ORIGINAL RESEARCH

Impact of Oral Diseases on the Quality of Life of Public Service Workers in Port Harcourt, Nigeria

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ABSTRACT

Background: The oral health impact profile-14 (OHIP-14) scale is a valid, reliable and globally accepted tool for comprehensive measure of self-reported dysfunction, discomfort and disability attributed to oral conditions. The objective of this study was to evaluate subjectively the impact of oral disease on the quality of life of public service workers in Port Harcourt, Rivers State, Nigeria.

Materials and methods: The study was a cross-sectional study conducted among public service workers in Port Harcourt, Rivers State, Nigeria. A total of 638 participants were selected using multistage sampling technique. Data were collected using pre-tested self-administered questionnaires containing information on biodemographics, dental service utilization and OHIP-14 variables. Analysis of OHIP-14 was done using the simple count and additive method on statistical package for social sciences spread sheet.

Results: About 20% of the participants had OHIP score >14. A total of 143 (22.4%) participants had utilized dental services in the past, 62.4% of this had OHIP score > 14. The impact as a result of oral health status experienced among the participants was 'self-consciousness', 62.3%; 'painful aching', 44.3% and 'uncomfortable to eat' 32.8%. There was no significant difference in quality of life in relation to gender, age educational status and salary grade level.

Conclusion: Oral disease had a negative impact on quality of life; this impact was greater in the psychological and physical domain of the OHIP-14 scale. Respondents who reported greater impact of oral disease on their quality of life utilized dental services more frequently compared to those who reported less impact.

Keywords: Dental service utilization, OHIP-14, Oral disease, Quality of life.

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INTRODUCTION

Quality of life is a concept that can be explored from different points of view and has been established as an important determinant of care seeking, and thus utilization of health services.[1] In the past, there was a poor perception of the effect of oral diseases on the quality of life and some researchers even went as far as rejecting the notion that oral health diseases could have any effect on social life.[2] This perception may have been responsible for the relatively recent creation of the notion of oral health-related quality of life (OHRQOL) in the 1980s as opposed to health-related quality of life (HRQOL) in the 1960s.[2] OHRQOL is a multidimensional concept, the United States Surgeon General report on oral health defines it as 'a multidimensional construct that reflects (among other things) peoples comfort when eating, sleeping and engaging in social interactions; their self-esteem; and their satisfaction with respect to their oral health'.[3]

There are a variety of methods of assessing OHRQOL which is vital for planning oral health programs. One of the most comprehensive and most widely used instrument available is the oral health impact profile (OHIP) and its shorter and more commonly used version OHIP-14. Oral health impact profile-14 is a 14 item questionnaire designed to measure self-reported functional limitation, psychological discomfort, and disability attributed to oral conditions.[4] This instrument assesses the social impact of oral disorders and is derived from an extended version of 49 items based on a theoretical model developed by the World Health Organization[5] (WHO) and later adapted for oral health.[6] The OHIP-14 is internationally acceptable has been proven to be valid and reliable.[4] It has also been validated among adult population in Nigeria.[7] The OHIP provides a comprehensive measure of self-reported dysfunction, discomfort and disability attributed to oral conditions.[8] It complements traditional oral epidemiological indicators of clinical disease, thereby providing information about the burden of oral disease within

populations and the effectiveness of health services in reducing that burden of illness.[8]

A number of studies assessing the oral health-related quality of life in adult population have been conducted in Nigeria.[7,9] However, data on working adults are uncommon. This group is not commonly studied, yet oral disease can interfere with individuals' daily activities and affect their productivity at work.[10] To this end, information on this group is imperative. Therefore, the objective of this study was to evaluate subjectively the impact oral disease on the quality of life of public service workers using the OHIP-14 scale. The findings of this study would promote the development of prevention and intervention strategies that could reduce the economic impact of reduced quality of life in the workforce.

MATERIALS AND METHODS

Study Design and Study Population

The study was a cross-sectional study conducted among civil servants in Port Harcourt, Rivers State, Nigeria.

Sample Size Estimation

Data were obtained from 638 participants. A minimum sample size of 382 was estimated to be adequate. The assumptions made were: the proportion of participants who reported impact of oral health disease on daily activities was 46%,[9] precision (d) 5% and confidence interval of 95%.

Sampling Methods and Sample Selection

The study units were selected using multistage sampling technique. The participating ministries were randomly selected from both the Federal and State civil service by simple replacement balloting. Subsequently, a list of civil servants was compiled from the nominal rolls of the selected ministries and respondents selected using a table of random numbers until the desired sample size was obtained.

Data Collection and Analysis

Data were collected using pre-tested self-administered questionnaires. The questionnaire contained information on bio-demographics (age, gender, grade level and level of education), OHIP-14 variables and utilization of dental services. Oral health impact profile-14 has seven conceptual dimensions of impact and each dimension has two questions.[6] Participants were asked how frequently in the last 12 months they had experienced negative impacts in these dimensions. Each question was assessed based on the following response scale: 4 = 'very often', 3 = 'fairly often', 2 = 'occasionally', 1 = 'hardly ever', and 0 = 'never'.

