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Psychosocial and seizure factors related to depression and neurotic disorders among patients with chronic epilepsy in Nigeria

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Summary

To establish the effect of psychosocial and seizure factors on Depression and Neurotic Disorders among clinically diagnosed Nigerian patients, with epilepsy. This study utilized the multivariate statistical design to evaluate the associations between some psychosocial and seizure factors on increase depression and neurotic disorders. The Neurology outpatient clinics of two tertiary facilities in Nigeria: Aro Neuro-psychiatric Hospital/World Health Organization Collaborating Centre, Abeokuta and the University College Hospital Ibadan, were used for the study. Two hundred and sixty four (264) consecutive clinic attendees with a clinical diagnosis of epilepsy participated in the study. Perceived Stigma Scale (PSS); Washington Psychosocial Seizure Inventory (WPSI-Modified): Becks Depression Inventory (BDI) and Crown-Crisp Experiential Index (CCEI). Significant main effect for seizure control, stigma, emotional adjustment, vocational adjustment, interpersonal adjustment, adjustment to seizures but not for age at onset of epilepsy, financial adjustment and gender, were recorded on depression. Similarly significant main effect for seizure control, stigma, emotional adjustment, adjustment to seizures but not for age at onset of epilepsy, gender, vocational adjustment, financial adjustment and interpersonal adjustment were recorded for neurotic disorders. The study highlights some of the factors, which may contribute to the understanding of epilepsy-related psychopathologies and implication for psychotherapeutic intervention among individuals with epilepsy in Nigeria.

Keywords: *Seizure epilepsy; depression; neurotic disorders; psychosocial.*

Résumé

L'objectif de cette étude était d 'établir l'effect psychosocial et les facteurs des crampes liés aux désordres de dépression et neurotique parmi les patients Nigérian cliniquement diagnostiques ayant l'épilepsie dans 2 centres de santé tertiaires, Ibadan (UCH et l'hopital Aro-neuro psychiatre d'Abéokuta, Nigéria. Deux cent soixante quatre patients consecutive yant l'épilepsie clinique participaient a cette étude en utilisant l'inventaire de dépression(BDI) et des crampes(WPSI modifie), l'index experimental de Crown-Crisp(CCEI) et l'échelle de stigma percu (PSS).Une analyse a multivariable permit d'évaluer les associations entre certains facteurs psychosociaux et les crampes sur l'augmentation des désordres de dépression et neurotique. Le controle des crampes, stigma, adjustement émotional, vocational et interpersonal adjustait les crampes mais pas au début d'age des épilepsies.. l'adjustement financiér et le gendre étaient enregistré aux dépressions. Aussi le gendre, l'adjustement financiér, vocational et interpersonal étaient enregistrés cause des désordres neurotiques. Cette étude illumine certains facteurs qui peuvent contribuer a la comprehension des psychopathologies de l'épilepsie pour des interventions psychotherapqutiques aux individus épileptiques au Nigéria.

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Introduction

Epilepsy is a disorder characterized by a spectrum of severity ranging from mild and benign to severe and intractable [1]. The risk of social and psychological disability parallels this spectrum of severity [2,3]. Empirical studies examining psychiatric morbidity among patients with epilepsy are typically conducted at facilities that treat patients from the more severe end of the epilepsy spectrum [4]. These investigations have consistently reported depression and specific psycho-neuroticism to be a serious and common interictal psychiatric complication [3,5-11]. The significantly elevated mortality in epilepsy due to suicide underscores the seriousness of this psychiatric problem [12].

Factors associated with these psychiatric complications are many [10] and include both neurobiological and psychosocial variables. Investigations using these variables in predicting psychopathology among individuals with epilepsy have also been extensively examined [13-16] and are still receiving empirical attention [3,17]. Nevertheless, despite approximately two decades of research activities, many aspects of these relationships remain unclear. Many of these problems are centered on various methodological flaws that characterized such research and these difficulties include the problem of definition and the use of limited psychosocial variables.

Several studies on epilepsy have been reported from Nigeria [18-25] these studies have failed to elucidate the degree to which psychosocial factors predispose Nigerians with epilepsy to psychopathology. While some studies such as Asuni and Pillutla, [18] Odejide and Bademosi [19] and Gureje [20] documented increase psychiatric co-morbidity in the samples studied, others have documented a prevalence of psychosocial problems, among their sample population [21-25].

Essentially all of these studies are descriptive in design with little or no underlying theoretical framework. Moreover there has been an unexplainable lack of research into the

role that psychosocial and seizure factors play in disposing patients with epilepsy in Nigeria to psychiatric morbidity. The present study examined associated factors of psychopathology among sample of individual persons with epilepsy in Nigeria.

