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EC DIABETES AND METABOLIC RESEARCH
Research Article

Post-Diabetes Sexual and Reproductive Health Needs of Male Type-2 Diabetes Mellitus Patients in Tertiary Facility South-West Nigeria

Agofure Otovwe[1]*, Efegbere Henry Akpojubaro[2], Okandeji-Barry Oghenenioborue Rume Ataekiru[3], Odjimogho Stella[4] and Adeleke Abisoye Abiola[1]

[1]Department of Public and Community Health, Novena University, Ogume, Nigeria

[2]Department of Community Medicine, Edo University Iyamho, Edo State Nigeria

[3]Department of Health and Social Care Management, London School of Management Education, United Kingdom

[4]Department of Optometry, University of Benin, Benin City, Nigeria

***Corresponding Author:** Agofure Otovwe, Department of Public and Community Health, Novena University, Ogume, Nigeria.

Received: January 09, 2020; **Published:** January 29, 2020

Abstract

Background: Diabetes mellitus is a metabolic disorder associated with long term complications affecting the sexual and reproductive health of male diabetes patients. Nevertheless, issues of sexual health including fears and concerns remain a much neglected area among diabetes patients even though it is important for reproductive function. This study was designed to investigate the Post-Diabetes Sexual and Reproductive Health needs of male type-2 diabetes mellitus patients in Adeoyo Teaching Hospital Ibadan.

Methods: A descriptive cross sectional survey was conducted among 277 male diabetes patients selected purposively. A well-structured questionnaire which comprised of socio-demographic characteristics, health characteristics and fears and concerns of Diabetes Patients was used to collect the data. The data was analysed using SPSS Version 21 with level of significance set at $P < 0.05$.

Results: More than one-third of the respondents 101 (36.50%) were between the ages 50-59 years while 252 (91.0%) were married and 171 (61.70%) attained secondary school education. Majority, 272 (99.30%) have given birth before been diagnosed with diabetes mellitus with only 139 (50.20%) able to reproduce after diagnosis with diabetes mellitus. Furthermore, 201 (72.60%) have no knowledge of how diabetes mellitus would affect them sexually while 217 (78.30%) affirming no health worker have talked to them about the sexual problem they might encounter and most of them 234 (84.50%) affirming to be dissatisfied with their sexual life. Both age and time of diagnosis showed a significant relationship with sexual satisfaction and desire for sexual intercourse ($P < 0.05$).

Conclusion: The findings of the study highlighted the sexual needs of male type-2 diabetes patients. Therefore, guidelines addressing not only the signs and symptoms of diabetes mellitus, but also incorporating adequate information on the sexual and reproductive health of diabetes patients should be implemented across facilities in the country.

Keywords: *Type-2 Diabetes Mellitus; Post-Diabetes; Sexual and Reproductive Health; Male; Sexual Needs*

Introduction

The rising prevalence of Diabetes Mellitus (DM) is becoming a worldwide concern. Nigeria with its large population is estimated to have the highest number of people living with diabetes in Africa, with an estimated 5 million people diagnosed and undiagnosed [1,2].

Diabetes mellitus a metabolic disorder characterized by either absolute or relative deficiency of insulin has a long term impact of complications in many organ systems in the body [3]. Common documented microvascular complications associated with diabetes include retinopathy, neuropathy; nephropathy, foot disease while macrovascular complications are peripheral vascular disease, coronary artery disease, stroke, and heart failure [3].

Furthermore, DM is associated with severe complications which pose risks to sexual and reproductive health needs of diabetes patients. Thus, males with type-2 diabetes mellitus usually have a higher chance of developing sexual problems including reduced sperm quality, testosterone deficiency (hypogonadism), low libido (sexual desire), erectile dysfunction (impotence) and ejaculation problems than males without diabetes mellitus [4]. In addition, erectile dysfunction has constituted the major sexual problem among male type-2 diabetes patients with an increasing global prevalence. In Nigeria, the reported age-adjusted prevalence of erectile dysfunction is estimated to be 57.4% and it is projected that the number of men with this condition will increase over the next 25 years rising to 322 million by 2025 [5,6].

Despite the reported sexual problems associated with male diabetes patients resulting in loss of sexual function, feelings of dissatisfaction, poor quality of life and depression, this subject remains a neglected area of focus among health professionals leading to most male diabetes patients seeking self help from herbal and other traditional vendors who most times exploit their ignorance leading to state of helplessness and dissatisfaction. Thus, this study was designed to investigate the sexual and reproductive health needs and concerns among diagnosed male type-2 diabetes mellitus patients so as to understand their unmet sexual and reproductive needs.

Methods

Study design

A descriptive cross sectional survey was used for this study.

