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The Care Seeking Behavior of Diabetic Patients with Erectile Dysfunction in Cameroon

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Abstract

Background: Diabetes mellitus (DM) is one of the leading causes of Erectile Dysfunction (ED) in men of all ages. The unawareness, coupled with common myths surrounding ED, confound the attempts of patients to seek and receive treatment and the attempts of doctors to help them. **Objective:** The study was aimed to assess the quality of care sought and received by Diabetic patients with ED. **Methods:** A cross-sectional hospital-based study was carried out in the Diabetic Units of the Limbe and Buea Regional Hospitals involving 322 male diabetic patients and aged over 21 years. Data analysis was done using Stata and R version 3.5.3. **Results:** The mean age of the participants was 55 years with a prevalence of ED of 78.92%. Only 37.40% of participants with ED sought care for it. Main barriers to care-seeking were health ignorance, health misinformation and fear of stigma. Majority (85.71%) of those who sought care sought medical care. Respondents correctly informed about diabetic ED and those regularly screened by their physician were more likely to seek medical care over non-medical care ($p = 0.0021$, $p = 0.0013$). Those who sought medical care reported higher improvement in ED symptoms over those who sought non-medical or combined forms of care ($p = 0.0183$). **Conclusion:** Both physician and patient-initiated measures are needed to reduce the prevalence and improve awareness, recognition and medical care of this condition.

Keywords

Erectile Dysfunction, Diabetes Mellitus, Quality of Care

1. Introduction

Erectile dysfunction (ED), also known as impotence, is the inability to initiate and or maintain an erection that is sufficient enough to perform a satisfactory sexual intercourse, affecting over 15% of men of reproductive age each year [1]. Diabetes mellitus (DM) is one of the leading causes of ED in men of all ages; increasing the risk to develop ED by fourfold, with diabetic patients experiencing the onset of ED 10 - 15 years earlier than their non-diabetic counterparts [2]. Sexual (including erectile) dysfunction remains one of the leading causes of the poor quality of life experienced by patients with diabetes [3]. This is expected; given that ED (as well as other problems of sexual function) have a profoundly negative effect on the mental, reproductive and psychological health of the individual, as well as his social relationships.

Globally, the prevalence of ED among diabetic patients ranges between 35% - 90%. With higher prevalence recorded in some African countries, such as 72% in Nigeria [4], Ethiopia 69.9% [5], and Tanzania 55.1% [6]. In all identified cases of ED in some of these countries, over 50% had severe forms of ED [4]-[6]. This high prevalence results in a high number of diabetic patients living a compromised quality of life.

Despite this burden, ED remains relatively under diagnosed among diabetic patients. Due to the sensitive nature of ED, some patients may feel reluctant or uncomfortable to disclose it to their doctors, especially if they must initiate the discussion. Studies however reveal that these patients would love their healthcare provider to initiate the conversation about ED [5]. Unfortunately, this is not the case as many doctors do not routinely inquire about ED while consulting diabetic patients [7]. Consequently, many cases go undiagnosed and aggravate to more severe forms in the absence of targeted medical intervention.

In a study to done to assess Knowledge, Attitudes and Practice (KAP) in Bangladesh, a setting socioeconomically similar to ours, only about half (51.3%) of the diabetic patients had knowledge on ED as a complication of diabetes [8]. This low level of awareness, together with common myths surrounding ED, confound the attempts of patients to seek and receive treatment and the attempts of doctors to help them [9]. This unawareness also negatively influences the kind of care patients seek for ED, especially in settings like ours where there are popular and commonly employed alternatives to modern medicine in the treatment of diseases [10].

Frequently occurring among diabetic patients is the cohabitation of co-morbidity contributors to ED like hypertension, dyslipidemia and cardiac disease. These, in addition to the adverse effects of ED on mental health, self-esteem and partner relationship, necessitate multidimensional and multi-therapy care for optimal management of ED in diabetic patients. Unfortunately, there is relative unavailability of specialist care in our setting, especially in the rural areas where most diabetic patients are followed by general practitioners or nurses. There is also limited data on the various aspects of care of diabetic ED.

It is therefore necessary that studies be done to assess the quality of care sought and received by diabetic patients with ED, along with the factors influencing this care-seeking. This study aims to assess aspects of care sought and received by those aware of or diagnosed with this condition.

