INPLASY

Comparative Effectiveness of Implant-Retained Overdentures versus Conventional Complete Dentures in Elderly Edentulous Patients: A Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

Support - King Khalid University.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 March 2025 and was last updated on 6 March 2025.

INTRODUCTION

Review question / Objective "In elderly edentulous patients , do implant-retained overdentures (IODs) lead to better oral health–related quality of life, denture satisfaction, and masticatory performance compared with conventional complete dentures (CCDs)?"

Rationale Edentulous older adults often receive conventional dentures, but these can fail to provide adequate retention and stability, compromising oral function and quality of life. Implant-retained overdentures are thought to perform better, yet results across studies vary. This meta-analysis synthesizes current evidence to determine whether implant-retained overdentures indeed deliver superior outcomes for geriatric edentulous patients.

Condition being studied This research focuses on elderly patients with complete tooth loss (edentulism). Specifically, it compares outcomes in those wearing conventional complete dentures versus implant-retained overdentures.

METHODS

Search strategy Researchers systematically searched PubMed, Scopus, Web of Science (WOS), and Cochrane using relevant MeSH and free-text terms (e.g., "implant-retained overdentures," "conventional complete dentures," "edentulism," "elderly") up to May 2024. They screened English-language RCTs following PICO-based inclusion/exclusion criteria and reviewed reference lists of included papers for further relevant studies.

Participant or population The study population is older adults (aged 60+ years) who are completely edentulous (having no teeth) and require prosthetic rehabilitation, specifically comparing those who receive implant-retained overdentures versus those with conventional complete dentures.

Intervention The intervention is implant-retained overdentures (IODs), where at least two dental implants are placed to stabilize and support a removable denture.

Comparator The comparator is the use of conventional complete dentures (CCDs), which rely solely on mucosal support without implant stabilization.

Study designs to be included Only randomized controlled trials (RCTs) were included in this meta-analysis.

Eligibility criteria Elderly edentulous patients , English-language, peer-reviewed publications.

Information sources Databases searched were PubMed, Scopus, Web of Science (WOS), and Cochrane, supplemented by reference list checks.

Main outcome(s) The primary endpoints include oral health–related quality of life, denture satisfaction, and masticatory performance.

Additional outcome(s) The additional (secondary) outcomes assessed included physical pain, psychological comfort/disability, social disability, nutritional status, and implant survival/ complications.

Data management Two independent reviewers extracted study data (e.g., design, participants, interventions, outcomes) using a standardized form, and a third reviewer resolved any discrepancies. The final, agreed-upon dataset was then compiled for analysis.

Quality assessment / Risk of bias analysis The authors used the Cochrane risk-of-bias tool, evaluating domains such as randomization, deviations from intended interventions, missing outcome data, outcome measurement, and selection of reported results. Each domain was classified as having low, high, or some concern for bias, and disagreements were resolved by consensus.

Strategy of data synthesis Data were pooled for meta-analysis using a random-effects model (DerSimonian–Laird), with mean differences (MD) and 95% confidence intervals reported for continuous outcomes. Heterogeneity was assessed via the I^2 statistic, and subgroup/ sensitivity analyses were performed to explore and address high heterogeneity.

Subgroup analysis Subgroup analyses was done for factors such as implant attachment type, follow-up duration, study location, and study quality, aiming to clarify variations in treatment outcomes and address any high heterogeneity across the included trials.

Sensitivity analysis Authors repeated the meta-analyses excluding high-risk-of-bias trials and checked how the outcomes varied by implant type and follow-up duration, to determine whether these factors influenced the pooled results.

Language restriction Articles only in English were Selected.

Country(ies) involved Saudi Arabia.

Other relevant information NA.

Keywords • Implant-Retained Overdentures• Conventional Complete Dentures• Edentulism• Elderly Patient.

Dissemination plans Data will be shared after the publication.

Contributions of each author

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