Method

Subjects

The subjects were screened from patients who were on follow-up management at the clinics of two psychiatric facilities in Nigeria, the Neuro-psychiatric Hospital, Aro and the University College Hospital Ibadan. A total of 264 subjects were interviewed over a 4-month period during counseling sessions at each of the clinic days. This sample size was based on sampled size calculation for a cross-sectional survey [26] and is based on the 37% prevalence of psychiatric morbidity found in a previous survey among epileptics studied in the same setting as the present study [20].

Five criteria for inclusion were: (a) subjects must have been clinically diagnosed with epilepsy using a combination of clinical and EEG considerations by either a consultant Neurologist or a consultant Neuro-psychiatrist, (b) subjects must be within the age range of 21 – 65 years, (c) there should be no evidence of either clinically diagnosable mental subnormality or other neurological disorders, (d) subjects must have the ability to speak either English or Yoruba, which are the commonly spoken languages in the study setting, (e) subjects must have been on follow-up at the clinic for at least a period of three months prior to interview. This latter criterion is necessary so as to guarantee all vital investigations prior to clinical diagnosis.

Instruments and measures

The instruments for the data collection of this study were modified from existing instruments:

Perceived stigma scale

The perceived stigma scale is a 7-item scale, which assesses perceived impact of epilepsy on social interaction. The scale was modified for use for this study from the work of Westbrook [27] by employing a Focus Group Discussion (FGD) session of 10 (5 men and 5 women) individual patients who were on follow-up at the neurology clinic of the Neuro-psychiatric Hospital Aro, Abeokuta. Nineteen items that appeared to reflect stigma from these patients' perception [28] constituted the scale used for this study.

Internal consistency was established by obtaining a significant relationship between each item and the total score. Correlation between each item and the total score ranged from +0.41 to +0.52. Cronbach Alpha is +0.82 while the Split half reliability is +0.86.

Washington psychosocial seizure inventory (WPSI)

The Washington Psychosocial Seizure Inventory (WPSI) [29] is a complete inventory with 7 clinical scales, which permit a comprehensive, systematic and objective assessment of psychological and social problems among individual adults with epilepsy. It has a total of 132 items incorporating three validity scales namely the Lie, Rare items and No Blank scales. Out of its seven clinical scales, five scales namely, the emotional adjustment scale, vocational adjustment scale, financial status scale, interpersonal adjustment scale, the adjustment to seizures scale and the lie scale were modified, cross-validated and incorporated for use in this study [28].

The Crown Crisp Experiential Index (CCEI)

This Instrument, which is formerly known as the Middlesex Hospital Questionnaire (MHQ), was developed by Crown and Crisp [33], as a self-reported questionnaire-providing information usually generated by a formal psychiatric consultation. It is used in research for screening of generalized anxiety disorder with an overall score for emotionality or neuroticism and with further sub-scores in six clinical subscales: Free floating, Phobia, Obsessionality, Somatic concomitants of anxiety, Depression, and Hysterical anxiety, each containing eight items respectively. A substantial statistical difference in subscales between a sample of individual with epilepsy and a control of hospital staff confirms its validity for use in Nigeria [28]. From this exercise, a substantial inter-correlation among its six clinical subscales was demonstrated with internal consistency of Alpha established for all the six clinical scales as follows: A (.78), P (.65), 0(.75), S (.57) D (.52) and H (.83).

Beck Depression Inventory (BDI)

The Beck Depression Inventory (BDI) is a well known and frequently used clinical and research instrument with an excellent psychometric qualities for the assessment of a stable-trait-like property of depression [32]. It is a self-rating inventory and can as well be administered by interviewing. It comprises 21 items describing a specific behavior manifestation of depression. The inventory has been mainly used on psychiatric inpatients and outpatients with any diagnosis e.g. schizophrenia. The instrument has also been widely used among patients with epilepsy [14,15]. For the purpose of this study internal consistency was demonstrated by obtaining a significant relationship between each item and total score. Split-half reliability is +0.78. Concurrent validity was assessed by comparing the total BDI scores with a 4–point clinical rating of the severity of depression (none, mild, moderate and severe) among admitted patients and the Neuro-psychiatry Hospital Aro, Abeokuta, Nigeria [28].

Procedure

A multi-stage data gathering procedure involving, a pre-sampling subject selection for validation of used instruments and actual data gathering was adopted and applied over a period of four months. The management of the two-study hospitals granted permission to create an Ad Hoc Epilepsy Counseling Clinic for the purpose of screening, assessing and counseling participants.

The case notes of patients booked for appointment on a particular clinic day were screened for eligibility based on the inclusion criteria. Eligible patients were then approached at the time of their visit to the clinic and their informed consent

was obtained after the purpose of the study had been explained and confidentiality assured. No patients refused participation. Interviews were structured and were generally done while participants were waiting to see their doctors or immediately after the appointment. As explained, all structured interviews were conducted either in an ipsative backward translated version of Yoruba (a major language predominantly spoken in the study setting) or the English version. The researcher with several years of clinical experience administered all the questionnaires.

