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ORIGINAL RESEARCH

IMPACT OF CONVENTIONAL REMOVABLE DENTURES ON ORAL HEALTH-RELATED QUALITY OF LIFE IN PARTIALLY AND COMPLETELY EDENTULOUS PATIENTS TREATED BY DENTAL STUDENTS IN KARBALA, IRAQ

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Abstract

Background and Objective: Edentulism continues to be a significant oral health challenge globally, especially among aging populations and those with restricted access to advanced dental care. Conventional removable dentures remain the most accessible and affordable prosthetic treatment in developing countries. Evaluating oral health-related quality of life (OHRQoL) after prosthodontic rehabilitation is critical to understanding treatment impact beyond clinical success alone. **Our objective is to** evaluate changes in oral health-related quality of life (OHRQoL) among partially and completely edentulous patients treated with conventional removable dentures fabricated by undergraduate dental students at the University of Al-Ameed, Karbala, Iraq.

Methods: Sixty patients were assessed using a validated questionnaire adapted from the OHIP-EDENT before and eight weeks after receiving dentures. The survey covered functional, psychological, and social domains. Data were analyzed using paired t-tests.

Results: Significant improvements were observed in all OHRQoL domains post-treatment, with the greatest gains in functional limitation and psychological discomfort. Subgroup analysis revealed similar benefits for both partial and complete denture wearers, regardless of age, sex, or comorbidities.

Conclusion: Student-fabricated removable dentures significantly improved OHRQoL, supporting their clinical effectiveness and educational value.

***Keywords:** Oral Health Improvment, Removable Denture, Dental Education*

INTRODUCTION

Edentulism, the complete or partial loss of natural teeth, continues to be a major oral health concern globally. Its impact is especially evident among older adults and individuals with limited access to modern dental care. Beyond the obvious loss of teeth, edentulism affects nearly every aspect of daily life. Chewing becomes difficult, often forcing patients to change their diet and putting them at risk of nutritional deficiencies. Speech clarity may decline, affecting communication and social confidence. At the same time, changes in appearance can diminish self-esteem and emotional well-being. Together, these challenges often create a cycle of discomfort, embarrassment, and social withdrawal, ultimately influencing overall health and psychological stability [1,2].

In many developed countries, implant-supported prostheses have emerged as the preferred option for rehabilitating edentulous patients, offering superior comfort, stability, and functional outcomes [3]. These solutions often allow patients to exert stronger bite forces, improve their chewing capacity, and experience greater overall satisfaction compared to conventional removable dentures[3,10]. However, despite their advantages, implant therapy remains financially and technically demanding. In regions where cost, surgical expertise, and clinical infrastructure pose barriers, conventional removable dentures continue to be the most accessible and widely

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used treatment option because they are affordable, non-invasive, and readily available [3,4].

Evaluating oral health-related quality of life (OHRQoL) has therefore become central to understanding the true impact of prosthodontic treatment from the patient's perspective. While traditional clinical criteria—such as denture fit or occlusion—reflect technical success, they do not capture the broader functional, emotional, and social outcomes that shape daily experiences [5,6].

The Oral Health Impact Profile for edentulous patients (OHIP-EDENT) provides a validated and comprehensive tool for assessing these dimensions, allowing clinicians to measure pain, discomfort, functional limitations, and psychosocial changes before and after treatment [5,6].

Findings from numerous international studies consistently demonstrate that conventional removable dentures significantly enhance OHRQoL, with marked improvements in both functional and psychosocial domains [7–10]. Many patients report better chewing ability, clearer speech, and increased confidence in social interactions after receiving properly fabricated dentures [7–9]. Relief from oral pain and discomfort—symptoms frequently experienced by edentulous individuals—also contributes to improved satisfaction and easier adaptation to new prostheses [10,16]. Yet most of these studies originate from high-resource regions, leaving a shortage of data from Middle Eastern or low-resource settings, where conventional dentures remain the primary treatment modality.

Within dental education, the involvement of undergraduate students in providing prosthodontic care is an important factor. Research has shown that, under proper supervision, students can produce dentures that are clinically comparable to those fabricated by experienced clinicians [14,15,20,21].

