

INPLASY

Comparison of Digital Splints Versus Traditional Splints for Bruxism Management: A Systematic Review / 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 18 February 2024 and was last updated on 18 February 2024.

INTRODUCTION

Review question / Objective • To compare the effectiveness of digital splints versus traditional splints in managing bruxism symptoms • To evaluate patient satisfaction and compliance with digital splints compared to traditional splints • To assess the potential advantages and limitations of digital splints in bruxism management.

Rationale The purpose of this review was to examine the efficacy, benefits, and drawbacks of digital splints compared to conventional splints in the treatment of bruxism.

Condition being studied To critically appraise the evidence in published scholarly journal articles through a comparative study of digital and traditional splints in the management of bruxism.

METHODS

Search strategy This study includes comparative research on the effectiveness of digital versus traditional splints in managing bruxism. Articles that fulfilled the modified PICOS criteria were selected.

Participant or population Patients with bruxism.

Intervention Use of splints.

Comparator Traditional vs Digital splints.

Study designs to be included Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PICOS) criteria.

Eligibility criteria Studies published in English.

Information sources Randomized controlled trials, clinical studies, observational studies, and experimental studies.

Main outcome(s) Digital splints offer a more promising approach to managing bruxism than traditional splints do. However, further empirical research should be conducted to verify the significance of the results of the present study.

Additional outcome(s) Digital splints were more successful and well-accepted by the patient than traditional splints. Although not statistically significant, more empirical verification of the relative effectiveness compared with traditional splints is advised.

Data management Data from the selected studies were systematically extracted and presented in a predesigned study descriptor table using Microsoft Excel Version 2021. The extracted data included the author, study design, sample size, mean age of the sample, study objectives, and study findings.

Quality assessment / Risk of bias analysis The Cochrane Risk of Bias Assessment tool results are shown in Figures 2 and 3. The results of the methodological quality assessment of the National Institutes of Health (NIH) quality assessment tool for observational cohort and cross-sectional studies are presented in Table 2.

Strategy of data synthesis The extracted data were thematically analyzed and reported according to the significant themes, including the splints' effectiveness, compliance, and acceptability in bruxism management. Quantitative data were analyzed using Microsoft Excel version 2021. In addition, Review Manager version 5.4.1 was used to perform a meta-analysis of the data.

Subgroup analysis The data was compiled from a variety of articles:

- Author(s), year of publication, country, study design.
- Total number of patients/datasets.
- Training/validation datasets.

Sensitivity analysis Not available.

Language restriction Only articles in English.

Country(ies) involved Saudi Arabia.

Keywords Digital splints; bruxism; traditional splints; Systematic Review; Meta-analysis.

Dissemination plans All the data and the article will be share after the publication.

Contributions of each author

Author 1 - Ravinder Saini - Author 1 drafted the manuscript.

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