Original Research Article

**Oral Health-Related Quality of Life in Patients Rehabilitated with Clasp-Retained Removable Partial Dentures**

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**ABSTRACT**

| **Aims:** The present study aimed to evaluate the Oral Health-Related Quality of Life (OHRQoL) of partially edentulous patients rehabilitated with clasp-retained removable partial dentures (CR-RPD) at the School of Dentistry of the Federal University of Ceará (UFC), Fortaleza campus.  **Study design:** Original research article.  **Place and Duration of Study:** Removable Partial Denture Clinic of the School of Pharmacy, Dentistry and Nursing of the Federal University of Ceará located in Fortaleza, state of Ceará, Brazil, between February 2023 and March 2024.  **Methodology:** A cross-sectional, descriptive, quantitative study was conducted with 45 participants. Data were collected in the first week after CR-RPD placement using a sociodemographic questionnaire and the Oral Health Impact Profile-14 (OHIP-14). Seven dimensions of oral health-related quality of life were assessed. Data analysis was performed using chi-square and Fisher’s exact tests (*P* < 0.05).  **Results:** It was evidenced that most participants were female (75.6%) and aged between 51 and 70 years (64.5%). The most affected domains were physical pain, psychological discomfort, and emotional disability, while social aspects were less compromised. Patients rehabilitated with mandibular CR-RPDs alone showed higher OHIP-14 scores, suggesting a greater negative impact, although not statistically significant. No significant associations were found with age or type of rehabilitation; however, women reported greater emotional vulnerability (*P* = 0.003).  **Conclusion:** The findings highlight the importance of a comprehensive rehabilitative approach that addresses not only masticatory function and aesthetics but also the subjective and psychosocial aspects of tooth loss, emphasizing clinical listening and individual needs. |
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*Keywords: Quality of life; oral health; denture, partial, removable; mouth rehabilitation.*

**1. INTRODUCTION**

Tooth loss has significant impacts on the entire stomatognathic system, often leading to irreversible changes in the facial skeletal structure due to alveolar bone resorption and progressive deterioration of neuromuscular function (Dias et al., 2016).

Studies indicate that the consequences of edentulism extend beyond the inability to perform basic functions such as chewing, swallowing, and speaking, encompassing the exacerbation of systemic conditions, including diabetes and hypertension, as well as aesthetic impairment (Dias et al., 2016; Petry; Lopes; Cassol, 2019). This is partly due to the tendency of partially or completely edentulous individuals to adopt high-calorie diets, favoring easily chewable foods while excluding protein-rich items, which are typically more fibrous and firm (Yoshimoto et al., 2021).

Thus, literature reports indicate that, as the last resort following the failure of previous conservative treatments, tooth loss can impact individuals’ psychological and social health in addition to negatively affecting oral function (Dias et al., 2016). Accordingly, the association between edentulism and mental health has been the focus of recent research, showing that patients with tooth loss are more prone to depressive symptoms and social isolation, highlighting that rehabilitative interventions should address not only functional aspects but also the psychosocial effects of this condition (Albuquerque et al., 2023).

In this context, the use of clasp-retained removable partial dentures (CR-RPDs) represents an effective rehabilitative strategy, allowing partial restoration of masticatory function while providing aesthetic benefits and improving patient well-being. These gains are intrinsically linked to the concept of quality of life (Fajardo et al., 2002; Kazuo et al., 2008; Zhang et al., 2013). CR-RPDs are notable for their economic accessibility and are particularly indicated for patients with systemic or structural limitations that prevent implant placement (Mamdouh; El-Sherbini; Mady, 2019).

However, the literature indicates that the success of oral rehabilitation goes beyond the technical quality of the prosthesis. Variables such as comfort, aesthetics, speech, and masticatory efficiency are key determinants of user satisfaction (Ereifej; Oweis; Abu-awwad, 2023). Aesthetic considerations, in particular, are among the main motivators for seeking prosthetic treatment (Peršić; Čelebić, 2015). Even technically well-made prostheses may be rejected by patients, especially the elderly, due to adaptation issues or dissatisfaction (Petry; Lopes; Cassol, 2019; Turker; Sener, Özkan, 2009). Moreover, factors such as the number and distribution of remaining teeth, age, sex, educational level, and sociocultural context directly influence masticatory capacity, affecting quality of life (Zhang et al., 2013).

The post-insertion period of CR-RPDs is often characterized by difficulties related to chewing, speech, and prosthesis handling, particularly due to motor coordination limitations, which pose significant barriers to prosthetic adaptation (Shala et al., 2016; Silva, 2013; Silva et al., 2019). Therefore, it is essential for the dentist to understand patients’ expectations, perceptions, and attitudes toward treatment to ensure therapeutic success (Pommer, 2013). Accordingly, studies highlight the importance of investigating patient satisfaction as a tool for the continuous improvement of rehabilitative clinical practice (Alvarenga et al., 2011; Silva et al., 2019).

Despite its importance, patient satisfaction assessment is highly variable and subjective, which can pose a challenge for professionals. Nevertheless, understanding this perception is essential, as dissatisfaction can compromise the trust between patient and clinician. However, many dentists still tend to base their evaluations solely on technical criteria, neglecting the patient’s perspective (Kok et al., 2017; Pommer, 2013; Yoshimoto et al., 2021).

In this context, the concept of Oral Health-Related Quality of Life (OHRQoL) has gained increasing interest among researchers, as it refers to an individual’s subjective perception of their oral condition and the impact of dental treatment on daily life (Ali et al., 2019; Jenei et al., 2015). OHRQoL encompasses aspects such as functional limitation, physical pain, emotional discomfort, and social and psychological impacts associated with tooth loss or impairment (Ali et al., 2019).

Thus, a paradigm shift is observed in dental practice, with increasing emphasis on active patient participation. This approach promotes more humanized practices focused on health promotion and disease prevention through attentive listening and identification of the problems actually experienced by patients. Accordingly, the use of validated instruments to quantify the impact of oral conditions on OHRQoL has become more widespread (Petry; Lopes; Cassol, 2019; Silva et al., 2019).

Several instruments have been developed for this purpose. Among the pioneers are the Geriatric/General Oral Health Assessment Index (GOHAI), created in 1990 (Atchison; Dolan, 1990), the 36-Item Short Form Health Survey (SF-36) in 1992 (Ware-Jr; Sherbourne, 1992), and the Dental Impact Profile in 1993 (Strauss; Hunt, 1993). In 1994, Slade and Spencer introduced the Oral Health Impact Profile (OHIP-49), which became the main instrument for assessing OHRQoL (Slade; Spencer, 1994). Composed of 49 items covering different dimensions of oral health, the OHIP-49 led to a shortened version, the OHIP-14, designed to facilitate clinical application in research (Allen; Locker, 2002; Almeida; Loureiro; Araújo, 2004; Slade, 1997).

