
Socio-Demographic and Clinical Determinants of Psychiatric Co-Morbidity in Persons with Essential Hypertension in Port Harcourt, Nigeria

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Abstract: The prevalence of essential hypertension has continued to increase worldwide and its consequences have remained a growing concern. A number of socio-demographic and clinical variables may however serve as key determinants of the extent to which it is associated with psychiatric comorbidity. The aim of this study, therefore, was to determine the socio-demographic and clinical factors that may influence the level of psychiatric co-morbidity associated with persons with essential hypertension attending the general out-patient clinic of the university of Port Harcourt Teaching Hospital (UPTH). Following ethical approval from the appropriate committee of the hospital and informed consent from the participants, 360 subjects making up the study group were recruited based on the study's inclusion and exclusion criteria. A pilot study was carried out. Subjects were further administered with the study's instruments including the socio-demographic/clinical questionnaire, GHQ-12, and WHO Composite International Diagnostic Interview (WHO CIDI). The socio-demographic/clinical questionnaire and GHQ-12 were self-administered while the WHO CIDI was based on interview by the researcher. The data were analyzed using the SPSS version 16 statistical package. Confidence interval was set at 95% while P-value of less than 0.05 was considered statistically significant. The study found a prevalence of psychiatric co-morbidity of 64.4% among the hypertensives. Among the study group, there was no significant relationship between the presence of psychiatric co-morbidity and age class ($p=0.350$), gender ($p=0.22$), level of education ($p=0.43$), and occupation ($p=0.82$). Persons who were married were significantly more likely to have a psychiatric co-morbidity ($p=0.001$). Also, those who reacted with either 'very sad' or a 'wish to die' when they were informed of the diagnosis of the medical conditions ($p=0.001$), low income ($p=0.001$) and severity of B. P ($p=0.001$) were more likely to have psychiatric comorbidity ($p=0.001$). There was also no significant relationships between age of onset of illness ($p=0.60$), duration of illness ($p=0.73$), duration of treatment ($p=0.82$), and self stigma ($p=0.15$). The findings of this study support the impression that essential hypertension is a chronic debilitating illness, associated with psychiatric co-morbidity, that are largely significantly influenced by a number of socio-demographic and clinical factors. The results support the call that the management of patients with essential hypertension should include attention to not only their mental health status, but also the psychosocial and other clinical factors they may present with in order to enhance the quality of care.

Keywords: Socio-Demographic/Clinical, Determinants, Essential Hypertension, Psychiatric Co-morbidity, UPTH

1. Introduction

There is a growing population of persons with essential hypertension in Nigeria despite all efforts at increasing education and awareness about it, [1-6, 7, 8-10, 11-19] to the extent of attracting the attention of national and international

bodies. WHO estimates that non communicable diseases like hypertensive and other heart diseases, stroke, depression and cancers will increase by 60% by 2020, and are likely to triple in Nigeria and other sub-Saharan African countries in the next 50 years According to the World Health Report, non communicable diseases accounted for 22% of the total deaths in the region in the year 2000; cardiovascular diseases alone

accounted for 9.2% of the total deaths, killing even more than malaria [20]. Indeed, it has already been projected that up to three quarters of the world's hypertensive population will be in economically developing countries by the year 2025 [7]. With increased prevalence rates and the resultant greater economic and health burden [8-10]. Nigeria will feel the impact mostly due to its population size.

Essential hypertension is a severe, chronic systemic disease and is becoming increasingly associated with psychiatric comorbidity, as high as 30-60% at present [21, 22-26]. It carries enormous burden on both the patients and the caregivers [27, 8-10]. Unfortunately, there appears to be a general underrecognition or late recognition of and in some cases poor attention to the psychiatric component among clinicians [28-31, 32] particularly in this environment [114]. This is often accompanied by increased severity of these illnesses, poor management and prognosis with eventual high mortality rates. Late recognition of mental disorders in hypertensive patients is related, among others, with diminished coping capacity at diagnosis, failure at primary prevention, poor antihypertensive adherence [33-36], impairment in quality of life, [37-41, 42, 43-45] greater social burden, overall increases in healthcare costs, [46, 47, 48] and also higher mortality [8].

Also, psychological distress and lifestyle variables are equally associated with noncompliance. To further compound the problem is the co-existence of other medical conditions like diabetes and obesity, with hypertension. Their presence further complicates treatment and causes noncompliance [49].

