

## **THE INFLUENCE OF CEMENT ON THE OUTCOME OF ZIRCONIA-BASED CROWNS — A SYSTEMATIC REVIEW AND META-ANALYSIS**

### **Abstract**

**Objectives.** This study aimed to evaluate the clinical outcome of tooth-supported posterior zirconia-based single crowns (SCs) cemented with different cement systems.

**Material and methods.** An electronic search was conducted in four databases (PubMed, Web of Science, Scopus, and Google Scholar). In addition, the reference lists of the included studies were manually assessed. Clinical studies reporting on tooth-supported zirconia-based restorations with a mean follow-up time of at least three years were included. All selected articles were prospective clinical trials. A meta-analysis was conducted on data obtained by using random effect models to calculate survival of SCs using different types of cement systems. The risk of bias of all included studies was assessed. All statistical analyses were conducted using the software R (R Core Team 2021).

**Results.** The electronic search yielded 2,445 studies. After assessment and limiting data analysis to only posterior SCs, the number of included studies was 16. A total of 1,203 posterior zirconia SCs were evaluated. The mean follow-up time ranged from three to five years. The meta-analysis indicated no statistically significant differences in survival between adhesively cemented SCs (98.7%) and those cemented with glass-ionomer (99.0%) or resin-modified glass-ionomer (98.7%) after three years. The most common clinical complications were fracture of the veneering ceramic, loss of retention, and endodontic problems.

**Conclusions.** Clinical outcomes of posterior zirconia SCs exhibited an excellent short-term survival rate, regardless of whether the cement is a resin cement, glass-ionomer cement, or resin-modified glass-ionomer cement.

**Keywords:**

ceramics, crowns, meta-analysis, survival, zirconia