

Original Research

Quality of Sexual Life and its Correlates among Men with Diabetes Mellitus and Erectile dysfunction attending a tertiary hospital in Owerri, Nigeria

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Abstract

Background: Erectile dysfunction (ED) is common among men with Diabetes mellitus (DM), with a negative impact on their sexual satisfaction. There is a paucity of data on this in our locality. Hence this study was to determine the quality of sexual life, its correlates and predictors among such men.

Methodology: One hundred diabetic men with ED as well as 100 without ED were recruited consecutively. Questionnaires were used to collect relevant information and assess their quality of sexual life. This was followed by a focused physical examination and anthropometric measurements. Blood samples were collected for relevant investigations. Data analysis was with SPSS version 25 while p-value < 0.05 was considered significant.

Result: Participants with ED had a mean IIEF-5 score of 11.97 ± 4.73 while those without ED had 24.06 ± 1.10 ($p = 0.000$). Among the DM participants with ED and those without ED, their mean SQoL-M scores were $44.14 \pm 10.85\%$ and $89.73 \pm 16.23\%$ respectively ($p = 0.000$). Correlation between SQoL-M scores and IIEF-5 scores showed ($r = 0.374$, $p = 0.000$) while that between SQoL-M scores and HbA1c showed ($r = -0.205$, $p = 0.040$) in diabetic participants with ED. IIEF-5 scores and HbA1c levels were observed to be the only predictors of SQoL scores among diabetic participants with ED.

Conclusions: There is a significant difference in the quality of sexual life between diabetic men with ED and those without ED. While there is a positive correlation between SQoL-M and IIEF-5 scores, there is a negative correlation between SQoL-M scores and HbA1c levels among diabetic men with ED. IIEF-5 scores and HbA1c values are predictors of quality of sexual life among diabetic men with ED. Thus, there is a need for evaluation of quality of sexual life among diabetic men with ED.

Keywords: Diabetes Mellitus; Erectile Dysfunction; Quality of Sexual Life; Correlates; Predictors.

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Introduction

There has been a steady increase in the global prevalence of DM, with a projection that about 439 million people worldwide will have the condition by the year 2030 [1,2]. This rising prevalence of DM comes with an increase in morbidity and mortality which results from the associated complications including erectile dysfunction (ED). Erectile dysfunction is one of the chronic complications of DM and affects people with both type 1DM (T1DM) and type 2 DM (T2DM). This complication develops within 5 – 10 years after diagnosis of DM but may be present at the time of diagnosis, especially among men with T2DM. Erectile dysfunction has been found to be 2-3 times more common among men with DM than among those without DM and is more severe and more difficult to treat in DM patients [3]. Although the prevalence of ED has been shown to increase progressively with age, it has been demonstrated that ED occurs earlier in people with DM than in those without DM with more than 50% of men developing ED within 10 years of onset of DM [4]. Erectile dysfunction has on some occasions been noticed by some men before the diagnosis of DM. In fact, some men presenting to the hospital on account of ED have incidentally been found to have DM during evaluation. Erectile dysfunction in DM arises because of multiple factors, usually in combination, including vascular, neurological, hormonal, psychological abnormalities and drug treatment of co-morbid conditions like hypertension [5] whereas the consequences include depression, marital disharmony and low self-esteem. These result in poor sexual satisfaction which negatively affects the quality of life [QoL] among such men [6]. In a multi-Centre cross sectional study involving 275 men, Fernandes et al observed that QoL was worse among participants having any degree of ED [7]. Poor QoL in turn negatively affects physical, social and psychological wellbeing. Early diagnosis and treatment of ED as well as identification and treatment of its predictors among men with DM will thus improve their QoL generally and quality of sexual life specifically. While studies on the general QoL among men with DM and ED abound, those that evaluated their quality of sexual life specifically are not readily available. Thus, in this study the quality of sexual life of such men as well as its correlates and predictors were evaluated.

