The Nigerian Journal of GENERAL PRACTICE

Original Article

Prevalence and Determinants of Erectile Dysfunction in Adult Hypertensives in South East Nigeria

Nnoham Uju[1] Azudialu Bede C[2], Owulo Agada[1], Nnaemeka Oguejiofor[1], Ihejirika I N[1]

[1]Department of Family Medicine, University of Nigeria Teaching Hospital Enugu, Nigeria
[2]Department of Family Medicine, Federal University Teaching Hospital Owerri, Nigeria

Abstract

Background: Erectile dysfunction (ED) is a recurrent or persistent inability to attain or maintain a strong erection for satisfactory sexual intercourse. It is a common comorbid condition in hypertension due to vascular dysfunctions and the effect of hypertensive therapy. ED, though not a malignant condition, has some significant negative physiological and psychological impact on the man. **Aim:** The study was to assess erectile dysfunction and its relationship with family function in adult hypertensive males attending the general outpatient clinic at UNTH Enugu. **Methods:** It was a cross-sectional study involving 200 consenting respondents who met the inclusion criteria. The participants were recruited through systematic random sampling. Their socio-demographic and clinical information were collected using semi-structured questionnaires. ED and family function were assessed using the 5-item International Index on Erectile Function (IIEF-5) and family APGAR respectively. Data were entered into the software statistical package (SPSS) version 21. **Results:** The majority of the participants were above 57 years (59.9%), having a mean age of 60.10 ±10.31years.The prevalence of erectile dysfunction was 70% (95%CI:63.1% -76.3%).The prevalence of mild, mild-moderate, moderate, and severe erectile dysfunction among the respondents were 8.6%, 30.7%, 29.3%, and 31.4% respectively. The significant predictors for erectile dysfunction identified were older age (57 years and above), long duration of hypertension (above 5 years), and use of diuretics. **Conclusion:** The findings of this study support existing literatures on the high burden of erectile dysfunction in hypertensive men(i.e. among the study population). It also indicated a strong correlation between older age, use of diuretics, and psychosocial factors, specifically family functioning and the occurrence of ED.

Keywords: Erectile dysfunction, hypertension, determinants, prevalence, Nigeria

---

Address for correspondence author: Dr Azudialu, Bede C. Department of Family Medicine, Federal University Teaching Hospital, Owerri, Imo State. +234-8033395040, Chinedu.azudialu@npmcn.edu.ng

How to cite: Nnoham U, Azudialu BC, Owulo A, Nnaemeka O, Ihejirika I N. Prevalence and determinants of erectile dysfunction in adult hypertensives in south east Nigeria. NJGP. 2024;24(2):118-130.

DOI: https://doi.org/10.60787/njgp.v22i2.231

Quick Response Code:

Introduction

Erectile dysfunction ED is a common medical condition in men with hypertension worldwide. It is the recurrent or persistent inability to attain or maintain a strong erection for satisfactory sexual intercourse.[1, 2, 3, 4]Under normal circumstances, penile erection results from a complex interplay between physiological and hormonal mechanisms.[4]

Recent studies on erectile dysfunction among hypertensive patients in Nigeria have reported high prevalence of ED, between a range of 65.8% to 86.8% in the South West and South East respectively.[5,6]Similar high prevalence of 85.1% has also been found among hypertensive patients in a primary care setting in North Central Nigeria.[7]Most literature affirm the correlation between cardiovascular risk factors(diabetes, obesity, dyslipidaemia, smoking, heavy alcohol use) and erectile dysfunction. [8,9]

Hypertension affects approximately 25%-33% of the world's population, and it frequently coexists with ED.[10] Studies indicate that hypertension doubles the risk of ED in hypertensive men, even after adjusting for confounding factors. [9, 11]

Erectile dysfunction is associated with various factors, including socio-demographics, lifestyle habits, chronic medical conditions, and medications.[4,12] One of the most consistent associations with ED is increasing age.[6]

Hypertensive therapies especially the older antihypertensives (diuretics, beta-blockers) have also been consistently linked to the development of ED.[13,14]Fear of ED can be a reason for poor adherence or discontinuation of these therapies with consequent worsening of hypertension and ED.[15]

Although ED is a common sexual problem in men with hypertension, it is often not sought for by clinicians and patients are often reluctant to discuss it, thus the condition is underdiagnosed and under-treated.[7,16]

Research has consistently shown that erectile dysfunction (ED) is a prevalent concern among men with hypertension, yet it remains under-recognized and under-treated.[7,17] This lack of attention can be attributed to various factors, including cultural, societal, and health-related aspects, wherein discussions about sexuality are often constrained and deemed inappropriate.[16,17]

