Prevalence of Oral Impacts on Daily Performances among Adult Dental Patients in a Nigerian Tertiary Hospital

Edetanlen BE, Ezigbo KM

Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, College of Medical Sciences, University of Benin, Benin-City, Edo State, Nigeria.

Correspondence: Edetanlen BE
Email: ehiben2002@yahoo.com

Abstract

Background: Oral conditions do not only cause pain but affect the various aspects of individual's daily performances.

Objective: To investigate the prevalence of oral health impact on daily performance in adult patients at a Southern Nigerian tertiary hospital.

Patients and Methods: A cross-sectional study was conducted on dental patients that attended the University of Benin Teaching Hospital, Benin-City, Nigeria. Oral Impacts on Daily Performance (OIDP) questionnaire was used to evaluate the impact of oral health status on the daily performance. The data collected were analysed with descriptive and inferential statistics. P-value less than 0.05 was considered statistically significant.

Results: A total of 110 patients (43 males and 67 females) participated in the study. The age range of the participants was 18-70 years and the mean age of the participants was 31.8 ± 12.8 years. The mean ODIP score of the study participants was 1.58 ± 2.77 with a range of 0 to 14. Sixty percent of all subjects had at least one daily performance affected by an oral impact in the previous six months. The ODIP indicators most commonly affected by oral health status were eating and enjoying food (31.8%), smiling and showing teeth (13.6%), and enjoying social contact with people (10.9%) and cleaning teeth (10.0%), The least commonly affected were maintaining usual emotional status (9.1%), sleeping and relaxing (9.1%), carrying out daily school task (8.20%), and speaking and pronouncing words clearly (7.30%). There were no statistically significant difference between ODIP score and age, gender, place of residence, level of education and oral/dental conditions.

Conclusion: Oral health had an impact on daily performances of adult dental patients in southern Nigeria. The daily activities mostly affected was eating and enjoying food.

Keywords: Oral Impacts, Daily Performances, Dental Patients, Nigeria.

Introduction

Oral diseases such as dental caries, periodontal diseases, mouth and pharynx cancers, and soft tissue lesions are highly prevalent all around the world[1]. These complications affect not only the physical conditions but also their economic, social, emotional, and psychological dimensions of health. Such diseases may hence disturb the patient's quality of life as well as daily performances[2].

Oral health is understood as a dentition which is comfortable, functional, and with such an appearance that allows people to perform their social function and daily activities without physical, psychological or social inconveniences[3]. The use of socio-dental indicators based on self-perception and clinical impacts offers important advantages for planning and providing dental services, thus changing the emphasis from merely biological to social and psychological aspects[2]. Different socio-dental indicators were developed in the past few years and one of them is Oral Impact on Daily performances (ODIP). ODIP is a socio-dental indicator based conceptually on the International Classification of

Impairments, Disabilities and Handicaps created by World Health Organization (WHO)[4] in 1980. The ODIP consists of eight daily performances; eating and enjoying food, speaking and pronouncing well, cleaning your teeth, sleeping and relaxing, smiling, laughing and showing your teeth without embarrassment, maintaining your emotional state without becoming upset, carrying out your major working or social role and enjoying contact with other people. One of its goals is to assess the frequency and severity of the impacts that affect the daily activities[5]. In order to give more representativeness to the ODIP in the evaluation of specific treatment needs, the individual is asked about the symptoms perceived and the main oral condition responsible for the impact in his/her daily activities in attempting to establish a relation impact and dental condition[3]. The oral impacts on daily performances index as a survey-based instrument is a measure or index or scale that had proved to be reliable and valid in cross-sectional population-based studies as well hospital-based studies[6]. ODIP index takes into account the severity as well as frequency of oral impacts when measuring treatment needs. It focuses on the assessment of the impacts caused by oral conditions on the person's abilities to perform activities and behaviors of daily life[7].

The prevalence of oral impact on daily performances are well studied among children, adolescents, adults and the elderly worldwide[8-17]. Prevalence had been reported to vary with age, gender, level of education, race, culture and place of residence[18-23]. While many studies have been done on the oral impact on daily performance among adult populations in other parts of the world, it appears there is a dearth of studies in Africa (Table 1).