2. Method

2.1. Study Design and Setting

This was a hospital based cross-sectional study conducted at the diabetic units of the Limbe and Buea Regional Hospitals Southwest Region of Cameroon.

2.2. Study Population

The study population included adult diabetic male patient (>20 years) attending diabetic clinic at the Buea and Limbe Regional Hospital diagnosed with ED.

2.3. Sample Size and Sampling Method

Sample size is calculated using the WHO-steps method.

$$n = \frac{z^2 p(1-p)}{d^2}$$

where: n = minimum sample size, z = the standard normal variant at a confidence interval of 95% (standard value of 1.96), p = prevalence of ED among diabetic patients 41.5% [4], d = the margin of error (0.05).

$$n = \frac{(1.96)^2 (0.41)(059)}{(0.05)^2}$$

A total of 322 which is the minimum sample size were enrolled into the study, which were selected using a convenient sampling method.

2.4. Recruitment of Participants

Potential study participants were approached consecutively in the diabetology and in-patient units of the hospitals. The study's purpose, procedure, risks and benefits were explained to each one in a language they best understood. An information notice about the study was given to the potential participant. They were allowed to ask any questions they had, after which they signed a consent form to participate in the study.

Eligible diabetic patients were invited to complete the structured self-administered questionnaire in the waiting hall. The questionnaire was made up of three parts; Sociodemographic, medical and biological characteristics, A validated questionnaire to assess erectile dysfunction (The International Index of Erectile Function (IIEF)) adopted from [11] and Part three which focused on the assessment on the quality of care sought, care received, effectiveness of care, barriers to care-seeking and rate of physician inquiry. All questionnaires were marked by chronological numbers to check for missing or no return cases. The number of patients

approached, reason for exclusion, the number of refusals, and the number of questionnaires distributed and returned were recorded.

The quality of data was assured through a careful design of the questionnaire. Data collectors and supervisors were also trained on the purpose of the study, the detailed content of the questionnaire, the data collection procedure, participant selection, and the rights of study participants within the umbrella of research ethics. Supervisors checked the collected data for completeness and consistency throughout the data collection period.

2.5. Data Management and Analysis

Data obtained was analyzed using Stata and R version 3.5.3. The IIEF questionnaire which addresses and quantifies five domains: erection function, orgasmic (ejaculation) function, sexual desire (libido), intercourse satisfaction (ability to sustain intercourse), and overall satisfaction/premature ejaculation domains. It classifies individual sexual function domains into mild, moderate or severe form depending on scores. Prevalence was calculated by dividing the number of patients found to have ED (IIEF score ≤ 21) by the total number of patients sampled.

The type of care sought was calculated by getting the frequency of each care type (medical or non-medical) by those who sought care. Using Pearson's chi-squared test, each care type was evaluated for association with ED improvement. Proportion of care-seekers was calculated by dividing the number of those sought care by the total number of men who experienced ED. Medical care-seeking behavior was then compared to patient awareness of diabetic ED and frequency of physician screening for any associations using chi-squared test. Barriers to care–seeking were calculated by tallying the reported reasons why those with ED had not sought care.

3. Results

3.1. Socio-Demographic Characteristics

The ages of the 332 participants enrolled in the study ranged between 21 and 76 years, with a mean age of 55 years. Most participants (64.46%) were married and 75.30% of them were Christians. One third were retired (30.12%) while close to half (42.77%) of the participants earned over 100,000 CFA francs a month (Table 1).

Table 1. Sociodemographic characteristics of participants.

Characteristics	Category	Frequency (n)	Percentage (%)
Marital status	Married	214	64.46
	Single	44	13.25
	Divorced	38	11.45
	Widowed	36	10.84

Continued

Religion	Christianity	250	75.30
	African traditional religion	24	7.23
	Islam	18	5.42
	Others	40	12.05
Level of education	Tertiary	116	37.35
	Secondary	124	34.94
	Primary	86	25.90
	No formal education	6	1.81
Occupation	Retired	100	30.12
	Agriculturist	54	16.27
	Student	24	9.23
	Technician	14	4.22
	Other	140	42.16
Monthly income (XAF)	<100,000	142	42.77
	50,000 - 100,000	126	37.95
	<50,000	64	19.28

3.2. Clinical Characteristics

The majority of participants (290 participants, 87.35%) had type 2 DM (Figure 1), with the duration of disease between 2 - 5 years being the most frequent. About a third of participants (31.07%) were on one or more other drugs such as anti-hypertensives, traditional therapy, highly active anti-retroviral drugs (HAART) or others (aspirin, statins, antacids) besides their routine anti-diabetic medications. 54.32% of participants had at least one chronic disease, with retinopathy and hypertension being the most frequent (Table 2).

