ORIGINAL ARTICLE

Oral Health–Related Quality of Life among Diabetic Patients in a Tertiary Facility: A Comparative Study

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ABSTRACT

Background: Diabetic patients display an increased risk of oral disorders and reduced oral health-related quality of life (OHRQoL). This study aimed to compare the OHRQoL among diabetic and non-diabetic patients attending a tertiary health facility in Lagos State.

Methods: A descriptive comparative study involving 110 participants, each recruited from the Diabetes and Outpatient clinics in a tertiary hospital, using simple random sampling. An interviewer-administered questionnaire was used for data collection, which included socio-demographic characteristics, oral complaints, glycaemic control, periodontal status and Oral Health Impact Profile (OHIP-14) to determine the OHRQoL. Logistic regression analysis was used to determine the predictors of OHRQoL, and p-value was set at ≤ 0.05 for significance.

Results: The most commonly reported oral complaint was bleeding gums (55.5% in Diabetics, 20.0% in Non-Diabetics), while the least reported was bad breath/mouth odour (12.7% in diabetics, 2.7% in non-diabetics). The mean OHRQoL of the diabetic participants was 9.9 ± 12.3, which is higher than the 6.2 ± 8.8 for non-diabetics. This trend was consistent across all OHIP-14 subscales, with non-diabetics showing significantly lower mean OHRQoL in psychological discomfort (p = 0.004), psychological disability (p = 0.009), social disability (p = 0.013), and handicap (p = 0.001). Diabetic respondents also showed a higher negative impact on OHRQoL in healthy periodontal status, gingivitis, and periodontitis.

Conclusion: A significantly increased OHRQoL was observed in diabetics compared to non-diabetics. Therefore, routine oral health screening is advocated for all diabetic patients to ensure improvement in their overall quality of life and glycaemic control.

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INTRODUCTION

Diabetes Mellitus (DM) is a cluster of metabolic disorders characterized by hyperglycaemia resulting from the defect in insulin secretion, insulin action, or both and disturbances of carbohydrate, fat, and protein metabolism.[1] It has multiple complications, which includes neuropathy, cardiovascular issues, cataracts, erectile dysfunction, and oral health problems.[2] The relationship between diabetes and oral health is recognized as bidirectional, with each condition influencing the other. Poorly controlled diabetes can exacerbate oral health issues, while poor oral health negatively impacts glycaemic control.[3,4] People with diabetes, particularly those with poor glycaemic control, experience a high prevalence of oral complications, including periodontal diseases such as gingivitis, dental caries, oral ulcers, delayed wound healing, tooth loss, burning mouth syndrome, xerostomia, taste impairment, fissured tongue, benign migratory glossitis (geographic tongue), temporomandibular disorders, periapical lesions, oral candidiasis, and oral lichen planus.[3,5,6,7]

The prevalence of diabetes is globally estimated to be 9.3% in 2019,[8] while a meta-analysis by Uloko et al [9] reported a prevalence of 5.77% in Nigeria.

Oral health-related quality of life (OHRQoL) is a multifaceted concept that assesses the impact of oral health on an individual's overall well-being and quality of life. The World Health Organization Quality of Life (WHOQOL) group defines quality of life as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and about their goals, expectations, standards, and concerns[10]. It considers physical, psychological, and social dimensions, reflecting the influence of oral health conditions on daily life, emotional health, and social interactions. It encompasses various aspects of oral health, such as dental conditions, oral pain or discomfort, functional limitations, and psychological factors, including self-esteem and emotional well-being related to oral health, thus acknowledging that oral health is integral to an individual's overall quality of life, as it can affect their ability to masticate, converse, and engage in social interactions, ultimately impacting their psychological health and overall life satisfaction.[4]

The prevalence of oral health-related quality of life (OHRQoL) in various populations in Africa is a growing concern, as it reflects the impact of oral health on individuals' overall well-being.[11] This issue is complex and multifaceted, with variations among African countries and regions. Several recent studies have shed light on the status of OHRQoL in various African populations, emphasizing the need for improved oral health awareness and care.[11-15] The World Health Organization (WHO) released a comprehensive global assessment of oral health, highlighting that, despite significant advancements in the oral health of populations across many nations, challenges continue to persist globally. These challenges are especially

pronounced in disadvantaged communities in both developing and developed countries.[15]

