

The impact of orthopedic rehabilitation on dental health-related quality of life in patients with complete edentulism

Ranakulov Akbarjon Ikromjon ugli¹, Ortikova Nargiza Khayrullayevna²,

1st year clinical supervisor of the Department of Orthopedic Dentistry of Samarkand State Medical University¹,
associate professor of the Department of Orthopedic Dentistry of Samarkand State Medical University, PhD²

Received: 2026-02-28 · Accepted: 2026-04-27

Abstract

Complete edentia remains one of the most complex medical and social problems in modern dentistry, significantly affecting the functional state of the dental system, psychological health, and social adaptation of patients. Tooth loss is accompanied by impaired chewing efficiency, changes in diction, deterioration in facial aesthetics, decreased self-esteem, and limitation of daily activities. The aim of this study was to evaluate the effect of orthopedic rehabilitation on the quality of life of patients with complete edentia. The study involved 102 patients aged 47 to 79 years who underwent orthopedic treatment using complete removable dentures and implant-supported structures. Functional status, emotional comfort, level of social activity, and satisfaction with dental status were assessed before treatment and during follow-up. The results showed that orthopedic rehabilitation contributes to a significant improvement in chewing function, normalization of speech activity, and an increase in psychological stability and social confidence in patients. The highest rates of adaptation and satisfaction were recorded in patients with implant-supported orthopedic structures. The study confirms the importance of timely orthopedic care for restoring not only dental function but also the overall quality of life of patients with complete tooth loss.

Keywords: complete edentia, orthopedic dentistry, quality of life, dental health, prosthetics, implant-supporting structures, removable dentures, chewing function, social adaptation, dental rehabilitation.

1. Introduction

Complete tooth loss is a severe pathological condition that has a complex impact on a person's functional and psycho-emotional state. Despite advances in modern preventive dentistry, the prevalence of complete edentia among the elderly remains quite high. The main causes of complete tooth loss include complicated forms of caries, generalized periodontal disease, traumatic injuries, and age-related involutional changes in oral tissues.

The absence of teeth is accompanied by significant morphofunctional impairments in the maxillofacial region. Patients experience alveolar atrophy, loss of lower facial height, impaired coordination of the masticatory muscles, and altered temporomandibular joint function. Significant impairment of chewing efficiency leads to dietary restrictions and can contribute to the development of

gastrointestinal diseases and metabolic disorders.

The psychological and social consequences of complete edentulism are no less significant. Facial aesthetics, speech changes, and the inability to fully communicate often lead to emotional instability, decreased self-esteem, and social isolation. Many patients experience discomfort when speaking and eating in public, avoid active social interactions, and lose self-confidence.

Modern orthopedic dentistry views prosthetics not only as a method for restoring lost teeth but also as a crucial stage in the medical and social rehabilitation of patients. Traditional complete dentures remain the most common treatment method due to their affordability and clinical effectiveness. At the same time, the introduction of dental implants has significantly expanded the possibilities of orthopedic rehabilitation, providing greater stability of dentures, improved chewing function, and increased patient comfort.

In recent years, special attention has been paid to assessing quality of life related to dental health.

This indicator reflects the impact of oral health on a person's physical, emotional, and social well-being and allows for an objective assessment of the effectiveness of treatment.

The aim of this study was to investigate the impact of various methods of orthopedic rehabilitation on the quality of life of patients with complete edentia, as well as to analyze the degree of their functional and psycho-emotional adaptation after treatment.

2. Materials and Methods

The study was conducted at the Department of Orthopedic Dentistry from 2024 to 2025. The study included 102 patients with complete edentulism, aged 47 to 79 years. The subjects included both men and women in need of complete orthopedic restoration of their dentition.

The patients were divided into two clinical groups depending on the chosen orthopedic treatment method. The first group included 56 patients who received complete removable plate dentures. The second group consisted of 46 patients who underwent treatment using implant-supported orthopedic structures.

Before treatment, all patients underwent a comprehensive clinical examination, including an assessment of the oral mucosa, the degree of alveolar atrophy, temporomandibular joint function, salivary flow, and bite characteristics. The duration of edentulism, the presence of concomitant diseases, and previous experience with prosthetics were also taken into account.

Surveys were conducted before treatment and three and six months after completion of orthopedic rehabilitation. Follow-up clinical examinations were also conducted to assess adaptation to the prostheses, the condition of the mucous membrane, and the functional effectiveness of the orthopedic devices.

Complete removable dentures were manufactured using traditional clinical laboratory techniques, using custom-made trays, functional impressions, and centric jaw relationship recording.

