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Original Article

Pattern of HADS-Anxiety score among Medical Outpatients in Enugu, Nigeria

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Abstract

Background: Symptoms of anxiety disorders vary widely among physically ill patients. Early detection and treatment of anxiety will reduce the economic burden of common medical disorders and provide empirical data for public health educators and policy makers for the development of guidelines for health workers and care givers.

Objectives: The objective of the present study was to determine the correlates and predictors of anxiety symptoms based on the Hospital anxiety and depression scores among patients attending medical outpatient clinic in a Tertiary hospital in Enugu South East Nigeria.

Methods: This was a cross sectional study conducted at the Medical Outpatient Clinic of Enugu State University Teaching Hospital, Enugu Nigeria. All consecutive consenting patients were recruited. Anxiety symptoms were explored using the Hospital Anxiety Depression Scale. Study duration was 6 months. Statistical analyses were one using SPSS version 22.

Results: A total of 512 (males 190(37.1%), females 322 (62.9%)) individuals were recruited. Significant anxiety symptoms (≥ 8) was reported by 16(3.1%) patients; similar in males and females. P=0.51. Anxiety symptoms, negatively correlated with age (r=-0.14, p<0.01) and positively with use of alternative/herbal medication (r=0.16, p <0.001), having arthritis (r=0.11, p=0.01), stroke, (r=0.09, p=0.04), chronic headache r=0.11, p=0.01 and peptic ulcer disease (r=0.09, p=0.04). Younger age was a significant predictor of anxiety scores. p=0.03.

Conclusion: Several modifiable and non-modifiable factors correlate with anxiety symptoms among out patients in Enugu. There is need to involve mental health practitioners in the education and care of medical outpatients.

Keywords: *Anxiety; HADS; Medical Outpatient, Nigeria.*

Introduction

One of the commonest comorbidities among patients with chronic medical conditions is anxiety [1-2]. Generally, symptoms of anxiety are common in physically ill patients, and are usually assumed to be a symptom of one physical illness or the other. This is especially true when physical complaints are followed by normal diagnostic findings. In such cases, patients are usually treated for presumed medical conditions and symptoms of anxiety ignored. The prevalence of anxiety disorders among physically ill patients vary widely and may be as high as 70% in people with chronic diseases [2]. In studies of outpatient clinic populations conducted in China and Northern India, the prevalence of anxiety disorders was 9.8% and 11.1%, respectively [3,4]. In chronic obstructive pulmonary disease, a prevalence of 9.3-58% and 50-75% have been reported depending of the clinical states of the patients[5].

Local literature has shown that anxiety disorders vary widely among physically ill patients. A prevalence of 34.5% was reported in people with asthma and 16.1% in people with hypertension[6,7], while 10% was reported in post stroke survivors in Lagos, Nigeria[8] most of whom might have hypertension. In studies that specifically assess medical disorders such as hypertension and obesity, mood disorders including anxiety has been associated with a near doubling of risk of mortality when compared to general population estimates[9-12]. Having an anxiety disorder was associated with a 4-fold increase in the risk of developing hypertension (adjusted OR = 4.14, 95% CIs = 1.18–14.56)[13].

With the increasing prevalence of chronic medical disorders in the community[14], the pattern and correlates of anxiety symptoms needs to be investigated. Early detection and treatment of anxiety will reduce the economic burden of medical conditions on patients and provide empirical data for public health educators and policy makers for the development of guidelines care givers.

The objective of the present study was to examine the correlates and predictors of anxiety symptoms based on the Hospital anxiety and depression score (HADS) in patients attending the medical outpatient clinic in a Tertiary hospital in Enugu South East Nigeria.

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Patients and Methods:

Setting:

This study was cross sectional and descriptive in nature. It was conducted in the Medical Outpatient Clinic of Enugu State University Teaching Hospital (ESUTH), Enugu Nigeria. At the time of the study, ESUTH had 350 beds distributed among the various specialties with 50 inpatient beds for adult admissions for medical cases. All consecutive consenting patients were recruited. The medical diagnosis recorded in this study were those made by the supervising consultants. Past medical history was also obtained from the subjects and confirmed from the case notes. All cases of acute illness lasting less than 3 weeks were not included as comorbidities in this study. Patients who refused to participate and who did not complete at least 3 hospital outpatients visit by the end of the study were also excluded. Ethical clearance was obtained from the Ethics Committee of the Enugu State University Teaching Hospital. Informed consent was obtained from each study participant. Study duration was 6 months.

