International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

CLINICAL EFFECTIVENESS OF BIOACTIVE AND ANTIMICROBIAL DENTURE LINERS IN DIABETIC 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 23 September 2025 and was last updated on 23 September 2025.

INTRODUCTION

Review question / Objective To evaluate the clinical effectiveness of bioactive and antimicrobial denture liners versus conventional liners or standard care for healing denture stomatitis and reducing Candida burden in adults with diabetes.

Rationale Diabetic patients are at high risk for denture stomatitis and delayed mucosal healing, and conventional liners may harbor biofilm.

Condition being studied Denture stomatitis (DS) and Candida albicans colonization in adults with diabetes mellitus.

METHODS

Search strategy Systematic searches of PubMed, Scopus, Web of Science, and Cochrane Library from January 2015 to September 2025 using tailored search strings.

Participant or population Adults with diabetes (primarily type II) who are complete denture wearers.

Intervention Bioactive or antimicrobial denture liners.

Comparator Conventional soft liners without additives and standard topical antifungal therapy.

Study designs to be included Randomized controlled trials (RCTs) and comparative observational studies.

Eligibility criteria All English-language studies from 2015-2025 included.

Information sources Electronic databases (PubMed, Scopus, Web of Science, Cochrane Library).

Main outcome(s) Healing of denture stomatitis and reduction in Candida load.

Additional outcome(s) Patient-reported outcomes for comfort, satisfaction, adherence and safety/adverse events.

Data management Two reviewers independently screened studies, extracted data, and assessed risk of bias; data was synthesized narratively and via meta-analysis where appropriate.

Quality assessment / Risk of bias analysis Assessed using RoB 2 for RCTs and Newcastle-Ottawa for observational studies; overall evidence certainty was graded using GRADE.

Strategy of data synthesis Random-effects meta-analysis for microbial outcomes; narrative synthesis for other outcomes due to high heterogeneity.

Subgroup analysis Not performed due to the limited number of studies.

Sensitivity analysis Not performed due to the limited number of studies.

Language restriction Included only English-language publications.

Country(ies) involved Saudi Arabia, United States of America, India.

Other relevant information To be Published in a peer-reviewed journal.

Keywords Denture stomatitis; Candida albicans; bioactive denture liner; antimicrobial denture liner; diabetes mellitus.

Dissemination plans Publication in a peer-reviewed journals.

Contributions of each author

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