Many of these underprivileged populations are in Africa, where studies have shown that a significant proportion of individuals experience poor OHRQoL due to various oral health issues. These problems often arise from factors such as inadequate oral hygiene practices, limited access to dental care, socioeconomic disparities, and insufficient oral health education.[16, 17] In Nigeria, many adults report that oral health problems negatively impact their quality of life. This highlights the urgent need to focus on preventive strategies, enhance access to oral healthcare, and develop more comprehensive oral health programs.[18-22]

Although several studies in Nigeria have reported an association between oral health and OHRQoL in diabetes, most are cross-sectional and descriptive, making it difficult to assess the difference between OHRQoL in the diabetic and non-diabetic populations. This study aimed to assess the oral health-related quality of life (OHRQoL) of diabetic and non-diabetic patients attending a tertiary hospital in Lagos. It focused on how diabetes impacts their OHRQoL and its implications for improved prevention and dental intervention strategies.

METHODOLOGY

Study area and design: A comparative cross-sectional study to determine the oral health-related quality of life among the participants in two groups: type 2 adult diabetes patients attending the diabetes clinic and non-diabetic

patients who presented at the general outpatient clinic for other reasons excluding diseases associated with diabetes mellitus. The study was conducted at the diabetes clinic (Tuesdays) and general outpatient clinic of a large tertiary hospital. The General Outpatient Clinic operates on Mondays, Tuesdays, Thursdays, and Fridays, serving as the primary point of contact for patients seeking routine checkups and addressing various health complaints.

The inclusion criteria for diabetic patients were known type 2 diabetes patients diagnosed by a healthcare practitioner for over one year, patients aged 40 years and older, and patients with at least three teeth in each quadrant. For non-diabetic patients, those with normal blood glucose levels under 100 mg/dl and without any general clinical symptoms (such as polyphagia, polyuria, polydipsia, paraesthesia, poor healing, pruritus, numbness, blurry vision, and weight loss) suggestive of diabetes who were at least 40 years of age were included.

Sample size: The minimum sample size for each group was determined using the formula for comparative studies, utilizing the mean oral health impact profile (OHIP-14) score of a study on diabetic[5] and non-diabetic patients[11] from a previous study. After adjusting the calculated value for 10% non-response, 110 diabetic and non-diabetic individuals were included in this study.

Sampling technique: The diabetic subjects were recruited using simple random sampling (balloting). About 100 patients attend the

diabetes clinic weekly, and 30 eligible consenting patients were selected weekly by balloting from the sample of patients attending the diabetes clinic. Consecutive sampling was used to recruit the non-diabetic subjects involved in this study. About 40 patients attended the general outpatient clinic daily, and eight patients were selected from the clinic daily until the sample size was attained.

Table 1: Socio-demographic Characteristics and Oral Health-related Quality of Life (OHRQoL) of Diabetic and Non-diabetic Participants

Variable	Frequency (%)		Chi square (p value)	AOR (95%CI)	P value
	Diabetics (n = 110)	Non-diabetics (n = 110)			
Age group (years)					
Middle-aged (40 – 64)	69(62.7)	91(82.7)	11.092	Reference (1.0)	
Elderly (≥65)	41(37.3)	19(17.3)	(0.001*)	2.864	**0.001***
Range	40 – 81	40 – 84		(1.510 – 5.431)	
Mean ± SD	60.7 ± 10.0	54.5 ± 10.0			
Sex					
Male	38(34.5)	48(43.6)	1.909	-	
Female	72(65.5)	62(56.4)	(0.167)	-	
Marital status					
Married	86(78.2)	91(82.7)	0.723	-	
Not married	24(21.8)	19(17.3)	(0.395)	-	
Education					
No formal education	9(8.2)	9(8.2)	1.327	-	
Primary	20(18.2)	16(14.5)	(0.723)	-	
Secondary	35(31.8)	31(28.2)		-	
Tertiary	46(41.8)	54(49.1)		-	
Average monthly income (₦)					
<50,000	57(51.8)	44(40.0)	5.937	-	
50,000 – 99,000	20(18.2)	25(22.7)	(0.115**)	-	
100,000 – 249,000	30(27.3)	31(28.2)		-	
≥ 250,000	3(2.7)	10(9.1)		-	
Median	50,000	67,500			
OHRQoL					
Good (no negative impact)	80(72.7)	98(89.1)	9.535	Reference (1.0)	
Poor (negative impact)	30(27.3)	12(10.9)	(0.002*)	3.086	**0.003***
Range	0 – 55	0 – 40		(1.461 – 6.517)	
Mean ± SD	9.9 ± 12.3	6.2 ± 8.8			