Societal misconceptions linking the ability to achieve an erection with masculinity contribute to the reluctance of affected individuals to seek help, fostering embarrassment and stigma.[6]There is also a lack of awareness, and inadequate understanding of ED as a medical condition by both the healthcare providers and patients, which can lead to under-recognition and under-diagnosis of the condition. [7] Enquiry on erectile function is often not made by clinicians during clinical encounters with hypertensive males, and this has been attributed to inadequate knowledge of erectile dysfunction, and poor communication skills among others.[7,17]The implications of this under-recognition and under-diagnosis are significant, as it may hinder early intervention and appropriate management strategies for individuals experiencing ED in the context of hypertension.[17]

Erectile dysfunction was assessed using the 5-item International Index for Erectile Function (IIEF-5). Each question is scored from 1 to 5, with high scores indicating better erectile function. The total score ranges from 5 to 25, and the interpretation is as follows: 22-25: no

erectile dysfunction, 17-21; mild erectile dysfunction, 12-16: mild to moderate erectile dysfunction, 8-11: moderate erectile dysfunction, and 5-7: severe erectile dysfunction.[18]

This increasing prevalence of hypertension in Nigeria is likely to be associated with hypertension-associated morbidities including erectile dysfunction, hence the need to implement effective control measures such as lifestyle modifications, early detection, and timely treatment.

Materials and Methods

Study Site
This study was conducted at the general outpatient clinic (GOPC) of the University of Nigeria Teaching Hospital, Ituku-Ozalla Enugu State in the South-Eastern geo-political zone of Nigeria.

Study Design
This was a hospital-based study with a cross-sectional analytical design among adult male hypertensive patients aged 18 years and above, attending the General Out-Patient clinic at the University of Nigeria Teaching Hospital Ituku-Ozalla, Enugu State

Study Population
The study population was made up of adult hypertensive male patients attending the General Outpatient Clinic of UNTH during the study period.
Inclusion Criteria:
1.All adult (18 years and above) male hypertensive patients attending the GOPC during the period of study and who gave their consent to the study.

Exclusion Criteria
1. Severely ill patients who needed immediate medical attention.
2. Those who had cognition problems and were not able to respond to questions on the questionnaires.
3. Those with abnormal genitalia.

Sample Size Determination
The minimum sample size was calculated using Cochran's formular.[19]
$n = Z^2pq / d^2$ (To calculate 'n' in the finite population formula using the formula for population

$\geq$ 10,000)

Study Questionnaire/Instrument
The socio-demographic data and clinical data of the participants were collected by the researcher or the research assistants who had been previously trained. Then the International Index for Erectile Function (IIEF-5) and Family APGAR questionnaires were administered. The IIEF-5 assessed the presence and severity of erectile dysfunction Erectile dysfunction was defined as a consistent or recurrent inability to achieve or maintain penile erection sufficient for satisfactory sexual performance.[1] This was assessed using the 5-item version of IIEF. The IIEF-5 scores of 22-25 and <22 represented normal erectile function and erectile dysfunction, respectively. The severity of erectile dysfunction was described as mild, mild-moderate, moderate, and severe. A score of 1–7 indicated severe, 8–11 moderate, 12–16 mild–moderate, 17–21 mild, and 22–25 no erectile dysfunction.[2] It has a high degree of internal consistency for all 5 domains and the total scale (Cronbach's $\alpha \geq 0.73$ and≥ 0.91 respectively).[18]

A semi-structured questionnaire was designed by the researcher to elicit socio-demographic information from consenting respondents. It included the age, gender, marital status, religion, ethnicity, occupational status, and highest level of education. Clinical variables such as a personal history of diabetes, hypertension, dyslipidaemia, cancer, respiratory, renal, and heart diseases, duration of hypertension, duration of erectile dysfunction, history of pelvic surgery or trauma, drug history including, antihypertensives, types, and duration, as well as social history, including alcohol consumption, cigarette smoking, use of other substances and exercise. Measurements including weight, height, waist circumference, blood pressure, fasting blood glucose, and fasting lipid profile were included in the questionnaire too.

Statistical Analysis

Analysis was done using the International Business Machine Statistical Package for Social Science (IBM-SPSS, Armonk, NY, USA) version 2021. Data was encoded into the software and thereafter cleaned.

Ethical Consideration

Ethical approval with the reference number HREC/05/01/2008B-FWD00002458-IRB00002323 was obtained from the Health Research Ethics Committee of the University of Nigeria Teaching Hospital (UNTH), Enugu.

