

# Assessment of Oral Health-Related Quality of Life among Dentists: A Cross-Sectional Study

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## Abstract

**Background:** The assessment of oral health-related quality of life (OHRQoL) among dentists is an intriguing topic. The aim of this study was to evaluate the OHRQoL among Congolese dentist. **Materials and Methods:** This cross-sectional study was conducted with dentists attending the national meeting at University of Kinshasa; Faculty of dental medicine in June 2024. All participants were generally healthy without oral conditions such as oral cancer, congenital craniofacial deformities, craniofacial trauma, etc. The version of the oral health impact profile (OHIP-14) was used for the assessment of quality of life. OHIP-C14 answers to the questions are evaluated according to the follow scale: 0-No, 1-Yes. The OHIP-C14 score is calculated by adding up the responses on all 14 items, with an overall score ranging from 0 to 28. The participants completed the questionnaires individually in the auditorium, supervised by one of the researchers who addressed any issues that might have arisen. After the completion of the questionnaire, the data collection process was carried out. The Kruskal-Wallis test was applied to find the association between perceived oral health status and OHIP-C14 scores. The  $p < 0.05$  was set as statistically significant value. **Results:** In all, 162 participants were selected and 99 of whom agreed to participate. However, 6 dentists (6.1%) were excluded due to incomplete questionnaires, and we also excluded 2 dentists (2%) who were pregnant, so the final sample encompassed 91 dentists (91.9%

response rate). Mean age of the participants was  $33.2 \pm 1.9$  years and 65.9% were males. The prevalence of impact on OHRQoL was 17.9% and the mean OHIP-C14 score was  $11.66 \pm 8.72$  (range: 0 to 28). The highest mean scores were observed for the subscales physical pain ( $1.85 \pm 1.49$ ), physical disability and psychological discomfort ( $3.45 \pm 1.99$ ), ( $1.66 \pm 1.99$ ), which were also the most frequently reported subscales with an impact on OHRQoL (56.09%, 24.47% and 24.25%, respectively). Those with the least impact were psychological disability, social handicap and social disability (13.35%, 13.41% and 13.46%, respectively). In relation to gender, no statistically significant differences were detected regarding the prevalence of the impact on OHRQoL for both the mean values of total OHIP-C14 score. **Conclusion:** The present study revealed the factors associated with poor OHRQoL and physical pain and psychological discomfort were the most common domain with high OHIP scores. The understanding OHRQoL can help in planning better oral healthcare programs and interventions that not only treat diseases but also improve patients' overall quality of life.

## Keywords

Quality of Life, Oral Health, Evidence-Based Dentistry, Community Dentistry, Dentist

## 1. Introduction

The World Health Organization defines Quality of Life (QoL) as an individual's perception of their position in life within the context of their culture, value systems, personal goals, expectations, and concerns. It is influenced by physical health, psychological state, level of independence, social relationships, and interaction with the environment [1].

In contemporary healthcare, quality of life has emerged as a pivotal metric for evaluating patient well-being, transcending the narrow confines of mere absence of disease. Within the field of dentistry, this theoretical framework has precipitated the development of bespoke instruments to assess Oral Health-Related Quality of Life (OHRQoL) [2]-[4]. OHRQoL is a multidimensional construct encompassing physical, psychological, and social domains [5]. In contradistinction to conventional clinical assessments, which primarily concentrate on the presence and severity of disease, OHRQoL evaluation takes into account the manner in which oral conditions affect an individual's daily life and overall well-being [6]-[8].

The Oral Health Impact Profile (OHIP-14) is a widely utilised instrument for the assessment of OHRQoL. The evaluation encompasses seven distinct dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and social handicap [9]-[11]. The increasing emphasis on patient-centred care and the utilisation of evidence-based practices has rendered OHRQoL an indispensable outcome measure in both med-

ical and dental research [12].

Modern dentistry seeks not only to restore oral function and aesthetics but also to enhance the overall quality of life of patients [13]-[15]. However, despite the increasing research on this topic, few studies have examined OHRQoL among dentists themselves [16]-[18]. A comprehensive understanding of dentists' perceptions regarding their own oral health and its impact on quality of life could yield significant insights, offering valuable opportunities to enhance professional well-being, refine teaching methodologies, and refine preventive care strategies.

## 2. Materials and Methods

### 2.1. Participants

This cross-sectional study was conducted with dentists attending the national meeting at University of Kinshasa; Faculty of dental medicine in June 2024.