*statistically significant, **fisher's exact p value, AOR – adjusted odds ratio, CI – confidence interval

Data collection: An interviewer-administered method was used for data collection, which included sociodemographic factors (age, gender, marital status, level of education, and average monthly income), presence or absence of listed oral complaints, glycated hemoglobin (HbA1c), the Community Periodontal Index of Treatment Needs (CPITN), and oral health impact profile (OHIP-14) which assessed the OHRQoL of participants. Each question from OHIP-14, which is a 14-item tool that highlights the impact of oral conditions on 7 domains, namely functional limitation, pain, psychological discomfort, physical disability, social disability,

psychological disability, and handicap, was assessed using a 5-point Likert scale indicating "always" (4), "fairly often" (3), "occasionally" (2), "hardly ever" (1), or "never" (code 0).

The total responses for each question on the OHIP-14 scale were summed to generate an overall score, with possible values ranging from 0 to 56 across all 14 items, providing a single summary score for each individual. Each question had a maximum score of 4, and multiplying this by the 14 items yielded a maximum achievable score of 56. A total OHIP-14 score of 14 or less indicates a positive impact on OHRQoL, whereas a score greater than 14 reflects a negative effect, signifying substantial impairment (poor OHRQoL).

Oral examination was carried out by an oral physician under natural light with strict adherence to universal precautions using a disposable wooden spatula, latex gloves and face mask with a basic sterile examination set consisting of mouth mirror and probes, and instruments for assessing periodontal disease status including (CPITN) probes using the Community Periodontal Index of Treatment Needs (CPITN).[23] It is primarily a screening procedure that requires clinical assessment for the presence or absence of periodontal pockets (destruction of tooth-supporting tissues and bone forming a deeper space around the teeth, allowing for bacterial accumulation), calculus, and gingival inflammation/bleeding. Use of a special CPITN periodontal probe was performed(a specially designed lightweight probe with a

0.5mm ball tip bearing a black band between 3.5-5.5mm from the ball tip) for epidemiological purposes in adult populations, 10 specified index teeth (17, 16, 11, 26, 27, 36, 37, 31, 46, 47) were examined.[23] The patient's mouth was divided into sextants: 4-7 (upper right); 3-3 (upper front); 4-7 (upper left); 4-7 (lower left); 3-3 (lower front); 4-7 (lower right).[24]

The Community Periodontal Index of Treatment Needs score ranged from 0 to 4, where clinically, the Community Periodontal Index was described as follows: [24]

Community periodontal index 0 = Absence of condition (no bleeding, no calculus, no pathological pocket), CPI 1 = Bleeding upon gentle probing (no calculus, no pathological pocket), CPI 2= presence of supra and/or subgingival calculus or other plaque retentive factors (with or without bleeding, no pathological pocket), CPI 3 = 4 or 5 mm deep periodontal pockets (with or without bleeding and calculus), CPI 4 = 6mm or deeper periodontal pocket (with or without bleeding and calculus), CPI 5 = excluded sextant (less than two teeth present in a sextant).[24]

The prevalence of periodontitis was categorized according to periodontal status: those with CPITN 0 have healthy gums, those with CPITN 1 or 2 were in the mild periodontal disease group (gingivitis), those with CPITN 3 had moderate periodontitis, CPITN 4 were in the severe periodontitis group.[25] The oral hygiene assessment was done using the Simplified Oral

Hygiene Index by Green and Vermillion,[26] performed on all patients.

The total score for oral hygiene status per participant was assessed using the Simplified Oral Hygiene Index (OHI-S)[26], which was documented as either good (0-1.2), fair (1.3-3.0), or poor (3.1-6.0). Each patient's examination and data collection process lasted about 10 minutes.

Data entry and analysis: This was done using the IBM SPSS version 26 Software. Data was presented as frequency tables and charts. Logistic regression analysis was used to test the relationship between the independent and outcome variables; $p \leq 0.05$ was considered statistically significant.