Results

The socio-demographic characteristics of the study participants are shown in **Table 1**. The table shows that the mean age of the participants was 60.10 ± 10.31 (30.00 – 86.00) with an age range of 30-86 years. The majority were above 57 years old(59.5%), had more than primary level of education (65.5%), and were mostly artisans/unskilled workers (53.0%).

Table 1: Socio-demographic characteristics of the study participants

N=200

Variables	Frequency (%)	Mean ± SD (Range)
Age (years)	200	60.10 ± 10.31 (30.00 – 86.00)
Age Group (years)		
18-30	1 (0.5)	
31-43	8 (4.0)	
44-56	72 (36.0)	
57 and above	119 (59.5)	
Educational status		
No formal	1 (0.5)	
Primary	68 (34.0)	
Secondary	54 (27.0)	
Tertiary	77 (38.5)	
Occupation		
Civil/Public servant	46 (23.0)	
Trading	49 (24.5)	
Skilled worker	45 (22.5)	
Artisans/Unskilled workers	60 (53.0)	
Unemployed	0 (0.0)	

Prevalence of Erectile Dysfunction among Patients with Hypertension

As shown in **Figure 1**, the prevalence of erectile dysfunction among participants with hypertension is 70% (95% CI: 63.1% - 76.3%).

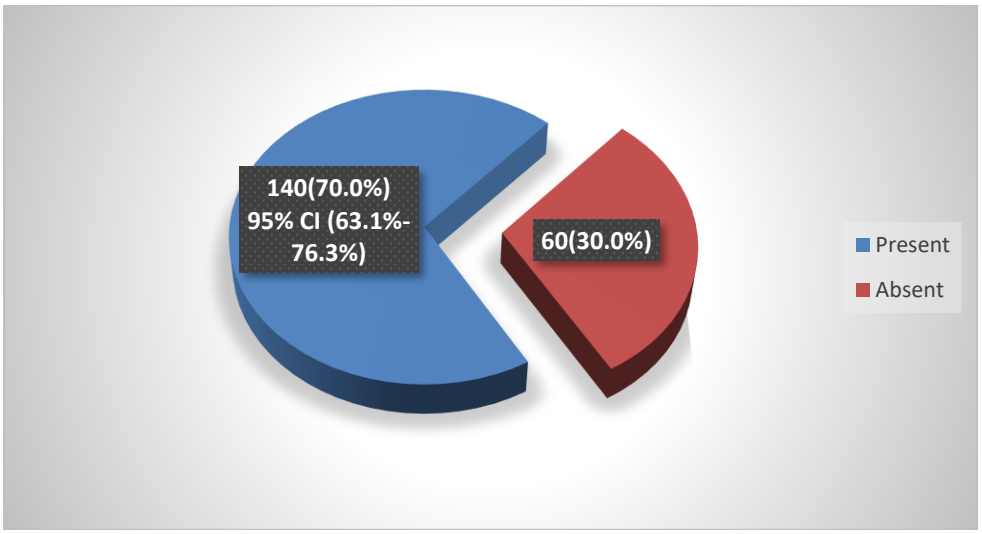

Figure 1: Prevalence of Erectile Dysfunction among the Participants

Distribution of the Severity of Erectile Dysfunction with Age

The severity of erectile dysfunction increased with age as shown below. In participants aged 18-30,the severity was 0.00%, those aged 31-43, 12.50% had moderate ED. In those aged 44-56, the severity varied from 12.50%, 11.10%, 11.10% and 2.80% for mild, mild moderate, moderate and severe ED respectively. In participants aged 57 years and above, the severity of ED varied from 2.50%, 29.40%, 26.90% and 35.30% for mild, mild moderate, moderate and severe ED respectively.

