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Association between family functioning and depression in adult patients with hypertension attending the family medicine clinic of a tertiary hospital in Southern Nigeria

Christian Ibe Dickson ^{1,*}, Comfort Oritseweyimi Imarhiagbe ¹, Anita Nubarido Wifa ¹, Ijeoma Grace Amaechi ¹, Ada Nkemagu Okocha ¹ and Precious Kalamba Gbeneol ²

¹ Department of Family Medicine, College of Medical Sciences, Rivers State University, Port Harcourt, Nigeria.

² Department of Family Medicine, Rivers State University Teaching Hospital, Port Harcourt, Nigeria.

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Abstract

Background: Depression is a mental disorder that has become an increasingly important health problem. Depressive symptoms are common in chronic medical illnesses like hypertension, although they are usually not recognised and not treated. Family functioning affects the outcome of chronic diseases like hypertension, and it is an important aspect of care often neglected by Physicians. This study aimed to determine the association between family functioning and depression among adult patients with hypertension attending the Family Medicine Clinic of Rivers State University Teaching Hospital.

Materials and Methods: This was a hospital-based cross-sectional study involving 312 adult hypertensive patients selected by systematic random sampling. Questionnaires were used to collect information on the sociodemographic characteristics, family functioning, and depression status of participants. The results were analysed using the Statistical Package for Social Sciences (SPSS) version 20.

Results: Good family function was found in 81.7% of the participants and the prevalence of depression was 26.6%. Participants with dysfunctional families were 9.3 times more likely to have depression when compared to those with functional families ($P < 0.001$). Good family function was strongly associated with milder levels of depression ($P = 0.02$).

Conclusion: Depression is more likely to exist and be more severe in hypertensive patients who lack good family function. Physicians should screen for depression and family functioning in hypertensive patients, for early detection, holistic management, and better health outcomes.

Keywords: Association; Family functioning; Depression; Hypertension

1. Introduction

Depression is a major public health challenge and a major cause of disability globally. It is estimated that more than 300 million people in the world suffer from depression and the incidence of depression worldwide increased by 49.86% from 1990 to 2017 [1,2]. Chronic diseases, such as hypertension, increase the risk of depression, and depression is often associated with poor quality of life, poor outcomes, and higher healthcare expenditures [3].

Hypertension is a common non-communicable disease and a leading cause of cardiovascular diseases and mortality worldwide [4]. In 2010, 31.1% of the global adult population (1.39 billion people) had hypertension, defined as systolic

* Corresponding author: Christian Ibe Dickson

blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg. The global prevalence of hypertension is rising owing to the ageing of the population and increases in exposure to lifestyle risk factors [4]. Many individuals diagnosed with hypertension experience somatic symptoms, role impairment, and lower quality of life [5]. All these may make them prone to getting psychologically disturbed with mental illness, especially depression [6]. It is known that psychological and mental illnesses such as depression and social factors are related. Considering all the social factors associated with depression, the family is an important unit with complex psychosocial interactions [7].

The family is a social and intimate nurturing group of individuals connected biologically, legally, or by choice from whom an individual expects a measure of support in the form of food, shelter, clothing, finance, and natural nurturing, as well as sharing a past, present and future [8]. Factors that can influence the health of an individual and the family include age, gender, religion, marital status, socioeconomic class, social support, family composition, structure, and functioning [9]. Family functioning affects the outcome of illnesses like depression and hypertension, and it is an important aspect of care often neglected by healthcare providers. A properly functioning family will have good intra-family relationships, thereby giving its members optimum support and better adaptation to chronic illness [10].

Several studies in the Kingdom of Saudi Arabia, China and Afghanistan have linked depression with hypertension [11-13]. Despite evidence linking depression to poor blood pressure control and increased morbidity and mortality related to hypertension, there is a paucity of data on the association between family functioning and depression burden among patients with hypertension in Sub-Saharan Africa. This study aimed to determine the association between family functioning and depression among adult patients with hypertension attending the Family Medicine Clinic of Rivers State University Teaching Hospital, Southern Nigeria. This study will help address the gaps in the burden of depression among patients with hypertension and the influences of family functioning on depression in hypertensive patients in Southern Nigeria.