Ethical considerations: Ethical clearance for the study protocol per ethical standards was obtained from the health research ethics committee of Lagos University Teaching Hospital (ADM/DSCST/HREC/APP/7070). In contrast, verbal and written informed consent was obtained from each participant before they participated in the study.
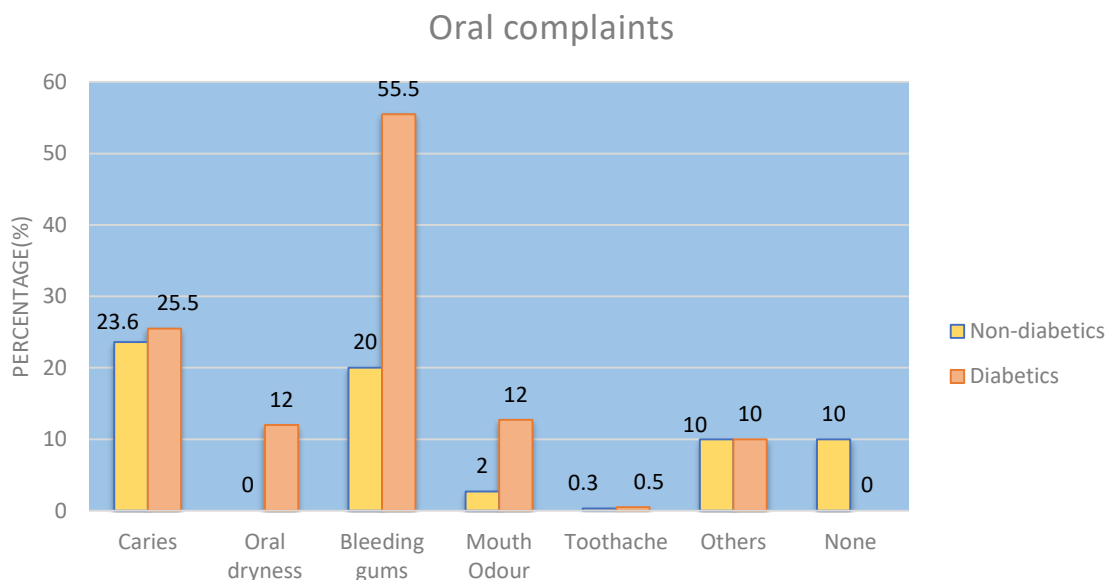

Figure 1: Oral Complaints of Diabetic and Non-diabetic Respondents

RESULTS

The mean ages of the diabetic and non-diabetic participants were 60.7 ± 10.0 years and 54.5 ± 10.0 years, respectively. Most diabetic participants were female (65.5%) and married (78.2%). Among non-diabetic participants, 56.4% were female, 82.7% were married, 49.1% had tertiary education as their highest educational level, and 40.0% had an average monthly income within the lowest income range of less than 50,000 naira. In contrast, 41.8% of diabetic participants had tertiary education and 51.8% had an average monthly income in the same range. The mean OHRQoL score of the diabetic

participants was higher at 9.9 ± 12.3 than non-diabetics at 6.2 ± 8.8. A significantly higher proportion of diabetic respondents (27.3%) reported a negative impact on oral health-related quality of life (OHRQoL) compared to non-diabetic respondents (10.9%). Elderly patients (AOR = 2.864, 95%CI = 1.510 – 5.431, p = 0.001) and patients with negative impact/poor OHRQoL (AOR = 3.086, 95%CI = 1.461 – 6.517, p = 0.003) had significantly increased odds of being diabetic (Table 1).

Table 2: Mean Scores of OHIP-14 Domains among Diabetic and Non-diabetic Participants

OHIP-14 sub-scale	OHRQoL Mean ± SD		Independent t test	P value
	Diabetics (n = 110)	Non-diabetics (n = 110)		
Functional limitation	0.95 ± 1.8	0.73 ± 1.4	1.049	0.295
Physical pain	2.13 ± 2.4	2.05 ± 2.3	0.256	0.799
Psychological discomfort	2.06 ± 2.8	1.12 ± 1.9	2.928	0.004*
Physical disability	1.10 ± 1.9	0.73 ± 1.5	1.604	0.110
Psychological disability	1.34 ± 2.3	0.65 ± 1.5	2.655	0.009*
Social disability	1.14 ± 1.9	0.55 ± 1.5	2.491	0.013*
Handicap	1.13 ± 2.3	0.34 ± 1.1	3.262	0.001*