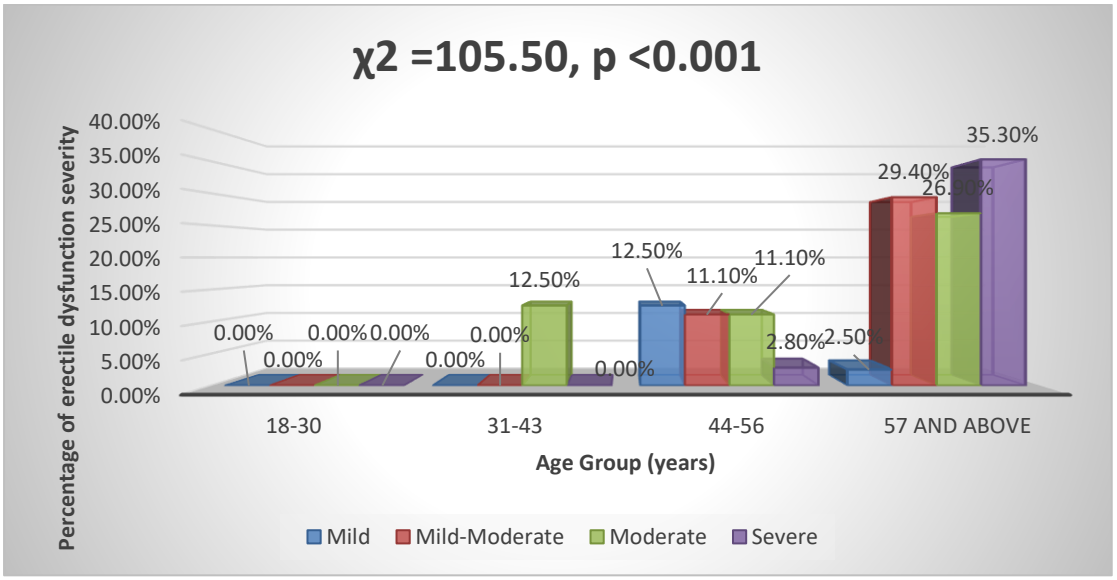

Figure 2: Distribution of severity of erectile dysfunction with age.

Association between Socio-demographic Variables and Erectile Dysfunction

The association between socio-demographic variables and erectile dysfunction is shown in **Table 2**. The table shows that participants with erectile dysfunction were significantly older (66 years) when compared with those without erectile dysfunction (50 years) with about 80% of participants aged 57 years and above having erectile dysfunction. This difference was statistically significant (U = 745.50, p < 0.001). Similarly, educational status (p < 0.001) and type of occupation were significantly associated with erectile dysfunction (χ^2 = 20.14, p <0.001).

Table 2: Association between socio-demographic variables and erectile dysfunction

N=200

	Erectile Dysfunction		
Variables	**Present**	**Absent**	**Dfp-value**
Mean Age	60.10 ± 10.31	50.00 (6.50)	df=3<0.001 *
Age Group (years)	(11.75)		df=3<0.001 *
18-30	0 (0.0%)	1 (1.7%)	
31-43	1 (0.7%)	7 (11.7%)	
44-56	27 (19.3%)	45 (75.0%)	
57 and above	122 (80.0%)	7 (11.7%)	
Educational Status			df=3<0.001*
No formal	1 (0.7%)	0 (0.0)	
Primary	62 (44.3%)	6 (10.0)	
Secondary	36 (25.7%)	18 (30.0)	
Tertiary	41 (29.3%)	36 (60.0)	
Occupation			χ^2 = 20.14 <0.001*
Civil/Public Servants	29 (20.7%)	17 (28.3%)	
Traders	34 (24.3%)	15 (25.0%)	
Skilled Workers	23 (16.4%)	22 (36.7%)	
Unskilled/Artisans	54 (38.6%)	6 (10.0%)	

**= p-value is statistically significant, x^2=Chi Square Test U=Mann Whitney U, test df=degree of freedom*

Association between Clinical Variables and Erectile Dysfunction

Table 3 shows the association between clinical variables and erectile dysfunction. Of all the clinical variables studied, a personal history of diabetes was significantly associated with the presence of erectile dysfunction. From the table below, 25% of those with erectile dysfunction had a history of diabetes when compared with 5% without personal history diabetes. This difference was significant (χ^2 = 10.92, p = 0.001).

Table 3: Association between clinical variables and erectile dysfunction
N=200

Variables	Erectile Dysfunction		χ^2	p-value
	Present n (%)	Absent n (%)		
History of Diabetes			10.92	0.001*
Present	35 (25.0)	3 (5.0)		
Absent	105 (75.0)	57 (95.0)		
Hypercholesterolemia			0.60	0.43
Present	39 (27.9)	20 (33.3)		
Absent	101 (72.1)	40 (66.7)		
Respiratory Disease			FT	0.67
Present	5 (3.6)	1 (1.7)		
Absent	135 (96.4)	59 (98.3)		
History of Renal Disease			-	
Absent	140 (100.0)	60 (100.0)		
History of Heart Disease			FT	1.00
Present	3 (2.1)	1 (1.7)		
Absent	137 (97.9)	59 (98.3)		
Duration of Hypertension			43.67	<0.001*
(years)	18 (12.9)	23 (38.3)		
<2	25 (18.0)	26 (43.3)		
2-5	96 (69.1)	11 (18.3)		
>5				
History of Cancer			-	
Absent	140 (100.0)	60 (100.0)		
History of BPH			FT	0.18
Present	4 (2.9)	0 (0.0)		
Absent	136 (97.1)	60 (100.0)		
Body Mass Index			FT=2.29	0.56
Underweight	1 (0.7)	0 (0.0)		
Normal	26 (18.8)	12 (20.0)		
Overweight	79 (57.2)	29 (48.3)		
Obesity	32 (23.2)	19 (31.7)		