Hypertension is a chronic illness that has been ranked among the top leading causes of year of life lived with disability. In Nigeria, hypertension has been found to have relatively high prevalence of 10-15%, increasing from 11.2% in 1990 to 27.9% in 2010 in rural communities in the Niger Delta, and 44.3% in urban Lagos. [50-53] The high rate of complications and mortality associated with this chronic medical condition has equally generated enormous public health concern. [54] Hypertension has a clear genetic component, [55-59] in addition to adverse environmental factors, [60-62] It is also worthy of note that severe emotional trauma can directly cause hypertension [63-71].

Hypertension constitutes a greater percentage of all the referrals from other non-psychiatric units seeking for psychiatric evaluation in the University of Port Harcourt Teaching Hospital (UPTH). Essential hypertension runs the features of chronicity, with subsequent need for long term medications, effects on the central nervous system (CNS), high rate of mortality [54] and morbidity [10, 72, 73] and impact on emotion [74, 75] (the component that is often neglected). In addition, patients with hypertension need extensive education, attitudinal change, coping and healthy lifestyle including diet and exercise. The need for these adjustments are imperative considering the immediate changes that usually accompany the diagnoses of the conditions. They include burden of the diseases, regular hospital visits, complications arising from the primary illness and job adjustment. Due to all these, together with their direct effects on the central nervous system(CNS),

no doubt, the patients commonly present with varying degrees of psychopathology [62, 71, 76-78, 79]. Psychopathology is the inward or outward manifestation of a disordered psychic system.

Hypertension can, either singly or in association with other adverse psychosocial and clinical factors, predispose to psychiatric disorders. Furthermore, some of the medications employed in the management of these conditions have been associated with inherent neuropsychiatric complications, [80, 81] either as direct side effects, from drug interactions with psychoactive substances, from multiple drug therapy or with other concomitantly administered drugs for other cormobid conditions.

Apart from the above aetiological links, a common pathway – sympathetic pathway, [82-85] seems to mediate both essential hypertension and most anxiety disorders. It is equally important to note that baseline adverse psychosocial factors, psychological distress or clearly identified psychiatric conditions have been implicated as predictors of hypertension [63-64, 86-88] In light of the foregoing, there appears to be a bidirectional relationship between associated psychiatric disorders and hypertension. This propensity to be associated with emotional disturbances, with tendency to either predispose to or co-morbid with psychiatric disorders, has further increased the degree to which they affect the psychological well-being and quality of life of the sufferers [89-95, 96]. The focus of medical practice has always tended towards relieving physical symptoms, in this case hypertension, which often neglects the huge impact on the psychological well-being, psychiatric co-morbidity and the overall quality of life, often occasioning monumental health consequences [97, 98].

For these reasons, a prompt multidisciplinary approach involving evaluation, counseling, and treatment of mental disorders in hypertensive is becoming more important [99]. Therefore, determination of the nature and magnitude of psychiatric comorbidity, the additive effects on psychological well-being and quality of life as well as emphasis on the need for mental health component in the management of this chronic medical conditions form the areas of concern of this study.

This study was therefore designed to evaluate the sociodemographic and clinical correlates of psychiatric comorbidity in hypertensive patients. This, no doubt, would be of immense relevance to the practice of consultation liaison psychiatry in the West African sub-region, contribute to the corpus of knowledge on chronic medical conditions and aid care/service providers to plan better management strategies that will also accord premium to the psychological component and well-being of these patients. Impairments, disabilities and handicaps from chronic conditions may thus be limited and patients' dignity and functional capacity enhanced.

2. Aim

The aim of this study, therefore, was to determine the socio-demographic and clinical factors that may influence

the level of psychiatric co-morbidity associated with essential hypertension patients attending the general out-patient clinic of UPTH.

3. Methodology

Following ethical approval from the appropriate committee of the hospital and informed consent from the participants, 360 subjects making up the study group were recruited based on the study's inclusion and exclusion criteria. A pilot study was carried out. Subjects were further administered with the study's instruments including the socio-demographic/clinical questionnaire, GHQ-12, and WHO Composite International Diagnostic Interview (WHO CIDI). Coded socio-demographic and clinical characteristics questionnaires were administered to the patients. The coded numbers were to enable tracking of patients. Information including age, sex, marital status, occupation, level of education, monthly income (monthly salary stipend or profit after transactions), diagnosis, age at onset of illness, durations of illness and treatment, initial reaction to diagnosis, and level of drug compliance, were all requested on the questionnaire.

