Original Article

Sexual Functioning and Health-related Quality of Life in Men

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Abstract

Background: Although erectile dysfunction (ED) is common, little is known about the impact of ED on the quality of life (QoL) among African men. **Materials and Methods:** We used the International Index of Erectile Function (IIEF) to evaluate ED and the WONCA charts to assess QoL among employees of a university. **Results:** A total of 508 men with a mean age of 43 ± 10 years were studied. IIEF5 scores of <22 were present in 406 participants (77.9%). Mild ED, mild-to-moderate ED, moderate ED, and severe ED were present in 34.6%, 26.6%, 10.4%, and 5.7%, respectively. Systolic and diastolic blood pressure were significantly lower in those with ED. Marital status, alcohol, cigarette, physical inactivity, obesity, hypertension, diabetes mellitus, and antihypertensive drug use were not associated with ED. ED was associated with poor QoL in the domains of social activities (odds ratio [OR] = 4.35; 95% confidence interval [CI]: 1.01–18.7), and overall health (OR = 2.27; 95% CI: 1.07–4.82). However, there was no association of ED with poor QoL in the domains of physical fitness (OR = 1.46; 95% CI: 0.82–2.59), feelings (OR = 1.43; 95% CI: 0.75–2.72), daily activities (OR = 4.72; 95% CI: 0.61–36.4), and change in health (OR = 1.75; 95% CI: 0.58–5.26). **Conclusion:** ED negatively impacts QoL in men.

Keywords: Erectile dysfunction, impotence, quality of life, social functioning

Introduction

The inability to achieve and/or maintain penile erection adequate for penetrative sex is regarded as erectile dysfunction (ED). ED is common and has been well characterized in the western world, occurring in up to 40%–52% of men above 40 years of age.[1,2] The literature is replete with studies documenting the prevalence of ED among patient populations in Nigeria.[3,4] Available data from community surveys suggest that up to 43.8% of men in the community have ED.[5,6] Studies have shown that while many men with ED desire treatment, few seek medical attention as many are uncomfortable discussing sex even in the western world.[7,8]

ED has been shown to affect quality of life (QoL) in several populations, both in patients with chronic illnesses and apparently healthy individuals.[9-12] Little, however, is known about the impact of ED and QoL in indigenous African men[13] as it is generally believed that Africans do not talk about sex. We hypothesize that because men do not readily seek medical help for ED, it does not impact on their QoL. In this cross-sectional study of males employed in a university, we determined the prevalence and correlates of ED. We also explored its impact on health-related QoL.

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Materials and Methods

Participants

This cross-sectional study was conducted as part of a larger study to evaluate the burden of noncommunicable diseases and their risk factors among employees of the University of Jos. Approval for the study was obtained from the Human Research Ethics Committee of the Jos University Teaching Hospital. Informed written consent was obtained from all the men before recruitment, and their identifiers were removed from data and confidentiality maintained.

Data collection

Male staff members of the university aged >18 years were invited to present themselves at the University Health Clinic for the study. Invitations were sent to all units, departments, and institutes of the university. Posters of invitation were also circulated within the university and adverts placed

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on the University of Jos Radio Station. Information on sociodemographics, social habits, and history of hypertension and diabetes mellitus (DM) was obtained using a case-record form. The abridged version of the International Index of Erectile Function-5 (IIEF-5) questionnaire[14] was investigator administered on the participants to obtain information on sexual functioning. This instrument assesses sexual functioning in the domains of erectile function and intercourse satisfaction. This questionnaire has been used in studies on ED in Nigeria.[3,5,13] Responses to this questions are graded on a 5-point ordinal scale of 1–5 with "1" being the worst and "5" the best possible, respectively. The Dartmouth COOP/WONCA charts[15] were investigator administered to assess the QoL of the participants. These charts evaluated the QoL in the domains of physical functioning, emotional functioning, activities of daily living, social activities, changes in health, and overall health in the preceding 2 weeks. Responses are graded on a 5-point ordinal scale with "1" as best and "5" as worst.

