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Original Research Article

Oral health-seeking behaviour of persons living with diabetes mellitus attending a tertiary hospital in South West Nigeria

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ABSTRACT

Background: Diabetes mellitus is associated with a wide array of oral health complications with research revealing a high prevalence of oral health issues among diabetic individuals. This study evaluated the oral health-seeking behavior (OHSB) and awareness of oral complications associated with type 2 diabetes mellitus (T2DM) among patients diagnosed with T2DM.
Methods: A cross-sectional study was conducted involving 158 T2DM patients. Using interviewer-administered questionnaires, information was collected on participants' awareness of the relationship between T2DM and oral health, their perceived importance of seeking dental care, and their dental visit history since diagnosis.
Results: Only 30.4% of respondents were aware of a connection between T2DM and oral health, with 28.5% recognizing that poor glycemic control could exacerbate gum disease. Approximately half of the respondents (51.9%) understood the importance of regular dental check-ups for individuals with diabetes, while 41.1% were unaware of its significance. A large majority (82.9%) had never been informed by their physician about the need for regular dental check-ups. Dental visits were infrequent, with 43% having visited a dentist post-diagnosis and only 20.3% within the past year.
Conclusions: T2DM patients demonstrate inadequate awareness of oral health complications and poor OHSB. Enhanced collaboration between physicians and dentists is necessary to improve referrals and oral health education, potentially mitigating oral complications in this vulnerable population.

Keywords: Dental visits, Diabetes mellitus, Oral complications, Oral health-seeking behavior

INTRODUCTION

Diabetes mellitus (DM) is both a cardiovascular and metabolic disease that is progressive if adequate care is not given to persons living with diabetes (PLWD). The severity and duration of hyperglycaemia are closely associated with the risk of developing diabetes-related complications.[1] These complications can affect various organ systems, including the oral cavity.[1-3] The underlying mechanisms for these oral complications are multifaceted, potentially involving impaired immune function, altered collagen metabolism, microvascular changes, and neuropathy.[2]

Diabetes mellitus is associated with a wide array of oral health complications, encompassing inflammatory conditions such as chronic periodontitis and gingivitis, as well as dental caries, mucosal changes, and sensory disturbances.[4] In the Nigerian context, research has revealed a high prevalence of oral health issues among diabetic individuals, with gingivitis being particularly widespread, followed by periodontitis and tooth loss.[5]

Importantly, researchers have observed an inverse correlation between glycaemic control and the severity of oral manifestations in diabetes mellitus.[1]

Health-seeking behaviour (HSB) is a crucial concept encompassing the various actions individuals take- or choose not to take- when they believe they are experiencing health issues. This behaviour extends beyond merely seeking medical attention and includes efforts to maintain wellness and prevent illness.[6] For people living with diabetes, oral health-seeking behaviour is particularly important due to their increased risk of oral complications. Studies suggest that about half of PLWD acknowledge the necessity of regular dental consultation, with just over half of them reporting having a dental check-up within a year's time.[7,8]

The interrelationship between oral health and quality of life (QoL) has garnered significant attention in recent years, particularly in the context of chronic diseases such as diabetes mellitus (DM). Within this broader framework, oral health-related quality of life (OHRQoL) has emerged as a crucial consideration for individuals managing diabetes.[9] The significance of OHRQoL in this population stems from the wide-ranging oral manifestations associated with DM, which can profoundly impact daily functioning and overall well-being.[10] However, it is important to note that the relationship between diabetes, oral health, and quality of life is complex and may vary across different populations and contexts.[9]

Effective management of oral health complications in diabetes necessitates a two-pronged approach: achieving and maintaining good metabolic control, and engaging in regular dental check-ups. The latter is particularly crucial for early detection and prompt treatment of oral issues. Despite the heightened risk of oral complications in this population, there has been limited research examining the oral health-seeking behaviour among individuals with diabetes in Nigeria. This knowledge gap presents a significant barrier to developing targeted interventions and improving oral health outcomes in this vulnerable group.

To address this research deficit, the present study aimed to investigate the oral health-seeking behaviours of PLWD attending a tertiary hospital in south west Nigeria. By elucidating the determinants of oral health-seeking behaviours among diabetic patients, this research may facilitate the development of more effective, patient-centred strategies for improving oral health outcomes and, by extension, overall quality of life in this population.

METHODS

A cross-sectional study was conducted from September, 2024 to February, 2025 among adult patients attending the diabetes out-patient clinic of the department of medicine, Lagos University Teaching Hospital (LUTH); a tertiary institution in Lagos, Nigeria. Patients below 18 years and those who had not commenced glucose lowering agents were excluded from the study.