* Statistically significant

Oral complaints recorded included caries (25.5% in diabetics and 23.6% in non-diabetics), bleeding gums (55.5% in diabetics and 20.0% in non-diabetics), mouth odour (12.7% in diabetics and 2.7% in non-diabetics), toothache (0.5% in diabetics and 0.3% in non-diabetics), and oral dryness (12% in diabetics and 0% in non-diabetics) (Figure 1). The mean OHRQoL was lower in non-diabetics than diabetics across all the oral health impact profile (OHIP) subscales with significantly reduced mean OHRQoL among non-diabetics in psychological discomfort (p = 0.004), psychological disability (p = 0.009), social disability (p = 0.013) and handicap (p = 0.001) (Table 2). Among diabetic participants, higher impacts were observed across the Oral Health Impact Profile (OHIP) subscales, with the greatest impacts reported in psychological discomfort (39.0%), physical pain (31.9%), and psychological disability (25.6%). The functional limitation domain (12.2%) was the least affected among this group. In contrast, non-diabetic participants experienced their highest OHIP subscale impacts in physical pain (27.3%) and psychological disability (19.9%), while the handicap domain (5.4%) was the least affected. These findings indicate distinct patterns of oral health-related quality of life impacts between the two groups, with diabetic participants demonstrating greater psychological and physical burdens (Table 3).

The proportion of diabetic respondents reporting a negative impact on oral health-related quality of life (OHRQoL) was consistently higher compared to non-diabetic respondents across all periodontal health categories. Among those with

healthy periodontal status, 30.0% of diabetics reported a negative impact, compared to 12.9% of non-diabetics. Similarly, negative impacts were reported by 30.4% of diabetics and 11.6% of non-diabetics with gingivitis, 18.4% of diabetics and 6.9% of non-diabetics with mild periodontitis, and 24.1% of diabetics and 8.3% of non-diabetics with severe periodontitis. (Figure 2)

Glycaemic control was a predictor of OHRQoL among diabetic participants, with those with poor glycaemic control (HbA1c ≥7%) having increased odds of having negative impact/poor OHRQoL (AOR = 2.713, 95% CI = 1.061 – 6.940, p = 0.037) than diabetic participants with good glycaemic control (HbA1c < 7%).

Table 3: Frequency Distribution of Reported Impacts on the 14 Activities of the OHIP-14 Measure Based on the 7 Sub-scales

OHIP-14 sub-scale	Frequency (%)			
	Diabetics Good OHRQoL (No negative impact)	Poor OHRQoL (Negative impact)	Non- diabetics Good OHRQoL (No negative impact)	Poor OHRQoL (Negative impact)
Functional limitation				
Problems pronouncing words	103(93.9)	7(6.1)	105(95.5)	5(4.5)
Worsening sense of taste	103(93.9)	7(6.1)	105(95.5)	5(4.5)
Sum impact	12.2%		9.0%	
Physical pain				
Painful aching in mouth	94(85.4)	16(14.6)	93(84.5)	17(15.5)
Uncomfortable to eat any food	91(82.7)	19(17.3)	97(88.2)	13(11.8)
Sum impact	31.9%		27.3%	
Psychological discomfort				
Had been self-conscious	85(77.3)	25(22.7)	92(83.7)	18(16.3)
Felt tense from oral problems	92(83.7)	18(16.3)	106(96.4)	4(3.6)
Sum impact	39.0%		19.9%	
Physical disability				
Unsatisfactory diet from dental issue	101(91.8)	9(8.2)	105(95.5)	5(4.5)
Interrupted meals from dental issue	101(91.8)	9(8.2)	107(93.6)	3(2.7)
Sum impact	16.4%		7.2%	
Psychological disability				
Find it difficult to relax	98(89.0)	12(11.0)	104(94.6)	6(5.4)
Had been a bit embarrassed	94(85.4)	16(14.6)	106(96.4)	4(3.6)
Sum impact	25.6%		9.0%	
Social disability				
Had been irritable with other people	97(88.2)	13(11.8)	106(96.4)	4(3.6)
Had difficulty doing usual jobs	101(91.8)	9(8.2)	104(94.6)	6(5.4)
Sum impact	20.0%		9.0%	
Handicap				
Felt life in general was less satisfying	95(86.3)	15(13.7)	107(93.6)	3(2.7)
Had been totally unable to function	98(89.0)	12(11.0)	107(93.6)	3(2.7)
Sum impact	24.7%		5.4%	

Sociodemographic factors (age, sex, marital status, educational level, and average monthly income) were not significantly associated with OHRQoL among diabetics and non-diabetics (Table 4).