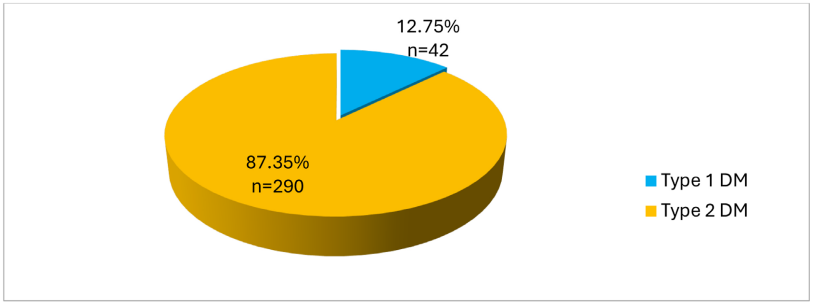

Figure 1. Diabetes mellitus type among participants.

Table 2. Clinical characteristics of participants.

Variable	Sub type	Frequency (n)	Percentage (%)
DM duration	<1	60	18.07
	2 - 5	138	41.57
	>5	134	40.36

Continued

Other drug use	**YES**	**N = 106**	**31.93**
	Anti-hypertensives	54	51.92
	Traditional therapy	44	42.31
	HAART	2	1.92
	Others	6	3.85
Other drug use	**NO**	**N = 226**	**68.07**
Chronic disease	**YES**	**N = 180**	**54.32**
	Hypertension	80	24.10
	Retinopathy	100	30.12
	CKD	14	4.22
	Others	80	24.10
	NO	**N = 152**	**45.78**
	Total	332	100.0

3.3. Biological Characteristics

The majority of the participants were overweight (43.90%). 71.69% had normal blood pressure, 68.67% had elevated blood sugar and 64.55% had elevated glycated haemoglobin (Table 3).

Table 3. Biological characteristics of ED in study population.

Variable	Subtype	Frequency	Percentage (%)
BMI	Underweight	6	1.81
	Normal	132	39.76
	Overweight	146	43.90
	Obese	48	14.73
Blood pressure	Normal	238	71.69
	Elevated	94	28.31
Blood sugar	Normal	104	31.33
	Elevated	228	68.67
Glycated haemoglobin	Normal	116	35.15
	Elevated	214	64.55
	Total	332	100.00

Of the 332 participants, 262 participants had ED *i.e.* reported an IIEF score of 21 or less, which correlates to prevalence of 78.92%, at a 95% confidence interval and within a 6.21% error margin (Figure 2). Among those who had ED, the majority had mild to moderate ED, followed by mild, moderate then severe ED (Figure 3).

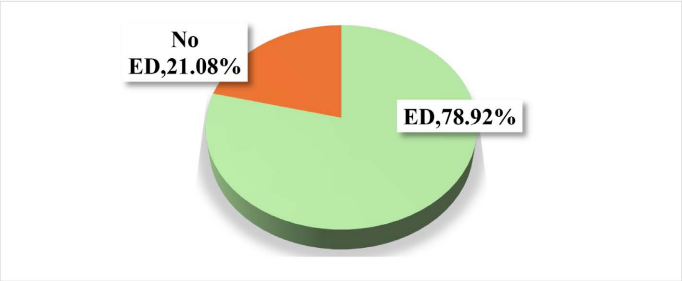

Figure 2. Prevalence of ED.

