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Original Research Article

An Assessment of Erectile Dysfunction and Health-Related Quality of Life Among Men Attending the General Outpatient Clinic in a Tertiary Hospital in North Central, Nigeria

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Abstract: ***Background***: Erectile dysfunction is a distressing condition that impacts negatively a man's well-being. Health-related quality of life (HRQOL) is a useful indicator of overall health that has gained wide acceptance as the patient-centred approach to assessing overall health. ***Objectives***: This survey assessed the prevalence and pattern of erectile dysfunctions and their association with health-related quality of life. ***Methods***: We conducted a hospital-based cross-sectional study and interviewed 392 sexually active adult male patients with the aid of interviewer-administered structured and semi-structured questionnaires at the general outpatient clinic of the University of Ilorin Teaching Hospital. The HRQOL was assessed with the World Health Organization Quality of Life abridged version (WHOQOL-BREF), while ED was assessed with the International Index for Erectile Function 5 (IIEF-5). ***Result***: A total of 235 (59.9%) had ED: of those, 67 (28.5%) had mild ED, 77 (32.8%) had mild to moderate ED, 57 (24.3%) had moderate ED, and 34 (14.4%) had severe ED. Respondents with ED had lower mean HRQOL scores across all domains, (psychological f=94.700 p=0.001, Physical f=68.582 p=0.001, environmental f=30.314 p=0.0001, social f=8.346 p=0.004). ***Conclusion***: The prevalence of ED was high among the study population. Although ED negatively impacted all HRQOL domains, the psychological domain had the most profound impairment.

Keywords: Male Sexual Dysfunction, Erectile Dysfunction, Health-Related Quality of life, WHOQOL-BREF, prevalence, Nigeria.

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INTRODUCTION

Erectile dysfunction is defined as the inability to achieve or maintain an erection sufficient for satisfactory sexual performance.(Kirby, 2015) However the impact of ED extends beyond the inability to have sex, it negatively affects men's emotional and psychological well-being, their relationships, and their partner's sexual and emotional life.(Mccabe *et al*., 2014) It often causes serious distress and has a profound effect on intimate relationships, quality of life, and overall self-esteem.(Nwakanma *et al*., 2016)

The global prevalence of ED is rising at exponential rates and it is projected to affect 322 million men by 2025.(Kessler, *et al*., 2019) The prevalence of ED ranges from 24-58.9% in Africa; despite the high prevalence of ED, its true burden may be difficult to ascertain, in that many African men suffering from ED find it difficult to discuss sexual issues freely with people including their spouse and physicians.*(Abiola, et al., 2018; Kessler et al*., 2019)

Surveys done in other continents have shown that ED negatively impacts various domains of HRQOL.(Langer *et al*., 2019; Poggiogalle *et al*., 2014; Sánchez-Cruz *et al*., 2003) Although the prevalence of erectile dysfunction is increasing and its impact on health-related quality of life (HRQOL) and job productivity is considerable, the efforts to tackle this issue in Africa are inadequate since erectile dysfunction is considered to be "non-life-threatening".(Elterman *et al*., 2021; Nwakanma *et al*., 2016) This is particularly true in developing countries like Nigeria where there is a paucity of studies on the relationship between ED and HRQOL, as most studies have focused on the prevalence and risk factors of ED.(Donald *et al*., 2017; Oyelade B, *et al*., 2016; Takure, *et al*., 2016) This may be due to cultural, social, and religious beliefs, as well as the

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presence of competing and conflicting health system needs and stigma involved in disclosing one's sexual problems and associating them with their overall well-being.

Thus, this survey sought to assess the prevalence and severity of ED as well as the relationship between ED and HRQOL.

MATERIALS AND METHODS

This cross-sectional study of 392 adult males was 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 sample size was estimated using the prevalence of erectile dysfunction in a previous study. The systematic sampling technique was used to recruit the study participants.

The information were 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 with the aid of semi-structured questionnaires. 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.(Neijenhuijs *et al*., 2019; Oyelade B *et al*., 2016; Udo *et al*., 2015) 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.

The World Health Organization quality of life abridged form, WHOQOL-BREF was used in assessing HRQOL. It is a short and practical version of the WHOQOL-100 which tests four domains; physical health (7 items), psychological health (6 items), social relationship (3 items) and environmental health (8 items).(Hand, 2016) It has been used in studies in Nigeria for assessing HRQOL.(Adeyemo, *et al*., 2015; Ijoma *et al*., 2019). The domain scores of HRQOL are scaled in a positive direction. As such, higher scores in a domain indicate a higher quality of life in that domain.