#### Inclusion criteria

All dentists who:

- Participated in national meeting at Kinshasa University;
- Were healthy without oral conditions such as oral cancer, congenital craniofacial deformities, craniofacial trauma;
- Agreed to participate signed a statement of informed consent.

### 2.2. Assessment of Oral Health-Related Quality of Life

The version of the oral health impact profile (OHIP-14) [19] was used for the assessment of quality of life. The questionnaire was self-administered by the participants. The OHIP-14, containing psychometric properties and easily applied, is frequently used in the field of dentistry due to its solid conceptual and empirical foundation. It was validated for the Congolese population [20]. OHIP-C14 answers to the questions are evaluated according to the follow scale: 0-No, 1-Yes. The OHIP-C14 score is calculated by adding up the responses on all 14 items, with an overall score ranging from 0 to 28. The higher value of the results, the worse the OHRQoL [21]-[25].

A total of 91 dentists were the participants of the study with the aim of testing the methods and understanding the questions. The participants completed the questionnaires individually in the auditorium, supervised by one of the researchers who addressed any issues that might have arisen. Anonymity and confidentiality were guaranteed. They were given the explanations of the objectives of the study. After the completion of the questionnaire, the data collection process was carried out.

### 2.3. Data Analysis

The Microsoft Excel sheet form was exported to Statistical Package for the Social Sciences (SPSS) version 21.0. Then, we recorded all the variables in SPSS as per the predefined data-coding sheet for further analysis. Descriptive data from this study were presented as frequency and proportion for qualitative variables, while

quantitative variables were shown as the mean  $\pm$  SD for age in sociodemographic characteristics. The Kruskal-Wallis test was applied to find the association between perceived oral health status and OHIP-C14 scores. The binomial logistic regression analysis was executed to determine the relationship between oral health category status and sociodemographic factors, lifestyle factors, and oral health behaviors. In this enter method; the adjusted covariables were age in years, gender, brushing count, and periodic dentist care. The  $p < 0.05$  was set as statistically significant value.

### 3. Results

In all, 162 participants were selected and 99 of whom agreed to participate. However, 6 dentists (6.1%) were excluded due to incomplete questionnaires and we also excluded 2 dentists (2%) who were pregnant, so the final sample encompassed 91 dentists (91.9% response rate) (Figure 1).

