

ORIGINAL RESEARCH

Relationship between partial edentulism and quality of life in adults with prostheses

Relación del edentulismo parcial con la calidad de vida en adultos portadores de prótesis

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ABSTRACT

Objective: To evaluate the relationship between partial edentulism and oral health-related quality of life in adults with removable partial dentures. **Materials and methods:** An observational and descriptive study was conducted on 40 patients at the Rehabilitation Clinic Module of the Faculty of Dentistry at the National University of the Northeast, Argentina. Age, sex, and type of edentulism according to the Kennedy classification were recorded, and oral health-related quality of life was assessed using the GOHAI index. Data were analyzed using descriptive statistics and non-parametric tests (Kruskal-Wallis and Dwass-Steel-Critchlow-Fligner). **Results:** The average age was 51 years, and females predominated (63%). Kennedy Class III was the most frequent classification (32.5%) and presented the highest average GOHAI score (55.3 ± 3.8), while Class I showed the lowest (48.2 ± 4.5). Forty-two percent of participants reported a moderate self-perception of their oral health-related quality of life, while 33% reported a poor perception. Significant differences were found between Kennedy classifications ($p=0.044$), particularly between classes II and III ($p=0.039$). **Conclusions:** Partial edentulism influences the quality of life of adults wearing removable dentures, with better results observed in cases with greater prosthetic stability. Comprehensive evaluation and regular follow-up are essential to optimize rehabilitation and patient well-being.

Keywords: Edentulism; Removable partial dentures; Quality of life; Oral health; Oral rehabilitation.

RESUMEN

Objetivo: Evaluar la relación entre el edentulismo parcial y la calidad de vida relacionada con la salud oral en adultos portadores de prótesis parciales removibles. **Material y métodos:** Se realizó un estudio observacional y descriptivo en 40 pacientes en el Módulo de Clínica Rehabilitadora de la Facultad de Odontología de la Universidad Nacional del Nordeste, Argentina. Se registraron edad, sexo y tipo de edentulismo según la clasificación de Kennedy, y la calidad de vida relacionada con la salud oral se evaluó mediante el índice GOHAI. Los datos se analizaron con estadística descriptiva y pruebas no paramétricas (Kruskal-Wallis y Dwass-Steel-Critchlow-Fligner). **Resultados:** La edad promedio fue de 51 años y predominó el sexo femenino (63%). La clase III de Kennedy fue la más frecuente (32,5%) y presentó el mayor puntaje promedio de GOHAI ($55,3 \pm 3,8$), mientras que la clase I mostró el menor ($48,2 \pm 4,5$). El 42% de los participantes presentó una autopercepción moderada de su calidad de vida relacionada con la salud oral y el 33% una percepción pobre. Se encontraron diferencias significativas entre las clases de Kennedy ($p=0,044$), particularmente entre las clases II y III ($p=0,039$). **Conclusiones:** El edentulismo parcial influye en la calidad de vida de los adultos portadores de prótesis removibles, observándose mejores resultados en los casos con mayor estabilidad protésica. La evaluación integral y el seguimiento periódico son fundamentales para optimizar la rehabilitación y el bienestar de los pacientes.

Palabras clave: Edentulismo; Prótesis parcial removable; Calidad de vida; Salud bucal; Rehabilitación bucal.

INTRODUCTION

Edentulism constitutes an important oral health indicator and is defined as the complete or partial absence of teeth, whether due to congenital or acquired causes. In the case of partial edentulism, tooth loss is limited to a specific number of teeth, allowing individuals to adapt through the placement of artificial teeth in the edentulous spaces. In contrast, complete edentulism is characterized by the total absence of the permanent dentition ⁽¹⁾.

Partial tooth loss can be rehabilitated using removable partial dentures (RPDs), which functionally and aesthetically replace missing teeth. These prostheses are characterized by their lightness, flexibility, retention through coverage of gingival tissues, and reduced need for extensive preprosthetic preparation. They are also more affordable than fixed prostheses or dental implants ⁽²⁾.

Edentulism not only affects masticatory function and phonation but also has a negative impact on general health and quality of life. Tooth loss has been associated with nutritional changes, decreased enjoyment of food, and psychological alterations such as low self-esteem, embarrassment, and reduced social interaction (3,4). These effects occur across different dimensions: psychological and social, affecting self-esteem and interpersonal interaction; biological, including maxillary bone resorption and joint alterations; and physiological, by making bolus formation more difficult and limiting the intake of foods with greater consistency ^(5,6).

When partial tooth loss occurs, the missing teeth can be replaced with a removable partial denture (RPD), which partially restores the dentition and is characterized by flexibility, retention through coverage of gingival tissues, low weight, improved aesthetics through the elimination of visible clasps, and relatively less demanding preprosthetic planning and preparation. RPDs are also more economical than fixed prostheses or implant-supported restorations.