Physical measurements conducted on each participant included height (m), body weight (kg), and waist circumference (WC, cm). WC was measured using a nonelastic measuring tape at mid-point between the subcostal margin and the upper border of the iliac crest. The body mass index was calculated using the Quetelet index.[16] Blood pressure (BP) measurements were taken using an electronic sphygmomanometer (OMRON) after participants were first made to sit quietly for at least 5 min in a chair (rather than on an examination table) with their backs supported and their arms bared and supported at heart level. Three readings of each participant's BP were taken and the last two measurements averaged as the participant's BP. Two milliliters of venous blood was taken from the antecubital vein for blood glucose determination.

Definitions

Hypertension, DM, generalized obesity, and central obesity were defined using internationally accepted guidelines.[17-20] ED was defined as IIEF-5 score <22 with scores of 1–7 as severe ED, 8–11 as moderate ED, 12–16 as mild-to-moderate ED, and 17–21 as mild ED.[14]

Statistical analysis

QoL was stratified into "good" when the score on each domain was 1 or 2, "acceptable" for a score of "3," and "poor" for scores of "4" or "5." For statistical analysis, QoL was further transformed into a dichotomous variable as "high QoL" or "low QoL" for scores of "1–2" and "3–5," respectively. Data were analyzed using Epi Info 7 (CDC, Atlanta, GA). Uniformly distributed continuous variables were presented as means ± standard deviation while nonuniformly distributed ones as medians (interquartile range). Discrete variables were presented as proportions. Chi-square test was used to compare the significance of observed differences between proportions and the Student *t*-test to compare group means. Where cells contained less than five observations, the Fisher's exact test was used. Odds ratios (OR) (with 95% confidence interval [CI]) were calculated to evaluate the association of ED and QoL. $P < 0.05$ was considered significant.

Results

Characteristics of subjects

A total of 508 men with a mean age of 43 ± 10 years were studied. The majority were married (88.4%), junior cadre workers (61.2%), and lacked tertiary education (91.7%). Table 1 shows the sociodemographic and anthropometric measurements of the participants.

Table 1: Characteristics of 508 male employees screened for erectile dysfunction using the International Index of Erectile Function-5

Variables	Total (*n*=508)	ED+ve (*n*=393)	ED-ve (*n*=115)	*P*
Age (years), mean±SD	43±10	43±10	42±9	0.51
Tertiary education, *n* (%)	93 (18.3)	67 (17.0)	26 (22.6)	0.17
Junior cadre staff, *n* (%)	311 (61.2)	244 (62.1)	67 (58.3)	0.45
Married, *n* (%)	429 (84.4)	328 (83.5)	101 (87.8)	0.25
Alcohol use in the past 30 days, *n* (%)	171 (33.6)	132 (33.6)	39 (33.9)	0.94
Ever smoked, *n* (%)	54 (10.6)	40 (10.2)	14 (12.2)	0.54
Physically active, *n* (%)	259 (51.0)	199 (50.6)	60 (52.2)	0.7
BMI (kg/m^2), mean±SD	25.10±3.50	25.09±3.54	25.48±3.41	0.29
Generalized obesity, *n* (%)	54 (10.6)	41 (10.4)	13 (11.3)	0.78
Waist circumference, mean±SD	88.9±10.7	88.8±10.8	89.3±10.3	0.61
Truncal obesity, *n* (%)	149 (29.3)	116 (29.5)	33 (28.7)	0.86
SBP (mmHg), mean±SD	129±19	128±18	133±20	0.01
DBP (mmHg), mean±SD	79±12	78±12	81±11	0.04
Antihypertensive use, *n* (%)	151 (31.6)	119 (32.5)	32 (28.6)	0.43
Hypertension, *n* (%)	217 (42.7)	165 (42.0)	52 (45.2)	0.53
CBG (mg/dl), median (IQR)	80.0 (68.4-94.7)	78.2 (66.3-94.7)	82.5 (80.0-97.3)	0.24
Diabetes mellitus, *n* (%)	34 (6.7)	26 (6.6)	8 (7.0)	0.89