The OHIP-14 is structured into seven domains: functional limitation, pain, psychological discomfort, physical disability, psychological disability, social disability, and social disadvantage. Each domain is represented by two questions, with responses ranging from 0 (never) to 4 (always), based on event frequency. The sum of the scores results in a total score of up to 56 points, with higher scores indicating poorer OHRQoL (Yoshimoto et al., 2021).

CR-RPDs, widely used in public health services, represent an efficient and accessible alternative for restoring masticatory function and aesthetics. However, issues such as discomfort, functional limitations, dissatisfaction with aesthetics, and adaptation difficulties are commonly reported as factors compromising clinical success (Yoshimoto et al., 2021).

Given this scenario, investigating the satisfaction of patients rehabilitated with CR-RPDs is essential not only to identify shortcomings in care but also to support strategies for improving the services provided, potentially informing the revision and updating of undergraduate and postgraduate curricula. Analyzing patients’ complaints and expectations can help optimize clinical practice and enhance the training of professionals more attuned to the real needs of the population.

Beyond its academic value, understanding the impact of oral rehabilitation on patients’ lives provides relevant insights for planning interventions aimed at improving quality of life, encompassing functional, aesthetic, and psychosocial dimensions. In this context, the present study aims to answer the following question: 'What is the impact of oral health on the quality of life of partially edentulous patients rehabilitated with CR-RPDs at the Removable Partial Denture Clinic of the School of Pharmacy, Dentistry, and Nursing (FFOE) of the Federal University of Ceará (UFC).

Therefore, the objective of this work was to evaluate the OHRQoL of patients, considering functional, aesthetic, emotional, and social aspects, as well as the influence of sociodemographic variables (age, sex, education) and clinical characteristics (type of rehabilitation with CR-RPDs and presence of systemic conditions). The central hypothesis of the research suggests that rehabilitation with CR-RPDs positively influences patients’ quality of life, promoting improvements in various aspects, including oral functionality, aesthetics, and psychosocial well-being.

**2. METHODOLOGY**

This is a cross-sectional, descriptive, and quantitative study in which structured questionnaires on quality of life associated with the use of clasp-retained removable partial dentures (CR-RPDs) were applied. The School of Dentistry of the Federal University of Ceará serves as an important referral center for the population of Fortaleza, state of Ceará, Brazil, particularly in the field of oral rehabilitation with CR-RPDs, with treatments conducted at the clinic of the mandatory Removable Partial Denture course, part of the institution’s Dentistry curriculum. On average, 12 patients are rehabilitated per semester.

For the composition of the sample in this study, 45 patients treated during the 2023.1, 2023.2, 2024.1, and 2024.2 semesters were selected based on sample size calculation. The sample size was determined using the proportion estimation method, considering a 95% confidence level and a maximum sampling error of 5%, according to the following formula:

Where:

* = sample size
* *EDFF* = design effect = 1.0
* = population size ≈ 48
* *p* = estimated proportion of the characteristic in the population = 50%
* *d* = allowable error (absolute precision) = 0.05
* *Z*1−α/2​​ = critical value of the standard normal distribution for the desired confidence level = 1.96

Inclusion criteria considered partially edentulous individuals of both sexes, aged 18 to 70 years, who received treatment with CR-RPDs in at least one arch at the referred clinic. Patients were excluded if they: a) received CR-RPD treatment at other clinics of FFOE/UFC; b) had cognitive impairment, mental disorders, or conditions preventing participation in the study; c) refused to participate.

The study was conducted at the Removable Partial Denture Clinic of the School of Pharmacy, Dentistry, and Nursing (FFOE) of UFC, following approval by the Research Ethics Committee (CEP) for human subjects at the Federal University of Ceará, in accordance with Resolution No. 466 of 2012 of the National Health Council/Ministry of Health, which establishes guidelines and standards for research involving human participants as set by the National Research Ethics Commission. All participants were informed verbally and in writing about the study objectives and procedures and provided their consent by signing the Informed Consent Form (ICF).

Confidentiality of the information was ensured, and no interventions were performed beyond the administration of the questionnaires. The risks associated with this study mainly relate to possible discomfort due to the time required to complete the questionnaires and, albeit remotely, the potential breach of confidentiality of the collected data. Nevertheless, all appropriate measures were taken to minimize any inconvenience to participants and to ensure full protection of personal information, guaranteeing the confidentiality and anonymity of both students’ and volunteers’ data.

After obtaining formal consent, two instruments were applied: (1) a clinical and sociodemographic questionnaire containing 14 questions, which initially allowed data collection for sample characterization, including sociodemographic variables (such as age, sex, employment status, marital status, and education) and clinical variables (type of rehabilitation and systemic conditions); and (2) the short version of the OHIP-49 instrument, called OHIP-14 (Oral Health Impact Profile – Short Form), composed of 14 items distributed across seven dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and social disadvantage.

Translated into Portuguese by Almeida, Loureiro, and Araújo (2004), the OHIP-14 is widely used to assess the impact of oral health on quality of life. It includes two items in each of the seven dimensions (Slade, 1997). Through the responses, problems are recorded according to the self-perception reported for each of the fourteen OHIP questions. Responses were given on a Likert-type scale and coded with five options: 4 = 'always'; 3 = 'repeatedly'; 2 = 'sometimes'; 1 = 'rarely'; and 0 = 'never'. For this report, descriptive statistics were generated by calculating the mean of the coded response for each item, described below as the severity score for each item. Consequently, the OHIP-14 scale ranges from 0 to 56, with higher scores indicating worse performance (Almeida; Loureiro; Araújo, 2004).

All questions in the OHIP-14 questionnaire aim to relate the oral condition or the prostheses in use to the themes of each dimension. The functional limitation dimension includes questions about difficulty speaking and worsened taste perception; the pain dimension addresses the sensation of pain and discomfort when eating; the psychological discomfort dimension refers to worry and stress due to the oral condition. Impairment in eating and the need to stop eating are addressed in the physical disability dimension, while the psychological disability dimension includes questions about difficulty relaxing and feelings of embarrassment due to the oral condition. The social disability dimension includes questions about irritation with others and difficulty performing daily activities because of the oral condition; finally, the handicap dimension examines whether the individual perceives their life as worsened and whether they felt completely unable to carry out routine activities.

Before administering the questionnaires, a pilot test was conducted with patients treated in previous semesters. At this stage, it was verified that there were no difficulties regarding comprehension of the instrument items, the time required to complete them (approximately fifteen minutes), or the location chosen for the activity. Data collection took place during the first week after prosthesis placement, through the administration of the questionnaires conducted by students of the Removable Partial Denture course, properly guided and supervised by the responsible faculty members. The researcher read each question together with the participant, and after the reading, the volunteer freely selected their response from the five options on the Likert scale (never, rarely, sometimes, frequently, and always) and followed the corresponding marking.