2. Materials and methods

This cross-sectional study was conducted in the Family Medicine clinic of the Rivers State University Teaching Hospital (RSUTH), Port Harcourt, Rivers State, Southern Nigeria between July 2022 and October 2022. Three hundred and twelve eligible adult participants obtained using the formula for cross-sectional studies were recruited using a systematic random sampling technique [14]. All participants have been on antihypertensive treatment in the clinic for not less than six months and have attended the clinic not less than three times. Ethical approval was obtained from the ethical committee of the Rivers State University Teaching Hospital. Informed consent was sought and obtained from each participant before recruitment.

All data were collected at the Family Medicine Clinic of RSUTH by the researchers using a pretested semi-structured interviewer-administered questionnaire containing various instruments. Sociodemographic data included respondent's age, sex, educational status, marital status, religion, employment status and average monthly income.

The family adaptability, partnership, growth, affection and resolve (APGAR) questionnaire was used to assess the family function. Each component of the questionnaire had a score range of 0 to 2: hardly ever (0), some of the time (1), and almost always (2). For each participant, the scores obtained for each item response were summed up to give a total score which could range from 0 to 10, with higher scores denoting a higher level of satisfaction with family function. Scores of 0–3 indicate severe family dysfunction, scores of 4–6 indicate moderate family dysfunction and scores of 7–10 indicate good family function. Moderate and severe family dysfunction were considered dysfunctional while good family function was considered functional. The APGAR has been widely applied in research with excellent validity and reliability [15].

The presence of depression and its severity was assessed using the Patient Health Questionnaire (PHQ 9). This scale contains nine items with scores obtainable ranging from 0 to 27 and depression severity classified as none-minimal, mild, moderate, moderately severe and severe depression [16]. Each item was rated on a 4-point scale as not at all (0), several days (1), more than half the days (2) and nearly every day (3). The total score for each respondent was then calculated. Respondents with scores of between 0 and 4 were classified as having no depression, 5 to 9 as mild depression, 10 to 14 as moderate depression, 15 to 19 as moderately severe depression and 20 to 27 as severe depression. Mild, moderate, moderately severe and severe depression were considered depression present while no depression was considered depression absent. The PHQ-9 has comparable sensitivity and specificity to other depression scales, with a reliable and valid measure of depression severity, and Cronbach alpha of 0.799 [16-18].

At the end of data collection, the data collected were analysed using Statistical Package for Social Sciences (SPSS) Version 20 for Windows [19]. Descriptive statistics were utilised to determine the sociodemographic characteristics of the study

population and the prevalence of depression. The continuous variables were presented as means and standard deviation while the categorical variables were presented as frequencies and proportions. The Chi-square test was used to test associations while logistic regression analysis was used for the degree of association between variables and the level of significance was set at $P < 0.05$.

3. Results

This study was carried out among hypertensive patients receiving care at the Family Medicine Clinic of the RSUTH, Port Harcourt. A total of three hundred and twelve (312) respondents were recruited into the study over twelve weeks. Three hundred and twelve (312) questionnaires were administered with a 100% response rate.

The age range of the participants was 27 to 90 years with a mean age of 57.04 years and a standard deviation of 12.06. The respondents with the age group of between 50 – 59 years had the highest percentage (31.1%) Male respondents were more 65.1% (203) than females 34.9% (109). The highest proportion of the respondents 39.7% (124) had secondary education followed by those with a tertiary level of education who made up 35.9% (112) of the population. The majority of the respondents were married 62.5% (195), while respondents who were widowed made up 24.7% (77). Respondents who were employed were more in number with 128 (41.0%) followed by those who were unemployed - 95 (30.4%) with the least being those who were retired - 89 (28.5%). More than half of the respondents, 58.3% (182) had a monthly income below ₦50,000 while 26.9% (84) of the respondents earned between ₦50,000 and ₦100,000. Respondents with monthly income between ₦100,001 and ₦200,000 made up 9.6% (30) while 5.1% (16) earned more than ₦200,000. These results are demonstrated in Table 1.