The socio-demographic/clinical questionnaire and GHQ-12 were self-administered while the WHO CIDI was based on interview by the researcher. The data were analyzed using the SPSS version 16 statistical package. Confidence interval was set at 95% while P-value of less than 0.05 was considered statistically significant.

4. Results

4.1. Socio-Demographic and Clinical Correlates of Psychiatric Morbidity in Study Group

Out of the 360 subjects with essential hypertension who

fulfilled the inclusion criteria, 141 (39.2%) were males and 219 (60.8%) females. The mean age for the study group (Hypertensives) was 45.5 ± 7.6 years. More than half of all the subjects 257 (71.4%) were married. The majority, (78.0%), had attained, at least a secondary level of education. The Ijaws constituted the commonest ethnic groupings of the study subjects with 83 (23.1%), followed by the Ikwerre ethnic group in Rivers States with 79 (21.9%). Majority, 72 (20.0%), had elementary occupations, followed by craft and related trade workers with 57 (15.8%).

More than one quarter of all the subjects, 241 (66.9%), were within low to average income range of less than 10,000-30,000 naira monthly. The majority, 169 (46.9%) had their onset of illness at the age range of 40-49 years.

Five hundred and ten 316 (87.7%) of the respondents had a duration of illness of 1-5 years. Majority, 242 (67.2%), had between 1-5 years of treatment. The majority, 287 (79.7%), of the respondents were adherent to their medications. Majority of subjects with essential hypertension, 218 (60.5%), do not have any source of support and got their medications at their own expense.

Among the study subjects, there was no significant relationship between the presence of psychiatric co-morbidity and age class ($p=0.350$), gender ($p=0.22$), level of education ($p=0.43$), income class ($p=0.81$) and occupation. Persons who were married were significantly more likely to have a psychiatric co-morbidity ($p<0.001$). Also, those who reacted with either 'very sad' or a 'wish to die' when they received the diagnosis of the medical conditions were more likely to have psychiatric comorbidity ($p=0.001$). There was also no significant relationships between age of onset of illness ($p=0.60$), duration of illness ($p=0.73$), duration of treatment ($p=0.82$), and self-stigma ($p=0.15$). See table 1.

Table 1. Socio-demographic Variables and Psychiatric Co-morbidity among Hypertensives.

Variables	Essential hypertensive			Statistical Analysis
	Total	Psychiatric diagnosis	No psychiatric diagnosis	
Age				
<20	0	0(0.0%)	0(0.0%)	
20-29	16	9(3.8%)	7(5.6%)	
30-39	77	49(20.8%)	28(22.6%)	$X^2 = 3.27$ df = 4 $p=0.35$
40-49	132	82(34.7%)	50(40.3%)	
≥ 50	135	96(40.7%)	39(31.5%)	
	360	236(65.6%)	124(34.43%)	
Sex				
Male	141	87 (36.9%)	54 (43.5%)	$X^2 = 1.52$ df = 1 $p=0.22$
Female	219	149 (63.1%)	70 (56.5%)	
Marital Status				
Married	257	153 (64.8%)	104 (83.9%)	
Single	38	25 (10.6)	13 (105.5%)	
Divorced	3	8 (1.30%)	0 (0.0%)	$X^2 = 20.94$ df = 4 $p < 0.001$
Separated	8	8 (3.4%)	0(0.0%)	
Widowed	54	47 (19.9%)	7 (5.6%)	
Education				
None	17	10(4.2%)	7(5.6%)	
Primary	76	55(23.3%)	21(16.9%)	$X^2 = 2.78$ df = 3 $p=0.43$
Secondary	128	85(36.0%)	43(34.7%)	
Tertiary	139	86(36.4)	53(42.7%)	
Tribe				$X^2 = 0.43$ df = 2 $p=0.81$