A study showing that around 10.5% of people living with diabetes will self-medicate instead of consulting a dentist when they have pain or swelling in the mouth8 was used to inform the sample size. Using a confidence interval of 95% and a margin of error of 5%, a total of 144 participants were required. Allowing for 10% missing data, a sample size of 158 was required for this study.

A systematic sampling technique was used to recruit 158 (sample size) participants for the study using a sampling interval of 2 [400 (estimated respondents in two months of data collection since 50-70 patients are seen per week) / 158 (sample size)]. Every second consenting patient was recruited selected and interviewed using pretested questionnaires, after written informed consent was obtained.

The questionnaire elicited information on sociodemographic characteristics such as age, gender, marital status and level of education. Additionally, the questionnaires assessed information related duration of DM diagnosis, anti-diabetes medications and glycemic control parameters (most recent glycated haemoglobin-HbA1C result) were documented. Questions related to the perceived association between diabetes and oral health were also documented. The oral health-seeking behaviour was assessed using questions related to perceived importance for patient with diabetes to seek dental care, if they had ever had a dental-check-up and timing for last dental visit since diagnosed with type 2 DM, reasons for seeking dental care and reasons for not seeking dental care. The oral health-related quality of life (OHRQoL) was assessed using oral health impact profile (OHIP-14).

Ethical approval was obtained from the Health Research Ethics Committee of the Lagos University Teaching Hospital. One hundred and fifty eight questionnaires were adequately filled and analyzed using SPSS version 25. Continuous variables like age, duration of diagnosis and glycated hemoglobin level were summarized using means and standard deviation. Qualitative variables such as gender and medication types were expressed as proportions and percentages. Pearson's Chi-square test was used to assess the association between the independent variables and the outcome variables using significance level of 5% ($p<0.05$).

RESULTS

A total of 158 respondents were recruited for this study. The mean age (SD) of respondents is 62.35 (10.76) years. Gender distribution in this sample indicates a majority of female respondents constituting 61.4% of the group while males make up 38.6%. Age distribution reveals majority

(60.1%) of respondents within the 60-79 age bracket (Table 1).

Table 1: Sociodemographic profile of respondents (n=158).

Variables	N	%
Age (years)		
20-39	1	0.6
40-59	57	36.1
60-79	95	60.1
80-99	5	3.2
Gender		
Female	97	61.4
Male	61	38.6
Highest level of education		
None	6	3.8
Primary	19	12.0
Secondary	51	32.3
Tertiary	72	45.6
Postgraduate	10	6.3

Table 2: Medication profile of respondents: antidiabetic and concomitant medications (n=158).

Variables	N	%
Antidiabetic medication		
Biguanides	135	85.4
Sulfonyl ureas	68	43.0
DPP-4 inhibitors	72	45.6
SGLT-2 inhibitors	26	16.5
Insulins	35	22.2
Others	6	3.8
Other medications used with antidiabetics		
Statins	108	68.4
Antihypertensives	127	80.4
Anti-platelet agent	21	13.3
Pain relievers	17	10.8
Supplements	12	7.6
Others	9	5.7
None	6	3.8

The mean duration of diabetes mellitus diagnosis is 140.49 (110.84) months. The most commonly used anti-diabetic medications are Biguanides (85.4%). The other medication most commonly used alongside antidiabetic medication are antihypertensives, being used by 80.4% of diabetic patients (Table 2). More than half of the participants (52.3%) had most recent glycated hemoglobin result to be greater than 6.5%.

Among the extraoral complications of diabetes mellitus, peripheral neuropathy was most prevalent, affecting nearly one-third (32.3%) of the participants. Ocular issues were also common, with cataracts and retinopathy occurring in 17.1% and 12.7% of cases respectively. Other complications included erectile dysfunction, chronic kidney disease, and cardiovascular problems, each affecting between 3.8% and 12% of the sample. Notably, a small percentage (0.6%) experienced blindness. Interestingly, more than one-third of the study population reported no extraoral diabetic complications.

Table 3: Diabetes-oral health awareness and referral practices among diabetic patients (n=158).

Variables	N	%
Awareness of relationship between diabetes and oral health		
Yes	48	30.4
No	20	12.7
I don't know	90	57.0
Gum disease worsens blood sugar control		
Yes	30	19.0
No	16	10.1
I don't know	112	70.9
Poor blood sugar control worsens gum disease		
Yes	45	28.5
No	7	4.4
I don't know	106	67.1
Regular dental check-up important for persons with diabetes		
Yes	82	51.9
No	11	7.0
I don't know	65	41.1
Referred to dentist by your doctor		
Yes	27	17.1
No	131	82.9

Only 30.4% of the respondents recognized that there was a relationship between diabetes and oral health (Table 3). While approximately half of the respondents (51.9%) understood the importance of regular dental check-ups for individuals with diabetes, a substantial portion (41.1%) remained uncertain. Notably, the vast majority (82.9%) reported never receiving guidance from their physicians about the necessity of routine dental examinations (Table 3).

