Original Article

Prevalence and Socio-demographic Profiles of Adult Males with Erectile Dysfunction in a Nigerian Primary Care Clinic: A Cross-Sectional Survey

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ABSTRACT

Erectile dysfunction (ED) is one of the most common sexual dysfunctions worldwide among men. It is an especially distressing problem, as the ability to perform sexually is important to men, and the loss of this function may lead to emotional distress, marital discord, and decreased productivity, which could subsequently impair overall quality of life. Therefore, this study aimed to assess the prevalence and the sociodemographic factors associated with erectile dysfunction among adult males in a primary care clinic at the University of Ilorin Teaching Hospital (UITH), Ilorin, Kwara State, Nigeria. This was a hospital-based cross-sectional study conducted among 392 sexually active adult males aged ≥18 years at the general outpatient clinic of the UITH. Data were collected using structured and semi-structured interviewer-administered questionnaires. The International Index for Erectile Function 5 (IIEF-5) was used to assess ED. The study results showed the mean age of participants to be 45 ± 16.49 years, and the prevalence of ED was 59.9%. The ED prevalence was found to be significantly associated with age (p=0.001), marital status (p=0.001), educational status (p=0.001), and occupation (p=0.001). Conclusively, the prevalence of ED was high among the study population and was more prevalent in older men, married men and widowers, men with no education, and retirees. Hence, early screening and treatment are required in these groups of adult men.

Keywords: Erectile dysfunction, Men's Health, Prevalence, Sexual Health, Sociodemographic Profiles

INTRODUCTION

Erectile dysfunction (ED) is a common male sexual dysfunction in primary care, defined as the inability to achieve or maintain an erection sufficient for satisfactory sexual performance.[1] Beyond sexual satisfaction, ED is a serious medical condition that has a substantial impact on family dynamics, psychosocial well-being, and overall quality of life.[2] Additionally, it is becoming more widely acknowledged as an early cardiovascular disease biomarker.[3] Globally, there is an anticipated geometric upsurge in the prevalence of ED, and this is linked to the implicated etiologies such as ageing populations, cardiovascular disease, obesity, diabetes, smoking, and poor lifestyle choices; hence, the need to pay more attention to it[3,4]. The Global prevalence estimates range from 10% to 76.5%, with higher rates observed among older men, individuals with comorbidities, and low and middle-income countries.[5] Worldwide, the prevalence of ED is projected to affect 322 million men by 2025, with the highest increase expected in developing nations such as Africa, Asia, and South America.[4,5] It also

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varies tremendously across different populations, with a systematic review by Kessler et al. showing differing prevalence rates globally.[5] A range of prevalence between 9.1% and 49.9% has been reported in men younger than 50 years, while in men older than 50 years, it ranges from 54.9% to 94.7%.[4] Additionally, continental prevalence for all ages shows variations, with North America reporting 20.7% to 57.8%, Europe 10% to 76.5%, Asia 8% to 65%, and Africa 24% to 58.9%.[5]

In sub-Saharan Africa, particularly in Nigeria, the epidemiological profile of ED is not well understood, as it is often perceived as a non-life-threatening condition.[6] This lack of understanding is especially prevalent in the primary care settings where sexual health discussions are constrained by cultural taboos, spiritual beliefs, stigma, and limited provider training on sexual assessment and treatment.[7,8] Moreover, sociodemographic variables such as age, educational attainment, marital status, and income level have been identified as important determinants of ED prevalence, yet their specific patterns remain underexplored and inconsistent. Thus, this survey sought to determine the prevalence of ED and also examined the sociodemographic factors associated with its occurrence. Findings from this survey are expected to contribute to a better understanding of the burden of ED and facilitate early identification of at-risk individuals in this region.

