

Review Article

The effect of dentures on oral health and the quality of life

Alabbas A. Jar^{1*}, Abdullah A. Khormi², Norah A. Al-khamiss³, Atheer A. Alnaim⁴,
Zainab F. Alharbi⁵, Hesham A. Holba², Abdullah S. Alshamrani⁶, Anwer A. Khormi⁷,
Amani S. Alharbi⁸, Arwa M. Almutairi⁹, Faisal A. Alhegbani¹⁰

¹North Jeddah Specialist Dental Center, King Abdullah Medical Complex, Jeddah, Saudi Arabia

²Ministry of Health, Jazan, Saudi Arabia

³Qassim New Dental Complex, Unaizah, Saudi Arabia

⁴Alnaqrah Primary Health Center, Unaizah, Saudi Arabia

⁵Alrass Modern Dental Complex, Ar Rass, Saudi Arabia

⁶North of Riyadh Dental Center, Riyadh, Saudi Arabia

⁷Dental Department, Ministry of Health, Jazan, Saudi Arabia

⁸Bluedeem Medical Center, Buraydah, Saudi Arabia

⁹High Medical Care Company, Qassim, Saudi Arabia

¹⁰Ministry of Interior, Riyadh, Saudi Arabia

Received: 30 October 2023

Accepted: 02 November 2023

*Correspondence:

Dr. Alabbas A. Jar,

E-mail: ajar@moh.gov.sa

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Dentures, as versatile dental prostheses, wield a multifaceted influence on individuals' lives, profoundly affecting both their oral health and overall quality of life. The clinical manifestations of denture-related concerns encompass a spectrum of physical, psychological, and functional dimensions. Physically, dentures restore masticatory function and address aesthetic concerns, bridging the gap between tooth loss and oral functionality. Psychologically, they elevate self-esteem and reduce social anxiety, facilitating enhanced self-confidence and improved social interactions. Functionally, dentures enhance articulation and speech clarity, enabling effective communication. Effective denture management, in the contemporary landscape of dental care, involves a comprehensive approach that combines precision, technology, hygiene, and patient education. Digital dentistry techniques ensure precise denture fitting, and advanced technologies facilitate regular check-ups, leading to well-fitting, comfortable dentures. Meticulous denture hygiene practices prevent oral health complications. Patient education empowers individuals to maintain their oral health effectively, while addressing psychosocial concerns remains a crucial empathetic dimension of patient care. In conclusion, dentures have evolved as transformative solutions for individuals facing tooth loss, addressing clinical manifestations related to impaired oral function, aesthetic concerns, and psychosocial challenges. Modern denture management embraces the latest dental technologies, hygiene practices, and patient-centered approaches to optimize outcomes. Staying current with advancements in denture care ensures that these dental prostheses continue to enhance oral health and overall well-being effectively, reaffirming their indispensable role in modern dentistry.

Keywords: Dentures, Denture care, Oral health, Prosthodontics, Quality of life

INTRODUCTION

Dentures, which are prostheses, have a crucial role, in tackling the complex issues associated with tooth loss. They make contributions to both health and overall quality

of life. These removable appliances are designed to replace missing teeth, addressing functional and aesthetic issues, and their impact extends well beyond mere restoration.^{1,2} This comprehensive review will delve into the manifold ways in which dentures affect individuals' lives, blending

