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ABSTRACT

***Objective*: The objective of the study was to determine the prevalence and nature of psychiatric morbidity among patients attending a neurology outpatient clinic.**
***Design*: A two-stage screening procedure with General Health Questionnaire (GHQ-12) and Schedules for Clinical Assessment in Neuropsychiatry (SCAN) was used to assess psychological disorders over a one year period. Psychiatric diagnosis was based on ICD-10 criteria.**
***Setting*: University of Ilorin Teaching Hospital (UITH), Ilorin- Nigeria**
***Subjects*: Two hundred and thirty-five (235) patients aged 18 years and above attending the neurology outpatient clinic.**
***Results*: Overall prevalence of psychiatric morbidity was 26.0% (61/235). The most frequent diagnoses were depression (14.9%), generalised anxiety disorder (5.5%), dementia (2.6%) and substance use disorder (1.3%). Significantly more patients with stroke had psychiatric morbidity.**
***Conclusion*: The study supports previous reports that psychiatric disorders are quite common among patients with neurological disorders. Efforts should, therefore, be directed at identifying and treating neurological patients with psychiatric morbidity since this will ensure improved outcome. In this regard, mental health professionals would need to provide liaison services for the neurologists and train them in the use of simple screening instruments for detecting associated psychiatric disorders with appropriate referral where necessary.**

INTRODUCTION

Several surveys have documented the high prevalence of psychiatric morbidity in patients with chronic medical conditions including those with neurological disorders (1-3). All physical illnesses and their management cause a psychological reaction, although this may or may not reach morbid levels (4). Development of psychiatric morbidity in patients with neurological disorders is attributed to a number of factors, including underlying disease process, disablement resulting from the disorders, type and location of the lesion, duration of the illness, medication effects and psychological reactions to the illness. Parkinson's disease (PD) is a good example of a disabling neurological disorder and it is now apparent that the underlying neurodegenerative disorder is a major cause of psychiatric disturbances even though the psychological reactions to the illness equally play a major role (5). In addition to loss of dopaminergic neurons in the substantial nigra, PD is accompanied by degeneration of noradrenergic neurons in the locus coeruleus, serotonergic neurons in the dorsal raphe, and cholinergic neuron in the nucleus basalis and their attendant projection systems (5). Similarly it has been reported that in acute stroke, left frontal and left basal ganglia lesions are significantly more frequent among patients with major depression compared

with any other lesion location (6, 7).

Rates of psychiatric morbidity in medical population vary depending on the criteria used. In developed countries, it has been reported that 25% to 30% of medical outpatients and 40% to 50% of medical inpatients have diagnosable psychiatric disorders (8, 9). Studies from developing countries have reported prevalent rates of 21% to 36% in both medical outpatients (10-13) and medical inpatients (14-17). Similarly, a prevalence rate for psychiatric morbidity reported from developed countries ranges between 47- 64.4% in neurology outpatients (18, 19) and a prevalent rate of 39% was reported among neurology inpatients (20). The prevalence rates reported above for patients with neurological disorders is in support of the observation that substantial degree of psychiatric morbidity exist in patients cared for by neurologists (2, 3).

Co-morbidity of psychiatric and medical illnesses is associated with a greater likelihood of poorer prognosis of the medical illness, a greater likelihood of hospitalisation or institutionalisation, a greater likelihood of health care service use of all types and a greater impairment in quality of life (21). It has been reported that depressive disorders, anxiety disorders and other psychiatric disorders inhibit recovery from stroke and limit quality of life (22). Similarly it has also been documented that even though the motor symptoms in PD are the focus of pharmacotherapy, yet non motor symptoms (e.g. dementia, psychosis, anxiety, insomnia, autonomic dysfunction, and mood disturbances) can be the most disturbing, disabling and misunderstood aspects of the disease. Depressive symptoms occur in approximately half of PD patients and are a significant cause of functional impairment for PD patients (23). Despite the increase burden of psychiatric morbidity on patients with neurological disorders, often these disorders are not formally recognised by the neurologists and only a minority of patients are referred to the psychiatrists.

There are quite a number of studies (11, 12, 16, 24, 25, 26) that have assessed psychiatric morbidity among medically ill populations in Nigeria, but no previous study was conducted in a population of neurological patients.