Data were organized in Microsoft Excel® and subsequently analyzed using the Statistical Package for the Social Sciences (SPSS®), version 20.0 for Windows. Descriptive analysis of the variables was performed, with results expressed as absolute frequency, percentage, mean, and standard deviation. The internal consistency of the OHIP-14 instrument was assessed using Cronbach’s alpha coefficient. To analyze associations between OHIP-14 scores and sociodemographic and clinical variables, Fisher’s exact test or Pearson’s chi-square test were applied, depending on the nature of the variables. Total OHIP-14 scores were categorized as below or above the median, and all analyses were conducted at a 95% confidence level (α = 0.05).

**3. RESULTS AND DISCUSSION**

**3.1 Results**

The study sample consisted of 45 participants, predominantly female (75.6%). Most individuals were aged between 61 and 70 years (35.6%), followed by the 51–60 age group (28.9%) and those over 70 years (22.2%), reflecting the typical geriatric profile of removable partial denture users. Regarding education, 22.2% of participants had completed higher education.

Regarding marital status, most participants were married or in a stable union (51.1%), followed by single individuals (33.3%). Concerning the type of rehabilitation, the majority used clasp-retained removable partial dentures in both arches (37.8%), while 28.9% used only maxillary CR-RPDs and 22.2% only mandibular CR-RPDs; combined prostheses (mandibular removable and maxillary complete) were observed in 11.1% of cases.

Regarding self-reported systemic conditions, 44.4% reported a diagnosis of diabetes, 31.1% mentioned arthritis, gastrointestinal problems, or xerostomia, 26.7% had cardiovascular conditions, and 28.9% did not present any significant diseases at the time of evaluation.

**Table 1. Sociodemographic and clinical characteristics of the study participants (n = 45)**

| **Variable** | **Category** | **n** | **%** |
| --- | --- | --- | --- |
| Age group (years) | 18–30 | 0 | 0.0% |
| 31–40 | 1 | 2.2% |
| 41–50 | 5 | 11.1% |
| 51–60 | 13 | 28.9% |
| 61–70 | 16 | 35.6% |
| > 70 | 10 | 22.2% |
| Sex | Female | 34 | 75.6% |
| Male | 11 | 24.4% |
| Education | Primary education | 17 | 37.8% |
| Secondary education | 18 | 40.0% |
| Higher education | 10 | 22.2% |
| Marital status | Single | 15 | 33.3% |
| Married / Stable union | 23 | 51.1% |
| Divorced | 3 | 6.7% |
| Widowed | 4 | 8.9% |
| Type of prosthetic rehabilitation | Maxillary CR-RPD | 13 | 28.9% |
| Mandibular CR-RPD | 10 | 22.2% |
| Maxillary + Mandibular CR-RPD | 17 | 37.8% |
| Mandibular CR-RPD + Maxillary complete denture | 5 | 11.1% |
| Smoking status | Non-smoker | 32 | 71.1% |
| Former smoker | 11 | 24.4% |
| Smoker | 2 | 4.4% |
| Self-reported systemic conditions | None | 13 | 28.9% |
| Cardiovascular | 12 | 26.7% |
| Diabetes | 20 | 44.4% |
| Arthritis, Gastrointestinal problems, or Xerostomia | 14 | 31.1% |

Analysis of the OHIP-14 questionnaire responses revealed that the items with the highest mean impact were 'troubled while eating because of teeth, mouth, or dentures' (item 4; mean = 1.04; SD = 1.13), 'felt embarrassed because of the oral condition' (item 10; mean = 0.98; SD = 1.41), 'felt uncomfortable because of the oral condition' (item 5; mean = 0.69; SD = 1.10), and 'experienced severe oral pain' (item 3; mean = 0.64; SD = 1.07), suggesting greater impairment in the dimensions of physical pain, psychological disability, and psychological discomfort.

These items also showed the highest frequency of responses at the 'sometimes' and 'repeatedly' levels, reflecting a noticeable impact on quality of life. In contrast, the items 'overall life worsened because of teeth' (item 13; mean = 0.33; SD = 0.83), 'had to stop eating' (item 8; mean = 0.49; SD = 0.94), and 'difficulty relaxing' (item 9; mean = 0.33; SD = 0.74) had lower means, indicating a lesser functional or social influence.

The items with the lowest impact were 'affected your daily activities' (item 12; mean = 0.04; SD = 0.21), 'felt that the taste of food worsened' (item 2; mean = 0.07; SD = 0.33), and 'became irritated with other people' (item 11; mean = 0.09; SD = 0.47), with a predominance of 'never' responses, indicating minimal impact on these aspects. Overall, the results suggest that the greatest perceived impairments among participants were related to functional aspects of eating, pain, and self-esteem.

**Table 2. Absolute frequency, percentage, mean, standard deviation, and Cronbach’s α coefficient of the OHIP-14 item occurrences**

| **Question** | **Never (0)** | **Rarely (1)** | **Sometimes (2)** | **Repeatedly (3)** | **Always (4)** | **Mean ± SD** | **Cronbach’s α** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **OHIP-14** |  |  |  |  |  | 6.20 ± 6.06 | 0.769 |
| **1** | 35 (77.8%) | 6 (13.3%) | 4  (8.9%) | 0  (0.0%) | 0  (0.0%) | 0.31 ± 0.63 | 0.774 |
| **2** | 43 (95.6%) | 1  (2.2%) | 1  (2.2%) | 0  (0.0%) | 0  (0.0%) | 0.07 ± 0.33 | 0.769 |
| **3** | 30 (66.7%) | 6 (13.3%) | 5 (11.1%) | 3  (6.7%) | 1  (2.2%) | 0.64 ± 1.07 | 0.735 |
| **4** | 21 (46.7%) | 6 (13.3%) | 14 (31.1%) | 3  (6.7%) | 1  (2.2%) | 1.04 ± 1.13 | 0.785 |
| **5** | 29 (64.4%) | 6 (13.3%) | 7 (15.6%) | 1  (2.2%) | 2  (4.4%) | 0.69 ± 1.10 | 0.738 |
| **6** | 32 (71.1%) | 1  (2.2%) | 10 (22.2%) | 1  (2.2%) | 1  (2.2%) | 0.62 ± 1.05 | 0.722 |
| **7** | 35 (77.8%) | 4  (8.9%) | 4  (8.9%) | 1  (2.2%) | 1  (2.2%) | 0.42 ± 0.92 | 0.728 |
| **8** | 33 (73.3%) | 5 (11.1%) | 5 (11.1%) | 1  (2.2%) | 1  (2.2%) | 0.49 ± 0.94 | 0.740 |
| **9** | 36 (80.0%) | 4  (8.9%) | 4  (8.9%) | 1  (2.2%) | 0  (0.0%) | 0.33 ± 0.74 | 0.758 |
| **10** | 27 (60.0%) | 4  (8.9%) | 7 (15.6%) | 2  (4.4%) | 5 (11.1%) | 0.98 ± 1.41 | 0.733 |
| **11** | 43 (95.6%) | 1  (2.2%) | 0  (0.0%) | 1  (2.2%) | 0  (0.0%) | 0.09 ± 0.47 | 0.766 |
| **12** | 43 (95.6%) | 2  (4.4%) | 0  (0.0%) | 0  (0.0%) | 0  (0.0%) | 0.04 ± 0.21 | 0.775 |
| **13** | 38 (84.4%) | 1  (2.2%) | 4  (8.9%) | 2  (4.4%) | 0  (0.0%) | 0.33 ± 0.83 | 0.756 |
| **14** | 43 (95.6%) | 1  (2.2%) | 1  (2.2%) | 0  (0.0%) | 0  (0.0%) | 0.07 ± 0.33 | 0.776 |