Study area

The study area was Ibadan, the capital and most populous city in Oyo State South-Western Nigeria. It is the country's largest city by geographical area with a total area of 1,190 sqm (3,080 km^2) metropolis and urban area of 2,600 sqm (6, 800 km^2). Adeoyo Maternity Teaching Hospital is the largest state government owned facility in Oyo State.

Study population

This was a hospital based study and the study population comprised of 277 male type-2 diabetes patients attending Adeoyo Teaching Hospital Ibadan.

Inclusion criteria

Any adult male patient who has been diagnosed with type-2 diabetes mellitus, registered in the Adeoyo Teaching Hospital Ibadan and gave consent to participate was included in this study.

Exclusion criteria

Female diabetes patients and other patients were not considered for this study. Male diabetes patients who fulfilled the inclusion criteria but refuse to give consent were also excluded from the study.

Sample size determination

From $n = \frac{z^2 Pq}{d^2}$ (formula for sample size determination)

Where z = 1.96 at 95% confidence level

n = minimum sample size

P = 57.4% prevalence of erectile dysfunction [5]

q = 100 – 57.4 = 42.6

d = 5% (degree of accuracy desired)

$$n = \frac{1.96^2 \times 57.4 \times 42.6}{5^2}$$

$$n = \frac{3.8416 \times 57.4 \times 42.6}{25}$$

n = 375

From $n = \frac{n_o}{1+\frac{(n_o-1)}{N}}$ (finite population correction for proportions)

n = sample size

n_0= calculated sample = 375

N = population size = 1056

$$\therefore n = \frac{375}{1+\frac{(375-1)}{1056}}$$

$$n = \frac{375}{1+\frac{(374)}{1056}}$$

$$n = \frac{375}{1+0.3542}$$

$$n = \frac{375}{1.3542}$$

n = 277

So, the sample size for this study was 277.

Sampling method

A purposive sampling method was adopted for this study. Male diabetes patients that attended Adeoyo Teaching Hospital Ibadan on their diabetes clinic days were recruited for the study.

Data collection instruments

The instrument for data collection was a semi-structured questionnaire. The questionnaire comprised of three sections. Section one assessed the socio-demographic characteristics of the respondents while section two assessed the health characteristics of the respondents and section three assessed the fears and concerns of the respondents in relation to the expression of their sexuality. The instrument was adapted from a previous instrument among stroke patients from the College of Medicine, University of Ibadan, Oyo State Nigeria.

Data analysis

Data retrieved from the questionnaires were analysed using the Statistical Product for Service Solution (SPSS) Version 21. Descriptive and inferential statistics was used in presenting the results.

Ethical considerations

Ethical approval was obtained from the ethical committee of the Department Public and Community Health, Novena University, Ogume, Delta State and the management of Adeoyo Teaching Hospital Ibadan Oyo State.

Results

Socio-demographic characteristics of the respondents

According to table 1 below more than one third of the respondents 101 (36.50%) were between the ages of 50 - 59 years while majority 246 (88.80%) were Yoruba and majority 252 (91.0%) were also married. Furthermore, almost two third of the respondents 171 (61.70%) attained at least secondary school and 174 (62.80%) were private businessmen.

Variable	Frequency	Percentage
Age		
30 - 39	20	7.20
40 - 49	59	21.30
50 - 59	101	36.50
60 - 69	66	23.80
70 - 79	31	11.20
Ethnic Group		
Yoruba	246	88.80
Igbo	9	3.20
Hausa	8	2.90
Efik	5	1.80
Ikwerre	9	3.20
Marital Status		
Married	252	91.0
Co-habiting	7	2.50
Divorced	12	4.30
Widowed	6	2.20
Educational Status		
Primary	38	13.70
Secondary	171	61.70
Tertiary	58	20.90
Arabic	8	2.90
None	2	0.70
Occupation		
Private Business	174	62.80
Civil Servant	32	11.60
Retired	27	9.70
Farmer	8	2.90
Artisan	36	13.10

Table 1: *Socio-demographic characteristics of the respondents.*

Health characteristics of the respondents

As shown in table 2 below, most of the respondents 211 (76.20%) affirmed that hyperglycaemia/prediabetes were the condition that led to their present state of having diabetes followed by overweight 29 (10.50%) and excessive urine 22 (7.90%). In addition, most of the respondents 176 (63.50%) were diagnosed over three years ago while majority 275 (99.30%) have given birth and about half 139 (50.20%) affirmed to have been able to reproduce after been diagnosed with diabetes.