Study Protocol:

A semi structured questionnaire was used to collect data on selected socio-demographic characteristics, lifestyle behaviors including smoking, drinking alcohol and use of herbal drugs. Weight, height, blood pressure and fasting blood glucose were also carried out and recorded. All participants were interviewed in the clinic using the Hospital Anxiety and Depression questionnaire after they had rested in a sitting position for 5-10 minutes. Data on occupation and place residence were collected from the case notes and confirmed by the patients or their care givers. Use of tobacco and alcohol within the last 4 weeks was documented. Level of education was the individual's highest educational (formal) attainment

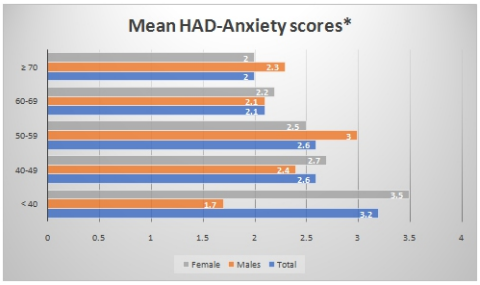
Blood pressure was measured thrice by means of a standard mercury sphygmomanometer(Chris Aloy®) according to the guidelines of the European Society of Hypertension[15]. Fasting blood glucose measurements were copied from the clinic register on the day of interview. Weight was measured using a bathroom scale in kilograms. Scales were calibrated on daily basis by resetting their indicators to zero. Height was measured in centimeters using a straight centimeter rule with the patient standing erect bare footed on a flat surface. Body mass index (BMI) was calculated as weight (Kg) divided by squared height (m^2) and categorized as <18.5 (normal), 18.5-24.9(overweight), 25-30 (obese) and ≥ 30 (grossly obese) Kg/m^2.

Study instruments:

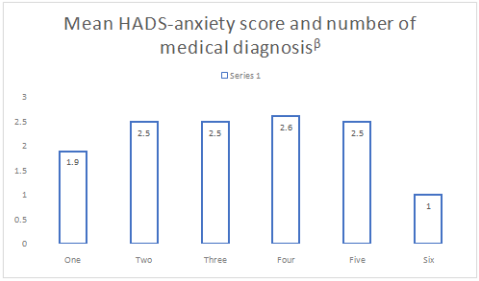
Anxiety symptoms were explored using the Hospital Anxiety and Depression Score questionnaire (HADS)[10] . The HADS questionnaire is a self-assessment scale containing 14 items developed to detect states of depression, anxiety and emotional distress[16-18] and has been validated in Nigeria[19]. Scores for each subscale (anxiety and depression) range from 0 to 21 with scores categorized as follows: normal 0–7, mild 8–10, moderate 11–14, and severe 15–21. The HADS is brief and simple to use and was completed by the patients themselves with help from the investigators.

Statistical Methods:

For database management and statistical analyses, we used the SPSS version 22 (IBM Corporation, New York, USA). Data were presented in tables and figures. For continuous variables, mean values and standard deviation were calculated. Rates were expressed as percentages. Categorical values were compared using the Chi Square test or the Fisher's Exact test. Mean age was compared using the independent t-test. Mean HADS- anxiety scores were compared using the Mann-Whitney U Test and the Kruskal Wallis Test where applicable. In all, p value of < 0.05 was regarded as statistically significant. Conclusions were drawn at 95% confidence interval.



*p-value for the cohort = 0.02 (males =0.27, females =0.02)



$^{\beta}$p-value =0.21

Results:

A total of 512 (males 190(37.1%), females 322 (62.9%)) individuals attending the medical outpatient clinic were interviewed during the study. The male to female ratio was 1:1.7. The ages ranged from 19 years to 95 years with a mean of 58.8 ± 13.3 years. Table 1. Two hundred and thirty-six (39.6%) were employed at the time of the study while 269(52.5%) were retired or unemployed. Most of the patients 203(39.6%) had at least some primary school education (less or equals 6 years of formal education. The mean (sd) BMI was 28.2(5.8) kg/m2 significantly higher in females than males. P<0.01. Mean systolic and diastolic blood pressure measurements were similar in males and females. P=0.77 and 0.07 respectively. The pattern of alcohol and tobacco use is also shown in table 1. Overall, 361(70,5%) used herbal remedies in the last 12 months, 78(15.2%) used tobacco and 140 (27.3%) drank alcohol at least intermittently. The mean disability score (Barthel index score) was 96.3(12.5) less than 100 which is regarded as the cut-off for disability.