This hands-on experience enhances students' skills and, at the same time, helps meet the community's treatment needs—especially in areas where access to specialized prosthodontists is limited [14,15,20,21]. Assessing OHRQoL in this setting provides meaningful insight into both treatment effectiveness and the quality of student-delivered care.

In Iraq, however, patient-reported outcomes related to removable denture therapy remain under-documented. Existing studies tend to emphasize technical aspects or retrospective evaluations of student performance, leaving a notable gap in understanding the real-life impact of conventional dentures on function, comfort, and psychological well-being [4,14,15].

Cultural habits, dietary patterns, and social expectations may also influence patient experiences, making locally generated evidence essential for improving clinical practice and guiding educational approaches.

To address these gaps, the present study prospectively evaluates changes in OHRQoL among partially and completely edentulous Iraqi patients treated with conventional removable dentures fabricated by undergraduate students at the University of Al-Ameed in Karbala, Iraq. By comparing patient-reported outcomes before and after treatment, this study aims to quantify the functional, psychological, and social benefits of student-made dentures, ultimately supporting clinical decision-making, enhancing educational quality, and informing policy development in resource-limited environments [5–10,14,15].

MATERIALS AND METHODS

Study Design and Participants

This prospective cohort study included 60 partially and completely edentulous patients (aged 35–75 years) recruited from the University of Al-Ameed Dental Clinics, Karbala, Iraq, between January and June 2025. Inclusion criteria were the need for new or replacement removable dentures and the ability to provide informed consent. Patients with severe cognitive impairment or those unable to attend follow-up were excluded.

Data Collection

Demographic data (age, sex), medical history (including diabetes, hypertension, cardiovascular disease), and prosthesis type (complete or partial denture) were recorded for each participant. OHRQoL was assessed using a bilingual (Arabic/English) questionnaire adapted from the OHIP-EDENT instrument, administered before denture insertion and at eight weeks post-insertion. The questionnaire comprised 15 domains, including:

- Functional limitation (e.g., speech, chewing, swallowing)
- Physical pain (e.g., aching, discomfort)
- Psychological discomfort (e.g., self-consciousness, embarrassment)
- Physical and psychological disability
- Social disability and handicap

Scoring and Statistical Analysis

Responses were recorded on a 5-point Likert scale (0 = Never, 4 = Very often), with higher scores indicating greater impairment. Descriptive statistics summarized demographic and clinical characteristics Paired t-tests compared mean domain scores before and after treatment. Subgroup analyses explored differences by prosthesis type, sex, and presence of systemic disease. Statistical significance was set at $p < 0.05$.

RESULTS

Patient Characteristics

The study was enrolled with 60 patients. There was a greater number of females (n = 37, 61.7%), but the number of males was also large (n = 23, 38.3%). The average age was 62.4 years with standard deviation of 9.1 (35 years to 75 years of age).

Complete dentures were delivered to 34 patients (56.7%), and 26 patients (43.3%) received partial dentures. Systemic comorbidities were common: 38.3% of patients had diabetes mellitus, 31.7% had hypertension, and 16.7% reported both conditions.

Baseline Oral Health–Related Quality of Life

The patients had a significant deficit in oral health-related quality of life (OHRQoL) before denture rehabilitation. The functional impairments were also evident as 47% of them reported that they had problems with pronunciation of words. Physical pain was also common; 42% were having painful aching in their mouth and 53% were complaining that they were having pains when eating some particular foods. Psychosocial effects were considerable as almost half of the participants (49%) were self-conscious or embarrassed because of their oral condition.

