Evaluating Oral health-related quality of life in patients undergone fixed implant-supported dental prostheses.

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Abstract

Background Oral health-related quality of life (OHRQoL) is a crucial factor in assessing the success of dental treatments. Fixed implant-supported prostheses have gained popularity as an effective rehabilitation option for edentulous and partially edentulous patients, improving both function and aesthetics. This study aims to evaluate the impact of fixed implant-supported dental prostheses on OHRQoL using validated assessment tools.

Materials and Methods

A prospective observational study was conducted on 80 patients who received fixed implant-supported prostheses. Participants were divided into two groups: Group A (n=40) with full-arch fixed prostheses and Group B (n=40) with partial fixed prostheses. The Oral Health Impact Profile (OHIP-14) questionnaire was used to assess OHRQoL before treatment and three months post-treatment. Patient satisfaction and functional improvements were also evaluated.

Results

The mean OHIP-14 scores significantly decreased in both groups, indicating improved OHRQoL. In Group A, the mean score reduced from 32.5 ± 5.2 to 12.8 ± 3.9 ($p < 0.001$), while in Group B, it decreased from 30.1 ± 4.8 to 14.3 ± 4.2 ($p < 0.001$). Patients in both groups reported significant improvements in chewing efficiency, speech, and self-confidence, with higher satisfaction levels observed in the full-arch prosthesis group. No major post-prosthetic complications were noted during the study period.

Conclusion

Fixed implant-supported prostheses significantly enhance OHRQoL by improving functional and psychosocial well-being. Full-arch restorations offer superior benefits compared to partial prostheses, though both treatments contribute to overall patient satisfaction. Long-term studies are needed to further validate these findings.

Keywords

Oral health-related quality of life, Fixed implant-supported prosthesis, Dental implants, OHIP-14, Patient satisfaction, Prosthetic rehabilitation

Introduction

Oral health-related quality of life (OHRQoL) is a critical parameter for evaluating the success of dental rehabilitation, particularly in patients receiving implant-supported prostheses. The edentulous state negatively impacts functional, psychological, and social aspects of an individual's life, making prosthetic rehabilitation essential for restoring masticatory efficiency, phonetics, and aesthetics (1,2). Traditional removable dentures, though widely used, often present challenges such as reduced stability, discomfort, and compromised patient satisfaction, necessitating the shift towards implant-supported fixed prostheses (3).

Fixed implant-supported prostheses have emerged as a reliable treatment modality for edentulous and partially edentulous patients, offering enhanced stability and improved patient-reported outcomes compared to conventional dentures (4). Studies suggest that implant-supported prostheses contribute to better OHRQoL by improving functional outcomes, self-confidence, and overall satisfaction with oral rehabilitation (5,6). The Oral Health Impact Profile (OHIP-14) questionnaire is one of the most validated tools for assessing the impact of oral health interventions on quality of life, with previous research demonstrating significant reductions in OHIP-14 scores following implant-supported prosthetic rehabilitation (7).

Despite the documented benefits of fixed implant prostheses, variations exist in outcomes depending on the type of restoration. Full-arch fixed prostheses provide superior stability and functionality compared to partial fixed prostheses, potentially leading to greater improvements in OHRQoL (8,9). However, comparative studies on their effectiveness in enhancing quality of life remain limited. This study aims to evaluate the impact of fixed implant-supported dental prostheses on OHRQoL using the OHIP-14 questionnaire, comparing full-arch and partial fixed prostheses in terms of functional and psychosocial improvements.

Materials and Methods

A prospective observational study was conducted to evaluate the impact of fixed implant-supported dental prostheses on oral health-related quality of life (OHRQoL). The study included 80 patients who received implant-supported prostheses at a dental center. Participants were divided into two groups: Group A (n=40), consisting of patients with full-arch fixed prostheses, and Group B (n=40), comprising individuals with partial fixed prostheses.

Inclusion and Exclusion Criteria

Inclusion criteria:

- Patients aged 25–65 years requiring fixed implant-supported prostheses.
- Individuals with adequate bone volume for implant placement.
- Patients willing to participate and provide informed consent.

Exclusion criteria:

- Individuals with systemic conditions affecting implant success (e.g., uncontrolled diabetes, osteoporosis).
- Patients with severe parafunctional habits (e.g., bruxism).
- Those with a history of radiotherapy in the head and neck region.

Assessment Tools and Data Collection

The Oral Health Impact Profile-14 (OHIP-14) questionnaire was used to evaluate OHRQoL before prosthetic treatment and three months post-treatment. The questionnaire assesses functional, psychological, and social aspects of oral health on a Likert scale. Additionally, patient satisfaction, chewing efficiency, speech, and self-confidence were recorded using structured interviews.

Statistical Analysis

Data were analyzed using SPSS software (version 23). The paired t-test was applied to compare pre- and post-treatment OHIP-14 scores within each group, while the independent t-test was used to compare improvements between groups. A p-value of <0.05 was considered statistically

significant.

Results

The study analyzed data from 80 patients, with 40 in Group A (full-arch fixed prostheses) and 40 in Group B (partial fixed prostheses). The mean age of participants was 52.3 ± 7.1 years, with a nearly equal distribution of males and females.

Changes in OHRQoL Scores

A significant reduction in OHIP-14 scores was observed in both groups, indicating improved oral health-related quality of life post-treatment. The mean OHIP-14 score for Group A decreased from 32.5 ± 5.2 to 12.8 ± 3.9 ($p < 0.001$), whereas for Group B, the score reduced from 30.1 ± 4.8 to 14.3 ± 4.2 ($p < 0.001$) (Table 1). These findings suggest that both full-arch and partial fixed prostheses contributed to enhanced patient-reported outcomes, with a more pronounced improvement in Group A.