Comorbidities:

During the survey a total of 381 (74.4%) participants had at least one comorbidity and 236(46.1%) had two or more comorbidities. Table 1.The gender distribution of medical cases recorded is shown in table 2. The commonest disorders were hypertension 409(79.9%), diabetes 235(45.9%) and arthritis (45.7%). Stroke 68(13.3%), Parkinson's disease 26(5.1%) and tuberculosis 8(1.6%) were more frequently found in males.

Table 1 Characteristics of participants

Characteristic	Female	Male	Total	P-value
Gender N,(%)	322(62.9)	190(37.1)	512(100)	<0.01
Age, years, (sd)	56.4(13.6)	63(11.7)	58.8(13.3)	<0.01
Body mass index, kg/m2 (mean sd)	29.2(6.5)	26.4(3.9)	28.2(5.8)	<0.01
Age group (years) <40, n(%) 40-49, n(%) 50-59n(%) 60-69 n(%) ≥70n(%) Occupation .	- 31(9.6) 68(21.1) 95(29.5) 75(23.3) 53(16.5) -	- 6(3.2) 16(8.4) 39(20.5) 79(40) 53(27.9) -	- 37(7.2) 84(16.4) 134(26.1) 151(29.5) 106(20.7) -	-
Retired/unemployed, n(%)	158(49.1)	111(58.4)	269(52.5)	
Students, n(%)	5(1.6)	2(1.1)	7(1.4)	
Level of education				
Primary, n(%)	114(35.4)	89(46.8)	203(39.6)	
Secondary, n(%)	104(32.3)	73(38.4)	177(34.6)	-
Tertiary	104(32.3)	104(32.3)	132(45.2)	
Residence	-	-		
Within Enugu	211(65.5)	138(72.6)	349(68.2)	
Outside Enugu	111(34.5)	52(27.4)	163(25.8)	0.1
Peripheral haemodynamic	-	-	-	
SBP, mmHg, mean (sd)	138.1(23)	137.5(26.2)	137.9(24.2)	0.77
DBP, mmHg, mean (sd)	81.7(15.2)	87.5(49.6)	84(32.6)	0.07
Lifestyle	-	-	-	
Current tobacco use, n (%)	28(8.7)	50(26.3)	78(15.2)	<0.01
Current alcohol use, n (%)	85 (26.4)	55(28.9)	140(27.3)	0.53
Alternative medicine(≤12 months)	223(69.3)	138(72.6)	361(70.5)	0.42
Number of diagnosis	-	-	-	
One	66(20.5)	42(22.1)	108(21.1)	
Two	103(32)	65(34.2)	168(32.8)	
Three	85(26.4)	34(17.9)	119(23.2)	
Four	58(18)	35(18.4)	93(18.2)	
Five Six	10(3.1) -	12(6.3) 2(1.1)	22(4.3) 2(0.4)	
				0.17*
Barthel index (mean (sd))	96.8(11.5)	95.4(13.9)	96.3(12.5)	

Table 2. Sex distribution of comorbidities in the population

	Males	Females	Total	p- value
Hypertension	150(78.9)	259(80.4)	409(79.9)	0.69
Arthritis	83(43.7)	151(46.9)	234(45.7)	0.48
Diabetes	83(43.7)	152(47.2)	235(45.9)	0.44
Stroke	35(18.4)	33(10.2)	68(13.3)	0.01
Headache	65(34.2)	142(44.1)	177(40.6)	0.03
Heart Failure	22(11.6)	24(7.5)	46(9)	0.12
Parkinson's disease	18(9.5)	8(2.5)	26(5.1)	0.01
Peptic Ulcer	8(4.2)	18(5.6)	26(5.1)	0.49
Dementia	2(1.1)	3(0.9)	5(1.4)	0.89
Asthma	8(4.2)	6(1.9)	14(2.7)	0.12
TB	6(3.2)	2(0.6)	8(1.6)	0.03
Epilepsy	2(1.1)	6(1.9)	8(0.9)	0.48*
others	4(2.1)	5(1.6)	9(1.8)	0.65
others	190	322	1256*	