research findings and clinical insights to provide a detailed understanding of their significance. Dentures are renowned for their ability to restore masticatory function effectively, allowing individuals to chew and process food with ease. Studies consistently underscore this functional improvement, emphasizing how dentures facilitate better food breakdown and nutrient absorption.³ These devices restore the physical act of chewing and foster a more diverse diet, contributing to improved nutrition and overall health. The ability to enjoy a broad range of foods, from crispy vegetables to juicy steaks, is a direct outcome of dentures' role in preserving oral function. Beyond their role in mastication, dentures are instrumental in preserving the underlying alveolar bone structure.⁴ The absence of teeth can lead to bone resorption, wherein the jawbone gradually diminishes over time. If not properly managed this process can lead to alterations in the way one's face looks and feels.^{5,6} Dentures that are fitted offer stimulation to the alveolar bone aiding in the preservation of bone volume and structure. By preventing or slowing down bone loss, dentures ensure functional and aesthetic continuity. However, the significance of dentures extends well beyond their physiological impacts; they exert a profound psychosocial influence on individuals. One thing that truly impresses me is how it enhances your self-assurance. Losing teeth can often result in feeling socially anxious and self-conscious as people may feel ashamed of their looks or worried about being judged.⁷ Dentures provide a transformative solution, giving individuals a renewed sense of self-confidence and the ability to interact with others without anxiety. The positive effect, on health is incredibly important. Additionally, dentures play a role, in enhancing speech clarity. When teeth are missing it can impact a person's ability to pronounce sounds and words accurately resulting in speech difficulties.⁸ Dentures help restore proper phonetics and pronunciation, allowing individuals to communicate effectively. This dimension of denture function contributes significantly to their overall quality of life impact. Dentures are inherently intertwined with an improved overall quality of life. By enabling individuals to enjoy a varied diet, they contribute to better nutrition and health. Additionally, the satisfaction derived from well-fitting, comfortable, and aesthetically pleasing dentures positively affects individuals' well-being.⁹ These devices empower individuals to partake in social activities and remain engaged in the workforce, potentially lessening healthcare systems' economic and social burden. Nonetheless, it is essential to underscore that the positive effects of dentures are contingent on proper fitting, meticulous maintenance, and regular dental care. Ill-fitting or poorly maintained dentures can lead to oral health issues, including mucosal irritation and fungal infections. That's why it's crucial to prioritize care, which involves regular checkups and adjustments. It plays a role, in ensuring the possible results when using dentures. So, dentures serve as transformative solutions for individuals grappling with tooth loss, exerting far-reaching impacts on both their oral health and overall quality of life. These prostheses effectively restore masticatory function, preserve alveolar bone, enhance self-esteem, and improve

speech clarity. They facilitate better nutrition, contribute to an enhanced sense of well-being, and support social engagement and economic productivity.^{10,11} However, it is crucial to emphasize the necessity of proper denture fitting, meticulous maintenance, and regular dental care to optimize their positive effects while minimizing potential oral health complications. Dentures, when adequately designed, cared for, and integrated into a holistic oral health regimen, substantially enhance the lives of those affected by tooth loss, encompassing both their physical health and overall well-being. The purpose of this research review is to gather information regarding the impact of dentures on health.

METHODS

This study is based on an examination of the existing literature conducted on 17 September 2023, using the Medline and PubMed databases. During our search, we utilized medical subject headings and selected keywords as indicated by each database. The keywords we used included "dentures," "health", and "quality of life". We focused exclusively on studies that involved participants and were published in English. Additionally, we excluded any studies that were published before 2008. After screening articles, we identified those that were relevant to our research objectives and aligned with our inclusion criteria. Subsequently, we thoroughly reviewed the texts of these selected articles. Furthermore, to ensure comprehensiveness, we manually searched through the reference lists of these chosen articles for any studies. We gathered information from articles that were pertinent, to our study and examined the kinds, impacts, and influences of dentures, on the quality of life-related to health among older individuals.

DISCUSSION

Dentures play a role, in dentistry by serving as dental replacements for missing teeth. Their impact on health and overall quality of life is wide. Highly important in clinical practice. Extensive research and clinical evidence clearly demonstrate that dentures are vital, for restoring the ability to chew and process food effectively thereby improving function. They contribute to the preservation of alveolar bone, preventing the detrimental resorption that typically follows tooth loss. However, beyond their physiological benefits, dentures wield a profound psychosocial influence. By boosting one's confidence alleviating unease caused by missing teeth and enhancing the clarity of speech they have an impact, on an individual's overall feeling of happiness and contentment.¹² Moreover, their ability to enable a more varied diet, foster better nutrition, and facilitate social and economic engagement further solidifies their impact on quality of life. Nonetheless, it is imperative to underscore that the positive effects of dentures are contingent on proper fitting, meticulous maintenance, and regular dental care. Ill-fitting or poorly maintained dentures can lead to oral health issues, including mucosal irritation and fungal infections. That's

why it's crucial to prioritize care, which includes regular checkups and adjustments. This approach helps ensure the results when using dentures.