Table 1 Sociodemographic characteristics of respondents

Variables	Frequency (Total=312)	Percentage (Total=100%)
Age in years		
<30	2	0.6
30-39	25	8.0
40-49	55	17.6
50-59	97	31.1
60-69	83	26.6
70-79	40	12.8
80-89	9	2.9
≥90	1	0.3
Mean age 57.04	SD 12.06	95% CI: 55.70, 58.39
Sex		
Male	203	65.1
Female	109	34.9
Educational level		
No Formal Education	10	3.2
Primary	58	18.6
Secondary	124	39.7
Tertiary	112	35.9
Postgraduate	8	2.6
Marital status		
Divorced	195	62.5

Married	195	62.5
Separated	9	2.9
Single	28	9.0
Widowed	77	24.7
Employment Status		
Employed	128	41.0
Retired	89	28.5
Unemployed	95	30.4
Average Monthly Income		
<₦50,000	182	58.3
₦50,000-₦100,000	84	26.9
₦100,001-₦200,000	30	9.6
>₦200,000	16	5.1

In this study, APGAR scores showed that 81.7% (255) of respondents had good family function, 13.8% (43) had moderate family dysfunction and 4.5% (14) had severe family dysfunction. This is illustrated in Figure 1.

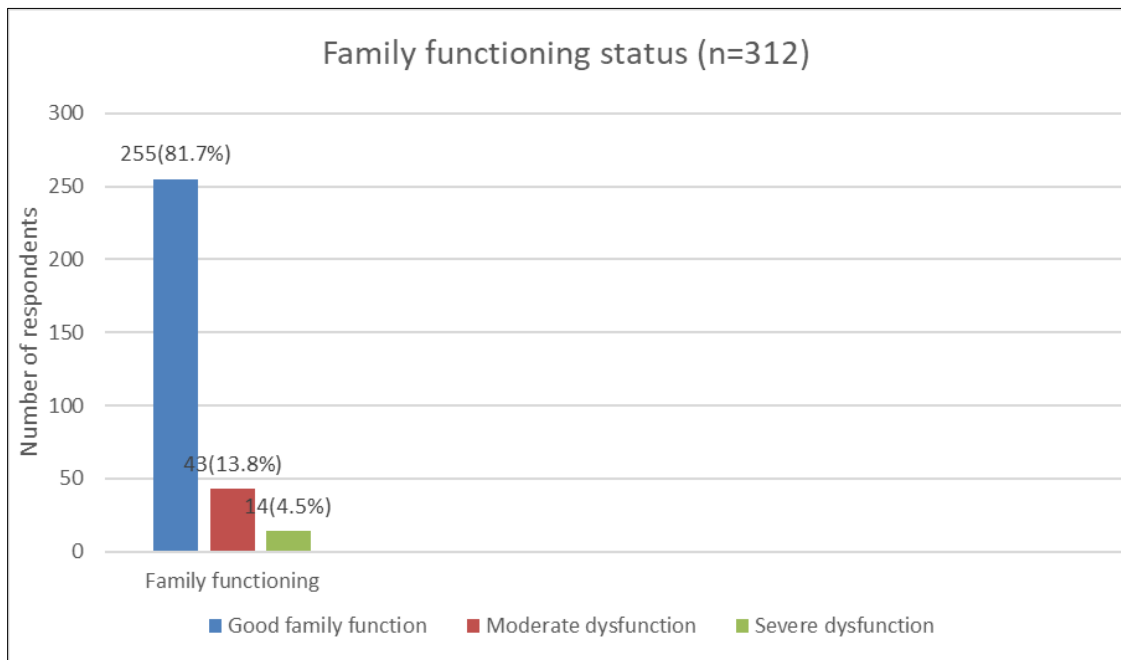


Figure 1 Family functioning status of respondents

The PHQ-9 scoring showed that 73.4% (229) of respondents were not depressed (score range of 0 to 4), while 26.6% (83) had some level of depression (score range of 5 to 22). Overall, the prevalence of depression was 26.6%. This is illustrated in Figure 2.