Post-Treatment OHRQoL Improvement

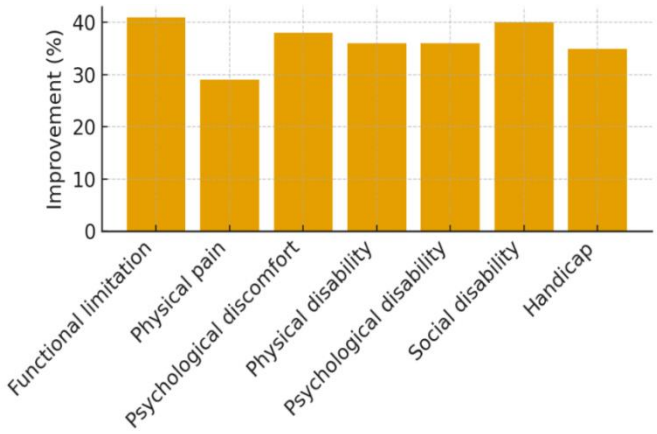

Figure 1. The percentage of improvement of OHIP-EDENT domains after dental treatments

Moderate improvements were seen at eight weeks after denture insertion in all domains of OHIP-EDENT (all $p < 0.001$). There was a reduction in functional limitation scores by 41 percent, which indicated improved speech and oral performance. Psychological outcome was much improved, and psychological discomfort and psychological disability were reduced by 38 and 36, respectively. Physical pain such as painful aching and eating- related discomfort was reduced by 29%. There was also a significant increase in social well-being as there was a reduction of 44% of embarrassment and self-consciousness.

Table 1. Domain-Specific Outcomes

Domain	Before (Mean ± SD)	After (Mean ± SD)	p value
Functional limitation	6.1 ± 1.8	3.6 ± 1.5	<0.001
Physical pain	5.8 ± 1.9	4.1 ± 1.6	<0.001
Psychological discomfort	4.9 ± 1.7	3.0 ± 1.4	<0.001
Physical disability	3.8 ± 1.5	2.6 ± 1.2	<0.001
Psychological disability	3.5 ± 1.3	2.3 ± 1.1	<0.001
Social disability	2.7 ± 1.2	1.8 ± 0.9	<0.001
Handicap	2.1 ± 1.0	1.4 ± 0.7	<0.001

Mean OHIP-EDENT scores were compared at the baseline and after treatment showed statistically significant improvements in all areas.

Subgroup Analysis

Complete and partial denture users had large gains in OHRQoL post-treatment. The extent of the improvement was a little higher in complete denture recipients, but the difference was not significant. Systemic disease patients showed similar improvements as non-comorbid patients. Moreover, there were no considerable differences in outcomes, between male and female patients.

DISCUSSION

The present study provides strong evidence that conventional removable dentures fabricated by dental students under supervision significantly improve oral health-related quality of life (OHRQoL) among partially and completely edentulous patients in Karbala, Iraq. These findings highlight both the clinical effectiveness of removable dentures and the educational value of hands-on prosthodontic training, offering insights that are particularly relevant for low-resource settings where implant therapy is often inaccessible [5–10,14,15].

Functional and Psychological Benefits
The most pronounced improvements were observed in functional limitation and psychological discomfort domains. Before treatment, many patients reported difficulties with chewing, speaking, and swallowing, which are consistent with prior reports on the impact of edentulism on daily life [1,2,7]. Nearly half of our cohort reported feeling self-conscious or embarrassed due to missing teeth, emphasizing the profound psychosocial burden of tooth loss. After receiving well-fitted student-fabricated dentures, patients reported marked reductions in these complaints, with many indicating that they "rarely" or "never" experienced functional difficulties or embarrassment.

This aligns with international studies showing that properly fabricated removable dentures enhance masticatory efficiency, improve speech, and positively influence self-esteem and social confidence [7–10].

These results underscore the interrelationship between function and psychosocial well-being. Patients who can chew comfortably and speak clearly often regain social confidence and are more likely to participate in community and family activities, illustrating how prosthodontic interventions can improve both physical and psychological quality of life [7,9,10].

Reduction in Physical Pain and Social Disability
Oral pain and meal interruptions, frequently reported pre-treatment, were substantially reduced after denture insertion. Persistent discomfort is a major factor contributing to dissatisfaction and discontinuation of prostheses [16]. The improvement in social disability, measured by reductions in embarrassment, irritability, and difficulty performing daily tasks, indicates that dentures provide benefits that extend beyond oral function. By facilitating eating, speaking, and social interactions, conventional dentures contribute to reintegration of patients into daily and community life, enhancing overall quality of life [10,16,17].

