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Factors Influencing differences between Patient's Self-Perceived Oral Care Needs and Clinical Findings in a Nigerian Population

Research Article

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Abstract

Statement of Problem: There is a gap in the knowledge of self-perception of patients about their oral health status and the clinical findings.
Aim: To evaluate the factors that influence the correctness of oral health self-perception when related with real clinical findings in this environment.
Method: Two hundred and thirteen consecutive adult patients attending the Dental Centre of the University College Hospital, Ibadan, Nigeria were recruited into this study. Evaluation of their intraoral status was done with self and interviewer based questionnaire and clinical assessment for teeth caries and gum inflammation status done using the DMFT (Decayed, Missing and Filled Teeth) Index and the OHI-S (Oral Hygiene Index Simplified) by Green and Vermillion respectively. Informed consent was obtained from all the participants before recruiting them into the study and institutional ethical approval was also obtained. All clinical examinations were done in standard dental clinic setting and adequate illumination. Data was analyzed using simple frequency and distribution, Mann-Whitney U test and the one way ANOVA with Tukey HSD post-hoc test for the bi-variant analysis to test for significant difference between the variables.
Result: The OHI-S assumed an almost normal distribution across the participants with a mean of 2.6188 (± 1.413) and skewness of 0.509 while the DMFT doesn't, with mean of 2.148 (± 2.843) and skewness of 2.25. A one way ANOVA with Tukey HSD post-hoc test showed educational level, marital status and gender to be statistically significant ($p<0.05$) for mean OHI-S with only gender and educational level being the only significant predictors using multiple linear regression analysis. Mann-Whitney U test showed a statistically significant difference ($p<0.01$) between the mean DMFT for marital status and educational levels.
Conclusion: Gender, educational levels and marital status are significant factors that influence the correctness of oral health self-perception when related with clinical findings with only gender and educational status as the only significant predictors for periodontal disease.

Abbreviations: DMFT: Decayed Missing Filled Teeth; CPITN: Community Periodontal Index of Treatment Need; OHI-S: Oral Hygiene Index Simplified; TMJ: Temporomandibular Joint.

Introduction

Caries and periodontal diseases are the two foremost reported oral pathologies and their clinical assessment is expensive, invasive, uncomfortable, and complicated by medico-legal and ethical obstacles [1-6]. One important component in the use of service is the self-perceived need [7] and self-perception influences service use. The perceived oral health is a subjective measure of an individual's perception of his or her health [8]. The self-perceived oral health of an individual is determined by the clinical oral conditions and the impact of oral health on daily life [9].

Access to health education may also be influenced by self-per-

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ceptions of health conditions [7]. Individuals usually give greater importance to the symptoms and the functional and psychological impact of the disease than to the invisible signs of the disease [7, 10]. Dental patient's perception is an important factor in the diagnosis and eventual successful management of the dental ailments by the dental professional [5]. Self-perception levels of oral health were reported to be higher than that of the clinical findings of the diseases by some researchers [4]. This was also reported to reflect a low level of the public which may influence care seeking behavior which also highlights the importance of oral health promotion with the crucial need for public health actions [4].

Comparisons of oral health normative versus efficacy of self-perception of the individual to evaluate personal health status assessment are reported to either be precise or not precise [11]. Self-Perceived assessment data have neither been found as useful nor successful in the assessment of individual dental and periodontal health status [11-13]. Azodo et al., [14] recommended the need for periodic oral health education among a group of dental auxiliary students in order to improve the utilization of the existing dental services and eventual improvement of self-perceived oral health.

Following the reported importance of self-perceived oral care need, this study therefore aimed to determine the factors that influence self-perceived oral care need and subsequent longevity of the teeth.

Materials and Methods

Two hundred and thirteen consecutive adult patients aged 18 to 65 years attending the Dental Centre of the University College Hospital, Ibadan, Nigeria were evaluated by means of self and interviewer based questionnaires and intraoral clinical examinations. The questionnaire was about their socio-demography and their opinions about the health status of their teeth and gums. The clinical examination included assessment of their caries status using the DMFT (Decayed Missing Filled Teeth) index and periodontal status using the CPITN (Community Periodontal Index of Treatment Need) and the OHI-S(Oral Hygiene Index Simplified) by Green and Vermillion. Informed consent was obtained from them before recruiting them into the study and institutional ethical approval was also obtained. All clinical examinations were done in standard dental clinic setting and adequate illumination.

Inclusion criteria were patients who consented to participate after full explanation of the study; in good health, not on any routine medication and coherent. The exclusion criteria were patients with underlying systemic conditions that may affect the oral tissues such as Diabetes Mellitus that might affect the periodontal status of the patient.