*1: Speech, 2: Taste, 3: Pain, 4: Discomfort while eating, 5: Feeling self-conscious, 6: Stressed, 7: Eating affected, 8: Had to interrupt meals, 9: Difficulty relaxing, 10: Embarrassed, 11: Irritated, 12: Difficulty with daily tasks, 13: Life worse, 14: Incapacitated*

When analyzing the OHIP-14 domains, it was observed that the greatest impact on oral health-related quality of life occurred in the “physical pain” domain (mean = 0.84; SD = 1.11), followed by “psychological discomfort” (mean = 0.66; SD = 1.07) and “psychological disability” (mean = 0.66; SD = 1.16). These findings indicate that aspects related to pain, self-esteem, and emotional distress were the most affected among the participants.

The “physical disability” (mean = 0.46; SD = 0.93) and “functional limitation” (mean = 0.19; SD = 0.52) domains showed moderate to mild impact. The “social disadvantage” (mean = 0.20; SD = 0.64) and, particularly, “social disability” (mean = 0.07; SD = 0.36) domains were the least affected, suggesting that, although participants reported physical symptoms and emotional discomfort, the effect on social relationships and daily activities was minimal. The variability of the scores, reflected by the standard deviations, also indicates that the perception of impact is heterogeneous among the individuals assessed.

**Table 3. OHIP Index Domains**

| **Domain** | **Mean** | **Standard Deviation** |
| --- | --- | --- |
| Functional Limitation 1–2 | 0.19 | 0.52 |
| Physical Pain 3–4 | 0.84 | 1.11 |
| Psychological Discomfort 5–6 | 0.66 | 1.07 |
| Physical Disability 7–8 | 0.46 | 0.93 |
| Psychological Disability 9–10 | 0.66 | 1.16 |
| Social Disability 11–12 | 0.07 | 0.36 |
| Social Disadvantage 13–14 | 0.20 | 0.64 |

The analysis of correlations between OHIP-14 item scores and clinical and sociodemographic variables generally revealed no statistically significant associations in most cases. No relevant correlations were observed between item scores and either the type of rehabilitation or participants’ age (*P* > 0.05 for all items). Regarding sex, among participants who reported difficulty relaxing due to oral health, the majority of moderate to severe impact responses (scores 2 and 3) came from female patients (75.0% and 100%, respectively)

On the other hand, the response “1 – rarely” was recorded exclusively among men (100%). The chi-square test demonstrated a statistically significant association between sex and the reported level of difficulty in relaxing (*P* = 0.003). The strength of the association, measured by Cramer’s V coefficient, was moderate to strong (φc = 0.555). This finding suggests that sex influences the perception of psychological discomfort among CR-RPD users.

For the remaining items, no significant differences were found between sexes, suggesting that, across the sample, the effects of prosthetic rehabilitation on quality of life are perceived relatively homogeneously with respect to the type of prosthesis, age, and, except for item 9, sex (Table 4).

**Table 4. Correlation between the OHIP-14 index and variables**

|  | **Correlation significance (*P*-value)** | | |
| --- | --- | --- | --- |
| **OHIP-14 Question** | **Type of Rehabilitation** | **Age** | **Sex** |
| **1** | 0.251 | 0.822 | 0.360 |
| **2** | 0.417 | 0.222 | 0.713 |
| **3** | 0.910 | 0.764 | 0.941 |
| **4** | 0.401 | 0.395 | 0.480 |
| **5** | 0.386 | 0.884 | 0.794 |
| **6** | 0.725 | 0.747 | 0.403 |
| **7** | 0.713 | 0.969 | 0.267 |
| **8** | 0.676 | 0.824 | 0.071 |
| **9** | 0.351 | 0.945 | 0.003\* |
| **10** | 0.186 | 0.110 | 0.829 |
| **11** | 0.516 | 0.715 | 0.713 |
| **12** | 0.261 | 0.785 | 0.411 |
| **13** | 0.593 | 0.636 | 0.791 |
| **14** | 0.132 | 0.715 | 0.713 |
| **Total Score** | 0.933 | 0.743 | 0.794 |

*\*Statistically significant correlation (P < 0.05)*

*1: Speech, 2: Taste, 3: Pain, 4: Discomfort while eating, 5: Feeling self-conscious, 6: Stressed, 7: Eating affected, 8: Had to interrupt meals, 9: Difficulty relaxing, 10: Embarrassed, 11: Irritated, 12: Difficulty with daily tasks, 13: Life worse, 14: Incapacitated (Chi-square Test).*

Regarding the total OHIP-14 score, which can range from 0 to 56 points for each patient, there is no clear definition for classifying the scores as satisfactory or unsatisfactory. However, Zhang et al. (2013) proposed that total OHIP-14 values up to 5 points be considered indicative of unimpaired OHRQoL, while values above 5 correspond to compromised OHRQoL. Analysis of the total scores of the 45 study participants revealed that 62.2% had scores less than or equal to 5, whereas 37.8% had higher values (Table 5).