The collected data was sorted, coded and entered into the computer and analyzed using the Statistical Package for Social Sciences (SPSS-24). The Analysis of Variance (ANOVA) was used to assess the mean difference between ED and the HRQOL mean domain scores. A confidence interval of 95% was used and the level of statistical significance was set at less than 0.05.

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

RESULT

Table 1 shows the sociodemographic characteristics of the participants. The mean age of participants was 45 ± 16.49 years with the majority (25.8%) aged 31 to 40 years. The majority of the respondents (73.2%) were Muslims while the bulk of the respondents (83.7%) were from the Yoruba ethnic group. Most of the respondents were married (78.1%) and (18.1%) were single and more than half of the respondents (55.6%) had a tertiary level of education. Almost a quarter of the respondents (23.2%) were traders and more than half (57.9%) earned above 30,000 Naira (the minimum wage in Nigeria at the time of research).

Table 1: Socio-demographic characteristics of the respondents

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)
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

Variables	Frequency(n)	Percentage (%)
Others	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	165	42.1
≥ 30,000	227	57.9

The data presented in Table 2 indicates that 59.9% of the respondents had erectile dysfunction.

Table 2: Prevalence of erectile dysfunction among respondents

Variables	Frequency(n)	Percentage (%)
Erectile dysfunction	235	59.9
No erectile dysfunction	157	40.1
Total	**392**	**100.0**

Figure 1 illustrates that mild to moderate ED was present in the majority of respondents. The ED pattern revealed that 14.4% had severe ED, 28.5% had mild ED, 32.8% had mild to moderate ED, and 24.3% had moderate ED.

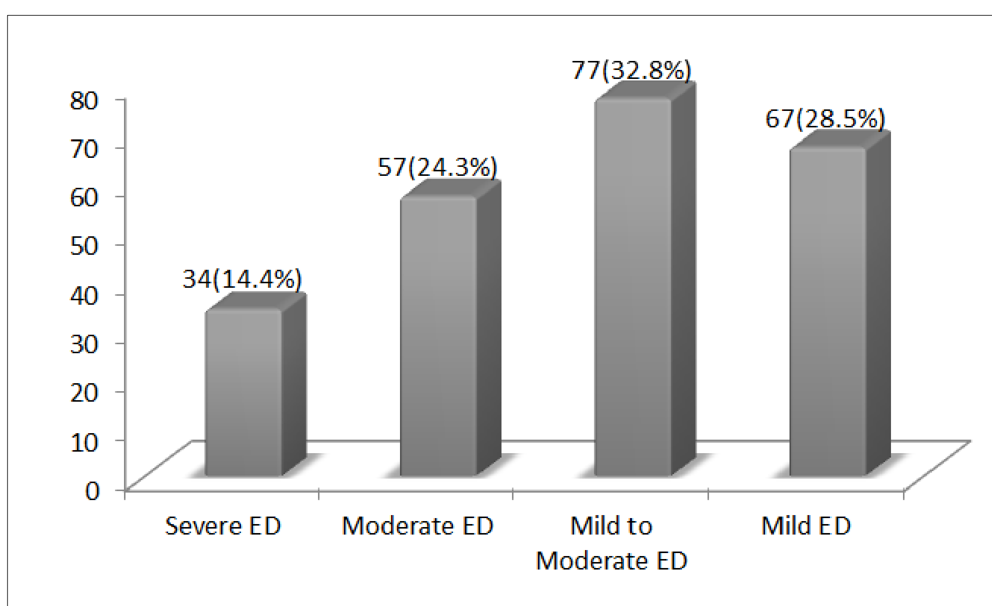

Figure 1: Pattern of erectile dysfunction among respondents

Table 3 demonstrates that there was a statistically significant difference in mean scores across all domains when comparing the mean scores of participants with ED and those without ED. Specifically, those with ED had lower mean scores, with the psychological domain being the most impacted (f=94.700, p=0.001). Furthermore, there was a statistically significant difference in the mean scores across physical, psychological, and environmental domains (p=0.001) with the degree of erectile dysfunction (ED). Specifically, individuals with severe ED had the lowest average scores, with the psychological domain being heavily impacted (f=17.293,p=0.001).