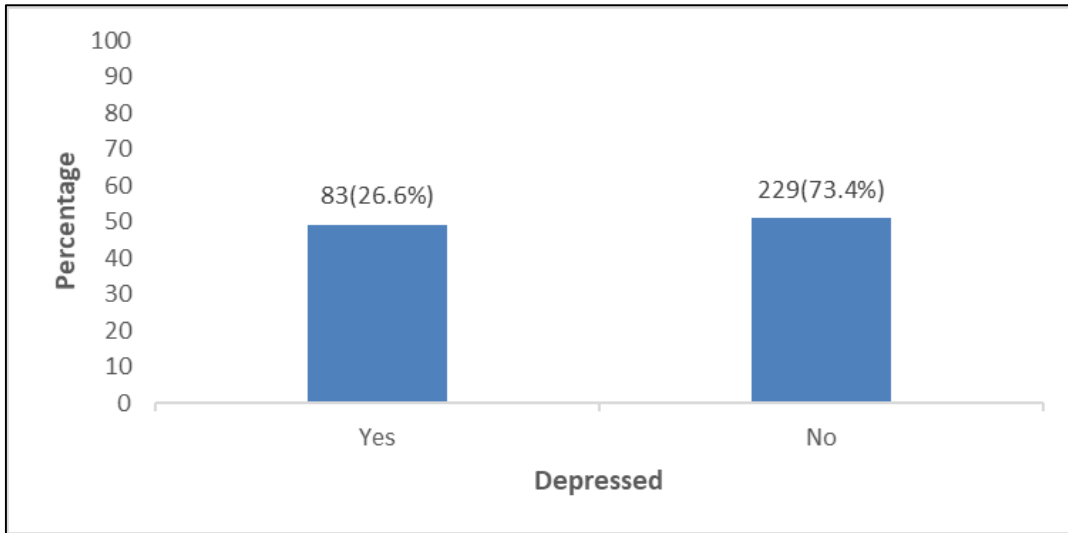


Figure 2 Prevalence of depression among respondents

Among the 83 (26.6%) respondents that had depressive symptoms, 59 (71.1%) had mild depression, 10 (12.0%) had moderate depression, 13 (15.7%) had moderately severe depression and 1 (1.2%) had severe depression. This is illustrated in Figure 3.