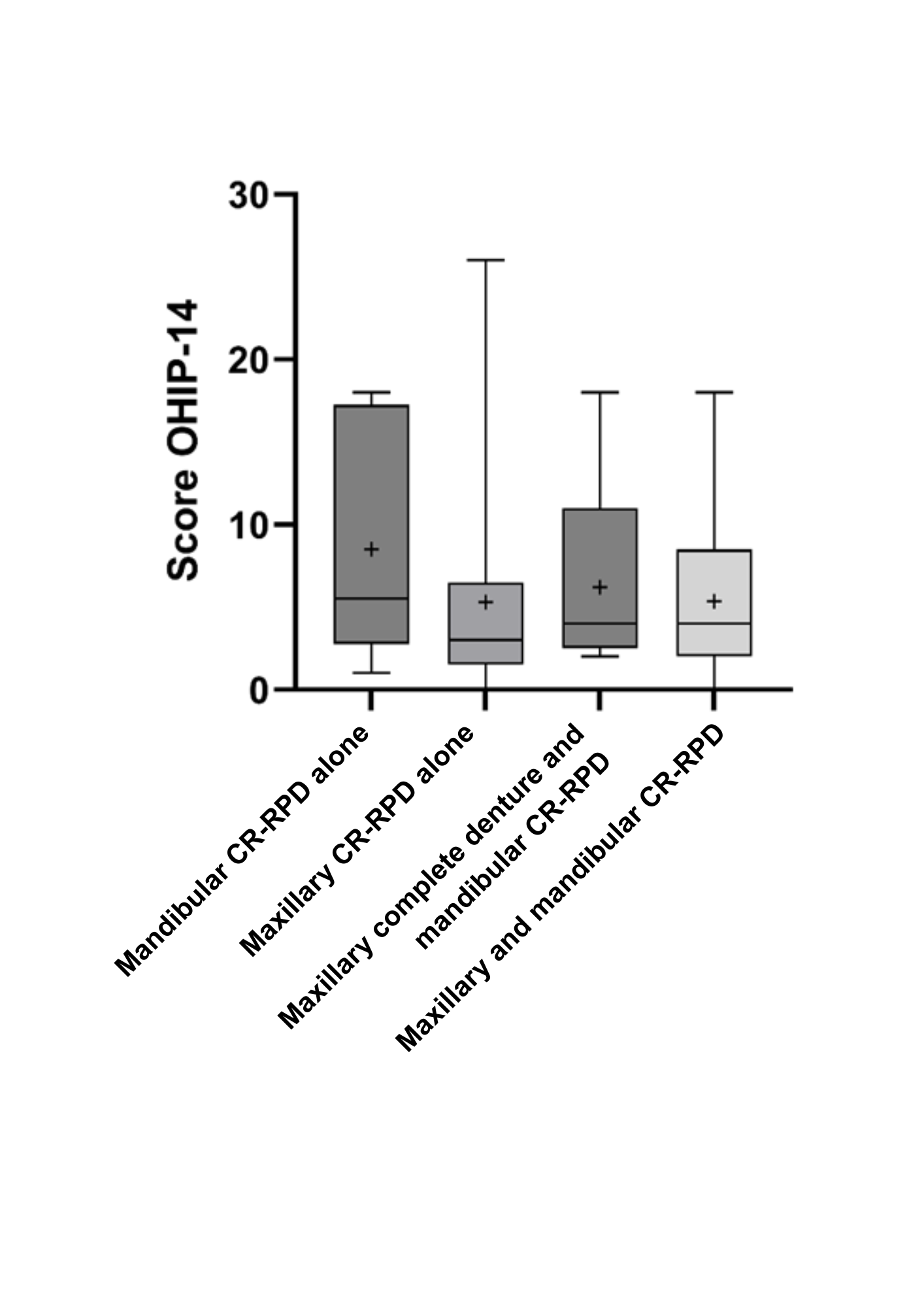
**Table 5. Analysis of the total OHIP-14 scores obtained**

| **Score range (OHIP-14)** | **n** | **%** | **Mean** | **Standard deviation** |
| --- | --- | --- | --- | --- |
| ≤5 | 28 | 62.2% | 2.54 | 1.45 |
| >5 | 17 | 37.8% | 12.24 | 5.94 |
|  |  |  |  |  |

The comparison of mean OHIP-14 scores among different types of prosthetic rehabilitation revealed variations in perceived oral health-related quality of life. Participants rehabilitated with mandibular CR-RPDs alone presented the highest mean score, indicating a greater negative impact (≈ 8.5 points), followed by users of a maxillary complete denture + mandibular CR-RPD (≈ 6.2 points) and those with both maxillary and mandibular CR-RPDs (≈ 5.3 points).

In contrast, patients rehabilitated with maxillary CR-RPDs alone presented the lowest mean score (≈ 4.6 points), suggesting a better perception of oral health and less impact on quality of life. The error bars indicate some intra-group variation, but not complete overlap among all groups, suggesting a trend of differences between rehabilitation types, although not necessarily statistically significant.

Despite the visual differences observed in the mean OHIP-14 scores among the prosthetic rehabilitation groups, the Kruskal-Wallis test followed by Dunn’s multiple comparisons test did not identify statistically significant differences between the groups analyzed (adjusted *P* > 0.9999 for all comparisons) (Figure 1).



**Figure 1. Mean OHIP-14 scores according to the type of prosthetic rehabilitation**

*Note: Error bars represent the variability within each group.*

**3.2 Discussion**

The concept of Oral Health-Related Quality of Life (OHRQoL) considers that oral health interventions, such as the installation of a new prosthesis, may have highly relevant repercussions in several areas of a patient’s life, which can be either positive or negative (Mamdouh; El-Sherbini; Mady, 2019; Mckenna et al., 2018). In this context, the Oral Health Impact Profile (OHIP-14), used in the present study, is an important and consistent method for the subjective evaluation of oral health, as it allows a quantitative measurement of patients’ perceptions of their oral condition after treatment (Salazar et al., 2021; Yoshimoto et al., 2021).

In this way, the results of the OHIP-14 can be analyzed in detail across its seven domains that comprise the assessment: functional limitation, pain, psychological discomfort, physical disability, psychological disability, social disability, and social handicap (Mamdouh; El-Sherbini; Mady, 2019; Mckenna et al., 2018; Peršić; Čelebić, 2015).

The application of OHIP-14 to assess the impact of oral health on quality of life provides methodological advantages, such as the standardization of collected data, the opportunity for the interviewer to clarify the objectives, as well as guidance in completing the instrument, which ensure greater homogeneity and usefulness of the collected information (Campos et al., 2021). However, its applicability also presents disadvantages, ranging from the possibility of response bias due to the influence of the interviewer’s presence, to the limitation of individuals’ freedom of expression, since the response options are predefined, which may thus minimize the individual perception of the respondent (Oliveira et al., 2021; Slowik et al., 2025).

Currently, there is a growing concern regarding the effects of tooth loss and the use of removable dentures on individuals’ quality of life (Mckenna et al., 2018). On the other hand, increasing scientific evidence points to significant repercussions both in functional aspects, such as mastication, and in psychosocial aspects, such as feelings of low self-esteem, among others (Mamdouh; El-Sherbini; Mady, 2019; Yoshimoto et al., 2021).