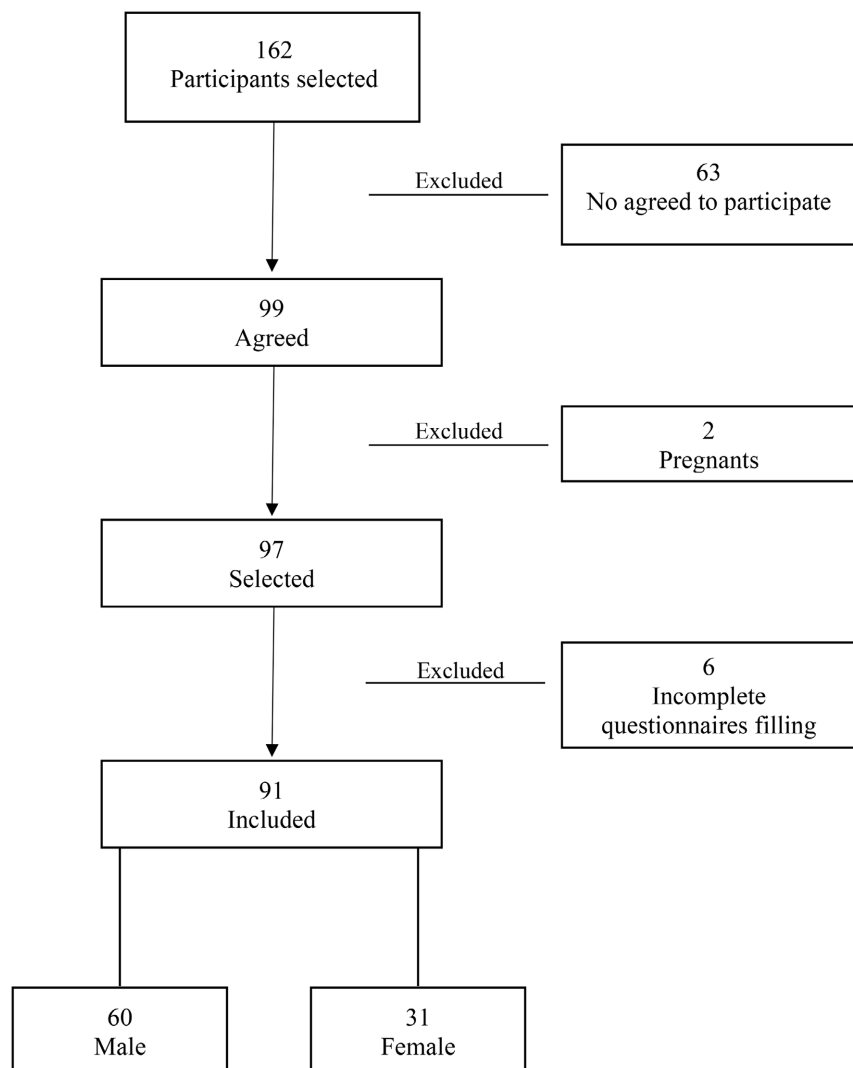


Figure 1. Flowchart of participants enrolled in the study.

**Table 1.** Sociodemographic characteristics, lifestyle factors and oral behaviors of participants.

| Characteristics  | Number         | % p value |
|--|----------------|-----------|
| Age (mean $\pm$ SD)  | 33.2 $\pm$ 1.9 |           |
| Gender   |                |           |
| Male   | 60             | 65.9      |
| Female   | 31             | 34.1      |
| Brushing teeth per day                                     |                |           |
| Once   | 61             | 59.4      |
| Twice or more  | 30             | 40.6      |
| Visit to the dental provider periodically (every 6 months) |                |           |
| Yes  | 36             | 39.9      |
| No   | 55             | 60.1      |

Mean age of the participants was  $33.2 \pm 1.9$  years and 65.9% were males (**Table 1**). The prevalence of impact on OHRQoL was 17.9% and the mean OHIP-C14 score was  $11.66 \pm 8.72$  (range: 0 to 28). The highest mean scores were observed for the subscales physical pain ( $1.85 \pm 1.49$ ), physical disability and psychological discomfort ( $3.45 \pm 1.99$ ), ( $1.66 \pm 1.99$ ), which were also the most frequently reported subscales with an impact on OHRQoL (56.09%, 24.47% and 24.25%, respectively). Those with the least impact were psychological disability, social handicap and social disability (13.35%, 13.41% and 13.46%, respectively). Total OHIP-C14 score was correlated with each of the seven subscales (correlation range: 0.56 - 0.84) (**Figure 2, Table 2**). In relation to gender, no statistically significant differences were detected regarding the prevalence of the impact on OHRQoL for both the mean values of total OHIP-C14 score and for individual OHIP-C14 subscale scores.

**Table 2.** Frequency of responses in each domain of OHIP-C14.

| Domains                  | Items                       | No<br>n (%) | Yes<br>n (%) | p value |
|--------------------------|-----------------------------|-------------|--------------|---------|
| Functional limitations   | Trouble pronouncing words   | 81 (89.1)   | 10 (10.9)    | <0.001  |
|                          | Taste worsened              | 88 (97.8)   | 2 (2.2)      |         |
| Physical pain            | Aching mouth                | 36 (39.6)   | 55 (60.4)    | <0.001  |
|                          | Discomfort in eating food   | 66 (61.5)   | 35 (38.5)    |         |
| Psychological discomfort | Being self-conscious        | 67 (73.6)   | 24 (26.4)    | <0.001  |
|                          | Feeling nervous             | 78 (85.7)   | 13 (14.3)    |         |
| Physical disability      | Unsatisfactory diet         | 55 (71.4)   | 26 (28.6)    | <0.001  |
|                          | Interrupting meals          | 66 (72.5)   | 25 (27.5)    |         |
| Psychological disability | Embarrassed                 | 75 (82.4)   | 16 (17.6)    | <0.001  |
|                          | Difficulty relaxing         | 91 (100.0)  | 0 (00.0)     |         |
| Social disability        | Irritable with others       | 87 (95.6)   | 4 (4.4)      | <0.001  |
|                          | Difficulty doing usual jobs | 84(92.3)    | 7 (7.7)      |         |
| Handicap                 | Life less satisfying        | 84 (92.3)   | 7 (7.7)      | <0.001  |
|                          | Unable to function          | 84 (92.3)   | 7 (7.7)      |         |

The participants' responses in each item of the OHIP-C14 questionnaire are presented in **Table 2**. The majority (89.1%) of the participants never had trouble pronouncing words, (92.3%) of the participants never had difficulty doing their usual jobs, and 26.4% of dentists were self-conscious due to their oral health.