*Fisher's Exact test
**Mann-Whitney U Test

Hospital Anxiety and Depression Scale:

The distribution of HADS -A scores is shown in table 3. Anxiety (scores ≥ 8) was found in 16(3.1%) patients; similar in males and females. P=0.51. Anxiety symptoms (scores ≥ 8) significantly decreased with age reaching 10.8% in young adults (less 40 years). Mean scores was significantly higher in patients < 40 years. P=0.02. This significant difference was limited only to females p=0.02 and not males p=0.27. Mean anxiety score were similar irrespective of the number of disorders the individuals were treated for. P= 0.21.

Anxiety symptoms, measured using the HADS-A, negatively correlated with age (r=-0.14, p<0.01) and positively with use of alternative/herbal medication (r=0.16, p <0.001), having arthritis (r=0.11, p=0.01), stroke, (r=0.09, p=0.04), chronic headache r=0.11, p=0.01 and peptic ulcer disease (r=0.09, p=0.04). The total number of diagnosis weakly correlated with anxiety scores. Multiple regression analysis (Enter method) only younger age was a significant predictor of anxiety scores. p=0.03.

Table 3. Sex distribution of HADS-A score

Characteristics	Males	Females	Total	p-value
HADS-Anxiety score	-	-	-	-
1-7 (Normal)	184(96.8)	312(96.9)	496(96.9)	-
8-10(Borderline)	4(2.1)	9(2.8)	13(2.5)	-
11-21(abnormal)	2(1.1)	1(0.3)	3(0.6)	0.51
Mean(sd)	3.7(2.5)	3.5(2.3)	2.4(2.3)	0.34
HADS-Anxiety score ≥ 8	-	-	-	-
Age groupβ	-	-	-	-
<40	-	4(12.9)	4(10.8)	-
40-49	2(12.5)	4(5.9)	6(7.1)	-
50-59	2(5.2)	1(1.1)	3(2.2)	-
60-69	-	1(1.3)	1(0.7)	-
≥70	2(3.8)	-	2(12.5)	0.24
Total	6(3.2)	10(3.1)	16(3.3)	

βpercentages are for the total number of individuals within the age group.

Table 4. Correlation Statistics

	Anxiety, r(p-value))
Age	-0.14(<0.01)
Gender (male 1, female 2)	0.06(0.42)
Marital status (1 currently married, 0 no)	-0.06(0.2)
Level of education	0.02(0.67)
Systolic blood pressure	-0.02(0.63)
Diastolic blood pressure	-0.01(0.86)
Body mass index	-0.03(0.6)
Residence (urban 1, rural 2)	-0.02(0.07)
Barthel Score	-0.01(0.84)
Use of alcohol (yes 1, no 2)	0.06(0.22)
Use of Tobacco (1 yes, 2 no)	0.03(0.54)
Use of alternative medicine (yes 1 yes, no 0)	0.16(<0.01)
Hypertension	0.01(0.87)
Arthritis Diabetes Stroke Chronic Headache Heart Failure Parkinson's disease Peptic Ulcer	0.11(0.01) 0.01(0.83) 0.09(0.04) 0.11(0.01) 0.00(0.98) 0.00(0.95) 0.09(0.04)
Epilepsy	0.02(0.59)
Number of comorbidities	0.09(0.05)

Table 5. predictors of anxiety scores

Variable	B(SE)	p-value
Age	-0.002(0.001)	0.03
Use of alternative medicine	-0.008(0.021)	0.72
Headache	0.000(0.021)	0.1
Stroke	0.003(0.029)	0.93
Arthritis	-0.012(0.02)	0.56
Peptic ulcer	0.079(0.044)	0.07

Discussion:

Anxiety disorders are found amidst physically ill patients and are commonly unrecognized because of overlapping symptoms[5-8,18] and usually neglected by the physician. In the index study, the prevalence of significant symptoms of anxiety was (scores ≥ 8) was found in 16(3.1%) patients; similar in males and females. Significant symptoms were found in young adults (less 40 years). Mean anxiety score were similar irrespective of the number of disorders the individuals were treated for. Anxiety scores negatively correlated with age and positively with use of alternative/herbal medication, having arthritis, stroke, headache and peptic ulcer disease. Only younger age was a significant predictor of anxiety scores (p=0.03).