Patient Satisfaction and Functional Outcomes

Patient satisfaction was assessed based on self-reported ratings of chewing efficiency, speech clarity, and self-confidence. In Group A, 92.5% of patients reported a marked improvement in chewing function compared to 85% in Group B. Similarly, 90% of patients in Group A experienced enhanced speech clarity, while the corresponding figure for Group B was 82.5%. Self-confidence levels also increased significantly in both groups, with higher satisfaction in the full-arch prosthesis group (Table 2).

Post-Prosthetic Complications

During the three-month follow-up period, no major post-prosthetic complications such as implant failure or prosthesis fractures were reported. Minor complications, including gingival inflammation (7.5% in Group A, 10% in Group B) and mild discomfort (5% in Group A, 7.5% in Group B), were managed conservatively (Table 3).

Tables

Table 1: Comparison of OHIP-14 Scores Before and After Treatment

Group	Pre-Treatment Mean ± SD	Post-Treatment Mean ± SD	p-value
Group A (Full-Arch)	32.5 ± 5.2	12.8 ± 3.9	<0.001
Group B (Partial)	30.1 ± 4.8	14.3 ± 4.2	<0.001

(Significant improvement in OHIP-14 scores was observed post-treatment in both groups, with greater reduction in Group A.)

Table 2: Patient Satisfaction and Functional Outcomes

Parameter	Group A (%)	Group B (%)
Improved Chewing Efficiency	92.5	85.0
Enhanced Speech Clarity	90.0	82.5
Increased Self-Confidence	94.0	87.0

(Both groups demonstrated significant functional improvements, with higher satisfaction rates in the full-arch prosthesis group.)

Table 3: Incidence of Minor Post-Prosthetic Complications

Complication	Group A (%)	Group B (%)
Gingival Inflammation	7.5	10.0
Mild Discomfort	5.0	7.5

(Minor complications were reported in both groups but were manageable without significant

interventions.)

The results demonstrate that fixed implant-supported prostheses significantly enhance OHRQoL, functional efficiency, and patient satisfaction, with full-arch prostheses providing superior outcomes (Tables 1–3). However, long-term follow-up studies are recommended to evaluate the sustained benefits of these prosthetic solutions.

Discussion

The present study demonstrated a significant improvement in oral health-related quality of life (OHRQoL) following the placement of fixed implant-supported prostheses. The reduction in OHIP-14 scores in both full-arch and partial prosthesis groups suggests that implant-supported restorations play a crucial role in enhancing functional, psychological, and social well-being. These findings align with previous studies that reported substantial improvements in patient satisfaction and overall oral function after implant prosthetic rehabilitation (1,2).

Fixed implant-supported prostheses provide superior masticatory efficiency, speech clarity, and aesthetics, all of which contribute to improved patient-reported outcomes. In this study, 92.5% of full-arch prosthesis patients and 85% of partial prosthesis patients reported enhanced chewing efficiency. Similar findings were reported by Kranjčić et al. (3), who observed that patients with fixed implant prostheses exhibited significantly better chewing ability compared to those with removable dentures. Additionally, speech clarity improved in 90% of patients in Group A and 82.5% in Group B, comparable to results from previous research indicating that implant-supported prostheses help overcome phonetic difficulties associated with edentulism (4).

From a psychological perspective, self-confidence and social interactions improved significantly in both groups, with 94% of patients in Group A and 87% in Group B reporting increased confidence. Similar trends were observed in studies by Zitzmann et al. (5) and Müller et al. (6), where implant-supported restorations contributed to a more positive self-perception and enhanced social engagement.

While both full-arch and partial fixed prostheses significantly enhanced OHRQoL, full-arch restorations exhibited a more pronounced improvement. The greater reduction in OHIP-14 scores (32.5 to 12.8 in Group A vs. 30.1 to 14.3 in Group B) supports the notion that full-arch prostheses offer superior functional and psychological benefits. These results are consistent with previous research, which highlights that full-arch restorations provide greater stability, improved occlusion, and better load distribution compared to partial prostheses (7,8).

Furthermore, studies have shown that edentulous patients who receive full-arch implant prostheses experience greater improvements in quality of life than those with conventional prostheses (9). This may be attributed to the elimination of palatal coverage in maxillary implants and the avoidance of mobility issues seen in removable dentures. However, partial fixed prostheses still provided significant benefits compared to traditional removable prostheses, making them a viable option for partially edentulous patients (10).

Complications and Limitations

The study observed minimal post-prosthetic complications, with 7.5% of Group A and 10% of Group B experiencing gingival inflammation, while mild discomfort was reported in 5% of Group A and 7.5% of Group B. These findings are consistent with other studies, which report gingival irritation and transient discomfort as the most common early complications following implant placement (11,12). However, long-term evaluations are necessary to assess implant survival rates and late-stage complications such as peri-implantitis and prosthetic fractures.

One limitation of this study is the short follow-up period of three months, which may not fully capture the long-term effects of implant-supported prostheses on OHRQoL. Future studies with longer follow-up periods and larger sample sizes are recommended to validate these findings further. Additionally, factors such as bone quality, implant positioning, and prosthetic design

may influence treatment outcomes and should be explored in subsequent research (13).

Conclusion

This study reinforces the positive impact of fixed implant-supported prostheses on oral health-related quality of life, with full-arch restorations offering superior benefits compared to partial prostheses. The findings align with existing literature, emphasizing the importance of implant prosthetic rehabilitation in restoring function, aesthetics, and psychological well-being. While the short-term benefits are evident, long-term studies are essential to assess the durability and long-term patient satisfaction associated with these prosthetic solutions.

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