A consultant Neurologist and a consultant Neuropsychiatrist who both were blind to the participant's assessment status classified seizure type and also rated seizure control based on established criteria (see table 2). Current frequency of seizures and age at onset/duration of epilepsy were obtained from case-notes and self-reports.

Statistical analysis

A number of statistical techniques were used to analyze the data collected for this study. Statistical techniques used included, means, standard deviations, Pearson Correlation, and stepwise regression analysis. The Social Sciences Statistical Package (SPSS) version 6.0 windows were used to analyze the data.

Results

Descriptive data on the 264 patients with epilepsy in this study are shown in table 1.

Table 1: Clinical and demographic characteristics of subjects (n = 264)

Sex	Male	154 (58.6%)
	Female	110 (41.1%)
Mean age (yrs)		33.6 (S.D = 10.2)
Mean age at onset (yrs)		20.4 (S.D = 10.9)
Mean duration of seizure disorder (yrs)		14 (S.D = 9.2)
Mean years of education (yrs)		7.2 (S.D =5.0)
Seizure control:		
Well controlled		115 (43.5%)
Fairly controlled		88 (33.3%)
Poor Controlled		61 (23.2%)
Marital Status:		
Married		150 (57.1%)
Single		101 (38%)
Divorced/Separated		13 (4.9%)
Seizure type:		
Primary generalized type		117 (44.3%)
Partial secondary generalized		111 (42.0%)
Partial simple type		4 (1.5%)
Partial complex type		13 (14.9%)
Undifferentiated type		19 (7.2%)
Medical status:		
Carbarmazepine only		40 (15.2%)
Phenobarbitone only		126 (47.7%)
Phenytoin only		24 (9.1%)
Phenobarbitone + carbazazepine + Phenytoin		52 (19.7%)
Anticonvulsant + Neuroleptics		22 (8.3%)
Employment status:		
Employed		166 (62.9%)
Unemployed		56 (21.2%)
Never employed		42 (15.9%)

Table 2 Classification of seizure control

Grade	Description
Good	0 - Severe seizures*/year 0 - 5 moderate seizures**/year 0 - 8 mild seizures ***/year
Fair	0 - 1 severe seizures/month 0 - 4 moderate seizures/month 0 - 8 mild seizures/month
Poor	> 2 severe seizures/month > 4 moderate seizures/month > 8 mild seizures/month

* *Severe seizure - generalisedd tonic-clonic (including partial evolving into generalised tonic-clonic.*

** *Moderate seizure - Complex partial seizures, generalised tonic or generalised lonic only.*

*** *Mild seizure - Simple partial seizures, generalised absence; myoclonic; atonic.*

Six variables showed a significant ($P < 0.05$) relationship with the neuroticism. Increased neuroticism was associated with increased stigma (r = 0.36, $P = 0.001$), poor emotional adjustment (r = 0.46, $P = 0.001$), poor interpersonal adjustment (r = 0.34, $P = 0.001$); poor vocational adjustment (r = 0.36, $P = 0.001$), poor adjustment to seizure (r = 0.39, $P = 0.001$), and poor seizure control (r = .35, $P = 0.001$) (see table 4). When these six significant variables were entered into a stepwise multiple regression analysis, three variables remained significant: poor emotional adjustment ($P = .000$), poor seizure control ($P = .005$), and poor adjustment to seizures ($P = .01$).

In the same vein five variables showed a significant ($P < 0.05$) relationship with the depression. Increased depression was associated with increase stigma (r = 0.53, $P = 0.001$), poor emotional adjustment (r = 0.59, $P = 0.001$), poor financial status (r = 0.38, $P = 0.001$), and poor seizure control (r = 0.37, $P = 0.001$), but inversely related to adjustment to seizure (r = 0.-14, $P = 0.01$) (see table 4 & 5). The results of the multiple regression analysis for both depression and 'neuroticism showed that the variables tested accounted for 64% variance of the total depression score and 58% for psycho-neuroticism score respectively.

Discussion

This study examined some associations of psychosocial and seizure variables to depression and psycho-neuroticism among individuals with epilepsy in Nigeria. It is our opinion that the most important findings are reflected in Tables 3 and 4, as these variables represent risk factors, which make significant ($p < 0.05$), independent contributions to the explanation of both depression and neurotic disorders in individual adults with epilepsy in Nigeria.