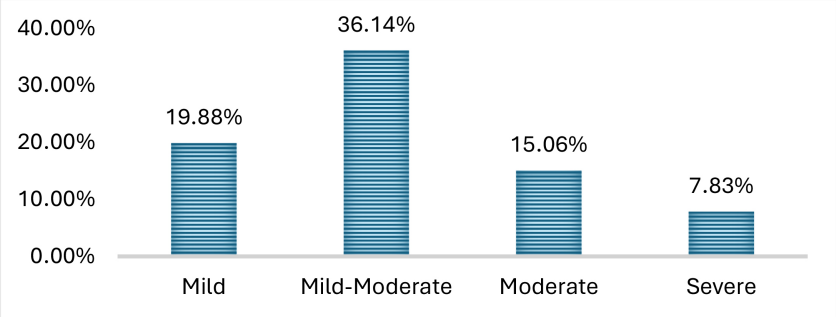

Figure 3. ED severity types.

3.4. Care of Erectile Dysfunction in the Study Population

Out of the 262 respondents with ED, only 98 (37.40%) had sought care for ED (**Figure 4**).

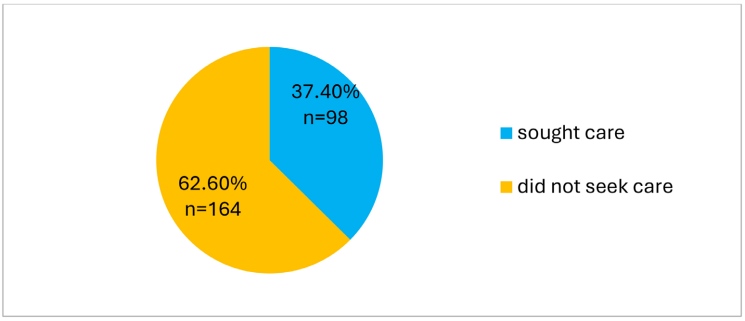

Figure 4. Percentage of impotent patients who had sought care.

Table 4. Association n between care type received and degree of improvement.

Care type received	Symptoms did not improve	Symptoms partially improved	Symptoms improved to normal
Non-medical care	2.428571	3.285714	1.2857143
Hybrid care	3.122449	4.224490	1.6530612
Some medical care	9.714286	13.142857	5.1428571
All medical Care	1.734694	0.19939	0.0183673

Of the 98 who had sought care, 84 (85.71%) had sought principally medical care, while 14 (14.29%) had sought non-medical care. The type of care each finally received was grouped into four to aid analysis. Respondents either received All Medical Care (glycemic control, specific ED medications and psychosexual counseling), Some Medical Care (either glycemic control, specific ED medications or counseling), Hybrid Care (received both medical and non-medical care) or non-medical Care (Table 4).

3.5. Influencers and Barriers to Medical Care-Seeking

Respondents who had correct knowledge of ED as a diabetic complication were more likely to seek medical care, as well as those who were regularly screened for ED by their healthcare provider ($\chi^2 = 57.27$, p = 0.0021) (Table 5).

Table 5. Association between ED as a diabetic complication, screening for ED and medical care seeking behavior.

Variable	Frequency n = 84	Chi-square (χ^2)	p-value
Correct knowledge on diabetic ED	48	57.27	0.002122
Incorrect knowledge on diabetic ED	29	35.54	12.311254
No knowledge on diabetic ED	7	7.23	2.929744
Regularly screened for ED	16	18.67	0.001323
Not regularly screened for ED	68	81.33	0.397173

Most of the respondents (164 respondents, 85.71%) had not sought care for ED, even though they experienced it. Fear of stigma, ignorance of health information and health misinformation were the leading barriers that prevented patients with ED from seeking care (Table 6).

Table 6. Barriers to care seeking.

Variable	Reason	Frequency	Percentage (%)
Respondents with ED who had not sought care	Fear of stigma	34	20.73
	Perceived normal for age	34	20.73
	Perceived incurable	34	20.73
	Perceived non-medical	12	7.32
	Perceived Asymptomatic	30	18.29
	Others	20	12.20
	Total	164	100.00

3.6. Physician Inquiry (Screening) for ED

Of the 332 participants in the study population, about half had never been screened for diabetic ED during routine follow-up visits to their healthcare provider (Table 7). Physicians were more likely to screen younger patients (Figure 5)

and those who had previously sought care for ED. Almost all the patients (92.68%) said they would like their providers to inquire about ED (Table 8).

Table 7. Healthcare provider-initiated screening for ED.