Variable	Frequency	Percentage
Health Condition that led to present state		
Overweight	29	10.50
Hyperglycemia/Pre-diabetes	211	76.20
Hereditary	15	5.40
Excessive Urination	22	7.90
Time of Diagnosis		
Less than 6 months	17	6.10
Last 6-12 months	18	6.50
Last 1-2 years	66	23.80
Over 3 years	176	63.50
Have you given Birth before		
Yes	275	99.30
No	2	0.70
Have you been able to reproduce after diabetes diagnosis		
Yes	139	50.20
No	138	49.80

Table 2: *Health characteristics of the respondents.*

Fears and concerns of diabetes patients as it relates to the expression of their sexuality

According to table 3 below, most of the respondents 271 (97.80%) affirmed not to have any difficulty with sexual activity before diabetes diagnosis while majority affirmed not to have any idea of how diabetes would affect them sexually and majority 243 (87.70%) also affirmed that despite having diabetes they think they would still be able to have an active sex life. Furthermore, majority 271 (87.80%) said they will not be rejected if they initiate sexual intercourse with their spouse while 217 (78.30%) of the respondents affirmed that no health worker have talked to them about any sexual problem they might encounter because of the disease and majority 272 (98.20%) affirmed to have discussed sexual life with their spouse after diagnosis with diabetes.

Most of the respondents from all age groups affirmed that they are currently dissatisfied with their sexual life. Thus, showing the effect of diabetes in the sexual and reproductive life of the respondents. Furthermore, this relationship between the ages of the respondents and their satisfaction with their sexual life was significant at $P < 0.05$ (Table 4).

As shown in table 5 below, respondents who were diagnosed less than a year ago agreed to still have desire for sexual intercourse as before, while respondents diagnosed over a year ago had less desire for sexual intercourse. Furthermore, there was a significant relationship between the time of diagnosis of diabetes among the respondents and their desire for sexual intercourse at $P < 0.05$.

Variable	Frequency	Percentage
Did you have any difficulty with sexual activity before diabetes diagnosis		
Yes	6	2.20
No	271	97.80
If yes can you describe what it was		
Low Performance	6	100
Do you have any idea how diabetes will affect you sexually		
Yes	76	27.40
No	201	72.60
If yes how		
Erectile Dysfunction	41	53.90
Low Libido/Sexual Desire	9	11.80
Dropped Performance	26	34.20
Now that you had diabetes, do you think you will never be able to have an active sex life again		
Yes	34	12.30
No	243	87.70
Do you think you might be rejected if you initiated sexual intercourse with your spouse		
Yes	6	2.20
No	271	97.80
Has any health worker talked to you about any sexual problem you might encounter		
Yes	60	21.70
No	217	78.30
Have you discussed sexual life with your spouse after you had diabetes		
Yes	272	98.20
No	5	1.80
To what extent has your sex life has been adversely affected		
Not at all	7	2.50
A little	21	7.60
A moderate amount	151	54.50
Extremely	98	35.40
How satisfied are you with sexual life		
Dissatisfied	234	84.50
Neither Satisfied nor Dissatisfied	40	14.40
Satisfied	3	1.10

Table 3: *Fears and concerns of Diabetes patients as it relates to the expression of their sexuality.*

Discussion

We investigated the Post-Diabetes Sexual and Reproductive Health needs of male type-2 diabetes mellitus patients in Tertiary Facility in Nigeria. The findings of the study showed that majority of the respondents were hyperglycaemic with few been overweight and expe-

Age (Years)	How satisfied are you with sexual life			Chi-Square	df	Sig.
	Dissatisfied	Neither Satisfied or Dissatisfied	Satisfied			
30 - 39	16 (5.80%)	4 (1.40%)	0 (0.0%)	74.160	8	0.000
40 - 49	54 (18.50%)	5 (1.80%)	0 (0.0%)			
50 - 59	95 (34.30%)	6 (2.20%)	0 (0.0%)			
60 - 69	57 (20.60%)	6 (2.20%)	3 (1.10%)			
70 - 79	12 (4.30%)	19 (6.90%)	0 (0.0%)			

Table 4: *Relationship between age of the respondents and their sexual satisfaction.*

Time of Diagnosis	Do you have desire for sexual intercourse now as before		Chi-Square	df	Sig.
	Yes	No			
Less than 6 Months	8 (2.90%)	9 (3.20%)	87.806	3	0.000
Last 6 - 12 Months	18 (6.50%)	0 (0.0%)			
Last 1 - 2 Years	16 (5.80%)	50 (18.10%)			
Over 3 Years	17 (6.10%)	159 (57.40%)			

Table 5: *Relationship between time of diagnosis and desire for sexual intercourse.*

riencing excessive urination. Further, most of the respondents were stale type-2 diabetes patients diagnosed more than three years ago. Furthermore, only few of the respondents affirmed to have sexual difficulty with low sexual performance before been diagnosed with diabetes mellitus. In addition, majority of the respondents have no idea of how diabetes mellitus would affect them sexually. This marks a major gap in knowledge as regards diabetes care. The respondents also corroborated the poor attitude of health workers to sexual issues of male diabetes patients by affirming that no health worker has spoken to them about sexual problems they might encounter. Further, most of the respondents affirmed that their sexual life have been moderately to extremely affected by diabetes mellitus.

