



## CFAO GRADUATE STUDENT POSTERBOARD ABSTRACTS

Sponsored By: 

University of Alberta

### Clinical trials with inappropriate influence of funders exaggerate the effectiveness of treatments: *A methodology study*

#### Authors:

Hugh Saltaji,<sup>1\*</sup> Susan Armijo-Olivo,<sup>2</sup> Greta G. Cummings,<sup>3</sup> Maryam Amin,<sup>4</sup> Carlos Flores-Mir<sup>1\*</sup>

#### Author affiliation

\* CAO member Orthodontic Faculty

<sup>1</sup> Orthodontic Graduate Program, School of Dentistry, University of Alberta, Edmonton, Alberta, Canada; <sup>2</sup> Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, Alberta, Canada; <sup>3</sup> Faculty of Nursing, University of Alberta, Edmonton, Alberta, Canada; Division of Pediatric Dentistry, School of Dentistry, University of Alberta, Edmonton, Alberta, Canada.

#### Abstract

**Background:** There is emerging evidence that randomized trials are subject to biases. Flaws in the design of such trials can result in over- or underestimation of the effectiveness of treatments.

**Objective:** To quantify the extent of bias associated with sponsorship bias in randomized clinical trials of dental interventions.

**Methods:** We selected all dental meta-analyses that included a minimum of five randomized controlled trials. We extracted data, in duplicate, related to influence of the trial sponsor (sponsorship bias). We quantified the extent of bias associated with influence of funders on the magnitude of effect size estimates using a two-level meta-meta-analytic approach with a random effects model to allow for intra- and intermeta-analysis heterogeneity.

**Results:** We identified 540 RCTs, included in 64 meta-analyses, analyzing 137,957 patients. The influence of the trial sponsor was assessed as being unclear in 72.8% (n = 393) of the trials, while it was assessed as appropriate in 16.7% (n = 90) and as inappropriate in 10.6 (n = 57) of the trials. We identified significantly larger treatment effect size estimates in trials that had inappropriate influence of funders (difference in treatment effect size estimates = 0.10; 95% confidence intervals: 0.02 to 0.19) than in trials that had appropriate influence of funders.

**Conclusions:** We found significant differences in treatment effect size estimates between dental trials based on lack of appropriate influence of funders. Treatment effect size estimates were 0.10 larger in trials with lack of appropriate influence of funders. Investigators of dental systematic reviews should perform sensitivity analyses based on appropriateness of influence of funders in included trials.