**= p-value is statistically significant, BPH = Benign Prostatic Hypertrophy, FT = Fisher's Exact Test*

Association between Pelvic Surgeries and Erectile Dysfunction

The association between erectile dysfunction and pelvic surgeries is shown in table 4. The table showed that 8.6% of those with erectile dysfunction had previous pelvic surgery. The association between any pelvic surgery and erectile dysfunction was not statistically significant (p = 0.11). Additionally, none of the specific types of surgery was significantly associated with erectile dysfunction (p > 0.05).

Table 4 shows the association between erectile dysfunction and the use of some prescribed medications and psychoactive substances. The table shows that the use of diuretics (p = 0.001), beta-blockers (p = 0.03), and alcohol (p = 0.001) were significantly associated with erectile dysfunction. In addition, the use of cigarettes was a trend (p = 0.05).

Table 4: Association between medications/psychoactive substances and erectile dysfunction
N=200

Variables	Erectile Dysfunction		χ^2	p-value
	Present n (%)	Absent n (%)		
Use of Diuretics			55.74	0.001*
Yes	109 (77.9)	13 (21.7)		
No	31 (22.1)	47 (78.3)		
Use of Calcium Channel Blockers			0.24	0.62
Yes	115 (82.1)	51 (85.0)		
No	25 (17.9)	9 (15.0)		
Use of Angiotensin 11 Receptor Blockers			0.00	1.00
Yes				
No	56 (40.0)	24 (40.0)		
	84 (60.0)	36 (60.0)		
Use of ACE Inhibitors			0.16	0.68
Yes	34 (24.3)	13 (21.7)		
No	106 (75.7)	47 (78.3)		
Use of Beta Blockers (e.g. propranolol)			FT	0.03*
Yes				
No	10 (7.1)	0 (0.0)		
	130 (92.9)	60 (100.0)		
Use of Centrally Acting Alpha-2 Agonist			FT	0.18
Yes				
No	6 (4.3)	0 (0.0)		
	134 (95.7)	60 (100.0)		
Prolonged use of Antiepileptic			-	
Present	-	3 (1.5)		
Absent	-	197 (98.5)		
Regular use of Alcohol			10.48	0.001*
Yes	73 (52.1)	46 (76.7)		
No	67 (47.9)	14 (23.3)		
Regular use of Cigarettes			3.71	0.05
Yes	14 (10.0)	12 (20.0)		
No	126 (90.0)	48 (80.0)		
Psychoactive Substance Use			FT	0.35
Yes	3 (2.1)	2 (3.4)		
No	137 (97.9)	58 (96.6)		

**= p-value is statistically significant, ACE = Angiotensin-Converting Enzyme inhibitors, FT = Fisher's Exact Test*

Predictors/Risk Factors for Erectile Dysfunction among Patients with Hypertension

In **Table 5**, all the independent variables (socio-demographic, clinical, and pelvic surgeries and medications) that were significantly associated with erectile dysfunction or were a trend in the bivariate analysis were entered into the multivariate logistic regression equation. As shown in the table below, the significant risk factors identified were older age [AOR, (95 CI): 1.27(1.15 – 1.38), p < 0.001], duration of hypertension [AOR, (95 CI): 1.27(1.15 – 1.38), p < 0.001], and use of diuretics [AOR, (95 CI): 11.15(4.63 – 28.81), p <0.001]. Participants aged 57 years and above were about 45 times more likely to have erectile dysfunction when compared to those aged 18-30 years while those with hypertension of over five years duration were about 11 times more likely to have erectile dysfunction when compared to those with less than two years of the disease. However, being a skilled worker was a protective factor against having erectile dysfunction [AOR, (95 CI): 0.25 (0.06 – 0.99), p = 0.04].