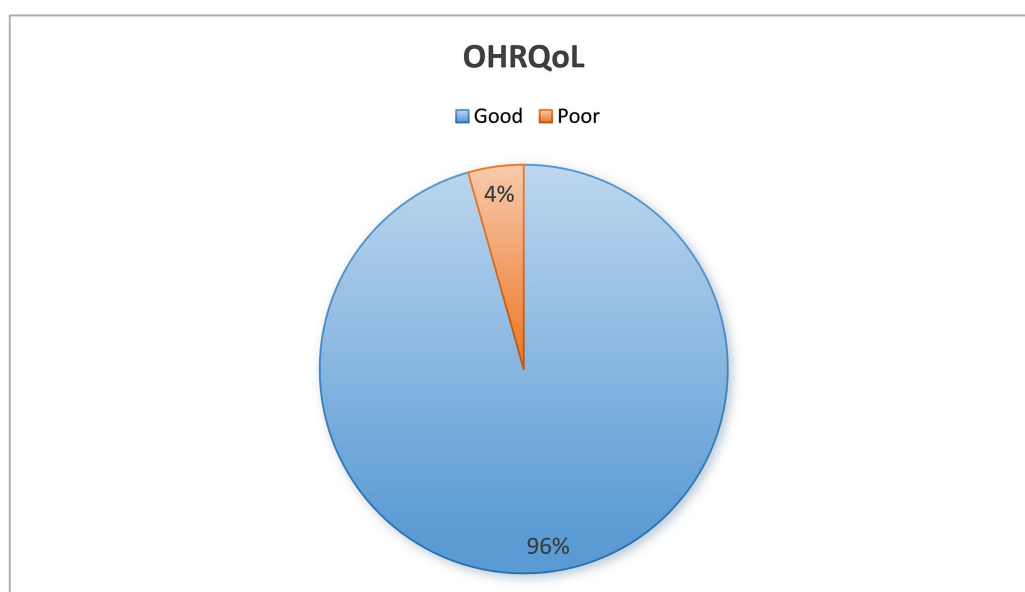
**Table 3.** Association between combined OHIP-C14 scores with self-rated oral health and pain or discomfort in the mouth.

| Variable                              | n (%)     | Mean ( $\pm$ SD) | p value |
|---------------------------------------|-----------|------------------|---------|
| Self-rated oral health                |           |                  |         |
| Poor                                  | 16 (17.9) | 14.6 (3.7)       | <0.001  |
| Good                                  | 75 (82.1) | 13.9 (3.4)       |         |
| Pain or discomfort in teeth or in TMJ |           |                  |         |
| No                                    | 87 (95.6) | 11.1 (2.6)       | 0.012   |
| Yes                                   | 04 (4.4)  | 13.4 (3.8)       |         |

**Table 3** shows that (82.1%) of the participants reported good oral health. Furthermore, the combined OHIP-14 scores the self-rated oral health were assessed by the Kruskal-Wallis test. Of the sample studied, there was a significant association between self-rated oral health ( $p < 0.001$ ) and pain or discomfort in teeth or gum or mouth ( $p = 0.012$ ) with the OHIP-14 scores.

### OHRQoL of Patients

The participants were further classified into good and poor OHRQoL categories. Of the 91 dentist who participated, 4 (4.4%) were in the poor oral health category and 87 (95.6%) were in the good OHRQoL categories. These categories were used for logistic regression analysis.



**Figure 2.** OHRQoL for all participants.

**Table 4.** Relationship between OHRQoL category and sociodemographic characters, lifestyle factors.

| Characteristics  | Total sample (91) | Poor OHRQoL |           | Binomial logistic regression |                |
|--|-------------------|-------------|-----------|------------------------------|----------------|
|  |                   | No          | Yes       | Adjusted OR (95% CI)         | <i>p</i> value |
| Age (mean ± SD)  | 33.2 ± 1.9        |             |           | 0.95(0.83 - 1.09)            | 0.533          |
| Gender   |                   |             |           | Ref                          |                |
| Female   | 31                | 27 (87)     | 4 (13)    | 1.86 (1.23 - 2.94)           | 0.004          |
| Male   | 60                | 48 (80)     | 12 (20)   |                              |                |
| Brushing teeth per day                                     |                   |             |           | Ref                          |                |
| Twice or more  | 36                | 31 (86.1)   | 5 (13.9)  | 0.76 (0.56 - 1.34)           | 0.601          |
| Once/never   | 55                | 42 (76.3)   | 13 (23.7) |                              |                |
| Visit to the dental provider periodically (every 6 months) |                   |             |           | Ref                          |                |
| Yes  | 50                | 46 (92)     | 4 (8)     | 2.23 (1.53 - 2.86)           | 0.002          |
| No   | 41                | 27 (65.8)   | 14 (34.2) |                              |                |