Methodology

This descriptive cross-sectional study was carried out at the Endocrinology Clinic of Federal Medical Centre, now Federal teaching hospital (FTH), Owerri, between January and June 2018. Ethical approval was obtained from the Ethics committee of the Institution. One hundred men with DM who had ED, diagnosed with IIEF-5 Questionnaire, aged ≥ 18 years were recruited consecutively for the study while 100 men with DM and aged ≥ 18 years, but without ED were recruited as controls. Diabetic men who were on drugs that can cause ED as well as those that have had Orchiectomy, those with prostate disease and those with abnormal genitalia were excluded from the study. Participants with IIEF – 5 scores ≤ 21 were diagnosed as having ED while those with scores 17 – 21, 12 – 16, 8 – 11 and 5 – 7 were classified as having mild, mild to moderate, moderate and severe ED respectively. A pretested, Interviewer-administered questionnaire was used to collect relevant medical and socio-demographic information from the participants while the Sexual Quality of Life Questionnaire-Male (SQoL-M) was used to assess their quality of sexual life. This questionnaire contains 11 items each with a 6-point Likert-like response scale ranging from ‘completely agree’ to ‘completely disagree’. Items were scored 1-6, signifying worst to best, and were scored from Completely Agree = 1 to Completely Disagree = 6. To allow easy comparisons with other measures, raw scores were transformed onto a standardized scale of 0 to 100. Blood pressure, height and weight were then measured using standard procedures while body mass index was calculated using weight and height. About 6ml blood was collected from each of the participants using standard procedures. Out of this, 3mls was put into fluoride oxalate bottle for assessing HbA1c while 3mls was put into plain bottle for assessment of serum testosterone (ST) level. The blood sample for ST was then allowed to stand for about 2 hours, after which it was spun for 5 minutes at 3000 rpm (revolutions per minute) using the Centrifuge and serum then separated. The samples were then stored appropriately and subsequently used for the laboratory investigations at FTH, Owerri central laboratory. Serum testosterone was assessed using Enzyme Linked Immunosorbent Assay (ELISA) technique while

HbA1c was assessed using BIO-RAD In2it HbA1c analyzer which uses the principle of boronate affinity chromatography to separate glycated fraction from non-glycated fraction of haemoglobin. Relevant data were collected by means of study data forms while statistical analysis was done using the Statistical Package for Social Sciences (SPSS Inc. Chicago, USA version 25). P-values less than 0.05 were considered statistically significant.

Results

The mean age of diabetic men with ED in this study was 58.60 ± 8.58 years and that of those without ED was 51.97 ± 12.44 years ($p = 0.000$), while their mean duration of DM were 10.53 ± 3.06 years and 9.66 ± 2.46 years respectively ($p = 0.028$). The mean HbA1c levels among diabetic men with ED and those without ED were $8.16 \pm 2.54\%$ and $7.46 \pm 2.04\%$ respectively ($p = 0.033$). Also, the mean SQoL-M scores among DM participants with ED was $44.14 \pm 10.85\%$ while that of those without ED was 89.73 ± 16.23 ($p = 0.000$). The correlation coefficient between SQoL-M scores and age, IIEF-5 scores, serum testosterone and HbA1c levels among the study participants with ED and DM were 0.057 ($p = 0.575$), 0.37 ($p = 0.000$), 0.019 ($p = 0.855$) and -0.205 ($p = 0.040$) respectively. Logistic regression showed that only HbA1c levels and IIEF-5 scores are predictors of SQoL scores (quality of sexual life) among diabetic men with ED, with adjusted odd ratio, confidence interval and p-value of 0.338 , $0.124 - 0.926$, 0.035 and 16.569 , $4.075 - 67.361$, 0.000 respectively. Table 1 below shows the clinical and biochemical characteristics of participants in this study while tables 2 and 3 show the correlation between IIEF-5 scores and SQoL-M scores respectively and other variables among participants with DM and ED. Tables 4 and 5 below show logistic regression for predictors of IIEF-5 and SQoL-M scores respectively among participants with DM and ED in the study.