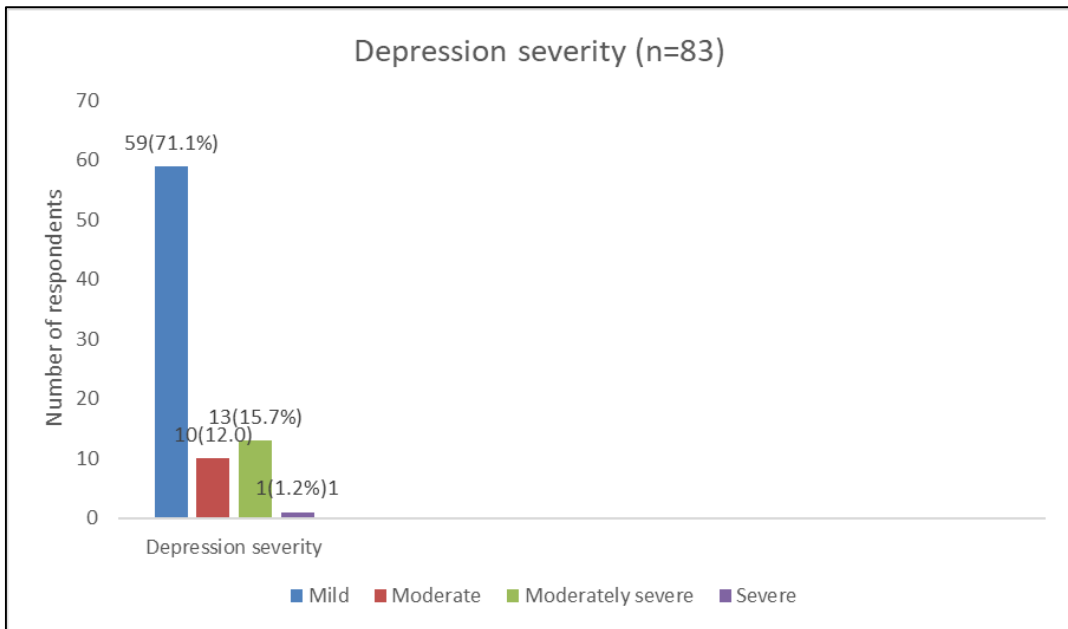


Figure 3 Depression severity among respondents

The 26.6% (83) respondents with depression and 73.4% (229) without depression were compared according to those who had functional families (good family function) and those who had dysfunctional families (moderate and severe family dysfunction). Table 7 below shows that there was a statistically significant association between depression and family function among the respondents ($P=0.000$). Respondents with dysfunctional families are 9.3 times more likely to have depression than those with functional families.

Table 2 Association between family functioning and depression among respondents

Depression	Dysfunctional Family n(%)	Functional Family n(%)	Total	X ² (d.f)	P-value(95%CI)	Odds Ratio
Depression present	38(45.8)	45(54.2)	83(100)	57.33(1)	*0.000 (0.000,0.000)	9.3
Depression absent	19(8.3)	210 (91.7)	229(100)			
Total	57(18.3)	255(81.7)	312(100)			

*Statistically significant

Respondents with moderate and severe family dysfunction were grouped as having dysfunctional families while those with good family function were assessed as having functional families. These two groups of family function were compared according to the severity of depression in the hypertensive respondents who had depression. Table 8 below shows that there was a statistically significant association between the family functioning of the respondents and the severity of depression in the respondents (P=0.02). Depression levels were milder in those with functional families.

Table 3 Association between family functioning and severity of depression among respondents

Depression severity	Dysfunctional family n(%)	Functional family n(%)	Total	X ² (d.f)	P-value(95%CI)
Mild	23(39.0)	36(61.0)	59(100)	5.606(3)	*0.02(0.095,0.107)
Moderate	7(70.0)	3(30.0)	10(100)		
Moderately severe	8(61.5)	5(38.5)	13(100)		
Severe	0	1(100)	1(100)		
Total	38(45.8)	45(54.2)	83 (100)		

*Statistically significant

4. Discussion

There were three hundred and twelve (312) patients with hypertension recruited into the study, with a mean age of 57.04 years and a standard deviation of 12.06. This was comparable to the findings of Guwatudde et al in their four-country study in Nigeria, Tanzania, South Africa and Uganda where a mean age of 50.5 years was observed [20]. In this study, those aged 50 years to 59 years occupied the highest proportion. This is however different from findings from other studies [20,21]. Guwatudde et al found those aged 40 to 49 years to be the highest proportion while Commodore-Mensah et al in their study in Ghana and Nigeria also had the highest proportion between 40 and 49 years [20,21]. The relatively higher proportion in this age group in the index study may be due to the fact that the risk of high blood pressure increases as people age. This may also be due to degenerative changes common with advancing age and a sedentary lifestyle as people within this age group are likely not to be physically active.

The finding of more males in comparison to females in the study population is similar to what was found by Kavishe et al in their study in Tanzania and Uganda who also reported a male preponderance [22]. This may have been a result of men in Africa being more likely to be gainfully employed and therefore having the financial resources to seek health care services. Also, men in Africa generally develop more chronic illnesses earlier than women due to lifestyle and cultural differences. This finding is however not in agreement with studies in South Africa and Ghana that reported a greater proportion of females, which may be attributed to the better health-seeking behaviour of women when compared to men [20,21].