The results of binomial logistic regression analysis were done to find the relationship between oral health category status with the sociodemographic characters, lifestyle factors, and oral health behaviors are presented in **Table 4**. The poor oral health category was significantly associated with male gender (ref: female: AOR = 1.89, 95%CI = 1.23 - 2.94,  $p = 0.004$  and the dental care provider periodically (ref: periodic dental care: AOR = 2.23, 95% CI = 1.53 - 2.86,  $p = 0.002$ ).

Variable(s) entered on step 1: age in years, gender, brushing per day, and periodic dental visit.

#### 4. Discussion

The meeting theme focused on inspiring the participants on the importance of oral health for its positive effect on general health, well-being, and overall healthy life. This reiterates the importance of assessing OHRQoL among dentists for preventive measures to improve their overall health.

Previous researchers worldwide stated that self-rated OH is one of the critical links and predictors of the general health status of the public [26] [27]. The present study findings revealed that one-fourth (24.9%) of the participants perceived their oral health status as either poor or fair. A survey conducted by Drachev *et al.* revealed similar findings among students [17]. In contrast, a study done by Moreas *et al.* has shown a higher proportion of poor self-rated health among women [18]. This difference in results could be described due to the study settings, inclusion criteria, and methods used. The present study included all dentists of both sexes, while the latter included only women from a Brazilian community. Dentists have a good perception about the oral health more than other people. The present study revealed a positive association between the OHIP-C14 scores and self-oral rated health ( $p < 0.001$ ). This study finding is supported by researches of Verhulst *et al.* [16]. Those studies also reported a positive association between perceived poor oral health status and the OHIP-14 scores. These findings again confirm that self-

rated oral health is one of the strongest predictors of the OHRQoL and general health [28].

The results of the current study indicated that the highest OHIP score was found in physical pain, followed by the domains of psychological discomfort and psychological disability domains. Similarly, a study conducted in Saudi Arabia also found that physical pain and psychological discomfort domains had higher OHIP scores than the rest of the domains [29]. Interestingly, a study done by Papaioannou *et al.* among the Greek population revealed that high scores were determined in functional limitation, physical pain, and handicap domains [30]. This dissimilarity could be justified by the variations in the incorporation of the survey participants. The current study included dentists from Kinshasa and others cities in DR Congo, while Papaioannou *et al.* surveyed the adults from rural and urban communities.

On assessing the association between sociodemographic characteristics with the poor OHRQoL, the present study found that male participants had a significantly higher rate of poor OHRQoL (AOR = 1.89, 95%CI = 1.23 - 2.94,  $p = 0.004$ ) than female. However, previously published studies around the world reported different findings. For example, a study done in China by Lu *et al.* did not find any differences between genders and OHRQoL [31], and a study by Yadav *et al.* in Nepalese [32].

Although there are many debates about the periodic screening interval for preventive dental care, the Congolese Dental Association suggested dental screening and evaluation every six months. The current study reported that 60.1% of the participants did not seek dental care providers periodically. The poor OHRQoL was significantly higher among the dentists who did not visit dental healthcare providers regularly (AOR = 2.23, 95%CI = 1.53 - 2.86,  $p = 0.002$ ). Some researchers have previously evaluated the effectiveness of periodic dental screening [33] [34].

Despite the best efforts made by the present survey team on this study with a standard methodology, certain limits are to be noted while reading the findings of the current survey. Firstly, this survey is a questionnaire-based and self-reported. Hence, recall bias, exaggerated responses, and selection bias are to be considered while interpreting the findings of this survey. Secondly, this cross-sectional study attempted to find the association, and not the causation, between the variables. The concerned authorities should consider the implementation of periodic dental checkups for dentist.

## 5. Conclusion

The study findings suggest that self-rated poor oral health is significantly associated with OHIP-14 scores. The present study revealed the factors associated with poor OHRQoL. Physical pain and psychological discomfort were the most common domain with high OHIP scores. Furthermore, regular health programs that help change the lifestyle and oral health behaviors must be arranged. The under-

standing OHRQoL can help in planning better oral healthcare programs and interventions that not only treat diseases but also improve dentists' overall quality of life.

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### Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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