Questionnaire used in the assessments

1. Age as at last birthday ____

2. Sex Male_____ Female _____

3. Marital status a) Married b) Single c) Divorced d) Separated

4. Highest level of education a) Primary b) Secondary c) Tertiary d) Postgraduate e)None

5. Occupation _____

6. Ethnic group a) Yoruba b) Hausa c) Igbo d) Others

7. What is your opinion regarding the health status of your gum and teeth? a) Very poor b) Poor c) Not so good d) Good

e) Very good f) Excellent

8. What is your opinion regarding the health status of your gum? a) Very poor b) Poor c) Not so good d) Good e) Very good f) Excellent .

9. What type of teeth/gum problem do you think you have? (Please thick as many as it applies to you) a) Hole in the teeth b) Food packing between the teeth c) Sensitive teeth d) Bleeding gums e) Swollen gums f) Tartar on the teeth g) Mal-aligned teeth

10. Teeth present
11. Mal-aligned teeth
12. DMFT index
13. CPITN index
14. OHI-S index (Greene and Vermillion)

Data was analyzed using simple frequency and distribution, the one way ANOVA with Tukey HSD post-hoc test and the Mann-Whitney U test bi-variant and multi-variant to test for levels of significance of the variables.

Result

There was an almost equal distribution of gender, 52.4% females and 47.6% males. 57.3% of the respondents had tertiary education while only 5.6% had no formal education. 56.1% of the respondents were either married, 39.9% were single and majority (76.5%) of the respondents were of the Yoruba ethnicity (Table 1).

The OHI-S assumed an almost normal distribution across the participants with a mean of 2.6188 (±1.413) and skewness of 0.509 as compared to the DMFT which doesn't appear to follow a normal distribution with mean of 2.148 (±2.843) and skewness of 2.25 (Table 2).

Statistically significant difference was observed between mean OHI-S of males and females ($p<0.05$), singles and married ($p<0.01$) with both males and married participants having higher

Figure 1. Percentage of the Respondents Reporting Various Oral Health Problems.

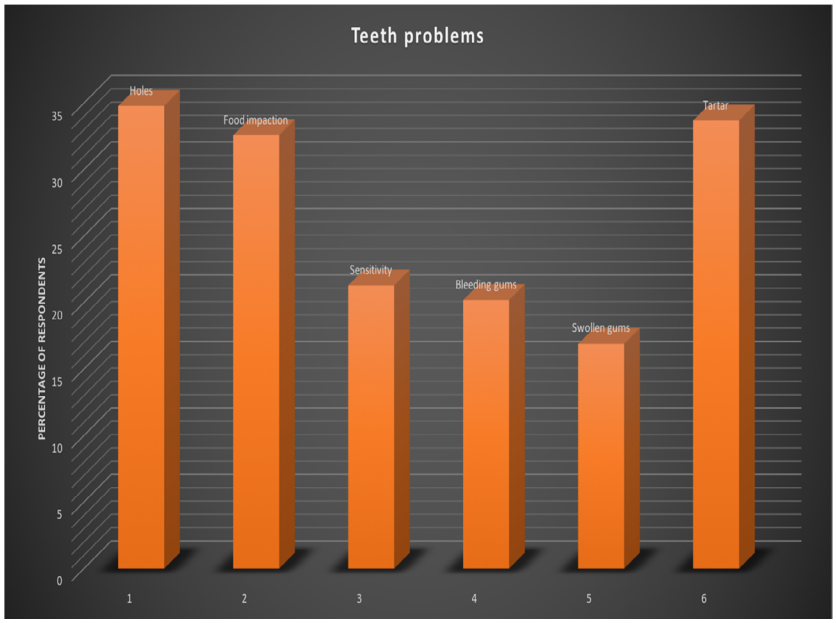

Table 1. Socio-demography of Participants.

Age		Mean (SD)
		41.4 ± 18.46
		N(%)
Gender	Males	98(47.6)
	Females	108(52.4)
Education	None	12(5.6)
	Primary	17(8.0)
	Secondary	45(21.1)
	Tertiary	122(57.3)
	Postgraduate	17(8)
Marital status	Single	79(39.9)
	Married	111(56.1)
	Divorced	1(0.5)
	Widow	7(3.5)
Ethnicity	Yoruba	163(76.5)
	Igbo	14(6.6)
	Hausa	2(0.9)
	Edo	12(5.6)
	Others	22(10.4)

(N=213)

mean OHI-S respectively.

A one way ANOVA with Tukey HSD post-hoc test reveals a significant statistical difference ($p<0.05$) between the mean OHI-S of participants who hadn't gone beyond primary education and those that had at least tertiary education, with those who had at least tertiary education having a lower mean OHI-S (Table 3).

Mann-Whitney U test shows a statistically significant difference ($p<0.01$) between the mean ranks DMFT of single and married participants with married participants showing a higher mean DMFT 2.540 (Table 4).

There was also a statistically significant difference between the mean DMFT of participants with primary education and secondary education while participants with primary school education had a higher mean DMFT of 3.1724.