Table 1: Demographic, Clinical and Biochemical characteristics of study participants

Variable	Diabetic men with ED	Diabetic men without ED	t - value	P - value
	n = 100 Mean \pm SD	n = 100 Mean \pm SD		
Age (years)	58.60 ± 8.58	51.97 ± 12.44	4.39	0.000
IIEF-5 score	11.97 ± 4.73	24.06 ± 1.10	- 24.90	0.000
DM duration (years)	10.53 ± 3.06	9.66 ± 2.46	2.22	0.028
Weight (Kg)	71.20 ± 16.39	69.53 ± 10.15	0.87	0.388
BMI (Kg/m ²)	25.75 ± 5.35	25.19 ± 4.15	0.83	0.409
SBP (mmHg)	137.51 ± 24.26	127.66 ± 14.73	3.47	0.001
DBP (mmHg)	80.37 ± 13.05	79.22 ± 11.30	0.67	0.506
Testosterone (ng/ml)	4.96 ± 1.65	4.69 ± 0.12	1.63	0.106
HbA1c (%)	8.16 ± 2.54	7.46 ± 2.04	2.15	0.033
SQoL-M score (%)	44.14 ± 10.85	89.73 ± 16.23	- 23.33	0.000

IIEF-5: International Index of Erectile Function – 5, DM: Diabetes Mellitus, BMI: Body Mass Index, SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, HbA1c: Glycated Haemoglobin, SQoL-M: Sexual Quality of Life – Male

Table 2: Correlation between IIEF-5 scores and other variables among men with DM and Erectile dysfunction

Variable	Correlation coefficient (r)	p - value
Age (years)	- 0.245	0.014
DM duration (years)	- 0.129	0.200
BMI (Kg/m ²)	0.100	0.324
SBP (mmHg)	- 0.408	0.000
DBP (mmHg)	- 0.215	0.031
Testosterone (ng/ml)	- 0.006	0.952
HbA1c (%)	- 0.107	0.312
WHR (cm)	- 0.100	0.320
SQoL-M (%)	0.374	0.000

IIEF-5: International Index of Erectile Function – 5, DM: Diabetes Mellitus, BMI: Body Mass Index, SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, HbA1c: Glycated Haemoglobin, WHR: Waist –Hip Ratio, SQoL-M: Sexual Quality of Life – Male

Table 3: Correlation between SQoL-M scores and other variables among men with DM and Erectile dysfunction

Variable	Correlation coefficient (r)	p - value
Age (years)	0.057	0.575
IIEF-5 Score	0.374	0.000
DM duration (years)	- 0.111	0.271
BMI (Kg/m ²)	0.031	0.757
SBP (mmHg)	- 0.160	0.111
DBP (mmHg)	- 0.062	0.541
Testosterone (ng/ml)	0.019	0.855
HbA1c (%)	- 0.205	0.040

IIEF-5: International Index of Erectile Function – 5, DM: Diabetes Mellitus, BMI: Body Mass Index, SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, HbA1c: Glycated Haemoglobin, SQoL-M: Sexual Quality of Life – Male

Table 4: Logistic regression for predictors of erectile dysfunction (IIEF-5 scores) among participants with DM and ED

Variables	AOR	Confidence Interval	P-value
Age (years)	0.419	0.161 – 1.083	0.073
DM duration (years)	1.747	0.785 – 3.887	0.172
SBP (mmHg)	0.238	0.051 – 1.108	0.067
DBP (mmHg)	0.992	0.212 – 4.651	0.992
WHR (cm)	2.263	0.731 – 7.004	0.157
BMI (Kg/m ²)	2.205	0.453 – 10.731	0.327
HbA1C (%)	0.749	0.230 – 2.442	0.631
SQoL-M (%)	4.449	1.173 – 16.876	0.028

IIEF-5: International Index of Erectile Function – 5, DM: Diabetes Mellitus, SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, WHR: Waist-Hip Ratio, BMI: Body Mass Index, HbA1c: Glycated Haemoglobin, SQ oL-M: Sexual Quality of Life – Male

Table 5: Logistic regression for predictors of quality of sexual life (SQoL-M scores) among participants with DM and ED

Variables	AOR	Confidence Interval	P-value
Age (years)	1.287	0.691 -2.400	0.427
DM duration (years)	1.119	0.560 – 2.237	0.749
SBP (mmHg)	0.817	0.222 – 3.009	0.761
DBP (mmHg)	1.881	0.487 – 7.270	0.359
IIEF-5 score	16.569	4.075 – 67.361	0.000
HbA1C (%)	0.338	0.124 -0.926	0.035
Testosterone (ng/ml)	1.287	0.691 – 2.400	0.427

IIEF-5: International Index of Erectile Function – 5, DM: Diabetes Mellitus, SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, HbA1c: Glycated Haemoglobin, SQoL-M: Sexual Quality of Life – Male