Overall, the most powerful variable was the patient's degree of emotional adjustment. Poor emotional adjustment was associated with increased depression and neurotic disorders respectively. This relationship may be intuitively expected and is consistent with other investigations, which have reported an association between poor emotional adjustment and

Table 3: Correlations among study variables

	CCE1	Beck	Stigma	Emotional Adjustment	Financial Status	Interpersonal Adjustment	Vocational Adjustment	Adjustment to seizure	Onset of illness	Duration of illness	Seizure Control	Seizure Type	Medication
CCE1	1.00	.52*	.36*	.46*	.12	.34*	.36*	.39*	-.03	-.04	.35*	.06	.12
BECK		1.00	.53*	.59*	.38*	-.10	.05*	-.14	-.01	.13	.37*	.02	.08
STIGMA			1.00	.59*	.34*	.60*	.56*	.42*	-.11	.14**	.49*	.02	.03
EMO. A				1.00	.46*	.69*	.60*	.35*	-.09	.13	.48*	.02	.05
FIN. S					1.00	.56*	.50*	.24*	-.04	.12	.23*	.03	-.01
INT. A						1.00	.60*	.34*	-.02	.08	.48*	.03	.04
VOC. A							1.00	.46*	-.13	.07	.51*	.02	.07
ADJ. S.								1.00	-.22*	-.04	.42*	.07	-.03
O. ILL.									1.00	-.28*	.03	.01	.03
D. ILL										1.00	-.01	.02	-.02
S. CON.											1.00	.02	.16**
S. TYPE												1.00	-.02
MED.													1.00

Keys:
CCE1: *Crown Crisp Experimental Index*
Beck: *Beck Depression Inventory*
**- P < .001*
***- P < .01*

Table 4: Regression analysis of predictors of depression

Variables	Multiple R	R^2 change	Beta	t	P
Emotion adjustment	.59	.34	.31	4.36	.000*
Stigma	.63	.39	.19	2.87	.004*
Seizure control	.64	.41	.12	1.74	.05**

Table 5: Regression analysis of predictors of neurotic disorder

Variables	Multiple R	R^2 change	Beta	t	P
Emotion adjustment	.45	.21	.38	5.01	.000*
Seizure control	.56	.31	.35	2.78	.005*
Adjustment to seizure	.58	.34	.15	2.46	.01*

increased psychopathology [7] Schmitz *et al.* [2] however reported that emotional disturbance in persons with epilepsy was high but not significantly different from controls.

The second most consistently significant variable was the patient's degree of seizure control. Poor seizure control was also associated with increased depression and neurotic disorder respectively and therefore, supports other researchers' findings [6,8]. A common complaint of Nigerian epilepsy patients is inability to comply with drug regimens due to lack of fund to purchase the drugs. This sheds practical light on how poor seizure control and poor financial status may both be related to depression as contended in previous study [15]. Nevertheless, financial status is found not to be related to either neurotic disorders or depression in the present cohort. Future research on this relationship should be considered.

Much of the literature on the social consequences of epilepsy state that the disorder bears substantial stigma [3] and patients' self-reports lend credence to these contentions. This study found out a significant relationship between perceived stigma and increased depression and neurotic disorders respectively. It therefore supports assertions that epilepsy-associated stigma could influence the development of psychiatric morbidity [3].

The contention that adult patients with epilepsy who report low adjustment to seizures would also report more depression and neurotic disorders than adult epileptics who report high adjustment to seizure was supported. Patients with epilepsy vary widely in the degree of acceptance of the disorder, and this acceptance in turn have been thought to be linked to a variety of behavioral problems such as depression and hostility [4]. Though some patients with epilepsy are able to proceed through life relatively unencumbered by their epilepsy, which may even be of moderate to marked severity, other patients may feel resentful, believing that their lives have been destroyed by epilepsy and may continually dread the occurrence of a seizure. Furthermore, some patients may be particularly fearful of seizure related accidents and/or having seizures at an unpredictable time, and resent their medications, which may yield adverse side-effects and not always provide adequate seizure control [11]. Suffice it to say that the experiences of living and dealing with epilepsy and its consequences have been found or postulated to affect more global aspects of the patient's psychological state and perceptions and orientations toward life.

In conclusion, while the neurological and biological determinants of psychopathology in epilepsy patients have been a point of concern and a reason for empirical investigation among contemporary researchers, the psychosocial consequences have rarely been investigated, particularly in Nigeria. Moreover, the associated variables influencing these psychopathologies have also been rarely investigated. The study building on evidence from earlier research documented that the lack of seizure control, increased stigma, and emo-

tional adjustment, adjustment to seizures and interpersonal adjustment were associated with both depression and neurotic disorders among epileptics in Nigeria. In countries [32] where such psychosocial treatment package exists to address these factors, individuals with epilepsy have had their psychiatric distress minimized, and they have adjusted adequately to their seizure problems. The next challenge to research in Nigeria therefore, is using these findings to develop culturally appropriate psychosocial interventions. Limitations to this study were that patients were receiving follow-up treatment and therefore constitute a highly selective group. Also the cross-sectionality of the data as well as non-inclusion of a comparison control group makes it difficult to draw conclusions about causality.

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