MATERIALS AND METHODS

This was a hospital-based cross-sectional study of 392 adult males carried out from March 2021 to May 2021 at the General Outpatient Clinic of the University of Ilorin Teaching Hospital, a tertiary Hospital located in the North Central region of Nigeria. All consenting sexually active adult males aged ≥18 years who came to the General Outpatient Clinic (GOPC) for consultations were included in the study. However, those who required urgent medical care, had profound mental illness, and respondents who were not sexually active in the preceding 6 months were excluded. The required sample size (n) was determined using the statistical formula (Leslie Kish's formula) used by Fisher and his colleagues to estimate the minimum sample size in health studies.[9] $n = Z^2pq/d^2$, where n = desired sample size (when target population > 10,000), z = the standard normal deviation, usually set at 1.96, which corresponds to 95% confidence level, p = expected proportion in a previous similar study done at Uyo Teaching Hospital (41.5%).[10] q = 1-p, and q is the proportion of male patients who do not have erectile dysfunction; q = 1-p. q = 0.585. d = degree of accuracy desired, usually set at 5% (0.05).

Therefore, $n = \frac{1.96^2 \times 0.415 \times (1.0 - 0.415)}{0.05 \times 0.05}$ approximately, n = 373,

Being a cross-sectional study, patients were recruited during regular clinic hours. However, to take care of incomplete or missing data, a 95% response rate was assumed. Hence, the final sample size was adjusted to compensate for the response rate using the formula[9] $n_s = n/_r$ where n_s = adjusted sample size of the response rate n = calculated sample size = 373, r = response ratio= 0.95. n_s = 373/0.95 = 392. The final sample size was 392.

The information was obtained from the participants by the investigator and a trained research assistant with the aid of interviewer-administered structured and semi-structured questionnaires. The sociodemographic data of the participants were obtained, and Erectile dysfunction was assessed using the International Index for Erectile Function 5 (IIEF-5). The IIEF-5 has been adopted as the standard diagnostic aid for office screening of ED and has been used in Nigeria by previous studies.[10,12] The presence of ED was defined as an IIEF-5 score of <22. The severity of ED was then classified as Severe ED = 1-7, Moderate ED = 8-11, mild to moderate ED 12-16, mild ED = 17-21 and 22-25 no ED.

Data Analysis

The collected data were sorted, coded and entered into the computer and analyzed using the Statistical Package for Social Sciences (SPSS-24). Descriptive statistics were used to summarize the demographic characteristics, and the chi-square test was used to find the association between ED and sociodemographic parameters. A *p*-value < 0.05 was considered to be statistically significant.

Ethical Considerations

Ethical clearance was obtained from the Ethics and Research Committee (ERC) of the Hospital for the study (ERC number- NHREC/02/05/2010), and written informed consents were obtained from the study participants. Confidentiality of the data collected was maintained before, during and after the study, also the anonymity of the study participants was maintained at all levels of the study.

RESULTS

Table 1 shows the sociodemographic characteristics of the participants. The mean age was 45 ± 16.49 years, with the majority (25.8%, n = 101) aged 31 to 40 years. A larger proportion of the respondents (73.2%, n = 287) were Muslims, while more than three-quarters (83.7%, n = 372) were from the Yoruba ethnic group. Most of the respondents were married (78.1%, n = 306), and more than half (55.6%, n = 218) had a tertiary level of education. Almost a quarter of the respondents (23.2%, n = 91) were traders, and slightly above half (57.9%, n = 227) earned above 30,000 Naira (the minimum wage in Nigeria at the time of research).

Figure 1 shows the prevalence of ED among the participants, which was found to be 59.9% (n = 235)

Table 2 shows the association between erectile dysfunction and sociodemographic variables. The rate of ED in men older than 60 years (90%, n = 72) was thrice that of men aged 30 years or less (27.2%, n = 22). Married men had a higher prevalence of ED (65.7%, n = 201) than single men (31%, n = 22), while all widowers (100%, n = 9) had ED. Participants with lower levels of education had a higher prevalence of ED than those with higher education. Retired participants had the highest prevalence of ED (97.8%, n = 4), while teachers had the lowest prevalence of ED (50%, n = 11). All were statistically significant, and *p*-values were 0.001. Participants who earned less than thirty thousand naira had the highest prevalence (63.0%, n = 104) of ED, and the association was not statistically significant.