In this context, studies indicate that satisfaction with removable dentures is related not only to the quality of functional adaptation, comfort, and esthetics, but also to continuous clinical support during the post-installation period through adjustments (Alotaibi, 2025; Soboleva; Rogovska, 2022; Techapiroontong et al., 2022).

Thus, patients’ perception of stability, masticatory efficiency, and social impact underscores the importance of planning individualized rehabilitation strategies that consider both biomechanical and subjective factors, in order to ensure the use of the dental prosthesis (Ereifej; Oweis; Abu-Awwad, 2023). This scenario highlights the need for more comprehensive rehabilitative approaches, which, in dental planning, include the joint analysis of clinical, functional, and emotional factors (Cimões et al., 2021; Techapiroontong; Limpuangthip, 2024).

In the present study, partially edentulous individuals rehabilitated with clasp-retained removable partial dentures (CR-RPDs) participated as volunteers. Regarding sociodemographic aspects, the higher prevalence of women corroborates the findings of other studies conducted in dental school clinics (Mariano et al., 2024; Sabiá; Lopes, 2022; Tavares et al., 2016). Previous studies report that this distribution may not reflect a higher prevalence of the condition among women but may be associated with the greater availability of this group to attend appointments in dental school clinics, which are generally held during daytime hours and require longer sessions due to the educational nature of care provided by students in clinical training (Cunha; Leite, 2022; Echeverria et al., 2020). Other studies also suggest that women tend to use dental services more frequently, possibly due to greater concern with oral health and higher engagement in preventive care, which favors regular attendance at scheduled appointments (Sfeatcu et al., 2022).

Regarding age group, it was found that 42.2% of the volunteers were 60 years old or younger, while 40.0% of the participants were between 41 and 60 years old. This age profile may be explained by socioeconomic factors, such as limited access to dental treatment, which favors early tooth loss (Lee et al., 2022; Mendonça et al., 2024; Vieira et al., 2021). On the other hand, the insufficient provision of dental prosthetic rehabilitation for fully or partially edentulous patients in the public health system should also be considered (Cortez et al., 2023; Vettore et al., 2020). Regarding sociodemographic aspects, the results of the present study indicate that only 22.2% of participants reported having completed higher education. This finding reinforces results from previous studies, which indicated a higher risk of tooth loss among individuals with lower income and education levels, demonstrating that social inequalities influence oral health (Vettore et al., 2020).

Within this study, among the items of the OHIP-14 instrument, the question addressing shame associated with oral problems or the use of dentures, belonging to the domain of psychological disability, received the most pronounced responses. This finding corroborates recent research demonstrating the strong emotional and social impact of tooth loss, particularly in the anterior dental arch, which is frequently associated with low self-esteem, social withdrawal, and psychological distress (Imam, 2021). Even among patients who obtained the lowest OHIP-14 scores, shame was often emphasized, highlighting the subjective relevance of dental aesthetics, which is generally valued more than masticatory function (Guimarães et al., 2021). The literature indicates that tooth loss in posterior regions has a lower impact on quality of life compared to anterior tooth loss, which is directly linked to the pursuit of aesthetic rehabilitation (Bastos et al., 2024). There is evidence that tooth loss may be associated with depressive symptoms and decreased mental well-being, particularly regarding self-image and social acceptance (Karimi et al., 2024).

Regarding the impact of systemic conditions, a high prevalence of diabetes mellitus (44.4%) was observed among the study participants. This finding corroborates reports in the literature that emphasize significantly greater tooth loss in individuals with diabetes, due to a higher incidence of caries and periodontitis. Accordingly, diabetes is strongly associated with changes in masticatory function and overall oral health (Pavani et al., 2024; Tabassum, 2022).

Other systemic conditions reported in the present study included xerostomia, arthritis, and gastrointestinal (GI) problems, which were reported by 31.1% of the sample. The presence of xerostomia has been significantly associated in many studies with reduced satisfaction with the performance of removable dentures, negatively impacting oral health-related quality of life (OHRQoL), particularly in the domains of psychological and social disability (Sundaram et al., 2020). It has been observed that functions such as mastication, speech, and denture retention (factors that compromise patient adaptation and comfort) are greatly impaired in the presence of xerostomia (Tanaka, Kellesarian, Arany, 2021).

Regarding cardiovascular diseases (CVD), reported in 26.7% of the sample, the literature indicates that cardiovascular patients using removable dentures present elevated OHIP-14 scores, reflecting poorer oral health-related quality of life (OHRQoL), with factors such as xerostomia, high DMFT (Decayed, Missing, and Filled Teeth) indices, and gingival bleeding being directly associated with this condition (Molania et al., 2021). The presence and severity of periodontal disease in these individuals intensify functional limitations and psychological discomfort, highlighting the influence of periodontal health on the perception of OHRQoL (Lazureanu et al., 2022). Consequently, studies emphasize the fundamental importance of adopting an integrated approach by the dentist, taking into account systemic conditions and prosthetic aspects, in order to optimize the functional and psychosocial outcomes of rehabilitation (Tanaka; Kellesarian; Arany, 2021).

Regarding the impact of the type of prosthetic rehabilitation on oral health-related quality of life (OHRQoL), the comparison of mean OHIP-14 scores among different types of prosthetic rehabilitation revealed variations in OHRQoL perception. From the perspective of biomechanical challenges and functional outcomes, distal-extension CR-RPDs present particular difficulties due to rotational instability, uneven load distribution, and diminished masticatory function. Finite element analyses have confirmed that stress tends to concentrate on abutments and residual ridges, increasing the risk of resorption and prosthesis instability (Mousa et al., 2021). Consistent with these biomechanical observations, clinical studies have shown that CR-RPDs with bilateral distal extensions, particularly mandibular CR-RPDs, are associated with greater instability, increased patient discomfort, and accelerated ridge resorption, all of which contribute to higher rates of patient dissatisfaction and reduced treatment success (Koyama et al., 2010).

In the current investigation, participants rehabilitated exclusively with mandibular CR-RPDs presented the highest mean score, suggesting a greater negative impact compared to those using maxillary complete dentures combined with CR-RPDs or maxillary CR-RPDs alone, although without statistically significant differences. The stability of prostheses, particularly mandibular CR-RPDs, and masticatory efficiency have been identified as factors with a strong impact on quality of life in partially edentulous patients, reflecting impairment in overall health status (Amagai et al., 2017). A study conducted by Choong et al. (2022) revealed that, although removable partial dentures improve OHRQoL, users of mandibular CR-RPDs frequently face complications such as poor adaptation and inflammation of the oral fibromucosa, which may compromise the expected benefits of rehabilitation. These findings align with studies showing the relationship between the use of conventional removable dentures and masticatory efficiency, with direct consequences on nutrition and physical well-being (Brígido; Rosa; Lund, 2023; Cifuentes-Suazo et al., 2024).