Approximately 65% of the participants of this study brushed their teeth once daily, while 34.2% brushed twice daily and 1.3% reported not brushing at least once daily. The most common combination of oral hygiene tools used were toothbrush and toothpaste (88.6%), followed by a combination of toothbrush, toothpaste and chewing stick (10.8%). Only 0.6% of participants reported using only chewing stick for oral care.

Over half of the respondents (57%) had not sought dental care following their diabetes diagnosis. The primary reasons for this lack of dental visits included absence of perceived dental issues (72.2%), unawareness of the importance of dental care for persons with diabetes (25.5%), and, to a lesser extent, financial limitations (2.2%).

Among those who sought dental care post-diagnosis, only 20.3% had done so within the year. For these recent dental visits, routine check-ups and teeth cleanings (50%) were the most common reasons, followed by addressing acute dental pain (31.3%), treating fractured teeth (15.6%) and obtaining dental prostheses (3.1%).

Table 4: Mean oral health impact profile -14 scores assessing oral health-related quality of life in patients with type 2 diabetes mellitus.

Domain	Mean (SD)
Functional limitation	0.19 (0.67)
Physical pain	0.78 (1.02)
Psychological discomfort	0.22 (0.68)
Physical disability	0.27 (0.7)
Psychological disability	0.22 (0.69)
Social disability	0.13 (0.47)
Handicap	0.10 (0.43)

Analysis of the oral health impact profile (OHIP-14) revealed a vast majority (93.7%) of participants reporting low impact of oral health on their quality of life. The physical pain domain scored highest, while the handicap domain scored lowest (Table 4).

Notably there was no statistically significant association between oral health seeking behaviour and glycemic control, as determined by dental visit history and HbA1c results, respectively ($p>0.05$).

DISCUSSION

The present investigation identified significant deficiencies in dental health awareness among diabetic participants, with merely 51.9% acknowledging the importance of routine oral examinations. Notably, 82.9% had never received physician counselling regarding dental care necessity. This inadequate referral pattern likely stems from healthcare provider knowledge deficits and limited inter-professional coordination. These observations align with Australian research demonstrating that only 12% of medical practitioners regularly addressed oral health concerns with diabetic patients, while a mere 8% consistently provided dental referrals.[12]

Our findings revealed suboptimal dental care utilization patterns, with 57.0% of diabetic participants reporting no dental visits post-diagnosis and only 20.3% seeking care within the preceding year. Among recent dental attendees, 50% pursued preventive services including routine examinations and prophylaxis. While overall dental utilization remains inadequate among T2DM patients, the predominance of preventive care-seeking among recent users indicates encouraging health behaviours within this subset. These results partially correspond with research from another southwestern Nigerian tertiary facility, where 50.3% of diabetic patients had previously accessed dental services. However, a notable disparity emerged in visit motivations, as only 4% of participants in that study pursued routine preventive care.[8]

This investigation demonstrated favourable oral health-related quality of life outcomes, with 93.7% of participants exhibiting minimal impact (OHIP-14 scores ≤14). Most respondents denied significant embarrassment or functional limitations related to oral health, though physical pain scores were highest among assessed domains. This apparent contradiction between clinical findings and perceived quality of life may reflect cultural attitudes that deprioritize oral health concerns. These results mirror Indonesian research where participants reported satisfactory oral health-related quality of life despite extensive tooth loss and maintained adequate masticatory function. Similarly, Indonesian subjects with acknowledged dental caries experienced minimal associated discomfort or social embarrassment.[9]

CONCLUSION

This study advances understanding of the complex relationship between diabetes management and oral health behaviours by revealing significant gaps in awareness, healthcare provider guidance, and preventive care utilization among diabetic patients, despite relatively favourable self-reported quality of life outcomes. The findings highlight critical disconnects between clinical needs and patient perceptions, emphasizing the necessity for structured oral health education programs, established referral protocols between diabetes and dental services, and integration of oral health assessments into standard diabetes care guidelines. Policy interventions should include financial incentives for preventive dental care among diabetic populations, while future research must evaluate integrated care models, identify barriers to preventive service utilization, and assess how enhanced oral health knowledge impacts long-term diabetes management outcomes.

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