ED+ve – Erectile dysfunction present; ED-ve – Erectile dysfunction absent; SD – Standard deviation; BMI – Body mass index; BP – Blood pressure; SBP – Systolic BP; DBP – Diastolic BP; CBG – Casual blood glucose; IQR – Interquartile range

Prevalence of erectile dysfunction

ED (IIEF5 scores of <22) was present in 406 participants (77.4%). Mild ED, mild-to-moderate ED, moderate ED, and severe ED was present in 44.8%, 34.4%, 13.5%, and 7.4%, respectively. We examined severity of ED across different age groups and found a significant difference in ED severity (P = 0.0002). Participants aged 31–40 years had the highest proportion of severe ED while the 61–70 years' age group had the highest proportion of moderate ED [Figure 1].

Determinants of erectile dysfunction

Participants with and without ED were similar with respect to sociodemographic characteristics and anthropometric measurements [Table 1]. Taken separately, systolic and diastolic BPs were significantly lower in those with ED. However, hypertension was not associated with ED in logistic regression model [Table 2]. Similarly, older age (>45 years) marital status, alcohol, cigarette, physical inactivity, obesity, DM, and antihypertensive drug use were not associated with ED.

To assess the determinants of ED, first, we fitted a logistic model with individual variables and found none to be predictive of ED [Table 2]. Second, we created composite risk groups based on documented risk factors to check if having more than one risk factors might predict ED as follows: risk group 1 – metabolic group (obesity, hypertension, and diabetes), risk group 2 – lifestyle (alcohol use, smoking, and physical inactivity), and risk group 3 – sociodemographic (age >45 years, marital status, and level of education.). None of the risk groups was predictive of ED on logistic regression. However, when we stratified ED by severity (none severe ED = mild/mild-moderate versus severe ED-moderate/severe) and used this dichotomized variable as a dependent outcome, with the same risk factors as independent variables, being married reduced the risk of severe ED by 79% (adjusted OR = 0.21, 95% CI: 0.11–0.38), with other variables not demonstrating significant relationships [Table 3].

Impact of erectile dysfunction on quality of life

Data on QoL were available on 356 men. The men who had and did not have data on QoL were similar in terms of sociodemographic parameters and anthropometric measurements except in the proportion who were obese (P = 0.04). ED was associated with poor QoL in the domains of social activities (OR = 4.35; 95% CI: 1.01–18.7) and overall health (OR = 2.27; 95% CI: 1.07–4.82). However, there was no association of ED with poor QoL in the domains of physical fitness (OR = 1.46; 95% CI: 0.82–2.59), feelings (OR = 1.43; 95% CI: 0.75–2.72), daily activities (OR = 4.72; 95% CI: 0.61–36.4), and change in health (OR = 1.75; 95% CI: 0.58–5.26).

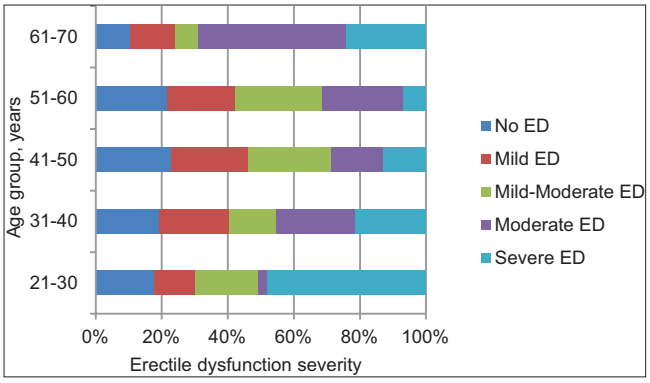

Figure 1: Relationship of age to severity of erectile dysfunction in 508 male university workers (χ^2 = 44.7; P = 0.0002). ED = Erectile dysfunction

Discussion

ED may significantly affect the QoL in men. We studied the prevalence of ED and its impact on the QoL among men working in a university. We found that ED is highly prevalent with the younger men experiencing severe forms of ED. In addition, ED impacted negatively on the social and overall health domains of QoL.

We found a high prevalence of ED among the participants of this study. ED prevalence rates as high as that reported in this study have been documented among patients with chronic illnesses.[21-23] However, lower figures have been reported in individuals without chronic illnesses.[3,7,24,25] The wide variation in the prevalence of ED in these studies may be due to differences in methodologies, participant selection, and subjective experiences.