MATERIALS AND METHODS

Setting: University of Ilorin Teaching Hospital (UITH) is a tertiary health institution (owned by the Federal Government) located in Ilorin, an urban centre and capital of Kwara state of Nigeria, a country in the West African sub- region. The hospital is the only tertiary health facility in the state, its primary catchment area, with a population of 2.3 million (27). Referrals also come from neighbouring states. Kwara state is located in the north- central or middle belt zone of Nigeria. The neurology outpatient clinic is an afternoon clinic run every Monday by two consultant neurologists and some resident doctors.

Subjects: Two hundred and thirty-five (235) consecutive patients aged 18 years and above who attended the neurology outpatient clinic and consented to participate during the study period (March 2009 to February 2010) constituted the study population. Neurological diagnoses were made in these patients by the consultant neurologists following their clinical examination and investigation. The interview consisted of two stages. The first stage involved administration of questionnaire that covered the following areas: sociodemographic variables, extraction of relevant medical history from patients' medical notes and administration of the 12- items version of the General Health Questionnaire (GHQ-12) (28, 29). The GHQ is a self administered screening instrument designed to measure psychological distress. GHQ-12 has been used and validated in this environment and a score of 2 or more is suggestive of a probable case of psychological disorder (30). The first stage assessment was handled by 3 trained research assistances. Inter-rater reliability was satisfactory (K =0. 85). Any patient with history of a previous mental disorder before onset of neurological illness was excluded from the study.

The second stage: Clinical psychiatric interview was conducted by 3 consultant psychiatrists without knowledge of results of first stage assessments using the Schedule for Clinical Assessment in Neuropsychiatry (SCAN), version 2.1 (31). SCAN is a WHO document intended for use only by clinicians with an adequate knowledge of psychopathology who have taken a course at a WHO designated SCAN training centre. It is a set of instruments and manual aimed at assessing, measuring and classifying the psychopathology and behaviour associated with the major psychiatric disorders of adult life. The 3 psychiatrists had training in the use of SCAN and inter-rater agreement was high (K = 0.80). One hundred and eighty-nine patients were interviewed using SCAN. This included all the 96 GHQ positive cases (GHQ score ≥ 2) and 93 (66.9%) out of 139 GHQ negative (GHQ score: 0-1) cases. The number of GHQ negative patients interviewed was far in excess of the minimum of 10% recommended for inclusion in second stage interview. Psychiatric diagnoses were made based on the criteria of the International Classification of Diseases (ICD-10) (32). Ethical approval to conduct the study was obtained from the hospital ethical committee.

Data analysis: Data were analysed using the Statistical Package for Social Sciences, SPSS 16.0 for windows, and the level of statistical significance was set at 5%.

RESULTS

Basic social data: A total 252 patients attended the neurological clinic during the period of the study but 17 of them were excluded from the study (7 were less than 18 years old, 7 were too sick to be interviewed and 3 had past history of mental illness before they developed neurological disorder) leaving us with a total of 235 included in this study. This was made up of 130 (55.3%) males and 105 (44.7%) females. The mean age was 49.7 years and range was (49.7± 17.8). The age distributions of the patients were as follows: 54 (23%) were between (18- 34) years old; 32 (13.6%) between (35-44) years old; 88 (37.4%) were between (45-64) years old while 61 (26%) were 65 years or older. One hundred and twenty-five (53.2%) of the total patient population were Muslims; 109(46.4%) were Christians while 1 (0.4%) was a traditionalist. Fifty –nine (25.1%) patients were illiterates; 43 (18.3%) had primary school education and 77 (32.8%) had tertiary education. Most of the patients (66.0%) were married; 42 (17.9%) were single; 34 (14.5%) were widowed and 4 (1.7%) were separated/ divorced. One hundred and forty-four (61.3%) of the patient population were employed; 33 (14.0%) were students (Table 1).

Table 1
Sociodemographic characteristics of neurological patients attending UITH neurology clinic

Variables	Frequency	Percentage
Gender		
Male	130	55.3
Female	105	44.7
Age		
18-34	54	23
35-44	32	13.6
45-64	90	38.3
≥65	59	25.1
Religion		
Christianity	109	46.4
Muslim	125	53.2
Traditionalist	1	0.4
Educational level		
Primary	43	18.3
Secondary	49	20.9
Tertiary	77	32.8
Illiterates	59	25.1
Others	7	3.0
Marital status		
Single	42	17.9
Married	155	66.0
Separated/ divorced	4	1.7
Widow	34	14.5
Employment status		
Employed	144	61.3
Retired	33	14.0
Unemployed	25	10.7
Students	33	14.0

Neurological disorders

Table 2
Neurological diagnoses of patients attending UITH neurology clinic

Diagnoses	Frequency	Percentage
Parkinson's disease	19	8.1
Stroke	83	35.3
Seizure disorders	69	29.4
Other neurological disorders*	64	27.2
Total	235	100

*Spondylosis, migraine head ache, tension head ache, Bell's palsy,mononeuropathy, senile tremor, orofacial dyskinesia, etc.