Variables	Essential hypertensive			Statistical Analysis
	Total	Psychiatric diagnosis	No psychiatric diagnosis	
Hausa	7	3(1%)	4(1.1%)	
Ibo	75	41(11.4%)	34(9.4%)	
Yoruba	20	10(2.8%)	10(2.8%)	
Ijaw	83	52(14.4%)	31(8.6%)	
Ogoni	62	29(8.1%)	33(9.2%)	
Ikwerre	79	48(13.3%)	31(8.6%)	
Others	24	16(4.4%)	8(2.2%)	
Average Monthly Income				
Low	83	54 (24.8%)	29 (24.2%)	$X^2 = 23.86$ df = 3 p<0.001
Average	159	104 (47.7%)	54 (45.0)	
High	97	60 (27.5%)	37 (30.8)	
Reaction to Diagnosis				
Normal	38	18(7.6%)	20(16.1%)	$X^2 = 14.41$ df=10 p=0.001
Sad	175	101(42.8%)	74(59.7%)	
Very sad	146	116(49.2%)	30(24.2%)	
Wish to die	1	1(0.4%)	0(0.0%)	
Mode of getting drugs				
From Government	106	42(11.7%)	64(17.8%)	$X^2 = 13.09$ df = 3 P=0.57
Self Purchase	202	146(40.6%)	56(15.6%)	
Both	52	35(9.7%)	17(4.7%)	
Source of Support				
Charity organisation	14	9(2.5%)	5(1.4%)	$X^2 = 15.06$ df = 3 P=0.33
Fiends	36	27(7.5%)	9(2.5%)	
Relatives	92	60(16.7%)	32(8.9%)	
None	218	143(39.8%)	75(20.8%)	
Domestic Situation				
Partner	37	22(6.1%)	15(4.2%)	$X^2 = 12.41$ df = 3 P=0.51
Family	307	213(59.2%)	94(26.1%)	
Friends	7	3(0.8%)	4(1.1%)	
None	9	5(1.4%)	4(1.1%)	
Blood Pressure				
B. P within normal range	0	0(0%)	0(0%)	$X^2 = 16.40$ df = 3 P=0.001
Mild Hypertension	119	49(13.7%)	70(19.4%)	
Moderate Hypertension	161	114(31.7%)	47(13.1%)	
Severe Hypertension	80	73(20.3%)	7(1.9%)	
Occupation				
Managers	5	3(1.3%)	2(1.6%)	$X^2 = 17.63$ df = 10 P=0.82
Professionals	15	5(2.0%)	10(2.8%)	
Technicians and Associates professionals	30	23(7.7%)	7(5.6%)	
Clerical support workers	46	32(13.6%)	14(11.3%)	
Service and sales workers	29	18(7.6%)	11(8.9%)	
Skilled agricultural forestry and fishery workers	30	23(9.7%)	7(5.6%)	
Craft and related trade workers	54	33(13.6%)	22(17.27%)	
Plant and machine operators and assemblers	47	31(13.1%)	16(12.9%)	
Elementary occupation	72	50(21.2%)	22(21.8%)	
Armed forces occupation	3	1(0.4%)	2(1.6%)	
Unemployed	22	17(7.2%)	5(4.0%)	
Age of onset of Disease				
0 20 -29	27	18 (7.6%)	9 (7.3%)	$X^2 = 1.89$ df=3 P=0.60
30 – 39	102	62 (26.3%)	40 (32.3%)	
40 – 49	169	112 (47.5%)	57 (46.0%)	
>50	62	44 (18.6%)	18 (14.5%)	
Duration of Illness				
1 – 5	316	208 (88.1%)	108 (87.1%)	$X^2 = 0.63$ df = 2 P=0.73
6 – 10	30	18 (7.6%)	12 (9.7%)	
11 & above	14	10 (4.2%)	4 (3.2%)	
Duration of Treatment				
< 1	74	46 (19.5%)	28 (22.6%)	$X^2 = 0.91$ df = 3 P=0.82
1 – 5	242	162 (68.6%)	80 (64.5%)	
6 – 10	31	19 (8.1%)	12 (9.7%)	
> 10	13	9 (3.8%)	4 (3.2%)	
Missed Treatment				
Yes	73	61(16.9%)	12(3.3%)	$X^2 = 1.89$ df = 3 P=0.003

Variables	Essential hypertensive			Statistical Analysis
	Total	Psychiatric diagnosis	No psychiatric diagnosis	
No STIGMA	287	171(47.5%)	116(32.2%)	$X^2 = 2.13$ df = 1 P=0.15
Yes	4	4 (1.7%)	0 (0.0%)	
No	356	232 (98.3%)	124 (100.0%)	

4.2. Psychiatry Diagnosis Essential Hypertension

The study found a higher prevalence of psychiatric comorbidity (64.4%) among the hypertensives. Depressive illness had the highest prevalence of 106 (29.4%). See table 2 below.

Table 2. Summary of Psychiatry Diagnosis Essential Hypertension.