Table 1: Global prevalence of oral impact on daily performances among the adult population

Author	Year	Country	Sample/Setting	Prevalence (%)
Adulyanon et al	1995	Thailand	Community	73.6
Masalu and Astrom	2003	Tanzania	School/Adults	50.0
Gomes and Abegg	2006	Brazil	Workers	73.6
Dorri et al	2007	Iran	Workers	64.9
Wilson et al	2009	Tanzania	Community	75.5
Gomes et al	2009	Brazil	Workers	71.4
Moeintaghavi et al	2013	Iran	Dental patients	84.0
Kakoei et al	2013	Iran	Dental patients	100.0
Mohebbi et al	2014	Iran	Dental patients	82.6
Peker and Alkurt	2014	Turkey	Students/School	65.2
Prado et al	2015	Brazil	Community	51.0
Lawal et al	2015	Nigeria	School/Teachers	39.1
Nagarajappa et al	2015	India	School/Students	60.0
Chowdary et al	2016	India	White collar workers	66.0
Present Study	2020	Nigeria	Dental patients	60.0

In Nigeria, there exists sociocultural differences among the different populations. A study of oral impact on daily performances has been carried out in the Western part of Nigeria[16]. The findings in the Nigerian study cannot be generalized to the Nigerian population because of well-known differences in diet, culture, oral health status and perception of oral impacts between different populations. Therefore, the aim of this study is to determine the prevalence and the associated factors of oral impacts on daily performances of adult dental patients in a Southern Nigeria hospital.

Materials and Methods

Ethical approval was obtained from our institution's ethical review committee. An informed consent was obtained from the patients to participate in the study. This cross-sectional study was carried out using a sample of the patients that presented for dental treatment in the Dental Centre of the University of Benin Teaching Hospital, Benin-City, from November 2017 to December 2019. The sample size was calculated using the Kish-Leslie's formula for cross-sectional study[24] with a prevalence of 39.1% from previous study[16], 10% allowable error and 95% confidence level. A minimum sample size of 91 patients was obtained and further increased to 110 to compensate for possible losses. The administration of the questionnaire and clinical examination were done on the same day. Exclusion criteria were those below 18 years, lack of formal education, those that experience dental condition more than 6 months and those that did not consent

to participation in the study. The ODIP index assesses the impact of oral condition on eight daily performances, namely, eating, talking, cleaning teeth, sleeping, smiling, emotional state, working, and socializing. If a participant experienced an oral impact on any daily performance in the last 6 months, then its frequency and the severity of its effect were scored using 5-point ordinal scales. For frequency, each question was assessed using a 6-point Likert scale in the range: 0 = "never", 1= "affected less often than once a month (e.g once in six months)", 2 = "once or twice a month", 3 = "once or twice a week", 4 = "three to four times a week" and 5 = "every day." The affected daily performance was also classified according to the degree of severity as 0 = "none", 1 = "very little", 2 = "little", 3= "moderate", 4= "severe" and 5 = "very severe." The total ODIP score was calculated by multiplying the frequency and the severity score of each item. A trained and calibrated dental nurse administered the ODIP questionnaire and this was performed prior to history taking, clinical examination and treatment. Cronbach's coefficient correlation was used to determine the questionnaire reliability in the present study. The Cronbach's alpha was 0.89 indicating good reliability. The ODIP index was already validated in a previous Nigerian study[16]. Each participant verbally answered all of the ODIP questions within 20 minutes. Each patient was asked about his/her general and oral health and any experience of pain during the previous 6 months. The general health status was recorded according to the statements volunteered by the participants. The oral condition of each patient was examined clinically with a dental probe, mouth mirror, and periodontal probe (Hu-Frieday, Michigan USA) on a standard dental chair.

Data were collated and analysed using SPSS version 17 software. Descriptive and inferential statistic were performed. Continuous and categorical data were summarized and presented as means, standard deviation and percentages respectively. The data collected were age, gender, place of residence, marital status, religion, level of education, dental condition, and level of oral impacts on daily performances. Chi-square test was used for analysis and a p-value less than 0.05 was considered significant.

Results

A total of 110 patients (43 males and 67 females) were invited to take part in the study and all agreed to participate in the study giving a 100 % response rate. The demographic characteristics of the participants are as shown in Table 2.

Table 2. Characteristic of the respondents (n=110)

Variable	Category	Frequency (n)	Percentage (%)
Place of residence	Urban	89	80.9
	Rural	21	19.1
Marital status	Single	70	63.6
	Married	40	36.4
	Christian	92	83.6
Religion	Muslim	18	16.4
	Others	0	0.00
	Primary	9	8.20
Level of education	Secondary	13	11.8
	Tertiary	88	80.0
	AAP	30	27.3
	CP	5	4.55
	GCMG	37	33.6
	AOCG	9	8.18
	D C	11	10.0
Oral conditions	Pericoronitis	3	2.73
	DH	3	2.73
	DA	4	3.64
	Bad Breath	5	4.55
	Oral Ulcers	3	2.73
	No Impact(0)	44	40.0
Level of ODIP	Low ODIP	57	51.8
	Moderate ODIP	9	8.20
	Severe ODIP	0	0.00