The younger age group in this study (31–40 years) reported the highest prevalence of severe ED. This is contrary to findings

Table 2: Independent predictors of erectile dysfunction in 508 male employees of the University of Jos

Variable	OR	95% CI	*P*
Above 55 years old (yes/no)	1.01	0.99-1.03	0.19
Ever smoked (yes/no)	0.73	0.29-1.79	0.49
Diabetes mellitus (yes/no)	0.99	0.42-2.31	0.99
Hypertension (yes/no)	0.82	0.52-1.30	0.41
Generalized obesity (yes/no)	0.85	0.39-1.82	0.67
Physical inactivity (yes/no)	0.86	0.57-1.32	0.50
Significant alcohol use (yes/no)	1.07	0.68-1.67	0.75
Truncal obesity (yes/no)	1.14	0.65-2.01	0.63

OR – Odds ratio; CI – Confidence interval

Table 3: Independent predictors of severe erectile dysfunction in 508 male employees of the University of Jos

Variable	Adjusted OR	95% CI	*P*
Age >45 years	1.07	0.60-1.91	0.79
Married	0.21	0.11-0.38	<0.001
Tertiary education	0.77	0.38-1.57	0.48
Alcohol use in the past 30 days	0.65	0.36-1.15	0.14
Ever smoked	0.72	0.29-1.75	0.47
Generalized obesity	1.21	0.54-2.73	0.63
Physically active	0.69	0.41-1.15	0.15
Diabetes mellitus	1.43	0.56-3.65	0.44
Hypertension	1.12	0.54-1.90	0.66

OR – Odds ratio; CI – Confidence interval

in other studies where older age has been associated with the more severe forms of ED.[22,23-26] The participants in our study were highly educated and made up of relatively young men at the prime of sexual activity and may have over-reported their perceptions of ED symptoms. In addition to age, other factors that have been associated with ED in previous studies include alcohol intake, cigarette smoking, low socioeconomic status, length of marriage, obesity, hypertension, diabetes, and depression among others.[5,7,24,25] We did not find an independent relationship between ED and age, BP, DM, alcohol use, cigarette smoking, or use of antihypertensive medications. The reason for the disparity between our study findings and that of previous reports is not apparent and left to conjecture.

Previous studies have found that ED impacts negatively on the QoL.[9,12,13,27] ED was significantly associated with poor social functioning and overall health quality in our participants. While our finding confirms that of Litwin *et al.,*[12] who found that ED impacted on the perception of overall health quality and not on the physical domain, it differs from theirs with regard to its impact on the social domain. They found that ED impacted negatively on the emotional domain and not the social domain. Similarly, Idung *et al.*[13] reported that social functioning and psychological health indicators of QoL were severely impaired in men with ED. Our study differs from theirs in both methodology and participant characteristics.

Our study had some limitations that may hamper the generalizability of our findings. The participants in this study were highly selected and may not be representative of the general community. However, the choice to study university workers was to avoid the need for back to back translation as all the participants had formal education with 18% having tertiary education. Another limitation is the subjective nature of the tool used in assessing ED as IIEF assesses sexual experience over the past 6 months and hence is subject to recall bias. We were unable to verify the assertions of the participants. Finally, given the cross-sectional design of the study, we could not establish a cause and effect relationship between ED and QoL. Despite the foregoing, ours is one of the few studies assessing the impact of ED on QoL in our environment and provides data on this subject matter.

Our findings have implications for health-care services for men. Given the high prevalence of ED and the fact that men with ED find it difficult to seek treatment,[7,8] physicians should actively seek for symptoms of ED when offering health-care services to men. Physicians should also be aware of the poor social functioning and poor overall health that is associated with ED.

We conclude that ED is highly prevalent among male workers of a university in Nigeria. Our study also demonstrated that ED impacts negatively on the social well-being and the overall health quality of this group of individuals. There is the need for community studies to elucidate the magnitude of the problem.

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Conflicts of interest

There are no conflicts of interest.

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