SN	Psychiatric Morbidity Total	(%)
2	GAD	16.1
3	Depressive Disorders	29.4
4	Sexual Dysfunctions	9.0
5	Substance Abuse	2.3
7	Mixed Anxiety and Depressive disorders	7.8
8	Panic without Agoraphobia	0.9
9	Dysthymia	0.3
11	Personality Disorders	0.9
12	Nil (no psychiatric illness)	35.5
	Total	100%

5. Discussion

The study on the psychiatric comorbidities associated with essential hypertension was conceptualized mainly on the basis of the observation of the relatively high frequency with which requests for psychiatric consultation were being received over time from other clinical Departments in UPTH, later confirmed by a study, particularly, Internal Medicine. The study was, thus, started with the main objectives of determining the pattern and prevalence of psychiatric morbidity and their association with persons with essential hypertension attending the out-patients clinic of UPTH. A comparative cross-sectional design was adopted, with a sequential use of four study instruments, followed by analysis of data using the various statistical methods.

From the study, the prevalence of essential hypertension was noted to be increasing with age and was about twice higher, in the age groups 40-49 and 50 and above, compared to age group of 30-39, and about 6 times higher compared with age group 20-29. This result is consistent with earlier studies which reported that about 4.3 million Nigerians above the age of 15 years are classified as being hypertensive. Furthermore, the prevalence has been said to be related to age, particularly in females, with a substantial increase occurring after the age of 50 [26].

Though essential hypertension commonly starts in middle age, the illness may progressively become worse with attendant incapacitating symptoms that may infringe on the functional capacity of the individual and thereby lowering the quality of life [100]. Africans usually seek medical attention mostly when illness has presented with disabling symptoms,

and in most cases late, in spite of awareness of the diagnosis. This is particularly more so for essential hypertension. Moreover, cultural factors, poverty and in-accessibility to healthcare facilities often contribute to this delay [101]. This could also explain the over representation of the older age group in the hypertensive patients in this study, who are more superstitious, poor, and with low income capacity and hence unable to seek health care, particularly timely. Furthermore, essential hypertension is a chronic disease and most of the respondents diagnosed over 5-10 years ago are still on maintenance antihypertensive therapy.

On the other hand, the rising prevalence of hypertension with age could be a reflection of exposure to enduring stressors, poor dietary habit, lack of exercise and other culturally permissible hazardous life style [26].

The most prevalent age of onset of hypertension was age 40-49, with 169 respondents or 46.9%. This was in agreement with other studies, which had established that the illness is commonest after 40 years. It is interesting to note that the number of patients steadily increased with increasing age of onset of illness with a sharp decrease after the age of 50. Hypertension beginning after the age of 50 years is most likely to be secondary hypertension [55, 73]. This result is therefore in consonant with the methodology adopted in this study, where all those with any other concurrent medical illnesses were excluded in order not to introduce bias. However, it was difficult for most of the respondents to know exactly the age of onset of disease since majority only became aware of the diagnosis during their first or routine hospital visits.

Females predominated in the study with 60.8% for essential hypertension. Although essential hypertension is more common in males, females may have been overrepresented in this study due to two reasons. First, African females tend to have lower blood pressure than males early in life with a reversal of the trend after the age 45-50 years [25, 26]. This may be due to hormonal changes associated with the preparation for or actual menopause occurring at this age group, couple with the increasing family and domestic (stressors) responsibilities shouldered by married females in this age group. Interestingly, in this study, there was high prevalence of the married females in both groups. Another probable reason for the predominance of females in this study is that females are more willing and likely to volunteer their symptoms easier than males and consequently tend to have better health seeking behaviors. This has equally been pointed out by another study. Studies have indicated that the ratio of women with hypertension, compared to men increases from 0.6: 0.7 at age 30 to 1.1: 1.2 at age 65 [25, 26]. In this study, however, the male to female ratio was 1.0: 1.7.

The married group was over represented in the study (71.4%). This preponderance might be due to low rates of divorce and separation, which may reflect a dominance of Christianity in the study environment. Furthermore, widows constituted a significant percentage (15%) among the hypertensives, next to the married group. Widowhood, no doubt, hurts and often results in severe emotional trauma, particularly when it is sudden and early in life. More than half of the single subjects (10.6%) in the hypertensive group were above the age of 30 years, many of whom were unemployed. In Africa, due to socio-cultural values, a female not yet married at this age and above calls for concern not only to her but also to her family members. Majority of the separated group were females. Although lower rates of psychiatric comorbidities were found among these categories, both separation and divorce are capable of impacting enormous psychological trauma in affected individuals.