Most respondents in this study had some form of formal education; primary (18.6%), secondary (39.7%) and tertiary (35.9%) level of education. This is comparable to the study by Kavishe et al in Eastern Africa where most respondents had some form of formal education [22]. Findings from this study showed that most of the respondents with hypertension were married (62.5%). This could have occurred because married individuals have been shown to have partner support, making them have a positive attitude toward health care. This suggests that married people having good support from their spouses are more likely to seek care at the hospital thereby causing an increase in the number of married hypertensive patients reporting to the hospital for care. They are therefore readily available for recruitment

into research studies. Socio-cultural differences may also have contributed to this difference in pattern. This finding is however, in contrast to what was found in another study in East Africa where most of the respondents were divorced or widowed [22]. This could be attributable to the lack of spousal support that exists in divorce and widowhood resulting in poor health-seeking behaviour.

In this study, 41% of the respondents were employed and more than half (58.3%) had a monthly income below ₦50,000. This is similar to a study done by Suleiman et al in South-South Nigeria where it was reported that 46.7% of the respondents were civil servants [23]. This finding may be because Port Harcourt is a metropolitan city and a commercial centre, so most respondents have some form of employment. Some of these work conditions come with acute to chronic stress with increased demands to meet bills due to insufficient income thereby adversely affecting blood pressure.

In this study, the rate of family functionality among the respondents was high as 81.7% of respondents had good family functioning. This was similar to studies done in different cities in Nigeria where 68.5% was observed by Iloh et al in Umuahia and 76% by Adelosoye et al in Benin City [24,25]. A similar finding was reported in China where mean FAD values indicated overall healthy family functioning among Chinese couples [26]. These findings could be due to the communal lifestyle of the people in the study areas where individuals depend on their families and carry out activities in groups. Also, functional families improve the health-seeking behaviours of individuals.

In this study, the prevalence of depression among the respondents was 26.6%. This finding was similar to the findings of Ademola et al, Okunrinbode et al and Igwe et al who observed a prevalence of 26.6%, 22.8% and 26.7% respectively in different cities in Nigeria [27-29]. These similarities were not surprising as hypertension is a chronic medical condition, and chronic medical conditions and depressive disorders co-occur.

In this study, there was a strong association between family function and depression among the respondents, which was statistically significant ($P=0.000$). Respondents with dysfunctional families were 9.3 times more likely to have depression when compared to those with functional families. A possible explanation for this is that individuals with depression might not show or give adequate support to family members, and not perceive the support being given to them, thereby leading to family dysfunction. Conversely, poor family functioning can contribute to mental conflict, leading to depression in the family member. Various studies in China, South Africa and Eastern Nigeria have shown a similar association between family function and depression in chronic disease conditions whereby a functional family is less likely to be associated with depression than a dysfunctional family [24,30,31].

In this study, there was also a statistically significant association between the family functioning of the respondents and the severity of depression in the respondents ($P=0.02$) with depression level being milder in those with functional families. This is similar to the findings by Wang et al who reported an association between the first episode of major depression with impaired family functioning and a positive association of depression severity with family function impairment for depressed patients in Chinese families [30]. Similarly, Adelosoye et al in their study in South-South Nigeria, among infertile women attending a teaching hospital, and using the family APGAR as an index of family function assessment, also found a statistically significant association between family function and severity of depression [25]. These findings in other chronic illnesses are similar to what this study observed among hypertensive patients and corroborate the results in the index study as there was a significant association between depression and family dysfunction among the study population who had hypertension, a chronic disease.

5. Conclusion

This study observed that the prevalence of depression among hypertensive patients attending the Family Medicine Clinic of the RSUTH was high at 26.6%, however, most of them (71.1%) had a mild level of depression, and this may be attributed to the mitigating effect of the good family function observed in 54.2% of the study population. The significant association found between family function and the presence of depression, as well as the severity of depression demonstrated in this study, highlights a need to screen hypertensive patients within those domains.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to declare.

Statement of ethical approval

Ethical approval was obtained from the ethical committee of the Rivers State University Teaching Hospital.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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