Discussion

The mean age of diabetic men with ED in this study was 58.60 ± 8.58 years and this is similar to the mean age of 55.8 ± 7.9 years among diabetic men with ED observed in a meta-analysis conducted by Kouidrat et al [8]. This mean age of diabetic men with ED in this study was however significantly higher than that of those without ED. This finding is like that of Maalmi et al [9] among men with new onset DM and supports the observation that erectile dysfunction is significantly associated with higher age among individuals with DM [10, 11]. Similarly, the duration of DM, systolic blood pressure and HbA1c were observed to be significantly higher among diabetic men with ED than those without ED in this study. In the study by Maalmi et al [9], it was however observed that there was no significant difference in these parameters between diabetic men with ED and those without ED. This is likely because their study population were only men with new onset DM. The longer duration of DM among participants with ED than those without ED may be explained by the fact that individuals who have had DM for a long period are more likely to develop chronic complications including ED [12]. Hypertension and poor glycaemic control have equally been found to promote atherosclerosis which is one of the major mechanisms for development of ED among men with DM [13, 14]. This study also showed that SQoL-M score was the only predictor of ED among men with DM while on the contrary Parmer et al [15] as well as Ugwumba et al [16] in their studies observed that age, SBP, duration of DM and fasting blood sugar were predictors of ED among such men [15, 16]. This difference in observation between these studies may be attributable to the difference in sample sizes as the studies by Parmer et al [15] and Ugwumba et al [16] were conducted among 357 and 325 men with DM respectively. The quality of sexual life as indicated by the mean SQoL-M scores among diabetic men with ED in this study was observed to be significantly lower than that of those without ED. This observation is in keeping with that of Thongtan et al [17] in their systematic review of studies on quality of life among diabetic men with erectile dysfunction. Their observation was further explained by the negative impact of ED on quality of life

among men with DM, especially on dimensions of psychology and social relationships. Erectile dysfunction has been observed to result in fear of suboptimal sexual performance, anxiety, stress, feeling of being less a man, low self-esteem and relationship problems all of which have negative impact on sexual performance and overall quality of sexual life [18, 19, 20]. This study also showed a significant positive correlation between SQoL-M scores and IIEF-5 scores as well as a significant negative correlation between SQoL-M scores and HbA1c levels among diabetic men with ED. This shows that the more severe the ED and the worse the glycaemic control, the worse the quality of sexual life is likely to be among these men. In a study among diabetic men in Thailand, Thongston et al [21] similarly observed that among those with ED, the most important factor associated with poor quality of life (QoL) was severity of ED. They equally observed that the impact was especially on social relationships, of which sexual activity is a very important aspect. Also Natasya et al [22] in another cross sectional study observed that QoL was significantly influenced by glycaemic control. While this observation was made in respect of general QoL, it has been observed that sexual dysfunction and lack of sexual satisfaction among people with diabetes has a significant negative impact on their overall QoL [23, 24] and ED has been shown to be a major cause of sexual dysfunction [23] with resultant lack of sexual satisfaction among men with DM. It was further observed in this study that IIEF-5 scores and HbA1c levels were the only predictors of quality of sexual life, as indicated by SQoL-M scores, among men with diabetes mellitus and ED. In a study by Malavige et al [25], it was similarly observed that ED was a significant predictor of sexual experience scale of psychological impact among other domains of QoL. This is also similar to the observation by Thongtang et al in Thailand [21]. Conversely, Stamiogiannou et al [26] observed that the strongest predictor of higher QoL was better sexual functioning among men with ED. Thus among diabetic men with ED, those with more severe ED and those with worse blood glucose control are more likely to have poorer quality of sexual life, with enormous social and psychological consequences.

Conclusions and recommendations

There is a significant difference in the quality of sexual life between diabetic men with ED and those without ED. There is also a positive correlation between SQoL-M scores and IIEF-5 scores while there is a negative correlation between SQoL-M scores and HbA1c levels among diabetic men with ED. Similarly, IIEF-5 scores and HbA1c levels are predictors of quality of sexual life (SQoL-M scores) among diabetic men with ED. Evaluation of quality of sexual life among diabetic men with ED should be included in their routine clinical assessment as this may help in early detection and treatment of those with reduced quality of sexual life. There is also need for proper treatment of ED and improvement in blood glucose control to improve the quality of sexual life among such men.

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