Edentulism can substantially compromise oral and general health, as well as quality of life, including enjoyment of food and nutritional status. A specific association has been demonstrated between tooth loss and increasing age, as well as the fact that some teeth are retained for longer periods than others.

The absence of teeth may lead to functional alterations affecting speech and mastication and may negatively impact quality of life.

Health-related quality of life (HRQoL) is a concept that integrates individuals' perceptions of their overall well-being and health status, encompassing both objective and subjective aspects. In the context of oral health, instruments such as the Geriatric Oral Health Assessment Index (GOHAI) allow the assessment of functional, psychosocial, and pain-related dimensions associated with tooth loss and prosthesis use ^(7,8). Available evidence indicates that the appropriate use of removable dentures improves masticatory function, aesthetics, and harmony of the stomatognathic system, positively influencing patients' perception of well-being ^(9,10).

Recent studies conducted in Cuba, Peru, and Ecuador have demonstrated that prosthetic rehabilitation in older adults produces significant improvements in quality of life, particularly in psychosocial and functional dimensions. However, a considerable proportion of the population still reports a low self-perception of their oral health, reflecting the need for more personalized interventions and continuous clinical follow-up ^(11,12).

The objective of this study was to evaluate the relationship between partial edentulism and quality of life in adults wearing removable dentures by comparing GOHAI scores according to the Kennedy classification.

MATERIALS AND METHODS

An observational, descriptive study was conducted. The study population consisted of 130 patients who attended the Rehabilitative Dentistry Clinic Module of the Faculty of Dentistry at Universidad Nacional del Nordeste (UNNE), Argentina, during the study period. A non-probability convenience sampling method was used to select a sample of 40 patients who met the established inclusion and exclusion criteria and agreed to participate in the study. The unit of analysis was each patient included in the study.

Inclusion criteria: Patients with partial tooth loss, patients wearing removable dentures, adults over 40 years of age, and patients who provided informed consent to participate in the study.

Exclusion criteria: Older adults with cognitive difficulties that prevented them from adequately answering the questions and immunosuppressed patients.

All participants signed an informed consent form approved by the Bioethics Committee of the Faculty of Dentistry of Universidad Nacional del Nordeste (FONNE), ensuring the confidentiality of individual data. The following variables were considered: age, sex, and type of partial edentulism, according to the Kennedy classification:

- Class I: Bilateral posterior edentulous areas.
- Class II: Unilateral posterior edentulous areas.
- Class III: Unilateral edentulous areas with a posterior abutment.
- Class IV: Single edentulous areas crossing the midline.

To assess self-perceived oral health-related quality of life (OHRQoL), the Geriatric Oral Health Assessment Index (GOHAI) questionnaire, validated for this type of study, was used.

The data were recorded in a database and analyzed using InfoStat software. Descriptive statistics were performed, and the Kruskal–Wallis test was used to compare GOHAI scores among the Kennedy classes, complemented by the Dwass–Steel–Critchlow–Fligner post hoc test. A p-value <0.05 was considered statistically significant.

RESULTS

Table 1. Distribution of the sample according to sex, age, and Kennedy classification

Kennedy Class	Women	Men	Total	Mean Age (years)
I	6	3	9	53
II	7	4	11	50
III	8	5	13	52
IV	4	3	7	49
Total	25	15	40	51

The distribution of the sample (Table 1) showed a predominance of female patients (63%) over male patients (37%), with a mean age of 51 years. Kennedy Class III edentulism was the most frequent (32.5%), followed by Class II (27.5%), Class I (22.5%), and Class IV (17.5%). Patients with Class I edentulism were slightly older (53 years), whereas those with Class IV were younger (49 years). This distribution allows comparison of oral quality of life according to sex and type of edentulism based on Kennedy classification.

Table 2. GOHAI scores according to Kennedy classification

Kennedy Class	Mean GOHAI	Standard Deviation
I	48.2	4.5
II	50.7	5.1
III	55.3	3.8
IV	51.4	4.2

The mean GOHAI scores (Table 2) showed that Class III achieved the highest score (55.3 ± 3.8), indicating a better perception of oral quality of life, probably due to greater prosthetic stability and functional retention in unilateral edentulous areas with a posterior abutment. Class I obtained the lowest score (48.2 ± 4.5), indicating greater functional difficulties and lower aesthetic satisfaction among patients with bilateral posterior edentulous areas.

Classes II (50.7 ± 5.1) and IV (51.4 ± 4.2) presented intermediate values, demonstrating that the extent and location of edentulism influence OHRQoL. In this regard, the greater the functionality and stability of the prosthesis, the more positive the perception of oral quality of life among adults wearing removable dentures.

Table 3. Distribution of self-perceived oral health-related quality of life

OHRQoL Level	n	Percentage
Satisfactory	10	25%
Moderate	17	42%
Poor	13	33%

Self-perceived OHRQoL showed that 42% of participants presented a moderate level, whereas only 25% reported a satisfactory perception, as shown in Table 3.

