Risk of bias over time in updates of Cochrane oral health reviews

Faggion, Clovis Mariano

Aranda, Luisiana

Pandis, Nikolaos

Alarcón, Marco Antonio

Diaz, Karla Tatiana

Objectives: To assess the changes in the risk of bias (RoB) across different versions of the same Cochrane systematic review, and to identify characteristics of systematic reviews which may be associated with different RoB scores by means of regression analysis. Methods: We examined changes in RoB ratings in domains of randomized controlled trials (RCTs) and controlled trials (CTs) included in original Cochrane systematic reviews and their updates published in oral health. First, we checked the number of domains assessed for RoB in the different versions of the systematic review. Then, we computed the percentage of different ratings of RoB (low, high and unclear) in these systematic review versions. All data selection, extraction and analysis were conducted independently and in duplicate by two assessors. Time trends were reported in the form of line graphs. We also assessed systematic review characteristics as predictors of RoB scores by means of regression analysis. Results: A total of 173 reviews consisting of the original reviews and their updates were examined. The proportion of different ratings of RoB was kept stable over the different versions. However, in more recent versions, the proportion of unclear RoB slightly increased, and the proportion of high RoB decreased. Cochrane risk of bias domains were a significant RoB score predictor (Likelihood ratio test p-value < 0.001). Conclusions: Methodological improvements in RCTs and CTs included in Cochrane reviews are needed. This comprehensive information on the RoB trend may help oral health researchers improving the methodology related to specific domains. Clinical significance: Methodological improvements are necessary for primary studies included in Cochrane reviews in oral health. The increase of domains rated as unclear RoB is of concern and suggests that strategies should be developed to improve the level of communication between

trialists and systematic reviewers.