Table 2 shows the distribution of the neurological diagnoses made by consultant neurologists primarily managing the patients. The commonest neurological disorders among the patients were stroke (35.3%), seizure disorders (29.4%) and Parkinson's disease (8.1%). Other neurological conditions identified in the study population included cervical and lumbar spondylosis (5.5%), senile tremors (3.8%), migraine head ache (3.4%), tension head ache (2.1%), Bell's palsy (1.7%), mononeuropathy (1.7%), orofacial dyskinesia (each 1.7%), and other neurological diagnosis(thalamic syndrome, vasovagal syndrome, facioscapular dystrophy, transverse myelitis, post traumatic pain, space occupying lesion, acute dystonia, gullen barren syndrome and chorearthetosis) (all together 7.3%).

Prevalence of psychiatric disorders: A total of 63 psychiatric cases were identified during the second stage of psychiatric assessment, giving overall psychiatric morbidity rate of 26.8% (Table3). Depression (14.9%) was the most frequent diagnosis in the study population (mild depression (3.8%), moderate depression (7.2%), and severe depression (3.8%). Others included generalised anxiety disorder (5.5%), dementia (2.5%), substance use disorder (1.3%), somatoform disorder (0.9%), phobia (0.4%) and psychosis (1.3%) (Paranoid psychosis (0.9%) and organic psychosis (0.4%)). For depression; seven of the cases had Parkinson's disease, 19 had stroke and nine had seizure disorders. Also for the patients with anxiety disorder; one case had Parkinson's disease, eight had stroke, one had seizure disorder and three had some other minor neurological diagnosis. Three of the dementia cases had stroke, two had Parkinson's disease and one seizure disorder. All the three cases of substance use disorder had stroke and of the three cases of psychosis, one had stroke and two had seizure disorder. For somatoform disorder, one case had stroke and the other had seizure disorder and the only case of phobia had stroke. Socio-demographic variables were not significantly associated with psychiatric morbidity. Among the diagnostic groups stroke was found to be significantly associated with psychiatric morbidity (x^2 =36.376; df= 6; P= <0.000).

Table 3
Prevalence of psychiatric disorders in neurological patients attending UITH neurology clinic

Psychiatric diagnosis	Frequency	Percentage
Depression*	35	14.9%
Generalised anxiety disorder	13	5.5%
Somatoform disorders	2	0.9%
Phobia	1	0.4%
Dementia	6	2.5%
Psychosis+	3	1.3%
Substance use disorder	3	1.3%
Total	63	26.8%

*Mild depression= 3.8%, Moderate Depression =7.2%, Severe Depression = 3.8%
+Organic psychosis= 0.4%, Paranoid psychosis= 0.9%.

Table 4 shows the comparison of neurological patients with psychiatric morbidity and neurological patients without psychiatric morbidity on sociodemographic variables. More people with tertiary education and more retired/ unemployed people had psychiatric morbidity (although these did not reach significant level).

DISCUSSION

The overall prevalence of 26 % reported in this study is lower compared with findings from the developed countries in studies conducted among patients with neurological disorders, where prevalence rates of psychiatric morbidity ranges between 47% and

Table 4
Comparison of neurological patients with psychiatric morbidity and neurological patients without psychiatry morbidity