Table 1: Socio-demographic characteristics of the respondents, N=392

Variables	Frequency(n)	Percentage (%)
Age Groups		
≤ 30	81	20.7
31 – 40	101	25.8
41 – 50	77	19.6
51 – 60	53	13.5
≥ 61	80	20.4
Mean ± SD (Range)	45 ± 16.49	(19 – 97)[c]
Religion		
Christianity	104	26.5
Islam	287	73.2
Traditional	1	0.3
Ethnicity		
Yoruba	327	83.4
Igbo	19	4.8
Hausa	5	1.3
Others[a]	41	10.5
Marital Status		
Single	71	18.1
Married	306	78.1
Separated /Divorced	6	1.5
Widower	9	2.3
Level of Education		
None	46	11.7
Primary	48	12.3
Secondary	80	20.4
Tertiary	218	55.6
Occupation		
Civil servant	55	14.0
Trader	91	23.2
Artisan	56	14.3
Farmer	41	10.5
Retired	45	11.5
Unemployed	15	3.8
Teacher	22	5.6
Others	67	17.1
Average monthly income in Naira		
< 30,000 [b]	165	42.1
≥ 30,000	227	57.9

N = total number of respondents, n number of respondents in various groups, %= proportion of respondents in each group, a = other ethnic groups found in Kwara, b = cut of 30,000 naira based on the National minimum wage, c = range of measurement in a variable.

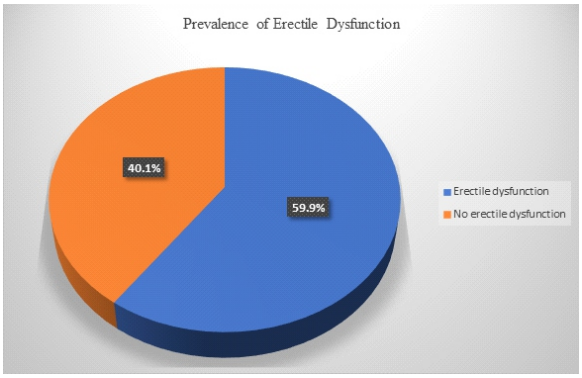

Figure I: Prevalence of erectile dysfunction among respondents

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

Variables	Erectile Dysfunction (ED)		X^2	ρ
	ED (%)	No ED (%)		
Age Groups			74.273	0.001
≤ 30	22 (27.2)	59 (72.8)		
31 – 40	52 (51.5)	49 (48.5)		
41 – 50	50 (64.9)	27 (35.1)		
51 – 60	39 (73.6)	14 (26.4)		
≥ 61	72 (90.0)	8 (10.0)		
Marital Status			35.261	0.001
Single	22 (31.0)	49 (69.0)		
Married	201 (65.7)	105 (34.3)		
Separated /Divorced	3 (50.0)	3 (50.0)		
Widower	9 (100.0)	0 (0.0)		
Level of Education			41.936	0.001
None	44 (95.7)	2 (4.3)		
Primary	37 (77.1)	11 (22.9)		
Secondary	48 (60.0)	32 (40.0)		
Tertiary	106 (48.6)	112 (51.4)		
Occupation			34.057	0.001
Civil servant	29 (52.7)	26 (47.3)		
Trader	50 (54.9)	41 (45.1)		
Artisan	37 (66.1)	19 (33.9)		
Farmer	22 (53.7)	19 (46.3)		
Retired	4 (97.8)	1 (2.2)		
Unemployed	8 (53.3)	7 (46.7)		
Teacher	11(50.0)	11 (50.0)		
Others	34 (50.7)	33 (49.3)		
Income (‘000)			1.127	0.288
< 30	104 (63.0)	61 (37.0)		
≥ 30	131 (57.7)	96 (42.3)		