Analysis of OHIP-14 was done using the simple count and additive method. In the simple count method, count of the number of items to which subjects responded 'never', 'hardly ever', 'occasionally', 'fairly often' and 'very often' was performed and this was used to generate frequencies. Response of 'never' and 'hardly ever' was reported as no impact while 'occasionally', 'fairly often' and 'very often' was reported as impact.[4] Whereas the response codes for each item of the OHIP-14 indices were summed up for each individual in the additive method.[11,12] Individual score varied from 0 to 56. For the purpose of comparing OHIP-14 items with sample characteristics, OHIP-14 score was dichotomized into no impact (0–14) and impact (15–56),[13] age (≤ 35 and > 35) and level of education (≤ secondary and > secondary).

Statistical Package for Social Sciences Version 20.0 (IBM Statistics Armonk New York, USA) was used for data analysis. The results were presented using frequencies, percentages and proportions for categorical variables and means together with standard deviations for continuous variables. Chi-square was used to text association between variables. Significance was determined at 95% confidence interval and statistical significance inferred at $p < 0.05$.

Ethical Consideration

Ethical approval for the study was obtained from the Research and Ethics Committee of the University of Port Harcourt. Permission to carry out the study was further obtained from the Head (Permanent Secretaries) of the selected ministries and written informed consent obtained from the participants. Selected subjects who did not consent to participate in the study were excluded.

RESULTS

The age of the participants ranged from 21 to 60 years with a mean of 41.8 (±9.4) years. Most of the respondents (36.9%) were within 44 to 52 age group. There were more males 326 (51.1%) than females 312 (48.9%). Regarding educational status, 80.7% had tertiary education, 16.1% secondary education and 3.1% primary education. The difference in education status was statistically significant. Majority of the workers (79.5%) belong to the senior staff (level 7–16) cadre.

The OHIP-14 score ranged from 0 to 48 with a mean of 9.05 (±9.04). Majority 507 (79.5%) of the respondents reported no impact (OHIP-14 score < 14) of oral health status on quality of life, while 20.5% had OHIP score greater than 14. There was no significant difference in quality of life in relation to gender, age educational status and salary grade level (Table 1). A total of 143 (22.4%) participants had utilized dental services in the past, of

this, 62.4% had OHIP score greater than 14 (reported impact) and 37.6% had OHIP score less than or equal to 14 (reported no impact). This difference was significant (p < 0.001).

The most common response to the OHIP-14 variables among the public service workers was 'never'. 'Occasionally' was the most frequent response to the degree of impact when indicated. The highest impact as a result of oral health status experienced by the participants was 'self-consciousness' (62.3%), followed by 'painful

aching' (44.3%) and finding it 'uncomfortable to eat' (32.8%) (Table 2).

DISCUSSION

This study carried out among public service workers in Port Harcourt, Rivers State, Nigeria, provides insight into oral health-related quality of life among this group. The oral health-related quality of life was determined using the globally accepted index; the OHIP-14. Oral health-related quality of life is a concept that deals with

Table 1: Relationship between OHIP scores and sociodemographic characteristics

| Variable | OHIP scores | | | |
	No impact (≤14) N (%)	Impact (>14) N (%)	Total N (%)	p-value
Age (years)				
≤ 35	195 (73.9)	69 (26.1)	264 (100)	0.086
> 35	312 (83.4)	62 (16.6)	374 (100)	
Total	507 (79.5)	131 (20.5)	638 (100)	
Gender				
Male	266 (52.5)	60 (45.8)	326 (100)	0.062
Female	241 (47.5)	71 (54.2)	312 (100)	
Total	507 (79.5)	131 (20.5)	638 (100)	
Educational status				
≤ Secondary	66 (53.7)	57 (46.3)	123 (100)	0.070
> Secondary	441 (85.6)	74 (14.4)	515 (100)	
Total	507 (79.5)	131 (20.5)	638 (100)	
Grade level				
1–6 (Junior staff)	82 (62.6)	49 (37.4)	131 (100)	0.054
7–16 (Senior staff)	425 (83.8)	82 (16.2)	507 (100)	
Total	507 (79.5)	131 (20.5)	638 (100)	