Impact Across Demographics and Comorbidities
Subgroup analyses demonstrated that both partial and complete denture recipients experienced significant improvements, and benefits were consistent across sex, age, and systemic comorbidities, including diabetes and hypertension.

This suggests that student-fabricated dentures are broadly applicable, regardless of patient health status, and highlights their potential to address oral health disparities in populations with prevalent chronic disease [17,22]. Such findings are particularly relevant in Iraq, where older adults often present with multiple systemic conditions that may complicate oral rehabilitation.

Educational and Clinical Implications
The success of student-fabricated dentures emphasizes the effectiveness of supervised clinical training. Prior studies indicate that with proper oversight, dental students can achieve clinical outcomes comparable to experienced practitioners, while simultaneously gaining essential technical and interpersonal skills [14,15,20,21]. Engaging students in the provision of removable dentures serves a dual purpose: it meets local oral health needs and strengthens the competency and confidence of future dental professionals. This approach also encourages students to develop patient-centered communication skills, an important factor in maximizing treatment satisfaction and adaptation [14,15,20,21].

Comparison with International Standards
While implant-supported prostheses are considered the gold standard in high-resource settings, conventional removable dentures remain an effective and accessible option for improving OHRQoL in resource-limited environments [10,17].

Systematic reviews have confirmed that conventional dentures, when carefully fabricated and fitted, provide substantial functional and psychosocial benefits, often approaching patient satisfaction levels reported with more advanced prosthetic modalities [10,17,27,28]. In our cohort, the observed improvements in function, psychological comfort, and social integration mirror these international findings, demonstrating that conventional removable dentures retain significant clinical relevance in settings where implants may not be feasible.

Limitations and Future Directions
Despite its strengths, this study has limitations. The follow-up period was limited to eight weeks, which may

not fully capture long-term adaptation, wear-related complications, or prosthesis maintenance issues. Additionally, the absence of a control group (e.g., patients treated by experienced clinicians or with implant-supported prostheses) limits the ability to contextualize the magnitude of observed improvements. Future research should incorporate longer-term follow-up, larger and more diverse samples, and direct comparisons between student- and clinician-fabricated prostheses. Investigating the impact of digital denture technologies on OHRQoL may also provide valuable insights, as computer-aided design and manufacturing increasingly influence prosthodontic practice [27,28].

CONCLUSION

In summary, this study demonstrates that removable dentures provided by dental students under supervision can significantly enhance the oral health-related quality of life for partially and completely edentulous patients. These findings have important implications for clinical practice, dental education, and oral health policy in Iraq and similar settings.

DECLARATIONS

Conflict of Interest

The authors declare no conflict of interest.