DISCUSSION

More than half of the men in this study had ED, with a prevalence of 59.9%. Our finding was similar to 58.9% found by Oyelade in Ogbomosho and 55.1% found by Adebusoye in Ibadan, both in Oyo State, South-Western part of Nigeria.[6,13] These similarities could be accounted for by the similarities in geographic terrain, ethnocultural background, as both studies were done in Oyo state, a neighbouring state to Kwara State. A lower prevalence of 25.4% found in Tigrai, Ethiopia, could be attributed to the study being population-based (i.e, it was a community-based cross-sectional survey that involved more participants than the index study).[14] Notably wide variability in the prevalence of ED exists, from 40.6% in China to 38% in Sweden, and this may be largely explained by different methodologies and different characteristics of the study population.[15,16]

Older age has been consistently shown to be a strong determinant of ED.[17] Our study showed the rate of ED was three times higher in participants older than 60 years compared to those less than 30 years. The European Male Ageing Study reported ED to increase with age, peaking at the 50-59 age band.[17] Similarly, Adebusoye et al. in Ibadan, south-western Nigeria, found that the prevalence of ED was significantly associated with increasing age.[13]

There is no consistency in data on the relationship between marital status and erectile dysfunction. We found higher rates of ED amongst married men compared with single men, although all widowed men had ED. This finding is in unison with Donald in Rivers State and Irepkita et al. in Edo State.[18,19] Being married has been linked with ED, perhaps due to the psycho-social pressure associated with marriage[20] However, a study by Yovwin et al. in Benin, Edo State, found no significant association between ED and marital status[21].

The effect of education, occupation and income level on ED is partly mediated by lifestyle factors as well as contextual variables such as better awareness of risk factors and overall health literacy. In this study, we found higher rates of ED in men with a lower level of education, retirees and lower-income earners. This was similar to Olugbenga-Bello in Osun State, who found higher rates of ED in uneducated and unemployed men[22]. This was,

however, at variance with Thang van Vo, who found no ED association with educational status and occupation.[23] Also at variance with our study was a survey done in the Niger Delta region by Idung et al., who found that the prevalence of ED was higher among respondents with a higher level of educational attainment.[24] The difference in the rate of ED may be due to the diverse ethnocultural backgrounds of the study populations.

The relationship between sociodemographic profiles and the prevalence of ED is significant, as many studies indicate that ED is an age-dependent disorder.[25] This is in tandem with the findings from this study. ED may arise from physiological changes associated with the ageing process, and research has shown that the prevalence of ED increases by 5% to 17% with each passing year for men over the age of 18. Additionally, lifestyle factors and medical conditions can partially mediate the impact of socioeconomic status on ED[25,26,2]. All these factors need to be considered when evaluating patients with erectile dysfunction.

CONCLUSION

Erectile dysfunction was common among the study population, and increasing age, being married and widowed, lower level of education and income, as well as being retired, were associated with ED.

Recommendations

For Policy Makers

Men's health should be acknowledged to be significantly influenced by sexual health, and basic healthcare service packages should incorporate screening and management of sexual dysfunction into health policy frameworks. Policymakers should create culturally responsive health education campaigns that normalize topics related to male sexual health, lessen stigma, and encourage early seeking behaviour, particularly among identified at-risk groups. Furthermore, the prevalence statistics from studies like this one should be used by policymakers to guide regional health planning and the distribution of essential drugs and manpower resources, particularly in high-risk populations.

For Clinical Practice

To enhance men's general well-being, physicians should include ED screening in primary care as a standard clinical evaluation. Clinicians should recognize how age, marital status, income, and educational attainment may affect ED presentation, treatment adherence, and results, and adjust care plans to account for these sociodemographic influences. Lastly, additional practice-based research is required to examine the limitations of this study and obtain additional data on the topic.

Limitation of the Study

The limitation of this cannot be ignored, as the Study was conducted in a tertiary care hospital, therefore, the data may not be generalized to the general population. A large sample from the community could throw more light on this association. Despite the afore-mentioned limitations, our study is one of the few recent studies on the area of interest in our sub-region, and thus provides data on the subject matter.

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Conflict of Interest

The authors declare no conflict of interest concerning the publication of this study.

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