Clinical manifestation

The clinical manifestation of denture-related concerns encompasses a broad spectrum of physical, psychological, and functional dimensions, collectively shaping the overall impact of these dental prostheses on individuals' lives.¹³ From a standpoint not having teeth can significantly affect your ability to chew and process food. Chewing and processing food becomes challenging, potentially resulting in dietary restrictions and compromised nutrition.¹⁴ Moreover, the visual considerations linked to the absence of teeth can result in a decrease, in one's confidence and feelings of self-awareness. The visible gaps caused by missing teeth can influence individuals' perceptions of their appearance, affecting their social interactions and overall quality of life. Psychologically, tooth loss often elicits social anxiety and adverse effects on self-esteem.^{15,16} People sometimes choose to isolate themselves from interactions refraining from smiling or speaking in public. They may feel embarrassed or ashamed. When people have dentures that significantly boost their self-confidence it shows a change, in their well-being. By having their smiles restored and being able to participate in activities without the worry of missing teeth individuals regain a sense of normalcy. Experience an improved level of self-esteem. The impact of dentures on psychological well-being extends beyond the individual, potentially influencing interpersonal relationships and social dynamics positively. Functionally, dentures play a pivotal role in articulation and speech clarity. The clinical manifestation of this aspect is evident in individuals who experience a marked improvement in their ability to pronounce sounds and words correctly with denture use. Missing teeth can lead to speech impediments, impacting effective communication. Dentures help individuals regain their ability to enunciate clearly, allowing for improved communication and a heightened sense of confidence during social interactions. Collectively, the clinical manifestation of dentures revolves around their capacity to restore physical function, bolster psychological well-being, and enhance communication and social engagement. The transition from the clinical manifestations of tooth loss, such as impaired masticatory function, aesthetic concerns, social anxiety, and speech impediments, to the clinical manifestations of improved oral function, heightened self-esteem, and enhanced communication underscores the transformative potential of dentures in individuals' lives.

Management

The effective management of dentures involves a multifaceted approach that encompasses several key facets, evolving with advancements in dental technology and evolving patient needs. Modern denture management begins with an initial assessment and fitting, wherein

dental professionals employ cutting-edge techniques to ensure dentures are precisely tailored to the individual's unique oral anatomy.^{17,18} Recent advances in digital dentistry have facilitated more accurate impressions and measurements, resulting in better-fitting dentures. These custom-fit dentures not only enhance comfort but also contribute to improved functionality. The study described a positive correlation between professional ratings of removable denture quality and a low OHIP score, indicating a low level of impairment of OHRQoL.¹⁹ However, it's important to note that the comfort level of dentures can vary from person, to person. For instance, one individual might find a denture surprisingly tolerable while another might encounter difficulties even with a well-fitting one. In accordance with research, it was discerned that a substantial majority, specifically 55%, of the cohort comprising 21 individuals who utilized dental prostheses expressed a level of satisfaction ranging from moderate to complete in relation to their denture-wearing experience. This assessment was made by examining dentists who evaluated the need for denture replacement.²⁰ Another study found a weak or statistically no significant correlation between patients' denture satisfaction and clinical measurements such as anatomic conditions, as well as denture quality. Thus, denture satisfaction is not based on the technical quality of the dentures alone. Regular dental check-ups are a cornerstone of ongoing denture management. These appointments serve as opportunities for clinicians to evaluate denture fit, identify any potential problems, and make necessary adjustments to maintain optimal comfort and function. In contemporary practice, these assessments may include digital scanning and 3D imaging to detect even subtle changes in denture fit or oral health. These technologies enable more precise and efficient adjustments, reducing the inconvenience and discomfort often associated with denture maintenance. Adequate denture hygiene practices are vital components of effective management. Daily cleaning and care routines are crucial to prevent oral health complications such as mucosal irritation and fungal infections. Also, any up-to-date information on denture care products and techniques is essential which helps to continuous development of new materials and methods. Dental professionals must provide patients with the latest guidance on cleaning solutions, brushes, and maintenance procedures tailored to their specific denture materials and needs.²¹ Moreover, patient education plays a pivotal role in modern denture management. Clinicians should empower individuals with comprehensive information on proper denture care and maintenance, ensuring they are well-informed and capable of maintaining their oral health effectively. Additionally, discussions about potential adjustments, repair options, and alternatives such as implant-supported dentures should be a part of patient education to help individuals make informed decisions about their oral. Evaluating the sensitivity of patient-centered outcome measures to treatment, a study suggested that patients with ulcers and symptomatic oral mucosal lesions had poorer OHRQoL (measured using the OHIP-14) than their counterparts with non-symptomatic lesions. In another study, Suliman et al.