The Kruskal–Wallis test was applied to compare oral quality-of-life scores among the different Kennedy classes, revealing statistically significant differences ($\chi^2 = 8.08$, $df = 3$, $p = 0.044$). Post hoc analysis using the Dwass–Steel–Critchlow–Fligner test identified significant differences between Class II and Class III ($p = 0.039$).

DISCUSSION

Regarding age, most participants had a mean age of 51 years. These findings are similar to those reported by Rodríguez M⁽¹³⁾ and İlhan et al.⁽¹⁴⁾, in which most patients were younger than 60 years. This differs from other studies, such as those by Jiménez Quintana⁽¹⁵⁾ and Zambrano Guarnizo⁽¹⁶⁾, as well as other investigations in which most participants were 60 years of age or older.

The General Oral Health Assessment Index (GOHAI) was used to evaluate oral health-related quality of life. According to this index, most patients presented moderate to poor oral health-related quality of life. These results are similar to those reported by Ramos Arce⁽¹¹⁾, who found that 99.1% of the population had low self-perception, as well as to the study by Martínez⁽¹⁷⁾, in which quality of life was negatively affected in 67.7% of participants. Similarly, Pretel I⁽¹⁸⁾ reported that most adults had a moderate quality of life, with the highest proportion reaching 50.27%. Saliba et al.⁽¹⁹⁾, in turn, reported that oral health in their study groups had a “low” impact on the quality of life of older adults.

These findings are similar to those of other studies⁽²⁰⁾, which demonstrated that removable partial dentures achieved functional and aesthetic satisfaction rates ranging from 90% to 95%. Velázquez Ponce et al.⁽²¹⁾ found that complete removable dentures improved the quality of life of edentulous patients by 65%.

Oral health-related quality of life (OHRQoL) in adults with partial edentulism wearing removable dentures is influenced by functional, aesthetic, and psychosocial factors. Several studies have demonstrated that patients with Kennedy Class I partial edentulism who use removable dentures present poorer outcomes in oral hygiene, occlusal force, masticatory function, and perception of oral frailty compared with those rehabilitated with implant-supported fixed prostheses. This is reflected in higher scores, indicating poorer oral quality of life^(13–17).

Although removable dentures produce an initial improvement in perceived quality of life, this improvement is not always maintained over the long term. A recent meta-analysis demonstrated that the benefits are maintained during the first six months, whereas evidence at 12 months remains limited, suggesting the need for periodic follow-up and prosthetic adjustments to prolong functionality^(18,19).

However, other studies, such as that by Aguilar et al.⁽²²⁾, concluded that participants did not report their quality of life as being negatively affected by the use of dental prostheses. Cano Gutiérrez et al.⁽²³⁾ reported that edentulism significantly affects quality of life among older adults, but the use of dental prostheses does not necessarily improve quality of life, possibly due to insufficient knowledge regarding their proper use.

These findings demonstrate that the choice of rehabilitation modality should be individualized, taking into consideration both functional needs and each patient's expectations. Furthermore, the integration of more advanced technologies, such as implant-supported fixed prostheses, appears to be an option associated with better medium- and long-term outcomes in terms of quality of life and functionality.

CONCLUSIONS

The findings of the present study show that the perception of oral quality of life among adults with partial edentulism who wear removable dentures tends to be moderate or unsatisfactory. This is consistent with international evidence indicating that, although these prostheses improve function and aesthetics in the short term, their positive impact decreases over time, particularly in the absence of regular follow-up and prosthetic adjustments.

The incorporation of implants as support for removable prostheses or the transition to fixed rehabilitations can significantly improve masticatory function, stability, and the perception of well-being, although more comprehensive follow-up is required to prevent biomechanical or biological complications.

It is essential to consider the patient's perspective from the planning stage of rehabilitation, prioritizing treatment options that optimize not only function and aesthetics but also comfort and treatment longevity, while simultaneously promoting adherence to prosthesis use and appropriate maintenance.

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DECLARATION OF CONTRIBUTIONS

"Conceptualization and study design: Christiani Juan José, Altamirano Ricardo; Literature review: Olivera Paola, Altamirano Ricardo; Methodology and validation: Christiani Juan José, Altamirano Ricardo; Formal analysis: Christiani Juan José, Olivera Paola; Investigation and data collection: Altamirano Ricardo, Rosende María Natalia, Christiani Juan José; Resources: Altamirano Ricardo; Data analysis and interpretation: Christiani Juan José, Altamirano Ricardo; Writing—original draft preparation: Altamirano Ricardo, Rosende María Natalia; Writing—review and editing: Christiani Juan José, Altamirano Ricardo; Supervision: Olivera Paola, Rosende María Natalia, Altamirano Ricardo; Project administration: Christiani Juan José, Altamirano Ricardo; Funding acquisition: Not applicable."

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest during the conduct of the research. The manuscript was submitted exclusively to the Scientific Journal "Especialidades Odontológicas UG" for review and publication.

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