Also from the study, it was found that more of each of the categories; married, separated, widowed had more psychiatric co-morbidity among hypertensives. A possible explanation could be that in hypertension, marital difficulties, separation and even widowhood may serve as baseline psychosocial factors that may act either singly or in synergy with the medical stressor (hypertension) to cause psychiatric comorbidity. The presence of these psychosocial stressors alone can equally predispose to hypertension. Thus, in hypertension, they are both causal and effectual.

Most of the subjects in this study had attained various levels of formal education especially secondary and tertiary. Perhaps the influence of westernization and urbanization in Rivers State, Niger Delta and Nigeria, might have played an important role [103]. Furthermore, the cosmopolitan nature of Port Harcourt, domiciling majority of ethnic groups in Nigeria, with over 50% of Nigeria's oil and gas business, makes education a priority. A good number (39%) of the subjects with hypertension had tertiary education. The fact that they were educated may have increased their chances of employment and possibly ability to seek quality healthcare and timely, too [103]. It is equally important to note that perhaps the older you become, and probably with more education, the more your socioeconomic and family responsibilities, with their accompanying stressors.

A number of studies have implicated environmental stressors as important aetiological factors in high blood pressure, particularly in already genetically predisposed individuals [98]. Occupational environments in Nigeria had remained stressful due to lack of job security and poor wages and remunerations, confronting countless demands from members of the family in a poverty ravaged economy such as ours. This is supported by the fact that the percentage of females with tertiary education was significantly less compared to other educational levels in the same control group. Among patients with essential hypertension, the incidence of psychiatric co-morbidity was lowest among those with tertiary education. Hence, education tended to have some protective influence on the psyche of hypertensive patients [104]. Expectedly, those with higher level of

education were more likely to secure better employment, earn better income and have better access to quality health care.

Clearly, a significantly high prevalence of both medical conditions in the low status occupations was observed in this study. Also, majority of the unemployed were students and housewives who expectedly received reasonable support from families. Even though a significantly high number of those with employment were self-employed, most were able to afford their transportation fare to the hospital, keep regular follow-up appointments, reasonably feed well, maintain good drug adherence, able to procure their medications (for the hypertensive group), thereby ultimately becoming symptom free. No doubt, lack of employment is an important psychosocial factor with which mental illnesses are commonly associated general. It is both a predisposing as well as a maintaining factor [60, 105]. Thus, in this study, results showed that being employed correlated positively, while unemployment correlated negatively with prevalence of psychiatric co-morbidity.

From the study, essential hypertension was associated more with low-income. Stable income, no doubt, is an important stabilizing factor for any chronic illness. In this study, income level negatively correlated with psychiatric comorbidity in hypertension. The higher the income level, the lower the prevalence of psychiatric illness in hypertension. Among the hypertensives, there was preponderance of older adults, however as it has to do with income level, it appears to be a combined effect of both income and age in the study.

African extended family may also be contributory. Sharing the burden of disease by relatives in the African extended family system may be an advantage in the outcome of chronic illnesses like hypertension, as it tends to distribute responsibility from such patients to other family members. This was evident from this study where 85% of Hypertensive live with their supportive family members. Adequate social support has been identified as a key factor in relieving or decreasing psychosocial burden associated with chronic medical conditions.

In this study, there was significantly reduced rate of stigma among the hypertensives. Expectedly, therefore, the negative effect of stigmatization was not felt more on the study group (Hypertension). Disclosure, as a coping strategy ordinarily should have a positive effect on psychological well-being of the patients by affording them some level of social and psychological supports.

Majority of the respondents among the study group reacted 'sadly' or 'very sadly' to the diagnosis of their medical conditions. It is important to note that these reactions are driven by emotion and equally reflect one's personality traits [107]. A person with anxious and emotional personality trait is likely to react to stressors, which could either be evoked or precipitated by both chronic conditions. This underlying abnormal personality trait could be a predisposing factor for psychiatric illness later, and worse still, in the circumstance of a debilitating chronic medical condition [107]. Thus, it was evident that those who reacted in a normal way tended to

have lower rate of psychiatric co-morbidity than those who reacted sadly, very sadly or wished to die.

Majority of subjects in the disease group had duration of illness (diagnosis) within 1–5 years, while the least constituted those with the duration of 11 years or above. It seems therefore that since essential hypertension is a chronic conditions, one should have expected a higher proportion of sufferers within the older age group. The reasons for this observation may include; age criteria adopted in this study, higher morbidity and mortality and complications of the illness and treatment. For the study group, those who would have formed the latter group were excluded by reason of age control, since one of the study's inclusion criteria was age range of 18-54.