On the other hand, it is important to emphasize that tooth loss, when associated with the use of inadequate removable partial dentures, can significantly affect the patient’s psychosocial and functional well-being, leading to feelings of embarrassment, difficulty relaxing, dietary restrictions, and even social isolation (Goel et al., 2015). Such consequences have been described in studies observing a strong association between unsatisfactory prosthetic conditions and impaired quality of life, particularly among the elderly, the predominant age group in the present study sample (57.8%) (Brígido; Rosa; Lund, 2023; Goel et al., 2015).

Although oral health status influences various domains of quality of life (Dias et al., 2016; Oliveira et al., 2021; Albuquerque et al., 2023), the data from the present study showed that the domain of “social disability”, related to interpersonal interaction and the performance of daily activities, was the least affected among the evaluated dimensions. In contrast, the domains showing the greatest impairment for partially edentulous patients were shame resulting from tooth loss (psychological disability), discomfort during eating (pain dimension), distress related to oral health (psychological discomfort), and dietary difficulties due to tooth loss (physical disability). These findings corroborate studies indicating that the emotional impact of oral conditions is one of the main factors affecting the well-being of edentulous older adults (Echeverria et al., 2018; Oliveira et al., 2021).

Patients receiving new dental prostheses often face a challenging adaptation period, marked by unrealistic expectations that can make this process potentially distressing (Mamdouh; El-Sherbini; Mady, 2019; Salazar et al., 2021). Several studies report that OHIP-14 scores after treatment with clasp-retained removable partial dentures tend to be low, a finding confirmed in the present study (Yashimoto et al., 2021; Zhang et al., 2013). In investigations that conducted multiple OHIP-14 assessments over time, a progressive reduction in mean scores between the first and last OHIP-14 administration was observed (Dias et al., 2016; Peršić; Čelebić, 2015; Mamdouh; El-Sherbini; Mady, 2019; Mckenna et al., 2018; Salazar et al., 2021). According to the authors, this decrease has been attributed to the mitigation or lower frequency of problems such as speech difficulties, discomfort during eating, social embarrassment, and others following prosthesis installation (Mamdouh; El-Sherbini; Mady, 2019; Mckenna et al., 2018).

It was observed that the most predominant response to the OHIP-14 items was “never”, and that 62.2% of participants had total scores below five points (on a scale ranging from 0 to 56), corroborating previous evidence that many adults and older adults tend to minimize or even normalize their oral conditions, perceiving them as part of the normal aging process (Nogueira et al., 2017). Studies suggest that this low self-perception persists even among individuals with high dental care needs, hindering the pursuit of adequate treatment (Takeuchi et al., 2023). Furthermore, there is a tendency for partial or total tooth extraction to be frequently regarded as a definitive solution for pain and functional disorders, particularly in situations of socioeconomic vulnerability (Aguiar, Oliveira, Miotto et al., 2022). This passive acceptance of tooth loss underscores the essential role of educational and preventive actions in promoting oral health among older adults (Nogueira et al., 2017).

In the present study, the “physical pain” domain obtained the highest score on the OHIP-14. However, this score did not reach even half of the maximum possible score, indicating that the consequences of tooth loss extend beyond physical discomfort. Indeed, studies show that tooth loss not only reduces masticatory and phonetic function but also affects facial aesthetics and personal identity, considerably impacting quality of life (Oliveira et al., 2021; Veeraboina et al., 2022). In this regard, edentulism has been associated with the aging process, social exclusion, and unfavorable socioeconomic status, perpetuating health inequalities (Saintrain et al., 2018; Weber et al., 2021).

It is important to emphasize that the fact that some OHIP-14 domains show higher frequency or impact in the studied group does not diminish the importance of the others. Tooth loss can individually affect different areas of a person’s life, such as physical pain, functional limitation, psychological discomfort, and social disability, depending on each individual’s subjective experience. Therefore, oral health professionals should consider the individuality of each person when assessing the effects of tooth loss on their lives (Campos et al., 2021).

In the current study, despite the low OHIP-14 scores obtained, the single administration of the OHIP-14 after rehabilitation may be considered a limiting factor, as it did not allow the observation of potential changes in the domains over time. However, the literature confirms the validity of this instrument in providing useful information to the dentist, both in a single application after procedures and in longitudinal application during follow-up visits, allowing temporal comparisons (Dias et al., 2016; Zhang et al., 2013). On the other hand, in agreement with the results of other studies, it was observed that comorbidities such as diabetes, low educational level, and limited self-perception of oral condition negatively influenced patient assessments (Slowik et al., 2025; Vettore et al., 2020).

It is worth noting that, although an exclusively quantitative perspective is limited in providing a holistic understanding of the subjective aspects related to the experiences of individuals with partial tooth loss, it is essential for capturing patterns and trends (Yoshimoto et al., 2021). Thus, the use of instruments such as the OHIP-14, which encompass subjective dimensions, can assist professionals in assessing the magnitude of the impact of tooth loss, emphasizing the provision of care that is more sensitive, humanized, and focused on listening, welcoming, and monitoring the patient (Dias et al., 2016; Salazar et al., 2021).

**4. CONCLUSION**

The study revealed that rehabilitation with clasp-retained removable partial dentures (CR-RPDs) had a significant and positive impact on oral health-related quality of life (OHRQoL), particularly in the domains of physical pain, emotional disability, and psychological discomfort, with no differences observed between the different types of CR-RPD rehabilitation. Reports of shame and discomfort while eating were frequent, with sex being a factor influencing the perception of psychological discomfort among CR-RPD users. The findings highlight the importance of adopting a comprehensive and humanized approach in therapeutic planning, incorporating psychosocial factors and social vulnerability to ensure the success of prosthetic rehabilitations.

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

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**CONSENT**

All authors declare that they have obtained written informed consent from the participants for the publication of this original observational research.