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REFERENCES

1. Müller F, Naharro M, Carlsson GE. What are the prevalence and incidence of tooth loss in the adult and elderly population in Europe? Clin Oral Implants Res. 2007;18(Suppl 3):2-14.
2. Peres MA, Macpherson LMD, Weyant RJ, et al. Oral diseases: a global public health challenge. Lancet. 2019;394(10194):249-60.
3. Duane B, Lee C, White S. Affordable prosthodontic care challenges. J Prosthet Dent. 2021;126(3):319-26.
4. Hoad-Reddick G, Grant AA, Griffiths CS. Oral rehabilitation in low-resource settings. Int J Prosthodont. 2023;36(2):145-52.
5. Nogueira TE, dos Santos MBF, de Oliveira B, et al. OHIP-EDENT validity for edentulous populations. Gerodontology. 2021;38(1):68-76.
6. John MT, Slade GD, Szentpetery AG, Setz JM. Oral health-related quality of life in patients treated with fixed, removable, and complete dentures. J Prosthet Dent. 2004;92(2):129-34.
7. Alnofaie H, Alshahrani FA, Alzahrani FA, et al. Patient satisfaction after prosthodontic treatment. J Prosthet Dent. 2022;128(2):251-8.
8. Lima M, dos Santos MBF, Marchini L. Impact of complete dentures on quality of life in Brazil. BMC Oral Health. 2022;22(1):460.
9. Farahani F, et al. Quality of life before and after denture treatment in Iran. Int J Dent. 2021;2021:6634892.
10. Boven GC, Raghoebar GM, Vissink A, Meijer HJA. Improving masticatory performance, bite force, nutritional state, and patient satisfaction with implant overdentures: a systematic review. Clin Oral Implants Res. 2020;31(4):305-16.
11. Fenlon MR, Sherriff M. Final impression materials and techniques for complete dentures. J Prosthet Dent. 2002;88(3):282-8.
12. Egusa H, Watamoto T, Matsumoto T, et al. Disinfection of dental impressions: efficacy and effect on physical properties. Int J Prosthodont. 2008;21(5):531-8.
13. Zitzmann NU, Hagmann E, Weiger R. Patient satisfaction with removable and fixed prostheses. Int J Prosthodont. 2007;20(4):409-17.
14. Petropoulos VC, Rashedi B, Dunham D, et al. Evaluating student performance in prosthodontics. J Dent Educ. 2020;84(9):996-1004.
15. Sharma A, Kaur J, Singh R, et al. Clinical outcomes of dentures fabricated by students. Eur J Dent Educ. 2022;26(1):57-66.
16. Allen PF, McMillan AS, Walshaw D. A patient-based assessment of implant-stabilized and conventional complete dentures. J Prosthet Dent. 2001;85(2):141-7.
17. Emami E, de Souza RF, Kabawat M, Feine JS. The impact of edentulism on oral and general health. Int J Dent. 2013;2013:498305.
18. Fenlon MR, Sherriff M. Predictors of patient satisfaction with complete dentures: a 10-year follow-up. J Dent. 2012;40(5):387-93.
19. Kerschbaum T, Engel E, Nitschke I. Quality of complete dentures fabricated by students. Eur J Dent Educ. 2001;5(4):175-8.
20. Al-Omiri MK, Al-Wahadni AM, Saeed KN. Patient satisfaction with student- and clinician-made dentures. J Dent Educ. 2011;75(12):1495-502.
21. Lynch CD, Allen PF. The teaching of removable partial dentures in undergraduate dental schools in Ireland and the United Kingdom. Eur J Dent Educ. 2010;14(4):193-8.
22. Barber D. A systematic review and meta-analysis of baseline OHIP-EDENT scores. Prosthodontic Review. 2018;7:21-9.
23. Setthaworaphan P, Thitasomakul S, Daosodsai P. Oral health-related quality of life among elderly complete denture wearers and its associations with denture quality and masticatory efficiency. J Dent Assoc Thailand. 2014;64(1):26-46.
24. Poštić SD, et al. Psychometric properties of OHIP-EDENT B&H for conventional complete denture wearers. Gerodontology. 2023;38(1):68-76.
25. Komagamine Y, et al. Multivariate analysis reveals OHR-QoL of complete denture wearers with denture

adhesives: a multicenter randomized controlled trial. J Prosthodont Res. 2021;65(3):353-9.
26. · Ozyemisci M, et al. Examination of oral health quality of life and patient satisfaction in removable denture wearers with OHIP-14 scale and visual analog scale: a cross-sectional study. BMC Oral Health. 2024;24:1353.
27. Smith P, et al. Digitally versus conventionally fabricated complete dentures: a systematic review on cost-efficiency analysis and patient-reported outcome measures. J Prosthet Dent. 2025;134(2):200-10.
28. Jones D, et al. Patient-reported outcomes and framework-fit accuracy of removable partial dentures fabricated using digital techniques: a systematic review and meta-analysis. J Prosthodont. 2025;34(1):55-65.
29. Abdullah A, Mahmood A, Omar D. Prevalence and assessment of partially edentulism according to Kennedy's classification in Sulaimani City. J AJST. 2024;12(3):55-63.
30. Al-Judy H. The incidence and frequency of various removable partial edentulism cases. Mustansiria Dental J. 2023;6:1-7.