NB: APP= Acute apical periodontitis; CP= Chronic periodontitis; GCMG= Generalized chronic marginal gingivitis; AOCG= Acute on chronic gingivitis; DC = Dental Caries; DH = Dentinal hypersensitivity; DA= Dentoalveolar abscess

More than three-quarters (80.9%) of the respondents were residing in the urban residence. Seventy (63.6%) of the respondents that presented to hospital during the period of the study were single. Eighty percent of the participants had tertiary level of education while only 9(8.20%) went to primary school only. The most common oral condition was generalized chronic marginal gingivitis (CGMG) (33.6%). This was closely followed by acute apical periodontitis (AAP) with a percentage of 27.3%.

A total of 66 (60.0%) patients reported some impacts of oral health on their daily performances (i.e. ODIP>0). Of the 66 respondents with impact of oral health on daily performances, majority (51.8%) had mild impact while no respondent had severe impact as shown in Table 2.

The ODIP indicators most commonly affected by oral health status were eating and enjoying food (31.8%), smiling and showing teeth (13.6%), and enjoying social contact with people (10.9%), and cleaning teeth (10.0%), The least commonly affected were maintaining usual emotional status (9.10%), sleeping and relaxing (9.1%), carrying out daily school task (8.2%), and speaking and pronouncing words clearly (7.3%) (Table 3).

Table 3: Prevalence of Oral Impact on Daily Performances amongst Adult patients

Daily Performances	Impact(%)
Eating and Enjoying Food	31.8
Smiling and Showing teeth	13.6
Social Contact with people	10.9
Cleaning teeth	10.0
Emotional Status	9.1
Sleeping and Relaxing	9.1
Carrying out daily school task	8.2
Speaking and pronouncing words clearly	7.3
Total	100.0

Table 4 shows association between the study characteristics of the respondents and the ODIP score. There were no statistically significant differences between ODIP score and age, gender, place of residence, level of education and oral/dental conditions (Table 4).

Table 4: Univariate analysis of the respondents (n=110)

Variable	Category	Oral impacts		P-value
		No	Yes	
Age (Years)	≤ 45	33	49	0.74
	>45	11	17	
Gender (n)	Male	12	28	0.67
	Female	32	38	
Place of residence(n)	Urban	36	58	0.76
	Rural	8	8	
Marital status(n)	Single	32	38	0.20
	Married	12	28	
Religion(n)	Christian	38	59	
	Muslim	6	7	0.88
	Others	0	0	

Variable	Category	Oral impacts		P-value
		No	Yes	
Level of education(n)	Primary	3	2	
	Secondary	7	5	0.19
	Tertiary	34	59	
Dental conditions(n)	CP	2	3	
	GCMG	17	20	
	AOC	5	4	
	DC	2	9	0.11
	Pericoronitis	1	2	
	DH	1	2	
	DA	2	2	
	Bad Breath	2	3	
	Oral Ulcers	2	1	

NB: APP= Acute apical periodontitis; CP= Chronic periodontitis; GCMG= Generalized chronic marginal gingivitis; AOCG= Acute on chronic gingivitis; DC= Dental caries; DH = Dentinal hypersensitivity; DA= Dentoalveolar abscess

Discussion

Yewe-Dyer defined oral health as the state of the mouth and surrounding structures where disease is contained, future disease is inhibited, the occlusion is sufficient to masticate food and the teeth are of socially acceptable appearance while Dolan defined oral health as a comfortable and functional dentition which allows an individual to continue their desired social role[1]. Many studies[6-8] and clinical experiences suggest that patient's perception of the effect of chronic condition on their quality of life differs between people. Oral health denotes not merely the absence of oral disease but the general well-being so that the person can perform functions like eating, talking and smiling and can contribute creatively to the society. Even after much research and thousands of publications, the definition of oral health related quality of life is still vague. The patient's self-perception about his oral health and related quality of life are significant in clinical dental practice, dental education and research. It is widely shown that oral conditions can have varied impacts on daily living. To assess this, many measures or scales are available. They differ according to the response format, number of items, context of use and population in which they are applied.

