International Platform of Registered Systematic Review and Meta-analysis Protocols

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Author Affiliation: King Khalid University. Evaluating the efficacy of cleaning methods on the surface integrity of silicone soft relining materials in dentistry: 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 30 April 2025 and was last updated on 30 April 2025.

INTRODUCTION

Review question / Objective To assess the efficacy of mechanical and chemical cleaning methods on the surface integrity of silicone-based denture liners.

Rationale Understanding cleaning impacts is critical to preserving denture comfort and durability while minimizing microbial colonization.

Condition being studied Surface roughness changes induced by mechanical and chemical cleaning methods.

METHODS

Search strategy Databases: PubMed, ScienceDirect, Cochrane Library, Google Scholar.

Participant or population In vitro studies testing silicone soft relining materials.

Intervention Mechanical and chemical cleaning methods applied.

Comparator Control groups used no treatment or immersion in distilled water.

Study designs to be included In vitro studies, clinical trials, and case studies; excluded reviews, animal studies, and non-English papers.

Eligibility criteria Inclusion: Original studies on silicone liners assessing cleaning-induced surface roughness. Exclusion: Reviews, animal studies, non-English articles.

Information sources PubMed, ScienceDirect, Cochrane Library, Google Scholar, and grey literature.

Main outcome(s) Significant increase in surface roughness with mechanical and chemical methods.

Additional outcome(s) Impact of exposure time, pH, and material type on roughness; microbial adherence post-cleaning.

Data management Excel organized data; PRISMA outlined inclusion/exclusion steps.

Quality assessment / Risk of bias analysis Most studies had low bias risk; some lacked randomization, as per QUIN tool assessment.

Strategy of data synthesis Statistical and descriptive analyses highlighted significant effects.

Subgroup analysis Mechanical cleaning had stronger effects, but variability reduced comparability.

Sensitivity analysis Not reported in included studies.

Language restriction Only studies published in English included.

Country(ies) involved Saudi Arabia, India.

Other relevant information Methodology followed PRISMA; variability stressed need for consistent study designs.

Keywords Silicone-based soft lining, surface roughness, cleansing methods, mechanical, chemical.

Dissemination plans Findings aim to inform dental care standards and be published academically.

Contributions of each author

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