Expectedly, the longer the duration of these illnesses, the more likelihood of developing psychopathology. Interestingly, however, the reverse was observed in this study, as psychiatric co-morbidity steadily decreased with increasing duration of illness. This might suggest that with the passage of time, one tended to absorb the initial shock of diagnosis and had adequately readjusted to the medical condition. Secondly, they might have stabilized on medications. The high rate of psychiatric illnesses among those in treatment between 1-5 years in both groups could probably reflect an over representation of subjects in this category abinitio. Also, the effect of advancing age might have played a role as many would have died from complications of the illness. This was reflected in this study as subjects in the category of duration of treatment greater than 10yrs, were fewer. Mortality rates in this medical condition have remained high [8].

The reduced rate of psychiatric co-morbidity in the category of treatment 6 years and above could suggest that most of the medications being used in these clinics in the treatment of patients with essential hypertension even though they potentially may be associated with neuropsychiatric side effects,[108]were cautiously used and properly monitored. This might have resulted into very minimal rate of psychiatric side effects even with prolonged use.

From the results of this present study, the prevalence of psychiatric morbidity in the hypertensives was 64.4%. This was slightly higher than results from previous studies [81]. Ohene, in his study in Benin City, found a prevalence of 35% psychiatric morbidity among persons with essential hypertension [81]. Although these results seem to be far apart, the difference might reflect: one, the increasing environmental stressors and economic hardship, increasing spate of insecurity in Nigeria and particularly in the Niger Delta which has significantly worsened over the last 10 years.

Hypertension alone can present with psychiatric morbidity and this may be aggravated by adverse environmental factors. Adverse environmental factors can in turn predispose to essential hypertension and mental illness. Indeed, this relationship describes a sustained vicious circle. Another possible reason for the observed difference was that in the study by Ohene, [81] GHQ-30 was used which is a less sensitive version when compared with GHQ-12 (used in this study). Thirdly, the sample size was smaller, i. e. 40 patients

compared with 360 hypertensives used in this study. The higher the sample size, the higher the likelihood of diagnosis of psychiatric morbidity. Furthermore, several studies have suggested that hospital based treatment of hypertensives, tends to be associated with higher neurociticism and levels of psychiatric morbidity, than their counterparts on community-based treatment. Another plausible reason could be the use of some antihypertensive particularly calcium channel blockers and α -methyldopa, implicated recently in psychiatry co-morbidity among patients on treatment for hypertension.

Out of the total number with psychiatric illness, 232 (64.4%), depression was significantly the commonest with 29.4% as against 16% in Ohene's study. [81] Depression was mostly the mild and moderate types with few cases presenting with psychotic features which were mostly mood congruent. This might also be due to reasons earlier given for overall psychiatric disorders. Hypertension presents with very disabling symptoms which could impair the functional capability of the sufferer. This, coupled with other adverse environmental factors, might predispose the patient to depressive illness. There was significant predominance of females with depression. This finding, which is consistent with the gender distribution of depression, [110] which may reflect the willingness of the female gender to volunteer information on her health, hence, better health seeking behaviour. Hypertensive disease, which carries the risk of both physical and emotional burden, is likely to affect the mood regulating centre of the brain, i. e. the limbic system. Mixed anxiety and depression was diagnosed in 21 hypertensive patients, majority of them were females. The preponderance of this mixed affective and neurotic illness in females is in line with findings from previous studies.

The prevalence of generalized anxiety disorder was 16.1% in this study. Previous study had found 12%. This could possibly be more frequent. The effect of propranolol and benzodiazepins (bromazepam and diazepam) which are commonly used medications in the GOPD, may have been responsible for the relatively low prevalence. Males were 48.2% and females 51.8%. Again, the observed gender bias is in line with existing literature. Earlier studies have suggested that hypertensives were more neurotic, more insecure, more conservative and more tense.

Hypertension and generalized anxiety disorder are somewhat similar illnesses, sharing common pathway – the sympathetic pathway [110]. It is for this reason that medications like beta blockers such as propranolol and some benzodiazepine that act by dampening the activity of the sympathetic pathway, have comparable usefulness in both disease conditions. Another reason to “drive home” the relationship between hypertension and anxiety is that fundamental advances in the understanding of hypertension have coincided with the theories of anxiety states and affective disorders, suggesting catecholamines – particularly known here is noradrenaline [111].