Table 5: Predictors/Risk Factors for Erectile Dysfunction among Patients with Hypertension

N=200

Independent Predictor Variables	**Wald**	**Adjusted Odd Ratio (AOR)**	**95% Confidence Interval for AOR**		**p-value**
			Lower	Upper	
Age	27.78	1.27	1.15	1.38	<0.001*
Age Group					
18-30	1				
31-43	0.27	0.60	0.02	23.07	0.78
44-56	0.36	1.81	0.07	46.09	0.72
57 and above	2.27	45.00	1.69	120.18	0.02
Educational Status					
No formal	1				
Primary	0.69	3.20	0.11	86.98	0.69
Secondary	0.25	0.65	0.02	16.94	0.80
Tertiary	0.58	0.37	0.01	9.59	0.55
Occupation					
Civil/Public Servants	1				
Traders	0.00	1.01	0.18	5.57	0.99
Skilled workers	3.90	0.25	0.06	0.99	0.04**
Unskilled/Artisans	0.49	2.09	0.26	16.61	0.48
History of Diabetes					
Yes	1.47	3.33	0.47	23.25	0.22
No	1				
History of Pelvic Surgery	1.26	8.14	0.21	314.77	0.26
Yes	1				
No					
Use of Diuretics					.
Yes	4.15	2.96	1.04	8.43	0.04*
No	1				
Use of Beta Blockers	1.56	9.73	0.56	168.88	0.11

Yes	1				
No					
Regular use of Alcohol	0.33	0.71	0.23	2.21	0.56
Yes	1				
No					
Cigarette smoking					
Yes	0.20	1.40	0.32	6.07	0.65
No	1				
Duration of Hypertension					
>2 years	1				
2-5 years	0.23	1.22	0.53	2.80	0.62
>5 years	29.09	11.15	4.63	26.81	<0.001*

*Dependent variable = Erectile Dysfunction (Present/Absent), *Significant risk factors*
***Significant protective factor(s), AOR = Adjusted Odd Ratio*

Discussion

This study involved 200 adult hypertensive males with an age range of 30-86 years and had a mean age of 60.10 ± 10.3 years. The majority of the participants (59.5%) were 57 years and above. They were mostly artisans (53%)and had secondary level of education and above(65%). The high prevalence of erectile dysfunction observed in this study, especially in older men, can be attributed to the well-established age-related nature of this condition. ED tends to become more common as individuals get older,[1,2,3,4] which aligns with the findings of this study. The prevalence of ED increased from 36.0% in men aged 44-56 years to 59.5% in those aged 57 years and above. This age-related increase in ED could be influenced by the presence of other comorbid conditions like diabetes and benign prostatic hyperplasia, which are known to contribute to ED.[10, 17]

In this study, a substantial proportion of respondents (70%) experienced some degree of erectile dysfunction (ED), with approximately one-third of them having mild-moderate (30.70%), moderate (29.30%), and severe (31.40%) forms of ED. Conversely, less than 10% had a mild form of ED. Notably, the prevalence of ED in this study (70%) was lower than previous reports from north-central and southeast Nigeria (85.1% and 86.8% respectively). [6,7] The higher prevalence of severe ED (31.40%) in the present study compared to the previous studies may be attributed to reluctance among both patients and healthcare practitioners to openly discuss erectile function. [6]

The study by Ejike et al., although observational, was community-based and may not have captured seriously ill individuals and thus, explains the lower proportion (2.4%) of severe ED compared to the present study. [7]Additionally, respondents with co-existing diabetes in this study might have influenced the reported severity of ED. Previous studies with lower levels of ED severity did not include such patients. [5]Available data suggest that individuals with diabetes tend to experience more severe forms of ED and develop it earlier than those without diabetes.[2,]

In the present study, a high prevalence of ED (70%) was observed, with 31.40% of the cases being severe. This high prevalence may be due to the multifaceted aetiology of ED.[2, 26] [12]Similarly, another hospital-based cross-sectional study on the burden of erectile dysfunction among hypertensives at Irrua, Edo State, Nigeria, by Irekpita et al, reported a high prevalence

of ED among hypertensive men.[17] A majority (74.07%) of the newly diagnosed untreated hypertensive men were found to have ED.[17] However, the prevalence(86.20%) was remarkably higher in those receiving treatment compared to the newly diagnosed untreated patients.[17]These underscore the importance of screening for ED in hypertensive men as was corroborated by a meta-analysis on hypertensive men by Wang et al, which showed a significantly increased risk of ED in hypertensive men, with an adjusted odds ratio of 1.84 ($p < 0.00001$).[11] This strong association may be attributed to the intricate connection between hypertension, atherosclerosis, dysfunctional endothelium, and ED. [12]