Different oral health related quality of life questionnaires (OHRQol) have been developed to assist with the measurement of the impact of oral conditions of daily life and treatment needs. Majority of these indices use frequency of oral impact to measure treatment needs. These instruments may be questioned for their tendency to overestimate oral health needs and inability to reflect the emotional effect of oral concerns. The oral impacts on daily performances (ODIP) questionnaire is one of the most popular inventories measuring oral health related quality of life (OHRQol), which focuses on oral impacts on the person's ability to perform daily acivities. ODIP is short, easy to use and more respondent-friendly; and it has the advantage of measuring behavioural impacts on performances which make it an appropriate tool for this study.

The 100% response rate in this study is an indication that its findings could be generalizable. The predominance of females in this study could be due to random variation or due to the fact that there is a greater proportion of women attending hospital. The findings of the present study showed that the prevalence of oral health impact on daily performances of patients in our hospital was 60.0%. This prevalence is higher than that reported from a study conducted among teachers in Ibadan, Nigeria, that reported a prevalence of 39.1%. This difference could be that the subjects recruited in the present study were patients from a hospital setting whereas those from the previous Nigerian study were teachers from outside hospital setting. Apart from methodological differences such as variations in measures of oral health related quality of life that has been used, there are several reasons as to why the prevalence of oral impact could vary between populations. First, as the prevalence and severity of

oral conditions vary among populations in different countries, they may also experience oral impact related to different aspects of their lives in varying frequencies. Secondly, people of different social, cultural and ethnic groups differ in their perception of what aspect of their oral health will affect their quality of life. Thirdly, values and attitudes towards oral health could strongly influence the reporting of impact. Individuals who place little value on their teeth are probably less likely to report being self-conscious or emotionally disturbed due to their oral health. Fourthly, the phenomenon of "internalization" or "adaptation" or "disability paradox" by which an individual learns to live with the symptoms could influence the reporting of impact and this suggests that health and quality of life are not only conceptually distinct but also empirically distinct[9]. An individual who had experienced tooth loss could adapt to such a condition and may respond by learning to live with the symptoms such as difficulty in chewing. As a consequence, the symptoms may not have an impact on the individual [21]. The prevalence seen in the present study is comparable to most African and Asian studies[18,19] among adult subjects but lower than that reported among adult Caucasians[11-13]. The likely reason for this racial differences could be attributed to cultural practices, behavioural practices and the availability of facilities. Though the prevalence of 60% seen the present study was lower than that previously reported[14,15,21,22], it is however comparable with the findings of other studies[10,11,18,19,23] previously reported.

The most prevalent impact noted was on eating and enjoying food, with 31.8% of the study population reporting this as a problem. This is in agreement with the findings of previous studies[10,11,16]. However, Wilson et al[12] reported teeth cleaning as mostly affected in their study. Eating is one of the most basic and essential daily practices, if compromised due to dental condition, it will have an effect on all aspect of daily life and overall general life. Smiling and showing of teeth was found to be the next most prevalent impact with 13.6% of the study group reporting this impact. Though this finding is contrary to that reported in previous studies[12,23], the probable reason could be that most of the respondents were well educated females residing in urban environment and are therefore aesthetically conscious of their dentitions.

In Nigeria, the study of oral health related quality of life indicators remains incipient and the manner in which people's lives are affected by oral health requires greater investigation. The exclusive use of clinical indicators, which is dependent on professional judgment, may be counter-intuitive since socioeconomic and demographic characteristics may affect oral health and consequently the quality of life. Oral health-related quality of life is affected by several factors such as age, gender, socio-economic status and oral/dental conditions. In the present study, there was no difference in the oral impact on daily performances with age, gender, level of education, place of residence, and type of dental/oral conditions. Chowdary et al[19]. and Kakoei et al[15] also did not report association between oral impact and sex and level of education. Moeintaghavi et al[14], reported significant association between oral impacts with gender, occupation and level of education in their cross sectional survey among adult patients in Iran. Gomes et al[13] in their study on 728 civil servants aged 35-44 years in Southern Brazil found a significant association between education and gender but none with income.

Chowdary et al[19] reported a statistically significant association between age and mean ODIP score. The main limitation in our study is its cross-sectional nature which possesses problems in relation to hypothesis testing since data on risk factors and outcome are assessed at the same time, but this particular issue does not seem to affect our result. Also, the sample used may not be representative of all adults in Nigeria, as the participants were only adults that presented to our hospital.

Conclusion

Oral health had an impact on daily performances of adult patients in Southern Nigeria. There was no association between presence of impact on daily performances and age, gender, level of education, and place of residence as well as type of oral condition. Therefore, it is recommended that there should be normative need assessment that can assist in treatment planning for dental patients.

