

A Systematic Review of SDF in Primary Teeth

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Objective

To assess the success rates for Silver Diamine Fluoride (SDF) in primary teeth. The primary outcome was the arrest of existing carious lesions in primary teeth. The secondary outcomes included teeth type and Visible Plaque Index (VPI).

Materials and Methods

- Population: Pediatric patients with carious lesions on primary teeth.
- Intervention: SDF
- Comparison: No Treatment or Other Interventions
- Outcomes: Arrest of existing carious lesions
- Studies: RCTs, NSRs, Cohort, Case-Control, Cross-Sectional
- PRISMA Guidelines were followed. Covidence-web based screening systematic review software was utilized to manage the screening of titles, abstracts, and full-text review according to the following PICOS questions. (Fig. 1)
 - What is the long-term effectiveness (12 months or more) of SDF in caries arrestment in primary teeth?
 - How do patient-related variables (baseline plaque) impact effectiveness of SDF?
 - Is SDF more effective on different type (anterior vs. posterior) of primary teeth?
- Multiple independent investigators assessed reports for eligibility in two stages:
 - (1) title-abstract
 - (2) full-paper levels.

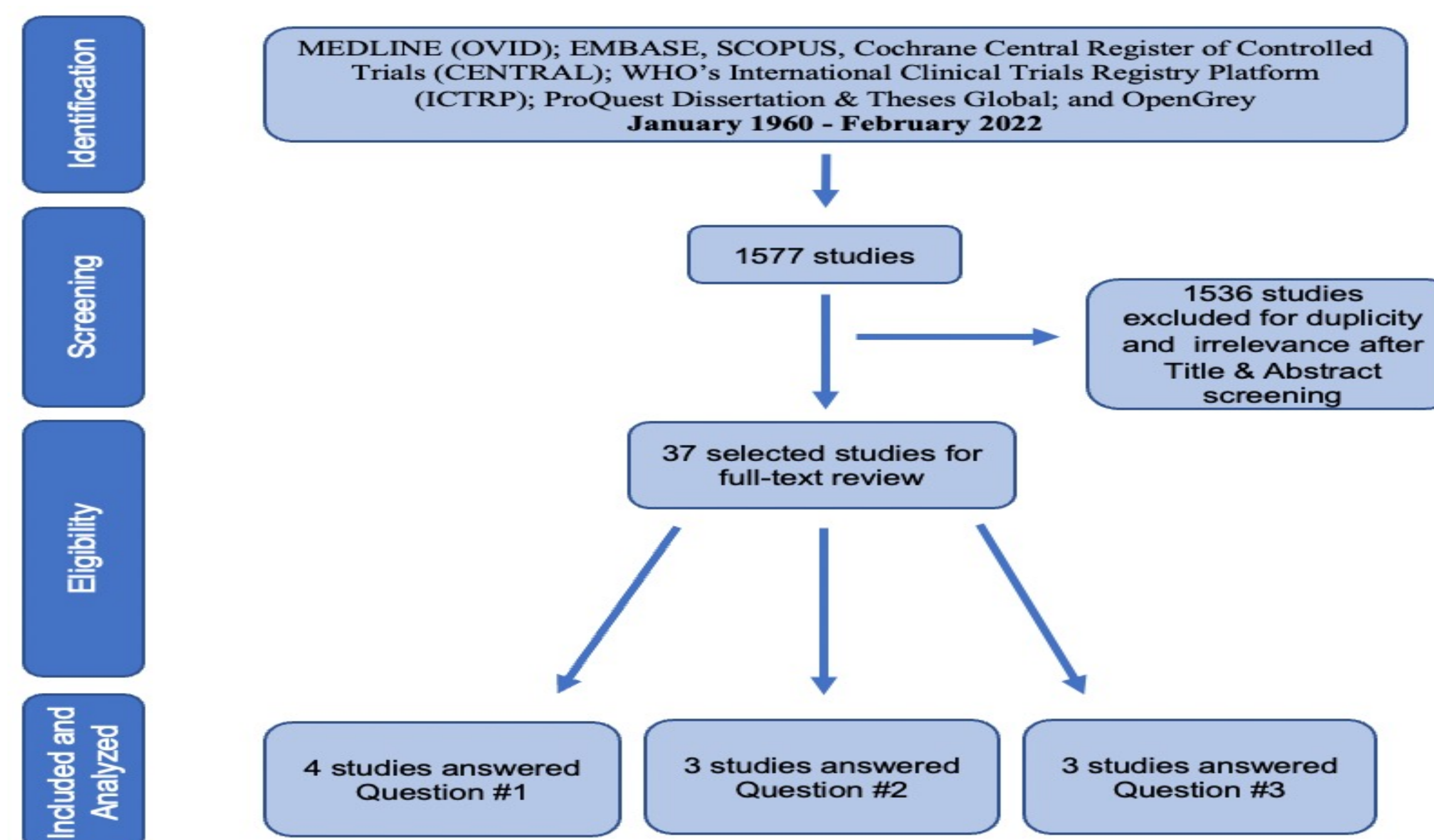


Figure 1: Flow chart of screening and review process

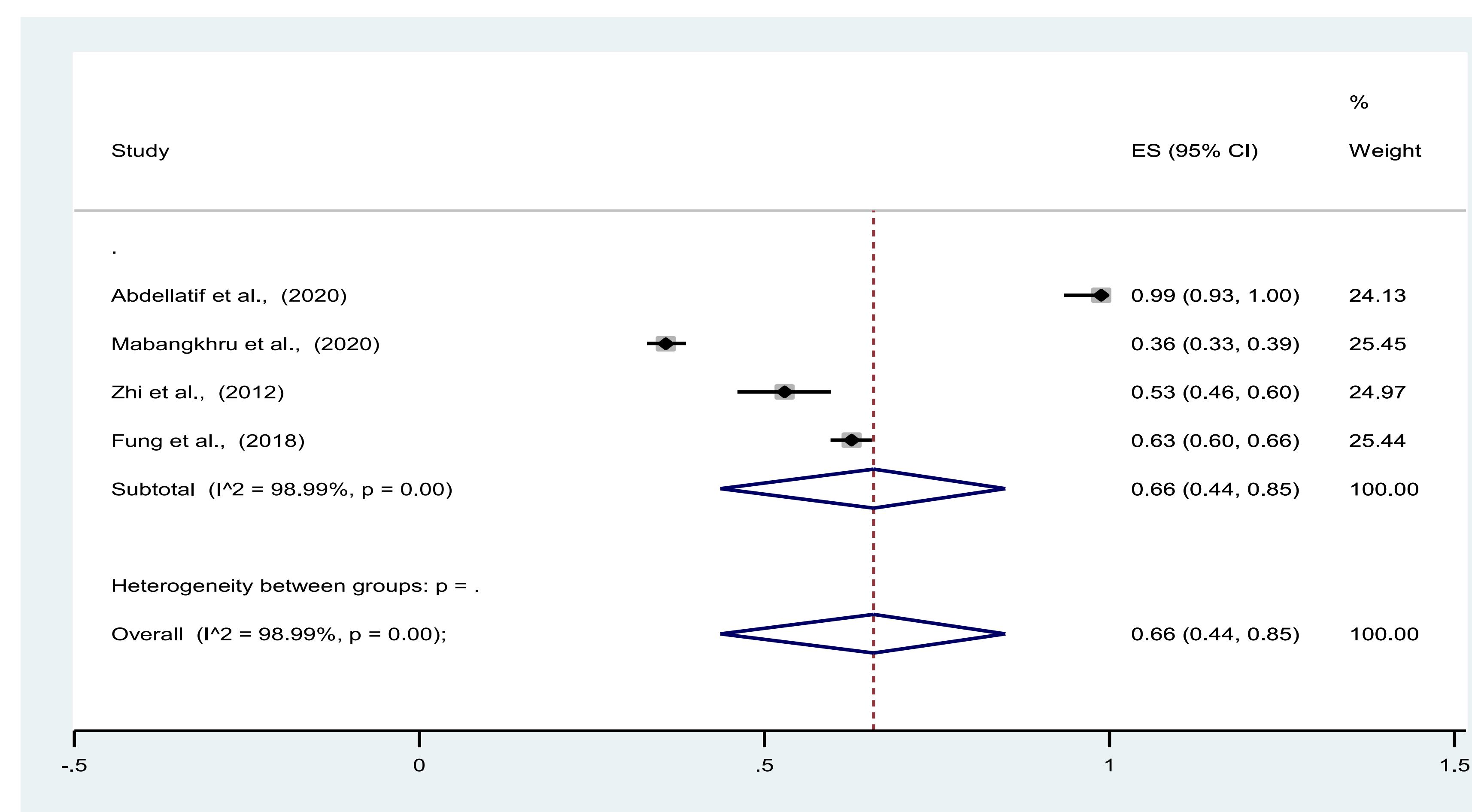


Figure 2: Study characteristics regarding 12-months effectiveness of SDF

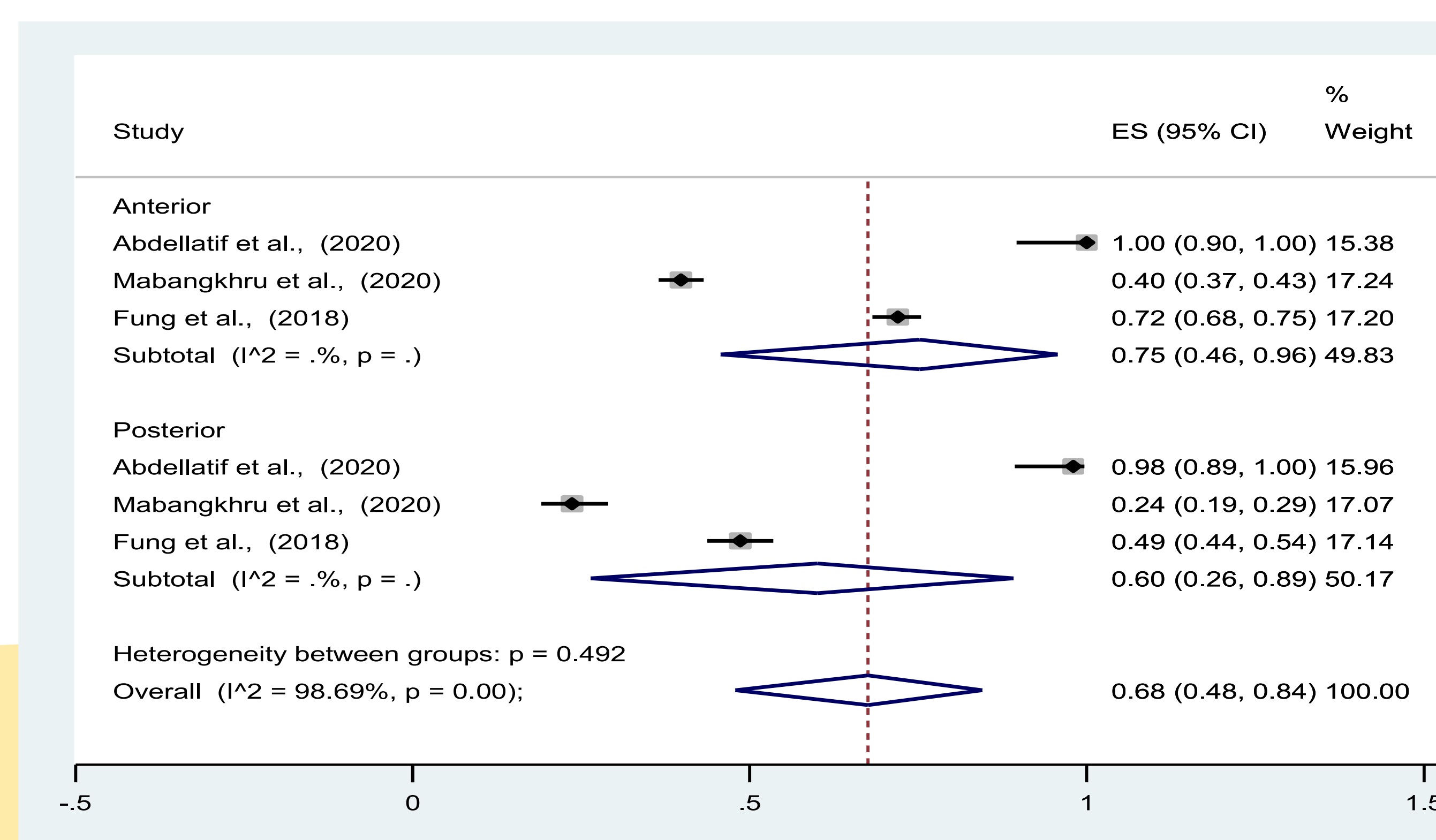


Figure 3: Study characteristics regarding Effect of Tooth Type on SDF Caries Arrest Rate

Results

- Qualitative analysis was completed when quantitative analysis was not possible.
- Figures 2 and 3 show indirect comparisons of each study's results.
- Four articles analyzed the caries arrest of semi-annual applications of 30% and 38% SDF after a minimum follow-up of 12 months. All 4 articles compared the caries arrest of semi-annual 38% SDF to different variables and showed a pooled success of 66%. (Fig. 2)
- Three articles analyzed the effects of baseline Visible Plaque Index (VPI) on the success of 30% and 38% SDF and stated that VPI significantly affects caries arrest. Carious surfaces in a patient with higher VPI score have a lower chance of arrest.
- Three articles analyzed the arrest of anterior vs. posterior carious surfaces following semi-annual applications of SDF at a 12-month follow-up. The pooled success of SDF was 75% for anterior teeth and 60% for posterior teeth. (Fig. 3).

Conclusions

- Semi-annual applications of 30 or 38% SDF appears to be successful in caries arrest at a 12-month follow-up period.
- High baseline VPI has been attributed to lower success rates of SDF. Effective plaque control may improve caries arrest with SDF.
- Semi-annual applications of 30 or 38% SDF is more successful in caries arrest of anterior lesions than of posterior lesions.