Hypertension was the commonest medical disorder documented in the index study. This is in keeping with high prevalence of the disorder in the region[20,21]. Contrary to some reports and similar to others in the literature[22,23] we found no significant associations between anxiety symptoms and hypertension.

Clinical diagnosis of stroke positively correlated with anxiety symptoms. The relationship between anxiety after stroke has been documented elsewhere.[8,24,25] Post stroke anxiety may be related to the degree of physical disability as well as possible economic loss following such illness. This index study supports these earlier reports. The relationship between arthritis and anxiety may be complex.[26,27]Pain associated with arthritis may lead to limitations and restrictions in social participation. Given the characteristics of chronicity of arthritis the psychological implications may be enormous especially in middle aged patients.

There was a significant negative correlation between anxiety symptoms and age. In the index study the rate of anxiety symptoms decreased with age reaching a maximum below 40 years. Although in agreement with the index study, older epidemiological studies have suggested that anxiety disorders are common in younger individuals, emerging data indicate a higher prevalence in the elderly than previously thought.[28,29] The rates of anxiety symptoms in older adults are generally 15% to 20%, but may be over 40% in individuals who have a disability or chronic medical illness.[28-31]The Enquête sur la Santé des Aînés (ESA) study of French-speaking, community-dwelling older adults showed that the 12-month prevalence rate of any anxiety problem varied from 5.6% using the DSM-IV criteria to 26.2% when all subthreshold symptoms of anxiety were considered.[31]The high rate in those ≥ 70 years in the index study may be due to the small number of participants within the group. The rate of 10.8% in patients less than 40 years reported in the index study is within the range of 5 to 19% reported among young people.[28] Factors such as gender, parenting stress, parental anxiety and depression, low income, and alcohol and tobacco use have all been associated with anxiety in the young.[28]. The low prevalence of anxiety in our study may be associated with several factors such reluctance of people to answer questions relating to psychiatric disorders and several other possible coping mechanisms.

Other positive correlates of anxiety symptoms were chronic headache and peptic ulcer disease. This study supports

previously documented relationship between headache andanxiety.[32,33] Peptic ulcer disease has been associated with different mental health problems[34] and has been linked with increased risk of peptic ulcers.[35]In the index study the use of herbal and alternative medicine had a positive correlation with anxiety symptoms. Patients have different reason for the use of non-orthodox methods of treatments such as religious and cultural orientation as well as fear of drug side effects. Nevertheless, it may be argued that these patients resort to alternative medicine because of persistent symptoms even after physical illness has been treated. Studies have shown that patients with psychiatric symptoms widely use alternative medicines.[36,37]

Local literature has shown that anxiety disorders vary widely among physically ill patients.[7,8]With a growing prevalence of non-communicable diseases in Nigeria, the prevalence and pattern of anxiety will provide additional insight into disease burden in our region. Furthermore, early detection and treatment of anxiety will not only reduce the economic burden of these disorders but also provide empirical data for public health educators and policy makers for the development of guidelines for their management.

This study has some limitations. The index study may be affected by selection bias because patients were recruited from a tertiary referral center with a dedicated psychiatry unit. Therefore, overt cases of anxiety might have been excluded. This in turn may limit the generalization of our findings. Patients' medical conditions may evolve over time which may not be reflected by the cross-sectional design of the present study. The HADS scores may be affected by factors relating to cross-cultural challenges in measuring mental health potentially limiting its responsiveness to change in the chronic setting. Notwithstanding these shortcomings, our results can be used for comparison for future studies and to formulate local health policies, at least for the age groups studied.

Conclusion: Significant anxiety symptoms were reported in about 3.2% of medical out patients seen in a tertiary hospital in Enugu. Several modifiable and non-modifiable factors correlated with anxiety symptoms. There is also the need to involve mental health practitioners in the education and care of these patients.

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