Other than medications, other predictors of hypertension, such as dyslipidaemia, obesity, physical inactivity, smoking, and excessive alcohol consumption, can collectively or individually increase the risk of ED or worsen the condition.[20,21]

In the present study, no correlation was found between dyslipidaemia and ED. Among the participants with dyslipidaemia, approximately 27.9% experienced ED, whereas 33.3% of those with dyslipidaemia did not report ED. These findings contrast with the results of two similar studies conducted in the United Kingdom and Qatar by Li and Al Naima et al. respectively, which reported a degree of association between dyslipidaemia and ED.[20] The disparities in the studies may be attributed to several factors, including differences in the selected study populations (hypertensive cohorts) and the smaller sample size (200 participants) in the current study compared to 1052 and 12,506 participants in the later studies which included unselected participants. The smaller sample size in the current study may have excluded individuals with abnormal lipid levels, as compared to the larger sample sizes in the later studies.

Dyslipidaemia and obesity are factors that can independently contribute to the development of erectile dysfunction, often affecting vascular health and self-esteem, respectively.[22,]
Interestingly, the current study did not find any significant association between being overweight or obese and the onset of ED. The study however, did not establish a significant correlation between overweight/obesity and ED.

In contrast, a study at Irrua Teaching Hospital in Edo State, Nigeria, by Irekpita et al., found a statistically significant ($p=0.010$) association between obesity in the newly diagnosed untreated hypertensive men and the development of ED when compared to the nearly significant correlation among men in the treated hypertensive group ($p = 0.059$).[16] The reasons for these varying findings in the above studies are not immediately clear, however, it is possible that the participants in the present study adopted healthier lifestyle practices, which influenced the reported outcomes.

Alcohol, a widely consumed psychoactive substance with diverse motivations, has sparked debate regarding its impact on erectile function. [21] In the current study, an association between regular alcohol consumption and erectile dysfunction was observed, with 52.1% of regular consumers experiencing ED compared to 47.9% of non-consumers, though this association did not reach statistical significance ($p = 0.56$). Similar studies in Nigeria and China also failed to establish a strong link between alcohols consumption and ED. [5,21] However, a meta-analysis by Li et al. and Wang et al. demonstrated a significant relationship, suggesting that moderate alcohol intake may offer dual effects of relaxation and disinhibition, while chronic consumption could lead to vascular damage.[21] In addition to alcohol, cigarette smoking is a lifestyle factor often associated with erectile dysfunction due to its inflammatory effects on the vascular system. [22,] Surprisingly, the present study did not find a significant association

between regular cigarette smoking and ED; 90% of non-smokers reported ED compared to 105 of smokers (p = 0.35). In the way, other studies presented mixed results on this association, with some suggesting increased odds of ED with smoking, while others did not find statistical significance[23]Notably, the duration and intensity of cigarette smoking were not consistently specified in these studies, potentially influencing the outcomes.

Similarly, there was no notable association found between a history of cancer, lower urinary tract symptoms related to benign prostatic hyperplasia, pelvic surgeries, and ED in the current study.

Conclusion

This study found a high prevalence of erectile dysfunction among hypertensive males and highlighted the importance of considering factors such as age, occupation, medication use, and family functioning when addressing erectile dysfunction. The findings underscore the significance of assessing both physiological and psychological factors when managing ED in hypertensive males. The positive correlation between age, and treatment of hypertension with diuretics and ED, highlights the need for regular screening, and consideration of an alternative anti-hypertensive therapy in men with ED.

Recommendations

There should be regular screening for Erectile Dysfunction during the general outpatient clinic visits for hypertensive males. This proactive approach can aid in early detection of issues, allowing for timely interventions and improved management strategies.

It would be appropriate to conduct long-term follow-up studies to track changes in erectile dysfunction prevalence, risk factors over time. This will provide a more dynamic understanding of the relationships identified in this cross-sectional study and help evaluate the effectiveness of implemented interventions.

We should integrate of sexual health education in hypertension management and development and implementation of educational programs within the general outpatient clinic to raise awareness about the relationship between hypertension and erectile dysfunction (ED).