**ETHICAL APPROVAL**

Approval by the Research Ethics Committee (CEP). Name of the ethics committee: COMITÊ DE ÉTICA EM PESQUISA EM SERES HUMANOS DA UNIVERSIDADE FEDERAL DO CEARÁ. Opinion Number: 5.404.178. Certificate of Presentation for Ethical Assessment (CAAE): 58284822.1.0000.5054

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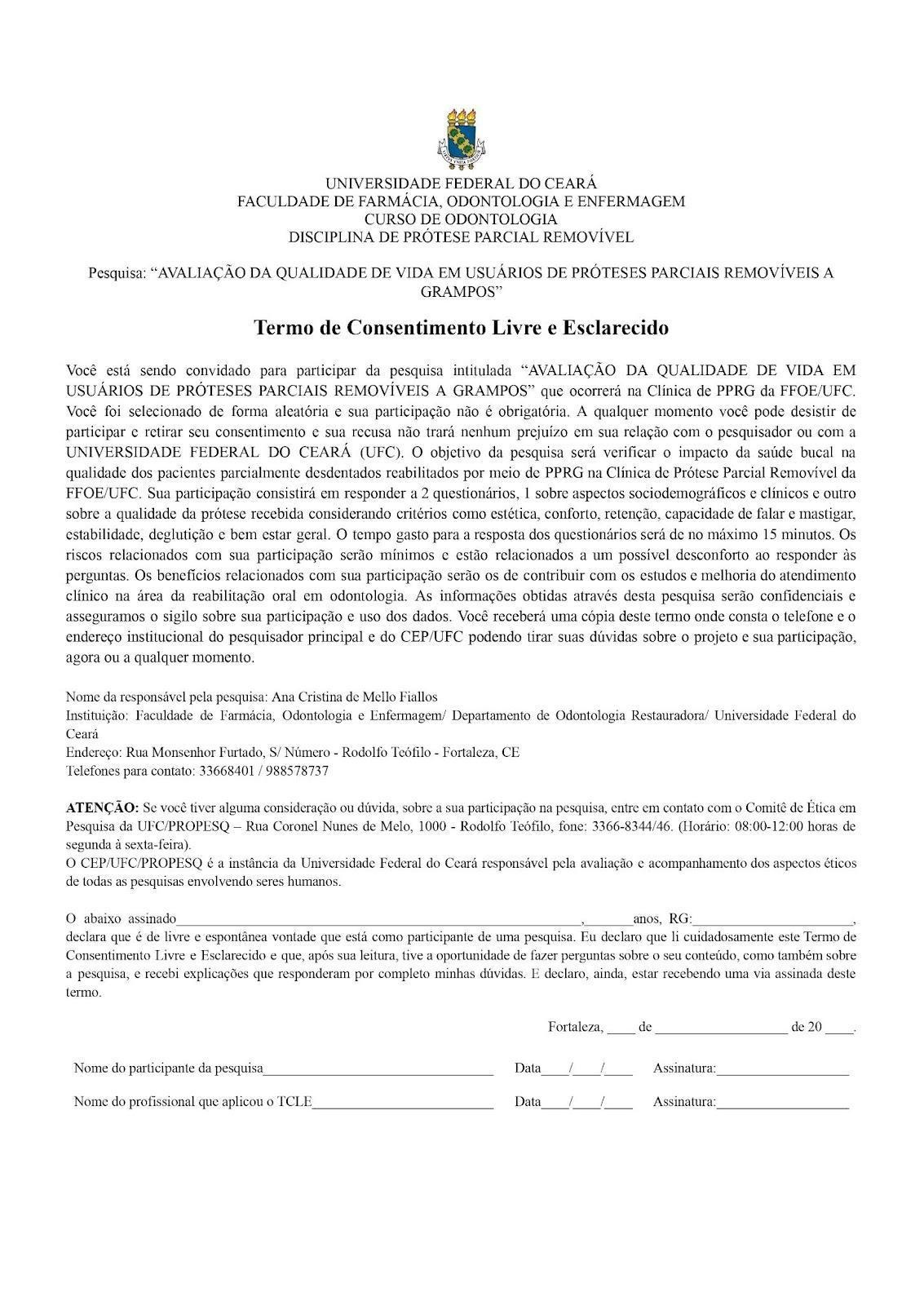
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**APPENDIX**

**INFORMED CONSENT FORM**



**DATA COLLECTION INSTRUMENT**

**CLINICAL AND SOCIODEMOGRAPHIC QUESTIONNAIRE**

1) Age:

1. 18-30 years
2. 31-40 years
3. 41-50 years
4. 51-60 years
5. 61-70 years
6. Over 70 years

2) Sex:

| 1. Male | 1. Female |  |
| --- | --- | --- |

3) Education Level:

| 1. Higher education | 1. Secondary education | 1. Primary education |
| --- | --- | --- |

4) Occupation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5) Marital Status:

1. Single
2. Married/Common-law union
3. Divorced
4. Widowed
5. Other

6) Which of the following situations applies to you?

1. Uses 2 clasp-retained removable partial dentures: 1 maxillary and 1 mandibular
2. Uses 1 maxillary complete denture and 1 mandibular clasp-retained removable partial denture
3. Uses 1 maxillary clasp-retained removable partial denture and 1 mandibular complete denture
4. Uses only 1 maxillary clasp-retained removable partial denture
5. Uses only 1 mandibular clasp-retained removable partial denture

7) Do you use a distally extended clasp-retained removable partial denture?

a) Maxillary

b) Mandibular

c) Maxillary and mandibular

d) No

8) Have you received information on how to clean your teeth and dentures?

| 1. Yes | 1. No |
| --- | --- |

9) Do you perform oral hygiene regularly?

a) Yes, 1–2 times a day with the denture in place

b) Yes, more than 2 times a day with the denture in place

c) Yes, 1–2 times a day without the denture. The denture is cleaned outside the mouth

d) Yes, more than 2 times a day without the denture. The denture is cleaned outside the mouth

e) No

10) How do you clean your denture(s)?

a) Brushing + water

b) Brushing with water and soap

c) Brushing + toothpaste

d) Brushing + toothpaste + soaking in a chemical solution (tablet, antiseptic, etc.)

Which? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e) Soaking only in a chemical solution (tablet, antiseptic, etc.)

Which? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11) Do you use the same toothbrush for your dentures and your teeth?

| 1. Yes | 1. No |
| --- | --- |

12) Do you use dental floss regularly?

| 1. Yes | 1. No |
| --- | --- |

13) Do you smoke?

1. Current smoker
2. Former smoker
3. Non-smoker

14) Health conditions:\*

1. Cardiovascular disease
2. Diabetes
3. Arthritis, gastrointestinal problems, or xerostomia (dry mouth)
4. Hepatitis, HIV, or muscular disorders
5. No significant disease

*\*Note: More than one item can be selected.*

# ETHICS COMMITTEE APPROVAL STATEMENT

|  |
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# OHIP-14 Questionnaire

1) Have you had trouble speaking any words because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

2) Have you felt that the taste of food has worsened because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

3) Have you ever experienced severe pain in your mouth?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

4) Have you felt uncomfortable when eating any food because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

5) Have you felt self-conscious because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

6) Have you felt stressed because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

7) Has your eating been affected because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

8) Have you had to stop your meals because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

9) Have you found it difficult to relax because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

10) Have you ever felt a little embarrassed because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

11) Have you been a little irritable with other people because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

12) Have you had difficulty performing your daily activities because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

13) Have you felt that your overall life has worsened because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always

14) Have you been unable to carry out your daily activities because of problems with your teeth, mouth, or dentures?

0- Never 1- Rarely 2- Sometimes 3- Repeatedly 4- Always