Variable	Subtype	Frequency	Percentage (%)
Healthcare provider inquiry about ED	Never	186	56.02
	Sometimes	120	36.14
	Always	26	7.84

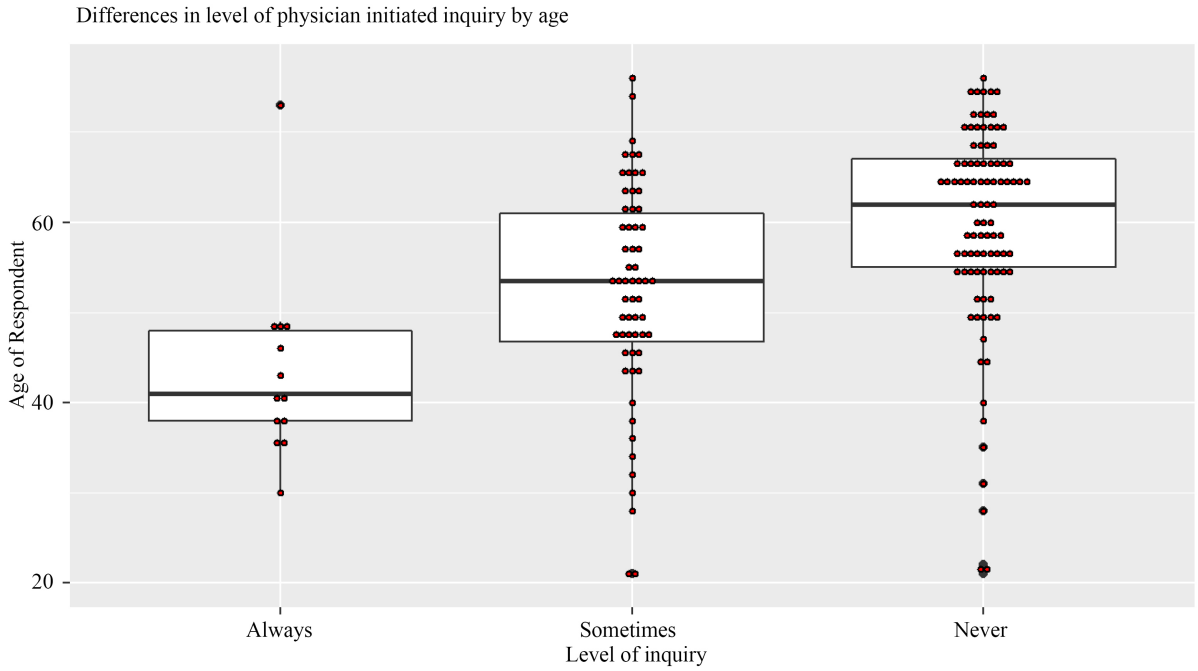

Figure 5. Differences in physician screening for ED by patient's age.

Table 8. Participant desire for physician inquiry.

Variable	Subtype	Frequency	Percentage (%)
Participant desire for physician inquiry	Yes	304	92.68
	Sometimes	22	6.71
	No	2	0.61
	Total	332	100.00

4. Discussions

4.1. Prevalence of Diabetic ED

ED is a diabetic complication affecting sexual, reproductive, physical, mental health and overall quality of life. In this study, we sought to determine the prevalence of ED among diabetic patients and the type of care sought, within the population of diabetic patients who attend the Limbe and Buea Regional hospital of

the 332 participants enrolled in our study, 262 (78.92%) had ED. This prevalence was within the reported global range of 30% - 90%. The high value is similar to the results of other studies carried out in Ethiopia, Nigeria, Iran and other parts of the world [4] [5] [11] [12]. It is however lower than the 95% prevalence recorded by Kemp *et al.* [6] in South Africa. This difference could be because the latter carried out their study at a tertiary hospital, more likely to have patients with advanced complications of the disease. Also, their population was predominantly older (mean age = 62 years) compared to ours (mean age = 55 years).

Concerning the differential types of ED according to severity, our study revealed that the majority of men with ED had mild-moderate and mild disease, while the minority had moderate and severe ED. This corroborates the findings of Seid *et al.* [5] but is opposite to what Kemp *et al.* [8] reported. In the latter's study, the majority of diabetic men with ED had severe ED. The fact that the latter's study population was dominated by older participants could equally explain this difference.