Table 3: Relationship between HRQOL and ED

Erectile function variables	n	Physical Mean±SD	Psychological Mean±SD	Social Mean±SD	Environment Mean±SD
Erectile Dysfunction status					
ED	235	61.84 ± 11.35	53.79 ± 13.74	53.08 ± 6.92	48.37 ± 9.12
No ED	157	70.61 ± 8.40	65.44 ± 7.37	55.03 ± 5.82	52.99 ± 6.39
f-test *P-value*		*f=68.582* ***p=0.001****	*f=94.700* ***p=0.001****	*f=8.346* ***p=0.004****	*f=30.314* ***p=0.001****
Erectile Dysfunction pattern					
Severe ED	34	51.97 ± 11.09	41.64 ± 13.98	51.76 ± 5.94	40.76 ± 8.03
Moderate ED	57	59.95 ± 12.06	50.95 ± 14.84	52.21 ± 7.39	46.59 ± 10.34
Mild to moderate ED	77	63.53 ± 9.19	56.35 ± 12.77	52.71 ± 7.74	49.32 ± 7.63
Mild ED	67	66.52 ± 9.77	59.42 ± 8.61	54.93 ± 5.65	52.66 ± 7.26
f-test *P-value*		*f=16.077* ***p=0.001****	*f=17.293* ***p= 0.001****	*f=2.411* *p= 0.068*	*f=16.582* ***p=0.001****

SD=standard deviation, *=p value<0.05

DISCUSSION

The index study revealed that erectile dysfunction was prevalent among the research subjects, and we discovered a distinct pattern of inverse relationships between erectile dysfunction and all domains of health-related quality of life, with psychological impairment showing the greatest degree of impairment. The overall prevalence of ED in this study was high at 59.9% with the most prevalent type being mild to moderate ED, Some of the factors that may explain such high prevalence may be because the study population were hospital patients, most of whom were ill people who may have come to the tertiary hospital seeking medical care. In addition, the effect of the COVID-19 pandemic on marital relationships as well as economic loss from the long period of lockdown in the preceding year may have contributed to this finding. A systematic review showed that COVID-19 restrictions were correlated with higher rates of sexual dysfunction.(Masoudi, *et al.*, 2022) Marital strain as well as psychological stress from socioeconomic factors have been known to be risk factors for ED.(Udo *et al.*, 2015)

Our prevalence is comparable with those found in studies done in similar primary care settings, 55.1% found by Adebusoye in Oyo, Nigeria, and 65.5% by Lockhat *et al.*, in Durban South Africa.(Adebusoye, *et al.*, 2012; Lockhat, *et al.*, 2013)

The index study's prevalence was more than Olugbenga et al.'s 43.8% in Osogbo, Nigeria, and Oladiji's 46.7% in Ilorin, Nigeria.(Oladiji, *et al.*, 2013; Olugbenga-Bello, *et al.*, 2013) The fact that the latter investigations were conducted in communities as opposed to hospitals, where the index research was conducted, may have contributed to the reduced prevalence observed.

As far as HRQOL was concerned, the index study showed that participants with ED had lower indices of HRQOL in all domains and this was more profound in the psychological domain. ED could elicit strong negative emotions, lower self-esteem, impair sexual pleasure, strain interpersonal relationships and cause anxiety, hinder sleep, reduce work productivity which consequently impacts the psychological, social, environmental and physical functioning of men.(Agaba.P *et al.*, 2017; Udo *et al.*, 2015)

Similarly, Gebremedhin *et al.*, and Farahat *et al.*, both found poorer HRQOL indices across all the domains in men with ED.(Farahat *et al.*, 2017; Gebremedhin *et al.*, 2021) This is at variance with the findings reported by Agaba *et al.*, who found ED was significantly associated with only poor social functioning.(Agaba *et al.*, 2017) In our study, individuals with ED also showed lower social domain indices; however, their impairments were not as severe as those in other domains. Our study differs from the latter in both methodology and respondent characteristics.

In terms of severity, respondents with severe ED had poorer HRQOL indices in the physical, psychological and environmental domains while those with mild ED had better HRQOL indices in the aforementioned domains. Given all the detrimental effects ED may have on men's HRQOL, this finding is understandable. This finding is similar to Farahat *et al.*, who reported worsening HRQOL indices of all the

domains with worsening severity of ED.(Farahat *et al*., 2017) While, Langer *et al*., found significantly worsening HRQOL indices with increasing severity of ED in only the psychological and social domains. (Langer *et al*., 2019)

The limitations of the study cannot be ignored, the study being a cross-sectional study may not give full insight into the causal relationship between ED and HRQOL. A longitudinal study design may be required to establish a causal relationship. In the same vein, 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 relationship.

Despite the aforementioned limitations, our study is one of the few recent studies assessing the relationship between ED and HRQOL in our sub-region, and thus provides data on the subject matter.

CONCLUSION

The high prevalence of ED in this study and its negative association with all domains of HRQOL emphasizes the importance and need for routine sexual assessment among men visiting their clinicians. There is a need for more surveys that will address the limitations of this study.

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Duality of Interest: The authors declare that they have no competing interests.

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