References

1. Kessler A, Sollie S, Challacombe B, Briggs K, Van Hemelrijck M. The global prevalence of erectile dysfunction: A review. BJU Int. 2019; 124:587–599.
2. Yafi FA, Jenkins L, Albersen M, Corona G, Isidori AM, Goldfarb S. Erectile dysfunction. Nat Rev Dis Primers. 2016; 2:16003.
3. Yannas D, Frizza F, Vignozzi L, Giovanni C, Mario M. Erectile dysfunction is a hallmark of cardiovascular disease: Unavoidable matter of fact or opportunity to improve men's health. J Clin Med.2021; 10 (10): 2221.
4. Hernandez-Cerda J, Bertomeu-Gonzalez V, Zuazola P, Cordero A. Understanding erectile dysfunction in hypertensive patients: The need for good patient management. Vasc Health Risk Manag. 2020; 16:231-239.
5. Fafiolu AS, Adebayo AM, Akande TO, Akinboboye OO. Erectile dysfunction among male hypertensive in a tertiary health facility in South-West Nigeria. Global J Health Sci. 2014; 7 (1): 154-160.
6. Ejike CEC, Eze KC, Okpan CE. Erectile dysfunction and hypertension among adult males in Umudike, Nigeria: A study of prevalence and relationship. AJSR. 2015; 8: 315-323.

7. Raheem OA, Su JJ, Wilson JR, Hsieh TC. The association of erectile dysfunction and cardiovascular disease: A systematic critical review. Am J Mens health. 2017; 11(3): 552-563.
8. Odili AN, Chori BS, Danladi B, Nwakile PC, Okoye IC, Abdullahi U et al. Prevalence, Awareness, Treatment and Control of Hypertension in Nigeria: Data from a Nationwide Survey 2017. Glob Heart. 2020; 15(1):47.
9. Patel RS, Masi S, Taddei S. Understanding the role of genetics in hypertension. Eur Heart J. 2017; 38(29): 2309-2312.
10. Sangiorgi G, Cereda A, Benedetto D, Bonanni M, Chiricolo G, Cota L. Anatomy, pathophysiology molecular mechanisms and clinical management of erectile dysfunction in patients affected by coronary artery disease: A review. Biomed J. 2021; 9(4):432.
11. Wang XY, Huang W, Zhang Y. Relation between hypertension and erectile dysfunction a meta-analysis of cross-sectional studies. (An Abstract): Int J Impot Res. 2018; 30: 141-146.
12. Mc Mahon CG. Erectile dysfunction. Int Med J. 2014; 44(1):18-26.
13. Chrysant SG. Antihypertensive therapy causes erectile dysfunction. *Curr OpinCardiol.* 2015; 30: 383–390.
14. Akinyede AA, Nwaiwu O, Fasipe OJ, Olusanya A, Olayemi SO, Akande B et al. A prospective study of the effects of antihypertensive medications on sexual functions of adult male patients. Future Sci OA. 2020; 6 (6): 479.
15. Manolis A, Doumas M, Ferri C, Mancia G. Erectile dysfunction and adherence to antihypertensive therapy: focus on beta-blockers. Eur J Int Med. 2020; 81:1-6.
16. Irekpita E, Lawani U, Alili I, Esezobor E, Salami T. The Burden of erectile dysfunction in hypertensive men attending a general out- patient unit in a rural Nigerian Hospital. East Afr Med J. 2015: 92 (9):448-455.
17. Ademola CO, Odeigah LO, Alabi KM, Olafimihan KO, Bamidele TO. Physician enquiry of erectile dysfunction among hypertensives in a primary care setting Ilorin, north-central, Nigeria. NJFP. 2019; 10:3.
18. Grover S, Shouan A. Assessment scales for sexual disorders- A review. J Psych Health. 2020;2(2):121-138.
19. Bolariwa OA. Sample size estimation for health and social science researchers: The principles and consideration for different study designs. Niger Postgrad. Med J. 2020; 27(2): 67-75.
20. Li JZ, Maguire TA, Zou KH, Lee JL, Donde SS, Taylor DG. Prevalence, comorbidities and risk factors of erectile dysfunction: Results from a prospective real-world study in the United Kingdom. IJCP.2022; 1:1-10.
21. Li S, Song J.-M, Zhang K, Zhang C-L. A meta-analysis of erectile dysfunction and alcohol consumption. Urol Int. 2021; 105: 969-985.
22. Sangiorgi G, Cereda A, Benedetto D, Bonanni M, Chiricolo G, Cota L. Anatomy, pathophysiology molecular mechanisms and clinical management of erectile dysfunction in patients affected by coronary artery disease: A review. Biomed J. 2021; 9(4):432.
23. Karimi Z, Taheri-Kharameh Z, Sharififard F. Cultural adaptation and psychometric analysis of family APGAR scale in Iranian older people. Korean J Fam Med. 2022; 43(2):141-146.