Acknowledgments

References

1. Yewe-Dyer M. The definition of oral health. Br Dent J 1993; 174(7):224-225.

2. Cohen K, Jago JD. Towards the formulation of socio-dental indicators. Int J Health Serv 1976; 6:681-687.

3. Okunseri C, Chattpadhyay A, Lugo RI, McGrath C. Pilot survey of oral health related quality of life: a cross-sectional study of adults in Benin City, Edo state, Nigeria. BMC Oral Health 2005: 5:7-12.

4. WHO- World Health Organization. International classification of Impairments, Disabilities and Handicaps. Geneva: World Health Organization; 1980.

5. Lawal FB, Taiwo JO, Arowojolu MO. Validation Of The Oral Impact On Daily Performance Frequency Scale In Ibadan , Nigeria. Afr J Med Med Sci 2013; 42:215-222

6. Adulyanon S, Sheiham A. Oral impacts affecting Daily Performances in measuring oral health and quality of life edited by : Slade GD. Chapel Hill: University of North Carolina;1997:151-160.

7. Sanders AE, Slade GD, Lim S, Reisine ST. Impact Of Oral Disease On Quality Of Life In The US And Australian Populations. Comm Dent Oral Epidemiol 2009; 37: 171-181.

8. Srisilapanan P, Korwanch N, Jienmaneechotchai S et al. Estimate of impact on the oral health-related quality of Life of older Thai people by the provision of denture through the Royal Project. Intern J Dent 2016 Article ID 19776013, 7 Pages

9. Adulyanon S, Vourapukjaru J, Sheiham A. Oral impacts affecting Daily Performance in a low dental disease Thai population. Community Dent Oral Epidemiol 1996; 24:385-389.

10. Masalu JR, Astrom AN. Applicability of abbreviated version of the oral impact on daily performances (ODIP)scale for use among Tanzanian students . Comm Dent Oral Epidemiol 2003;31:7-14

11. Dorri M, Sheiham A, Tsaiko G. Validation of a Persian version of ODIP index. BMC Oral Health 2007; 7: 2.

12. Wilson KE, Opie R. Oral health status and oral impacts on daily performances in an adult population with leprosy living in rural Tanzanian. J Disability Oral Health 2009;10 (3):124-130.

13. Gomes AS, Abegg C, Fachel JM. Relationship between clinical oral conditions and daily performances. Braz Oral Res 2009; 23: 76-81.

14. Moentaghavi A, Arab H , Sargolzei N, Dorri M, Darvishzadeh F, Alizadeh M.Oral Health Related Quality Of Life ; A Cross-Sectional Survey Among Adult Patient In Mashhad. Iran J Dent Mater Tech 2013; 2(4):114-120.

15. Kakoei SH, Shokoohi M, Barghi H. Oral impact on daily performance in Iranian adults. J oral health oral epidermiol 2013;2(1):6-12

16. Lawal FB, Taiwo JO, Oke GA. Impact of oral health on quality of life of elementary school teachers. Ethiop J Hlth Sci 2015;25: 217-224

17. Gherunpong S, Tsaikos G, Sheiham A. Developing and evaluating an oral health related quality of life index for children: the CHILD-ODIP. Community Dent Health 2004; 21: 161-169.

18. Nagarajappa R, Batra M, Asadhya S, Daryani H, Ramesh G. Relationship Between Oral Clinical Conditions And Daily Performances Among Young Adults In India - A cross-Sectional Study. J Epidemiol Global Health 2015:5:347-357.

19. Chowdary MS, Sudhir KM, Reddy VC, Kumar RV, Srinivasulu G. Oral Impacts On Daily Performance In White-Collar Port Workers In Nellore, India – A Cross-Sectional Study. Int Marit Health 2016; 67:205-213.

20. Prado RL, Saliba NA, Garbin CAS, Moimaz SAS. Oral impacts on daily performance of Brazilians assessed using a socio-dental approach: analysis of national data. Braz Oral Res 2015; 29(1):1-9.

21. Mohebbi SZ, Sheikhzadeh S, Batebi A, Bassir SH. Oral impact on daily performance in 20- to 50-yr old demanding dental care in Tehran, Iran : Association with clinical findings and self-reported health . Oral Health Prev Dent. 2014;12(1):29-36

22. Gomes AS, Abegg C. The impact of oral health on daily performance of municipal daily waste disposals workers in Porto, Alegre, Rio Grande do Sul State, Brazil. Cad Saude Publica 2007;23(7): 1707-1714

23. Peker I, Alkurt MT. Oral impacts on daily performance in Turkish adults attending a dental school. J Contemp Dent Pract. 2014 Jan 1; 15(1):92-98.

24. Kish L. Survey sampling. Wiley Inter-science publication, New York; 1965.