discovered a link between oral ulcerative lesions and their impact on daily activities, which suggests a negative impact on one's overall quality of life.²² Moreover, recall visits and shortened denture usage are essential for the prevention of oral mucosal lesions. Therefore, to improve OHRQoL of elderly population, it is important to educate and regularly review patients who wear dentures with regard to oral tissue injuries. Research findings have shown a correlation between the number of natural teeth one has and their overall oral health-related quality of life. In terms of the natural teeth, a person retains, the less impact it has on their OHRQoL. Lastly, the holistic management of dentures encompasses both the technical aspects of fitting and maintenance and the empathetic aspects of patient care. This includes addressing individuals' psychosocial concerns, such as anxiety related to denture use or body image issues. Healthcare professionals have a role in offering patients emotional support and guidance to adjust to wearing dentures and enhance their overall quality of life. Presently, contemporary denture care involves an encompassing approach that integrates methods and cutting-edge technologies to achieve optimal results for individuals who depend on dentures. From initial assessment and fitting using digital dentistry tools to regular check-ups and adjustments facilitated by 3D imaging, contemporary practices have evolved to enhance comfort and functionality.²³ Having information about denture care products and techniques, along with educating patients, gives individuals the ability to take care of their health effectively. Beyond the technical aspects, the empathetic dimension of patient care remains crucial, addressing psychosocial concerns and ensuring a holistic approach to denture management that promotes both physical and emotional well-being.

CONCLUSION

Dentures stand as invaluable dental prostheses that significantly impact individuals' lives by addressing the clinical manifestations of tooth loss while demanding comprehensive management. Their clinical manifestations span physical, psychological, and functional dimensions, restoring oral function, bolstering self-esteem, and enhancing communication. Dentures effectively bridge the gap between the clinical challenges posed by tooth loss and the subsequent improvements in an individual's quality of life. To ensure optimal outcomes, the modern management of dentures combines precision through digital dentistry techniques, regular check-ups employing advanced technologies, meticulous denture hygiene, and patient education. This multifaceted approach not only ensures well-fitting and comfortable dentures but also empowers individuals to maintain their oral health effectively. Moreover, it encompasses the empathetic dimension of patient care, addressing psychosocial concerns and providing emotional support. With continuous advancements in dental technology and materials, staying current with the latest information and techniques in denture care and maintenance is imperative. Dentures

continue to evolve, offering improved comfort, functionality, and aesthetics. By incorporating these advancements into the field of dentistry and prioritizing the needs of patients, dental experts can further improve the effects of dentures on health and the general welfare of individuals who have lost their teeth.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Limpuangthip N, Somkotra T, Arksornnukit M. Impacts of Denture Retention and Stability on Oral Health-Related Quality of Life, General Health, and Happiness in Elderly Thais. *Curr Gerontol Geriatrics Res*. 2019;3830267.
2. de Moraes Flores P, Kern R, da Silva Tedesco A, Teixeira EF, Celeste RK, Brondani M, et al. A qualitative analysis of denture wearing experience affecting the quality of life of older adults. *Clin Oral Investig*. 2023;27(7):3799-807.
3. Cunha T, Regis R, Vecchia MP, et al. Masticatory Function of Complete Denture Wearers Versus Dentate Subjects. Conference: IADR General Session. 2012.
4. Jain JK, Prabhu CR, Zahrane MA, Esawy MS, Ajagannanavar SL, Pal KS. Cu-sil dentures - a novel approach to conserve few remaining teeth: Case reports. *J Int Oral Health*. 2015;7(8):138-40.
5. Xiao M, Qian H, Lv J, Wang P. Advances in the Study of the Mechanisms of Physiological Root Resorption in Deciduous Teeth. *Front Pediatrics*. 2022;10.
6. Ozturk CN, Ozturk C, Bozkurt M, Uygur HS, Papay FA, Zins JE. Dentition, Bone Loss, and the Aging of the Mandible. *Aesth Surg J*. 2013;33(7):967-74.
7. Amasyalı M, Sabuncuoğlu FA. Level of Social Appearance Anxiety in Individuals with and without Alignment of Teeth. *Turk J Orthod*. 2017;30(1):1-5.
8. Godbole Dubey S, Phakhan A, Dahane T, Pisulkar S. Prosthodontic Considerations of Speech in Complete Denture. *IOSR J Dent Med Sci*. 2016;15:41-4.
9. Savoca MR, Arcury TA, Leng X, et al. Impact of denture usage patterns on dietary quality and food avoidance among older adults. *J Nutr Gerontol Geriatr*. 2011;30(1):86-102.
10. Lima de Paula LML, Sampaio AA, Costa JG, Gomes VE, Ferreira EFE, Ferreira RC. The course from tooth loss to successful rehabilitation with denture: Feelings influenced by socioeconomic status. *SAGE Open Med*. 2019;7:2050312119874232.
11. McGrath C, Bedi R. Can dentures improve the quality of life of those who have experienced considerable tooth loss? *J Dentistry*. 2001;29(4):243-6.
12. Chakaipa S, Prior SJ, Pearson S, Van Dam PJ. The Experiences of Patients Treated with Complete Removable Dentures: A Systematic Literature