Demographic	Neurological disorder with psychiatric morbidity N=63(%)	Neurological disorder without psychiatric morbidity N=172(%)	X^2	P-Value
Age (yrs)				
18-34	11(17.5)	43(25)	2.61	0.456
35-44	7(11.1)	25(14.5)		
45-64	26(41.3)	64(37.2)		
>64	19(30.2)	40(23.3)		
Marital status				
Single	8(12.7)	34(19.8)	3.643	0.303
Married	41(65.1)	114(66.3)		
Separated/divorced	2(3.1)	2(1.1)		
Widow	12(19.1)	22(12.8)		
Educational Status				
Illeterate	14(22.2)	45(26.2)	2.936	0.569
Primary	9(14.3)	34(19.8)		
Secondary	14(22.2)	35(20.3)		
Tertiary	25(39.7)	52(30.2)		
Others	1(1.6)	6(3.5)		
Gender				
Male	30(47.6)	100(58.1)	2.065	0.151
Female	33(52.4)	72(41.9)		
Religion				
Christian	29(46.0)	80(46.5)	2.743	0.254
Muslim	33(52.4)	92(53.5)		
Traditionalist	1(1.6)	0		
Occupation				
Trade/Business	19(30.1)	53(30.8)	4.857	0.183
Civil Servant	8(12.7)	27(15.7)		
Retirees/Unemployed	35(55.6)	77(44.8)		
Farmer/artisans	1(1.6)	15(8.7)		
Duration of illness				
<1 year	22(35.0)	70(40.7)	3.879	0.275
1-5 yeas	21(33.3)	53(30.8)		
6-10 years	13(20.6)	24(14.0)		
>10 years	7(11.1)	25(14.5)		

64.6% in outpatients (18,19) and 39% in inpatients (20) .Studies from developed countries (18,20) have also reported higher prevalence of psychiatric morbidity in women with neurological disorders than in men with similar problems in both outpatient and inpatient population. There are no data from developing countries for direct comparison on psychiatric morbidity in population of patients with neurological disorders. However, the common neurological disorders in this study are also similar to commonly reported neurological disorders in Nigeria, other developing countries and developed countries (33-37).

It was also found that depression was the commonest psychiatric diagnosis (14.9%) followed by generalized anxiety disorder (5.5%), dementia (2.5%), substance use disorder (1.3%), psychosis (1.3%), somatoform disorders (0.9%) and phobia (0.4%). This finding is similar to the reports of some studies conducted in outpatient neurological clinics in developed countries where depressive disorders and generalised anxiety disorder were the 2 commonest diagnoses but the percentages reported were higher (e.g. depression (40-43%), generalised anxiety disorder (5-15%)) (38,39). Also the findings of this study are comparable with those of Jefferies *et al* (40), though from inpatient neurological population that reported depression (24.8%) as the commonest diagnosis and cognitive disorders (17.7%) and anxiety disorders (12.7%) in that order. The report of this study, however, differs from the reports of some other studies from developed countries conducted in a mixed neurological population of inpatient and outpatient (18, 41) where somatoform disorders, anxiety disorders and depression in that order were reported as the most common diagnoses.

The results of this study showed that more patients with tertiary education and more of those who were unemployed/retired had psychiatric morbidity. This observation is different from some of the reports of studies from developed countries (18, 40). For instance, Fink *et a*l (18) reported that overall psychiatric morbidity declined with increasing age and there was higher overall psychiatric morbidity among women. Jefferies *et al* (40) on the other hand reported no significant differences in rates of mental illness between sexes and between the age groups.

Among the diagnostic groups stroke was found to be more significantly associated with psychiatric morbidity in this study. Numerous studies have associated stroke with psychiatric morbidity, depressive disorders being the commonest type (3, 6, 7, 22, 38). Other types of psychiatric morbidities associated with the major neurological disorders include anxiety disorders, dementia, catastrophic reaction, psychosis and insomnia (5, 22, 23). Neurological disorders directly affect the brain and thus may contribute to the generally higher rates of psychiatric morbidity when compared to other physical disorders with no direct brain involvement (42).Psychiatric disorders in neurological patients when not treated may persist, and this may have negative effects on social functioning and overall quality of life. It may also negatively affect medication compliance, slow down recovery, increase cost of treatment and lead to increased morbidity and mortality rate (5,22,23,42).There is, therefore, the need for further studies of psychiatric morbidity in neurological populations (among inpatients, outpatients, primary care and community based) in Nigeria and other developing countries in order to allow for cross cultural comparison of rates of disorders and associated factors and also for development of preventive strategies to reduce morbidity and mortality rates and improve quality of life of patients.

In conclusion, the study supports previous reports that psychiatric disorders are quite common among patients with neurological disorders. Efforts should, therefore, be directed at identifying and treating neurological patients with psychiatric morbidity since this will ensure improved outcome. In this regard, mental health professionals would need to provide liaison services for the neurologists and train them in the use of simple screening instruments for detecting associated psychiatric disorders, with appropriate referral where necessary. Further psychiatric studies of neurological populations in Nigeria and other developing countries are necessary in order to allow for cross-cultural comparison with findings from developed countries.

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