Implant-supporting structures were fabricated after the implants had fully integrated and the necessary diagnostic procedures had been completed.

3. Results

Before orthopedic treatment, most patients complained of severe difficulty chewing food, speech impairment, dissatisfaction with their appearance, and psychological discomfort. Many patients avoided eating solid foods, experienced embarrassment during social interactions, and limited their participation in social activities.

After completing orthopedic rehabilitation, patients in both groups demonstrated significant improvement in the functional state of their dental system. Patients wearing complete dentures reported a gradual restoration of chewing efficiency and improved facial aesthetics. During the first weeks of adaptation, some patients noted increased salivation, minor discomfort, and difficulty pronouncing certain sounds; however, these symptoms subsided significantly over time.

Patients in the second group, using implant-supported structures, adapted more quickly and experienced a higher level of functional comfort. Thanks to the secure fixation of the prostheses, stability during speaking and eating was significantly improved. Patients in this group reported a greater feeling of naturalness and confidence when using the prostheses.

A follow-up survey revealed a significant improvement in the psychological well-being of the patients surveyed. After treatment, the level of emotional stress associated with missing teeth significantly

decreased. Patients reported increased self-esteem, improved mood, and increased social activity. Many of those surveyed felt more confident in social situations and experienced less discomfort during interactions.

Clinical observations confirmed satisfactory adaptation of oral tissues to the prosthetic structures. Minor mucosal trauma that occurred early in the process was successfully eliminated by adjusting the prosthesis. Implant-supported structures demonstrated greater stability and a lower incidence of complaints related to prosthetic failure.

Statistical analysis of the results revealed a significant improvement in most quality of life indicators after orthopedic treatment, especially in relation to chewing function, emotional state and social confidence of patients.

4. Discussion

The results obtained indicate that orthopedic rehabilitation has a significant positive impact on the quality of life of patients with complete edentulism. Restoring dental arches not only normalizes chewing function but also improves the patient's psychoemotional state, social adaptation, and overall well-being.

Complete tooth loss leads to significant lifestyle changes. Dietary restrictions, speech impairment, and deterioration in appearance negatively impact patients' emotional well-being and communication skills. A study has shown that high-quality orthopedic treatment can significantly reduce these negative effects.

Traditional removable dentures remain important in modern orthopedic dentistry due to their affordability and ability to restore key dental functions. However, implant-supported structures provide a higher level of fixation, stability, and functional comfort, which positively impacts patient satisfaction with treatment results.

The impact of orthopedic rehabilitation on patients' psychological well-being is particularly significant. Restoring facial aesthetics and normal speech function helps improve self-esteem, reduce feelings of social inferiority, and enable patients to return to an active social life.

Successful adaptation to orthopedic structures depends on many factors, including the quality of clinical and laboratory treatment, the anatomical features of the oral cavity, the patient's psychological readiness, and the frequency of follow-up examinations. Patient education on denture care and oral hygiene also plays an important role.

Despite the positive results, the study had certain limitations related to the limited number of patients and relatively short follow-up period. A promising area for further research is to examine the long-term outcomes of orthopedic rehabilitation and their impact on patients' overall health.

5. Conclusion

The study confirmed that orthopedic rehabilitation is an effective method for restoring quality of life in patients with complete edentulism. After treatment, significant improvements in chewing function, speech activity, facial aesthetics, emotional state, and social adaptation were observed.

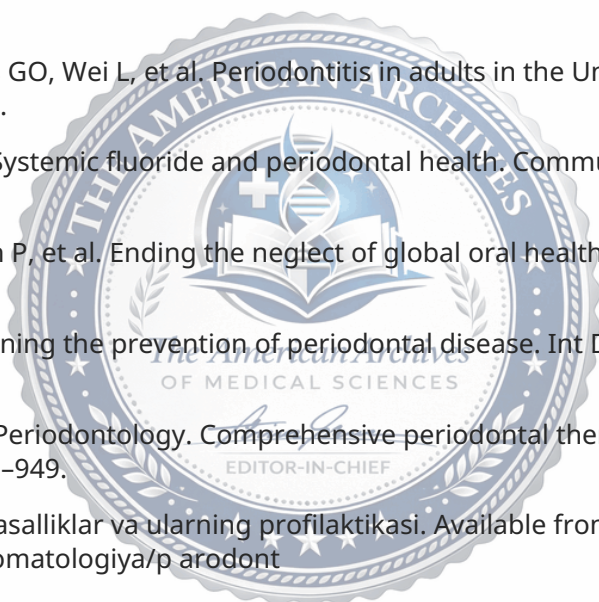
The highest rates of functional comfort and satisfaction were found in patients using implant-supported orthopedic structures. Dental restoration contributed to a reduction in psychological discomfort and improved social activity among the subjects.