Lack of glycaemic control among male type-2 diabetes mellitus patients have been associated with a myriad of sexual dysfunction problems such as erectile dysfunction [7-9], ejaculatory dysfunction [10-12], orgasmic dysfunction [8] and hypoactive sexual desire disorder [7-9]. The findings of the study affirming most of the respondents were stale type-2 diabetes patients diagnosed more than three years ago. Duration of diabetes and overweight/obesity has been shown to be a risk factor for the development of erectile dysfunction among male diabetic patients [8,13-18]. This was substantiated by the study as duration of diagnosis has a significant relationship with desire for sexual intercourse with decrease in desire occurring more among respondents with longer diagnosis period. The decline of fertility among the respondents probably highlights the link between diabetes mellitus and infertility among male diabetes mellitus patients; as studies have shown diabetes mellitus prevalence was closely associated with decline of fertility [19,20]. The study also highlighted the possible link between DM and sexual performance. Although, diabetes mellitus is the main cause of sexual dysfunction among males, other highlighted causes includes low testosterone levels, prescription drugs, blood vessel disorders, smoking and alcoholism and drug abuse [21]. Thus, the respondents experiencing low sexual performance could be attributed to any of the under listed or other causes.

Majority, of the respondents affirming to having no idea of how diabetes mellitus would affect them sexually marks a major gap in knowledge as regards diabetes care. Thus, appropriate measures must be put in place in ensuring the mitigation of the long term effect of diabetes mellitus among the respondents. Apart from the lack of knowledge of how diabetes mellitus would affect male diabetes mellitus

patients, health care providers who are suppose to be the custodian of these patients often does not show interest in the sexual functionality of male diabetes patients [22]. This often results in under diagnosis of the problem as most patients might be reluctant or embarrassed to initiate issues about their sexual health. This was upheld by a study which reported only 31% of men with erectile dysfunction survey discussing their sexual problems with many of them explaining they are often embarrassed; having low self-esteem and preferring to take herbal medications [23].

The respondents also corroborated the poor attitude of health workers to sexual issues of male diabetes patients by affirming that no health worker has spoken to them about sexual problems they might encounter. Substantiating the poor knowledge of how diabetes would affect the respondents further only few 34 (12.30%) of the respondents knew the impact of diabetes mellitus on their sexual life. Culturally, in Africa it is a taboo or an abomination for a wife to reject the sexual advances of their spouses whenever they initiate sexual intercourse. Therefore, many are always confident that despite their low sexual performance they cannot be rejected by their spouse. Consequently, it is not surprising that despite majority of the respondents affirming to be dissatisfied with their sexual life, they cannot be rejected by their spouse if they initiate sexual intercourse.

Further, most of the respondents affirmed that their sexual life have been moderately to extremely affected by diabetes mellitus. In addition, majority of the respondents affirming to have discussed their sexual life with their spouse after having diabetes should serve as an encouragement which could be explored further as understanding of sexual problem associated with diabetes mellitus is necessary for both men and women to maintain sexual harmony in the home. Dissatisfaction with sexual life significantly cut across all age groups. Hence, showing the effects of diabetes mellitus in the sexual and reproductive health life of male diabetes patient.

Implications of the findings on diabetes care

The study highlighted the fears and concerns of male type-2 diabetes patients as it concerns their sexual and reproductive health. There was lack of knowledge of the effect of DM on the sexual health of the respondents including the fact that as affirmed by the respondents that no health workers as talked to them on the effect of DM on their sexual life. The implication of these findings as it concerns diabetes care is that male DM patients would continue to experience sexual problems without really knowing what to do to mitigate these sexual challenges. Thus, most might shift to herbal remedies as a way out of their sexual predicament which is usually common in the study area.

Limitation of the Study

The study relied solely on the responses of the respondents in drawing inferences which could be subject to bias. Furthermore, the study did not control for possible confounders in assessing the fears and concerns of the respondents as it concerns their sexuality.

Conclusion

The study highlighted the sexual unmet needs of the respondents. Some of the respondents were already experiencing sexual problems like erectile dysfunction and low libido/sexual desire including having no idea of how diabetes would affect them sexually. In addition, most of them affirmed that no health worker has talked to them about the sexual problem they might experience due to diabetes mellitus with majority affirming that they are dissatisfied with their sexual life.

Therefore, to address these needs:

- Diabetes patients should be encouraged to attain normal glycaemic control so as to prevent or delay the onset of complications.
- Health workers should ensure sexuality counseling as part of their counseling sessions during diabetes clinic days.
- The government should channel more resources into diabetes care programs to improve the quality of life of patients.

Declaration of Interest

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The authors report no conflict of interest.

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