Table 2: Distribution of OHIP response among the respondents

| OHIP-14 domains and questions | No impact | | | Impact | | | |
	Never N (%)	Hardly ever N (%)	Total N (%)	Occasionally N (%)	Fairly often N (%)	Very often N (%)	Total N (%)
Functional limitation							
Problem pronouncing words	554 (86.8)	23 (3.6)	577 (90.4)	51 (8.0)	7 (1.1)	3 (0.5)	61 (9.6)
Worsened sense of taste	519 (81.3)	39 (6.1)	558 (87.4)	69 (10.8)	7 (1.1)	4 (0.6)	80 (12.6)
Physical pain							
Painful aching	302 (47.3)	54 (8.5)	356 (55.8)	233 (36.5)	37 (5.8)	12 (1.9)	282 (44.2)
Uncomfortable to eat	375 (58.8)	59 (9.2)	434 (68.0)	153 (24.0)	30 (4.7)	21 (3.3)	204 (32.0)
Psychological discomfort							
Self-conscious	211 (33.1)	30 (4.7)	241 (37.8)	182 (28.5)	71 (11.1)	144 (22.6)	397 (62.2)
Felt tense	372 (58.3)	68 (10.7)	440 (69.0)	138 (21.6)	31 (4.9)	29 (4.5)	198 (31.0)
Physical disability							
Diet has been unsatisfactory	471 (73.8)	57 (8.9)	528 (82.7)	74 (11.6)	20 (3.1)	16 (2.5)	110 (17.3)
Interrupted meals	422 (66.1)	60 (9.4)	482 (75.5)	120 (18.8)	23 (3.6)	13 (2.0)	156 (24.5)
Psychological disability							
Difficulty to relax	456 (71.5)	64 (10.0)	520 (81.5)	82 (12.9)	27 (4.2)	9 (1.4)	118 (18.5)
Little embarrassed	460 (72.1)	49 (7.7)	509 (79.8)	87 (13.6)	24 (3.8)	18 (2.8)	129 (20.2)
Social disability							
Felt irritable with others	432 (67.7)	52 (8.2)	484 (75.9)	118 (18.5)	21 (3.3)	15 (2.4)	154 (24.1)
Difficulty doing usual jobs	500 (78.4)	53 (8.3)	553 (86.7)	62 (9.7)	14 (2.2)	9 (1.4)	85 (13.3)
Handicap							
Less satisfaction	532 (83.4)	46 (7.2)	578 (90.6)	35 (5.5)	13 (2.0)	12 (1.9)	60 (9.4)
Unable to function	552 (86.5)	41 (6.4)	593 (92.9)	29 (4.5)	9 (1.4)	7 (1.1)	45 (7.1)

the impact of dental problems on the quality of the lives of people. The present study evaluated the impact of oral health problems on quality of life and compared with age, gender, educational status and dental service utilization.

The impact of oral health status on the quality of life reported in this study was 20.5%. This was comparable to results obtained from other parts of the globe; prevalence impact using OHIP-14 scale reported in America,[14] Hispanic America[15] and Australia[14] was 15.3, 15.1 and 15.7% respectively. Anosike et al[16] reported prevalence impact of 14.7% among Nigerian school children between the age of 12 and 16 years. The prevalence impact obtained in this study is quite low compared to 82.8% reported by Lawal et al[7] among dental patient. The difference may be due largely to two factors. Firstly, unlike the sample in the study conducted by Lawal et al, the sample in this study consisted of healthy subjects. Individuals with oral disease which necessitated dental visits are more likely to report impact on quality of life than healthy subjects. This fact is supported by the study of Liu et al[17] which reported impact prevalence of 13% among healthy subjects and 57% among individuals with oral mucosal diseases. Secondly, difference in methodology may also play a role in this variation. Impact in this study was reported at OHIP-14 score >14 compared to >0 reported in the other study.

Most (62.4%) of the respondents who had utilized dental services in the past had impact score greater than 14. In Nigeria and other parts of Africa,[18-20] dental service utilization is based on the need for dental treatment usually motivated by pain and emergency care. Therefore, it is expected that those who have oral symptoms severe enough for them to see a dentist will attribute a greater impact on their quality of life due to their oral disease.[7]

The most common response to the OHIP-14 variables among the public service workers was 'never'. 'Occasionally' was the most frequent response to the degree of impact when indicated. Similar finding was reported among Jordanian adult population.[21] Self-consciousness (psychological impact) was the highest impact as a result of oral health status experienced by the participants; this was followed by physical pain impact consisting of painful aching and finding it uncomfortable to eat. This indicates that many participants had impacts on their oral health-related quality of life either due to perceived poor dental esthetics or decayed teeth and other oral conditions which cause pain. Similar findings were also observed among Canadian seniors.[22] High ratings in the psychological domain has also been seen among orthodontic[23] and periodontal patients.[24] However, physical pain, functional limitation and psychological impacts were the most frequently reported problems in another study.[13]

In the present study, no significant association was found between OHIP score and demographic characteristics. This was comparable to the result obtained among adult patients in Ibadan, Nigeria. The reported impact of gender on quality of life is variable; some studies have reported greater impact in men[25] and others in women.[26]

This study was not without limitations. The research was cross-sectional study design with descriptive analyses. Furthermore, there was poor response from the junior workforce; therefore, within the limit of these constraints, caution is required in its interpretation. However, the study provides preliminary data on oral health-related quality of life for adult population. This data may be useful as a powerful indicator of service need and intervention outcomes.

CONCLUSION

Oral disease had a negative impact on quality of life; this impact was greater in the psychological and physical domain of the OHIP-14 scale. Respondents who reported a greater impact on their quality of life due to their oral disease utilized dental services more frequently compared to those who reported less impact. The findings of this study have significant implications for the use of oral health-related quality of life measures in the assessment, planning, and treatment of oral disease and evaluation of oral care.

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