The obtained data allow us to consider orthopedic rehabilitation as an important component of comprehensive medical care for patients with complete edentia, aimed not only at restoring the lost functions of the dental system, but also at improving the overall physical and psycho-emotional state of a person.

References

- [1] Petersen PE, Ogawa H. The global burden of periodontal disease: towards integration with chronic disease prevention and control. *Periodontol* 2000. 2012;60(1):15–39.
- [2] Kinane DF, Stathopoulou PG, Papapanou PN. Periodontal diseases. *Nat Rev Dis Primers*. 2017;3:17038.
- [3] Nazir MA. Prevalence of periodontal disease, its association with systemic diseases and prevention. *Int J Health Sci*. 2017;11(2):72–80.

- [4] Pihlstrom BL, Michalowicz BS, Johnson NW. Periodontal diseases. Lancet. 2005;366(9499):1809–1820.
- [5] Chapple ILC, Mealey BL, Van Dyke TE, et al. Periodontal health and gingival diseases and conditions. J Periodontol. 2018;89(Suppl 1):S74–S84.
- [6] Tonetti MS, Greenwell H, Kornman KS. Staging and grading of periodontitis. J Periodontol. 2018;89(Suppl 1):S159–S172.
- [7] World Health Organization. Oral health fact sheet. Geneva: WHO; 2025.
- [8] Slots J. Periodontitis: facts, fallacies and the future. Periodontol 2000. 2017;75(1):7–23.
- [9] Peres MA, Macpherson LMD, Weyant RJ, et al. Oral diseases: a global public health challenge. Lancet. 2019;394(10194):249–260.
- [10] Fawell J, Bailey K, Chilton J, et al. Fluoride in drinking-water. Geneva: WHO; 2006.
- [11] Kumar JV. Is water fluoridation still necessary? Adv Dent Res. 2008;20(1):8–12.
- [12] Burt BA, Eklund SA. Dentistry, dental practice, and the community. 6th ed. Elsevier; 2005.
- [13] Fejerskov O, Nyvad B, Kidd E. Dental caries: the disease and its clinical management. 3rd ed. Wiley Blackwell; 2015.
- [14] Eke PI, Thornton-Evans GO, Wei L, et al. Periodontitis in adults in the United States. J Am Dent Assoc. 2018;149(7):576–588.
- [15] Sampaio FC, Levy SM. Systemic fluoride and periodontal health. Community Dent Oral Epidemiol. 2011;39(6):555–567.
- [16] Watt RG, Daly B, Allison P, et al. Ending the neglect of global oral health. Lancet. 2019;394(10194):261–272.
- [17] Petersen PE. Strengthening the prevention of periodontal disease. Int Dent J. 2005;55(4 Suppl 1):285–291.
- [18] American Academy of Periodontology. Comprehensive periodontal therapy guidelines. J Periodontol. 2011;82(7):943–949.
- [19] Med1.uz. Parodontal kasalliklar va ularning profilaktikasi. Available from: <https://med1.uz/articles/stomatologiya/parodont>
- [20] Med1.uz. Ichimlik suvi sifati va stomatologik salomatlik. Available from: <https://med1.uz/articles/gigiyena/ichimlik-suvi>
- [21] Med1.uz. Yer osti suvlari tarkibining inson salomatligiga ta'siri. Available from: <https://med1.uz/articles/ekologiya/yer-osti-suvi>
- [22] Med1.uz. Og'iz bo'shlig'i gigiyenasi va periodontal kasalliklar. Available from: <https://med1.uz/articles/stomatologiya/gigiyena>
- [23] Med1.uz. Stomatologik kasalliklarning epidemiologik xususiyatlari. Available from: <https://med1.uz/articles/stomatologiya/epidemiologiya>
- [24] Med1.uz. Ftor va mikroelementlarning tish salomatligidagi ahamiyati. Available from: <https://med1.uz/articles/stomatologiya/ftor>
- [25] Med1.uz. Parodontitni zamonaviy davolash usullari. Available from: <https://med1.uz/articles/stomatologiya/parodontit>
- [26] Med1.uz. Profilaktik stomatologiya va sog'lom turmush tarzi. Available from: <https://med1.uz/articles/stomatologiya/profilaktika>



Indexed & Abstracted In

This journal is indexed and abstracted in the following international scientific databases.



Google Scholar



ISSN



ORCID



CiteFactor



ResearchBib



DOI



Zenodo



Grammarly

Article Verification

Scan the QR code to verify the authenticity of this article

DOI: 10.4103/*aams.0498