DISCUSSION

The evaluation of oral health and the oral health-related quality of life in people living with diabetes is crucial for delivering comprehensive and patient-centred care, improving quality of life, preventing complications, and ensuring the holistic well-being of individuals with diabetes and those without while also underscoring the interconnectedness of oral health and systemic health, thus promoting better healthcare outcomes for diabetic patients.[3]

In this study, a significantly higher proportion of diabetic respondents (27.3%) reported a negative impact on oral health-related quality of life (OHRQoL) compared to non-diabetic respondents (10.9%). This association persisted in the multivariable analysis, with participants reporting poor OHRQoL being over three times more likely to be diabetic (AOR = 3.086, 95% CI = 1.461–6.517, p = 0.003), highlighting the strong relationship between diabetes and poor OHRQoL.

The mean OHIP score of the diabetic participants was higher (poorer) at 9.9 ± 12.3 than non-diabetics at 6.2 ± 8.8. Similar studies on other Nigerian communities assessing their oral health, revealed even higher mean OHIP scores of 11.15 ± 8.36 in an elderly population in Port-Harcourt Nigeria,[11] 61.0 ± 12.0 in a population of in-school adolescents in Ibadan[19], and 18.15 ± 8.6 in diabetic patients managed at a tertiary hospital in Lagos.[6] Higher OHIP scores were seen in various studies to be associated with various oral pathologies and inversely related with improved oral health habits in both diabetics and non-diabetics.[6,11,21,22]
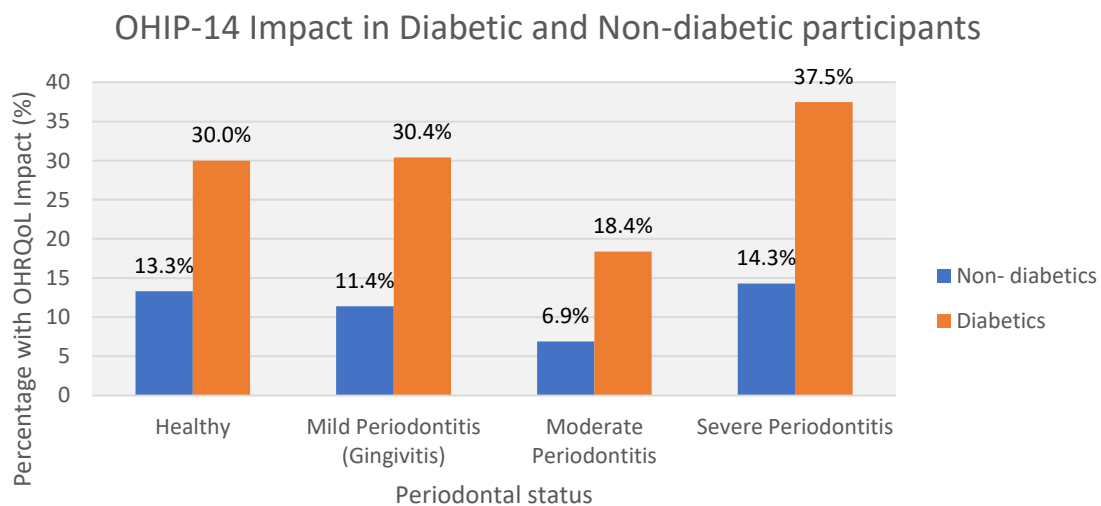

Figure 2: Periodontal Status and Oral Health-Related Quality of Life of Diabetic and Non-diabetic Respondents

Whilst diseases such as diabetes may predispose to oral pathologies and negatively impact OHRQoL, maintaining good oral health as a preventive measure is still beneficial. These findings imply that patients with diabetes will require early oral health screening to identify any oral pathology and institute appropriate treatment to improve their quality of life. Many oral conditions in individuals with diabetes can be effectively addressed through straightforward preventive measures, including oral health education, proper home care, dental prophylaxis, and regular dental check-up appointments.[6] A study on diabetics assessing their OHRQoL at baseline and 6 months after an intervention utilizing oral education revealed significant improvement in OHRQoL subdomains of these patients.[6]

The results of our study showed that age, education, marital status, education, and average monthly income all did not significantly affect OHRQoL, which was in contrast to the findings obtained in Sadeghi's study, which showed age and educational level as sociodemographic factors that predicted OHRQoL in a population in Iran. The study further concluded that there was no significant relationship between OHRQoL and diabetes, which differed from this study's findings.[10]