Using the multivariate analysis the independent variables were fixed into a model to predict the dependent variable OHI-S using a multiple linear regression. The independent variables accounted for only 5.6% of the changes in the OHI-S with only gender and education being significant predictors of the OHI-S (Table 5).

Discussion

OHI-S is one of the indices that is used to quantitatively assess oral cleanliness and periodontal health while DMFT assesses the caries experience of the individual. Both the periodontal status and caries experience form part of the oral health status of an individual.

Self-perceived oral health was reported to have a bi-directional change in deterioration and improvement in older adults in Brazil [12]. Manuela et al., [13] in their study on the elderly reported gender, age, individual's educational status, access to dental services and oral health education as factors that influence oral health self-perception. Knowledge among young people about oral health and practices and the etiology of oral diseases are influencing factors in their self-perception of oral diseases [15]. Age was not found to influence the self-perception of oral health in our study subjects which is contrary to these other studies [12, 13, 15]. This

Table 2. The OHI-S and DMFT distribution across the participants.

	Mean	SD	Skewness	Range
OHI-S	2.619	1.413	0.509	6
DMFT	2.141	2.843	2.25	19

Table 3. Bivariate Analysis of OHI-S with Gender, Marital status and Educational level.

		Mean OHI-S	t (df)	P value
Gender	Females	2.389	-2.139(200)	0.034
	Males	2.813		
Marital status	Single	2.325	-2.824(184)	0.005
	Married	2.897		
			F(df)	
Education	None + Primary	3.220	3.029(2;206)	0.051
	Secondary	2.580		
	Tertiary+ PG	2.509		*0.040

*Post-hoc test(Tukey HSD) shows statistical significant difference between OHI-S of (None+ Primary) and (Tertiary+Postgraduate (PG)).

Table 4. DMFT Related to Gender, Marital status and Educational level.

		Mean DMFT	P value
Gender	Females	2.3571	0.617
	Males	2.0000	
Marital status	Single	1.3924	0.005
	Married	2.5405	
Education	None + Primary	3.1724	0.028
	Secondary	1.4889	
	Tertiary+ PG	2.1367	*0.008

*Post-hoc test with Bonferroni correction shows statistical significant difference between the DMFT ranks of secondary and (none + primary).

Table 5. Multivariate analysis: Multiple linear regression(Dependent variable is OHI-Simplified).

	b	SE(b)	Sig	95% CI
Constant	3.446	0.592	0	2.278 to 4.614
Sex Ref (Males)	0.461	0.2	0.022*	0.066 to 0.815
Marital status Ref (Married)	-0.195	0.495	0.694	-1.171 to 0.781
Education Ref (None+Primary)	-0.339	0.142	0.018*	-0.619 to -0.060

$R^2 = 0.056$, Adjusted $R^2 = 0.041$

may be because our study included only adult patients but not the young adults and the elderly.

Hernández-Palacios et al., [16] reported gender(male), low income and low educational level and poor oral health to be associated with poor self-perceived oral health in elderly Mexicans. We found gender to be a common significant influencing factor for oral health self-perception with both OHI-S and DMFT in our study subjects which is in keeping with findings of Hernández-Palacios et al., [16]. We had an almost equal distribution of gender, 52.4% females and 47.6% males in this study which may explain the significant influence of gender on oral health self-perception that we are reporting.

Oral health education and socio-economic status were found to influence oral health self-perception in pregnant women [17]. Psychosocial factors, utilization of oral care services, adherence to oral health recommendations and practice of good oral health were found to influence the oral health perception of pregnant women [18]. Another study [19] found a low level of health perception compared to the clinical findings influenced by public awareness and their eventual care-seeking behavior. In this study, we found marital status and level of education of the participants to significantly influence their oral health self-perception which might have been influenced by their socio-economic factors, utilization of oral care services, adherence to oral health care recommendations, oral health education and awareness. This may therefore be in keeping with these previous studies [17-19].

Pinelli et al., [20] in their study found self-perceived oral health to be reliable for periodontal, dental, and temporomandibular joint (TMJ) conditions while validity was found to be more sensitive to detect the presence of periodontal disease. Non-oral and some extrinsic factors such as smoking were reported to influence the self-perception of patients about halitosis [8]. Another reported influencing factor in the self-perception of oral health is the intensity of the disease [9]. We found gender and educational level of the participants to be significant predictors of influencing factors for self-perception of periodontal diseases probably because detecting periodontal disease is easier even in the early stage with obvious symptoms of bleeding gums. This our finding is in keeping with some of these previous studies [8, 9, 20].

Conclusion

Within the limits of this study being the study size, age group and limited number of influencing factors analyzed, we report that gender, educational levels and marital status significantly influence oral health self-perception of individuals with only gender and educational status as the only significant predictors for periodontal disease.

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