4.2. Aspects of Care of Diabetic Erectile Dysfunction

Our study identified a low proportion of ED patients who sought care. This was the same result reported by Seid *et al.* [5]. The barriers to care-seeking were health ignorance (*i.e.* respondents were not aware that ED was a diabetic complication, or knew it was but thought it incurable), health misinformation (respondents said ED is not a diabetic complication) and fear of stigma. Stigma was more likely a preventive factor among younger patients, while health ignorance and misinformation where the barriers to care-seeking amongst older respondents, according to our study.

Rahaman *et al.* [7] reported similar levels of knowledge of diabetic ED (50%) among a diabetic population in Iran and identified that poor knowledge of DM and its complications had a negative effect on care seeking behaviours; because patients neither knew how to identify the problem, associate it with a cause or know how and where to seek proper treatment. This was reflected by our study, in that, patients who had correct information on diabetic ED were more likely to seek medical care (the recommended standard of care), over non-medical care for their symptoms.

Sexual health issues have been widely reported to be associated with a high degree of stigma because they are sensitive, requiring high confidentiality and zero judgement from the healthcare team. In the cases where patients are not confident in the team to demonstrate these ethics, stigma will prevent them from seeking care hence prolonging the burden of the disease.

Another aspect of care analyzed by our study was physician-initiated care; the rate, the trends and the influence on care-seeking behaviour. Over half of the respondents (56%) had never been screened for diabetic ED by their healthcare provider. Similar results were reported by Berradi *et al.* [11]. In our setting, possible explanations for this could be low health provider/patient ratios, which decrease

the time and efficacy of the service available to each patient by their healthcare provider. The sensitivity of the issue could also account for physician reluctance.

Our study revealed a directly proportional relationship between physician screening and positive care-seeking behaviour. It also revealed that physicians have a higher tendency to screen younger patients over older ones, even though ED is known to be more prevalent in the old. This could be because they judge sexual function to be a more dire need (reproductive needs, higher demand for partner satisfaction) in a younger patient than in an older one.

Even though they reported that it wasn't the case, almost all respondents wanted their healthcare providers to regularly ask them about ED symptoms during follow up visits and consultations, revealing that physician screening can be practiced as an affective and patient-friendly method to identify diabetic ED, giving room for prompt management and better QoL in these patients.

5. Limitations

As some of the limitations of this study, we did not delve into the details of what kind of medical or non-medical care the patient sought. Leaving a gap in understanding the specific needs of the population being examined. A cross-sectional study of this nature relying on the participants recall of events is prone to recall bias. Caution should be taken upon generalization of research findings given the nature of cross-sectional studies.

6. Conclusion

Among male patients with diabetes at the Limbe and Buea Regional Hospitals, this study identified that; The prevalence of diabetic ED in our hospital population is 78.92%, with, 36.14% being mild-moderate, and 7.83% being severe. Only 37.40% of participants with ED sought care for it. The main barriers to care-seeking were health ignorance, health misinformation and fear of stigma. Those who were correctly informed about diabetic ED and regularly screened were more likely to seek medical care over non-medical care. From this study thus, we realize that most of the factors that contribute to the suboptimal care of diabetic ED, such as, poor health seeking behaviour and a lack of physician inquiry are modifiable and bidimensional. This tells us that collective effort (both patient and physician-initiated effort) is required to reduce prevalence and improve awareness, recognition and care of diabetic ED.

Availability of Data and Materials

All the data and supporting files are in the articles.

Ethical Approval and Consent to Participate

The study was performed in accordance with the Declaration of Helsinki and approved by appropriate ethics committee. Ethical clearance obtained from the Faculty of Health Sciences Institutional Review board of the University of Buea.

Informed consents were obtained from participants prior to data collection. All data were anonymized before the authors received the data. All methods were performed in accordance with the relevant guidelines and regulations.

Conflicts of Interest

The authors declare that they have no competing interests.

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Abbreviations

ED: Erectile Dysfunction.
DM: Diabetes Mellitus.
IIEF: International Index of Erection.
BMI: Body Mass Index.
HbA1C: Glycated Hemoglobin.
CI: Confidence Interval.
SBP: Systolic Blood Pressure.
QoL: Quality of Life.