI)= 2.006 (1.280-3.143) and history of chronic medical condition OR (95% CI)= 0.303 (0.134-0.686).

Table 6: Logistic regression analysis of predictors of depression in respondents

Variable	OR	95% Confidence Interval		P-value
		Min.	Max.	
Educational Status	0.500	0.323	0.774	0.002
Family type	0.264	0.121	0.578	0.001
Number of children	2.006	1.280	3.143	0.002
History of mental illness	0.397	0.145	1.086	0.072
Chronic medical condition	0.303	0.134	0.686	0.004
Monthly salary	1.000	1.000	1.000	<0.001
Constant	3819.119			<0.001

4. Discussion

This study found the prevalence of depression among general outpatients as 65.3%. The prevalence rate reported in this study is higher when compared with 59.9% and 47.8% prevalence rates reported in the South Western region of Nigeria by Afolabi et al[10] and Obadeji et al[15] among similar population respectively. Possible reason for the higher prevalence rate in this study could be due to the ongoing insurgency in the region where people live in constant fear and many have lost their loved ones and properties. Other studies conducted in other parts of the country where there are no crises have however reported higher prevalence rates between 59% and 77% using other instruments[10, 16]. These discrepancies of prevalence rates might be due to variation in attributes of study participants, use of different psychometric scale, study design, setting, time frame and level of regional development of the country.

There was a statistically significant association between depression and age group of the subjects. In this study, depression was more common among participants who were 40years and above than those who were below 40years. This is in contrast to the findings of Gregory and Jonathan[17] where they reported majority of patients diagnosed with depression to be of younger age group. However, this could be due to the fact that older adults have more medical conditions such as heart disease, stroke, cancer and are on medications for those conditions, both of which cause depression[18]. Also, older patients are more likely to have suffered the consequences of the insurgency going on in the region.

In the present study, depression was found to be more among females and those who were

unemployed. Different studies have also shown that depression is more common among female gender[19,20]. The suggested reasons for depression being more common in female than male were sex hormones having influences on depression[21,22]. Social researchers also argue that parents unintentionally become more restrictive to their daughters than to their sons, thereby making their daughters vulnerable to depression by reducing senses of self control and self esteem[23].

Depression was found to be common among patients with lower level of education (primary and secondary education) when compared with those with tertiary education. This agrees with the findings of Engum et al[24] and Bielland et al[25] who reported that low educational levels were significantly associated with depression. This could be because most patients with lower level of education might not see the need of coming to the hospital for treatment thereby allowing the symptoms of depression to persist[25].

There was significant association between depression and family type in this study as depression was more common among respondents from polygamous families than those from monogamous families. This finding is similar to the finding of Ozkan et al[26] who found that people from polygamous families reported more psychological distress such as depression because they tend to experience lower self esteem, less life satisfaction, less marital satisfaction, and more mental health symptomatology than those from monogamous homes.[27]

Depression in this study was also found to be significantly associated with family history of mental illness. This is in agreement with the findings of Weissman[28] who reported that the risk for depression was higher among people with family history of mental illness suggesting the potential significance of family history of mental illness. Depression was also significantly associated with having a poor relationship with the respondents' spouses. This is attributable to the fact that building a strong and loving relationship can fortify one against the withering effects of depression[29]. Additionally, persistent marital disagreement and discord can lead to lack of communication and trigger heightened anxiety and depressive symptoms[29].

The employment status of the studied patients was found to have a significant association with depression as it was more common among the unemployed than employed patients. This is in contrast to the findings of Deyessa[30] who reported that employment was not significantly associated with depression. However, this could be due to loss of income, lack of social support and low sense of control over life that results from unemployment leading to negative mental health and decline in the standard of living of the individual[31]. Respondents' number of children was also found to be significantly associated with depression. This is similar to the findings of Reinherz et al[32] who reported that some aspects of family composition such as number of children in a household and large family size as being linked to depression. This could be due to enormous socioeconomic burdens and responsibilities involved in the care of children and family at large[32].

In this study, there was no significant association between depression and type of medical illness.

This is in contrast to the findings of Frasure[33] et al who earlier reported that depression was significantly associated with chronic medical conditions such as neurological, cardiovascular, endocrine and oncological illnesses. However, this could be due to the difficulty involved in recognizing depression in medically ill patients and the exact biological mechanisms by which these illnesses may cause depression are yet to be determined[29].

Depression is also found to be significantly associated with monthly income as depression was more common among those respondents with low monthly income (<50USD) than those with income above 50USD. This is similar to the findings of Williams et al[34] who reported that depression is most common in low income people. This could be due to associated socioeconomic

difficulties and material hardships in meeting basic needs such as food, housing, clothing which could have negative impact on mental health[35]

This study has shown that the prevalence of depression among general medical outpatients is very high in this environment and unfortunately this goes largely undiagnosed and unmanaged.

The findings in this study call for further training and retraining of general duty physicians in the early detection, recognition and treatment of depression.

Strengths and Limitations

The strengths of this study include a high response rate, reasonably large sample size and almost the first study on depression to be conducted among general outpatients in the north eastern region of Nigeria. However, important limitation is that the study was cross sectional in design and causal relationship cannot be attributed. Additionally, Patient Health Questionnaire-9 was used in this study which is only a screening instrument.

Acknowledgements

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