This finds common ground in suggested mechanism for producing increased arterial pressure and neurotic states [111]. This is also consistent with the study by Kidson, [112]

who argued that higher neurotic scores of his hypertensive out-patients were due to a “reactive state” occurring in them centrally to other study, [113] which reported the absence of neuroticism among newly hypertensives and suggested that drug treatment could cause the observed neurosis. However, in this study, the inclusion criteria of one year duration of illness stands to disprove this and it also appears that most of the hypertensives with diagnosis of anxiety were not due to their medication, and most were having one psychosocial stressor or the other that may either be responsible for or worsen the hypertension, anxiety or even both.

Panic disorder was diagnosed in 1.1% of hypertensive patients in this study. Many workers have consistently established that most of the major deleterious effects of high blood pressure are in the heart, blood vessels, kidneys and brain [109, 111]. Therefore, with the strong connection between the heart and cardiovascular system, hypertension and the psyche, diagnosis of panic disorder in hypertensive subjects might not be a surprising finding [102]. In fact, other names that have been given to anxiety neurosis (now obsolete) include cardiac neurosis, irritable heart syndrome, soldier’s heart, nervous tachycardia, vasomotor neurosis, vasoregulatory asthenia and disordered action of heart, among others. Strikingly, these names mainly further imply the close and strong association between the heart or cardiovascular system and anxiety states [109].

Considering the fact that psychiatric morbidity was most prevalent in the unemployed, elementary, and low income workers, separated and divorced, all baseline psychosocial factors, capable of causing depressive illness, anxiety disorders and other mental illnesses, hypertension is commonly associated with stressful conditions. This is in line with findings from other studies that also showed that some common aetiological factors like stress related situations, issues of job loss and unemployment, prolonged difficulties, people at war front were shown to have hypertension and anxiety [98]. It has been found that stress, which potentially causes anxiety also increases the level of cortisol which in turn causes increased deposition of arterosclerotic deposits in the intima of blood vessels [111]. These deposits gradually narrow the lumen of the vessels. This in turn increases arterial pressure resulting in hypertension [111].

Sexual dysfunction was diagnosed in 9.0% of hypertensive patients. Of this, 84% had male erectile dysfunction while 16% who were all females had hyposexual dysfunction. Hyposexual desire disorder (HSDD) is sexual dysfunction with decreased libido, lack of sexual motivation, and decreased sexual fantasies. Some studies have found associations between hypertension and erectile dysfunction in men, while others have implicated effects of some antihypertensive drugs like methyldopa and reserpine, [39, 81] in addition to psychogenic impotence. However, in this study no patient was being treated with reserpine, and of the 27 males with erectile dysfunction, only 3 were on methyldopa.

Another diagnosis that was made among 8 of the hypertensives was substance abuse. More than 80% of them had alcohol related disorder with the male to female ratio of

7: 1. Although, the gender gap was wide, substance abuse generally is commoner among males than females [109]. There is a bidirectional relationship between substance abuse and hypertension i. e. substance abuse particularly alcohol can cause hypertension while hypertension, on the other hand, can precipitate substance abuse due to frustration [86-88]. However, the true relationship still remains difficult to establish in this study. People with hypertension tend to abuse substance mainly to self-medicate their depression or to abate the many anxiety or anxiety like symptoms that characterized hypertension, hence the use of propranolol and diazepam which have anxiolytic effects.

Personality disorder was seen in 5% of the hypertensive subjects. The concept of type A behaviour pattern (T. A. B. P.), also referred to as Type A personality, which appears fairly well established as a strong correlate of coronary heart disease (CHD), strongly supports a relationship between hypertension and personality disorder [107, 112]. High blood pressure (HBP) is identified as major risk factor to CHD, which is reported to be on the increase in Nigeria. However, the present study found a low rate of personality disorder.

Hypertensive subjects with more than one psychiatric morbidity were seen in this study. 12% had both GAD and Sexual Dysfunction while 8% had both major depression and Sexual Dysfunction. This equally agrees with the multifactorial aetiological basis of essential hypertensive with environmental stressors playing as much significant role as genetic factors.

6. Conclusion/Recommendations

Essential hypertension is a chronic debilitating illness, associated with psychiatric co-morbidity and is increasingly becoming a huge health concern worldwide. Essential hypertension causes enormous stress and is equally associated with various psychiatric comorbidity, presence of which increases the morbidity, severity and mortality associated with the illness, worsens drug compliance and the prognosis, and impairs quality of life of the sufferers. Concerted efforts should therefore be made at increasing awareness among patients and clinicians to improve on timely recognition, appropriate diagnosis and adequate management of patients with hypertension. Management of the patients should include attention to their mental health status in order to enhance the quality of care.

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