Table 4: Predictors of Negative Impact of OHRQoL among Diabetic and Non-diabetic Participants

Variable	Diabetics AOR(95% CI)	p value	Non-diabetics AOR(95% CI)	p value
Age group (years)				
Middle-aged (40 – 64)	Reference(1.0)		Reference(1.0)	
Elderly (≥65)	1.225(0.435 – 3.450)	0.701	0.883(0.164 – 4.740)	0.884
Sex				
Male	Reference(1.0)		Reference(1.0)	
Female	1.500(0.512 – 4.396)	0.460	0.616(0.160 – 2.378)	0.482
Marital status				
Married	Reference		Reference	
Not married	1.360(0.461 – 4.013)	0.578	1.188(0.198 – 7.141)	0.851
Education				
No formal education	1.016(0.188 – 5.496)	0.985	0.708(0.063 – 8.007)	0.780
Primary	0.613(0.155 – 2.415)	0.484	0.341(0.029 – 3.994)	0.392
Secondary	0.709(0.231 – 2.181)	0.549	1.671(0.362 – 7.717)	0.511
Tertiary	Reference(1.0)		Reference(1.0)	
Average monthly income (₦)				
<50,000	1.058(0.335 – 3.348)	0.923	1.979(0.425 – 9.204)	0.346
50,000 – 99,000	1.442(0.391 – 5.317)	0.582	0.324(0.031 – 3.367)	0.384
≥ 100,000	Reference(1.0)		Reference(1.0)	
Glycated haemoglobin (Hba1c)				
Good (< 7%)	Reference(1.0)		-	-
Poor (≥ 7%)	2.713(1.061 – 6.940)	**0.037***	-	-

AOR – adjusted odds ratio, CI – confidence interval, *statistically significant

The most frequently reported oral complaint in this study was gingival bleeding, which is a result of periodontitis, with a higher prevalence in the diabetic participants compared to the non-

diabetic (55% and 22% respectively). This finding aligns with similar studies on oral health related quality of life.[27,28] Periodontitis is a chronic inflammatory disease that destroys connective tissues, leading to recurrent periodontal infections, compromised alveolar bone, gingival bleeding, compromised aesthetics, tooth mobility, and eventual tooth loss. These may all negatively impact the quality of life, with implications for function, social interactions, self-confidence, comfort, and food choices.[29] Gingivitis, the mildest and reversible form of periodontal disease, is caused by the accumulation of bacterial biofilm (dental plaque) on the teeth near the gingivae. Among the participants with poor OHRQoL in this study, gingivitis was observed to be in higher proportions among diabetic participants (30.4%) compared to non-diabetic participants (11.4%).

Moreover, diabetic participants in our study who had poor glycaemic control (HbA1c $\geq$ 7%) were more than two times as likely to experience a negative effect on their oral health-related quality of life (OHRQoL) compared to those with good glycaemic control. This heightened likelihood can be linked to an intensified inflammatory response in periodontal tissues resulting from the abnormal host response in diabetic individuals. From the public health perspective, these findings reinforce the need for targeted oral health education, routine screenings, and preventive interventions to reduce the burden of oral pathologies and enhance OHRQoL, especially in at-risk populations.

This study provides findings of a possible association between oral health-related quality of life in diabetic and non-diabetic patients at a tertiary hospital. Since this was a cross-sectional, single hospital-based study, it may not represent all diabetic patients. Nevertheless, the results can be considered baseline data for further community-based research in the general population.

CONCLUSION

This comparative study demonstrated a significant relationship between diabetes mellitus and oral health-related quality of life (OHRQoL), with diabetic patients experiencing a substantially more significant negative impact on OHRQoL than non-diabetic individuals. Among diabetic patients, good glycaemic control positively impacted OHRQoL, whereas poor glycaemic control exacerbated its negative effects. Diabetic patients also had higher proportions of oral complaints, gingivitis and periodontitis. Our findings are highly suggestive that structured, routine oral health screening if implemented for all diabetic patients, may lead to improved overall oral health-related quality of life and glycaemic control.

Author's contribution: Conception and study design: KO, DA. Data collection: KO, DA. Data analysis and interpretation: KO, DA, PA, OO, OA, GA, OO. Manuscript drafting: KO, DA, PA, OO, OA, GA, OO. Manuscript revision: All authors. Final approval for publication: All authors. Guarantor of the study: All authors. All

the authors have read and agreed to the final manuscript**.**

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