Review of Qualitative Research. *Oral*. 2022;2(3):205-20.

13. Perea C, Suárez-García MJ, Del Río J, Torres-Lagares D, Montero J, Castillo-Oyagüe R. Oral health-related quality of life in complete denture wearers depending on their socio-demographic background, prosthetic-related factors and clinical condition. *Med Oral Patol Oral Cir Bucal*. 2013;18(3):e371-80.
14. Azzolino D, Passarelli PC, De Angelis P, Piccirillo GB, D'Addona A, Cesari M. Poor Oral Health as a Determinant of Malnutrition and Sarcopenia. *Nutrients*. 2019;11(12).
15. Kaur P, Singh S, Mathur A, Makkar DK, Aggarwal VP, Batra M, et al. Impact of Dental Disorders and its Influence on Self Esteem Levels among Adolescents. *J Clin Diagn Res*. 2017;11(4):Zc05-8.
16. Oziegbe EO, Schepartz LA. Is parity a cause of tooth loss? Perceptions of northern Nigerian Hausa women. *PLoS One*. 2019;14(12):e0226158.
17. Kršek H, Dulčić N. Functional Impressions in Complete Denture and Overdenture Treatment. *Acta Stomatol Croat*. 2015;49(1):45-53.
18. Mudliar VL, Tieh MT, Aarts JM, Paras A, Choi JJE. Wear of Modern Denture Teeth—A Systematic Review. *Oral*. 2022;2(1):95-111.
19. Yen Y-Y, Lee H-E, Wu Y-M, Lan SJ, Wang WC, Du JK, et al. Impact of removable dentures on oral health-related quality of life among elderly adults in Taiwan. *BMC Oral Health*. 2015;15(1):1.
20. Teng C-J, Lin S-C, Chen J-H, Chen Y, Kuo H-C, Ho P-S. The association between denture self-satisfaction rates and OHRQoL - a follow-up study. *BMC Oral Health*. 2020;20(1):140.
21. Neppelenbroek KH. The importance of daily removal of the denture biofilm for oral and systemic diseases prevention. *J Appl Oral Sci*. 2015;23(6):547-8.
22. Suliman N, Johannessen A, Ali R, Salman H, Astrøm A. Influence of oral mucosal lesions and oral symptoms on oral health related quality of life in dermatological patients: A cross sectional study in Sudan. *BMC oral health*. 2012;12:19.
23. Pillai S, Upadhyay A, Khayambashi P, Farooq I, Sabri H, Tarar M, et al. Dental 3D-Printing: Transferring Art from the Laboratories to the Clinics. *Polymers (Basel)*. 2021;13(1).

Cite this article as: Jar AA, Khormi AA, Al-khamiss NA, Alnaim AA, Alharbi ZF, Holba HA, et al. The effect of dentures on oral health and the quality of life. *Int J Community Med Public Health* 2023;10:5067-71.