

Oral disease in people with chronic kidney disease: a systematic review and meta-analysis of cohort studies

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Background

Oral disease includes a wide spectrum of clinical abnormalities affecting the mouth including mucosa, teeth, periodontal tissue and salivary function. While observational data for oral and dental diseases are available in people with chronic kidney disease (CKD), existing published information has not yet been systematically evaluated

Objective

We aimed to summarize the overall prevalence of oral diseases in people with CKD and explore associations between oral disease and mortality in this clinical setting.

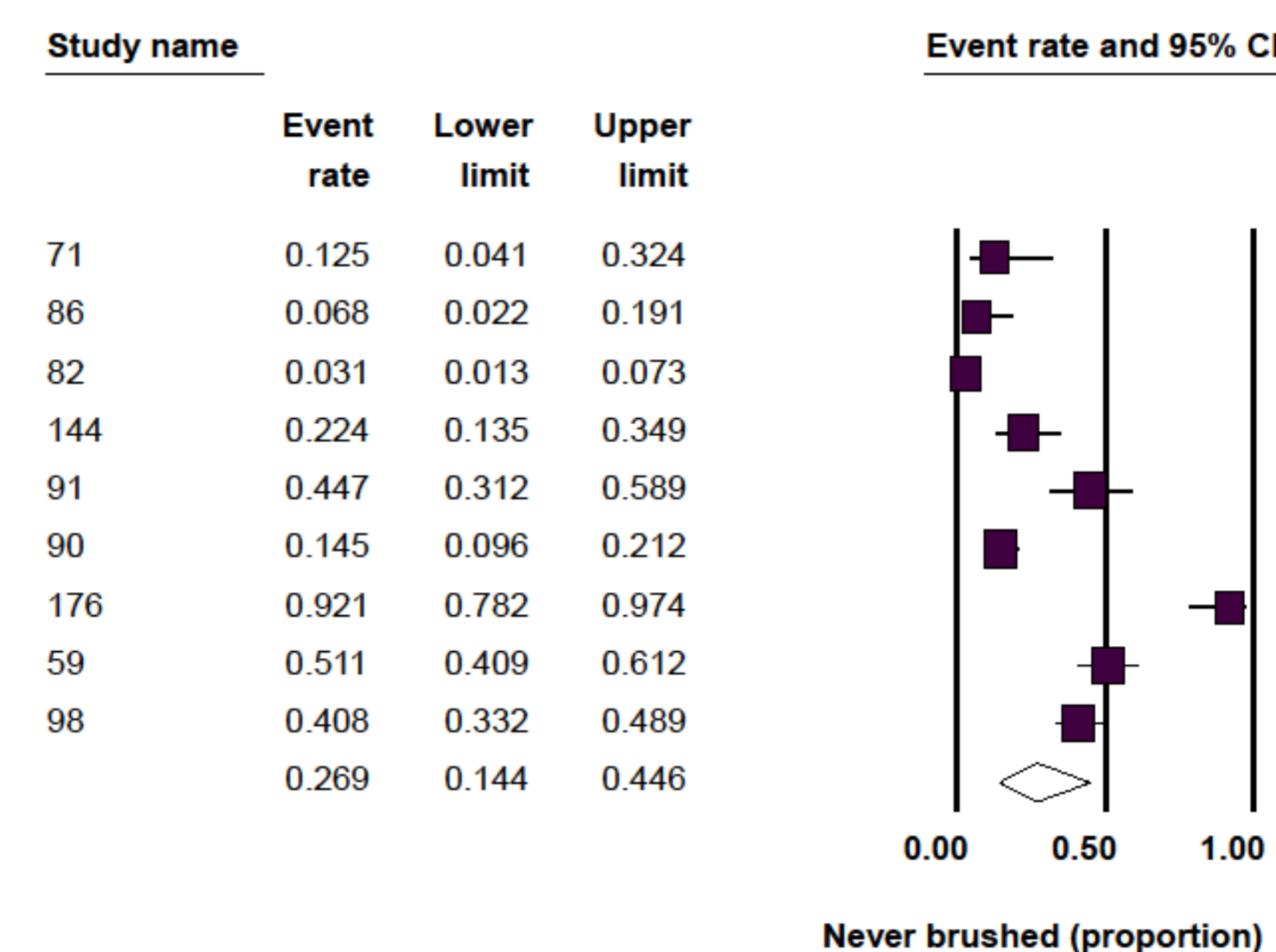
Methods

We conducted a systematic review and meta-analysis of observational studies reporting prevalence or clinical outcomes of oral disease in people with CKD. English-language studies were identified from systematic searching MEDLINE through April 2010. Multiple reviewers extracted details on participant characteristics, tools used to measure oral disease, details of statistical analyses including adjustments for confounding. Estimates of prevalence, mean score, or risk of mortality were summarized using random-effects meta-analysis and expressed as rates or means and 95% confidence intervals (CI). Effects of severity of CKD on estimates were analyzed using subgroup analysis.

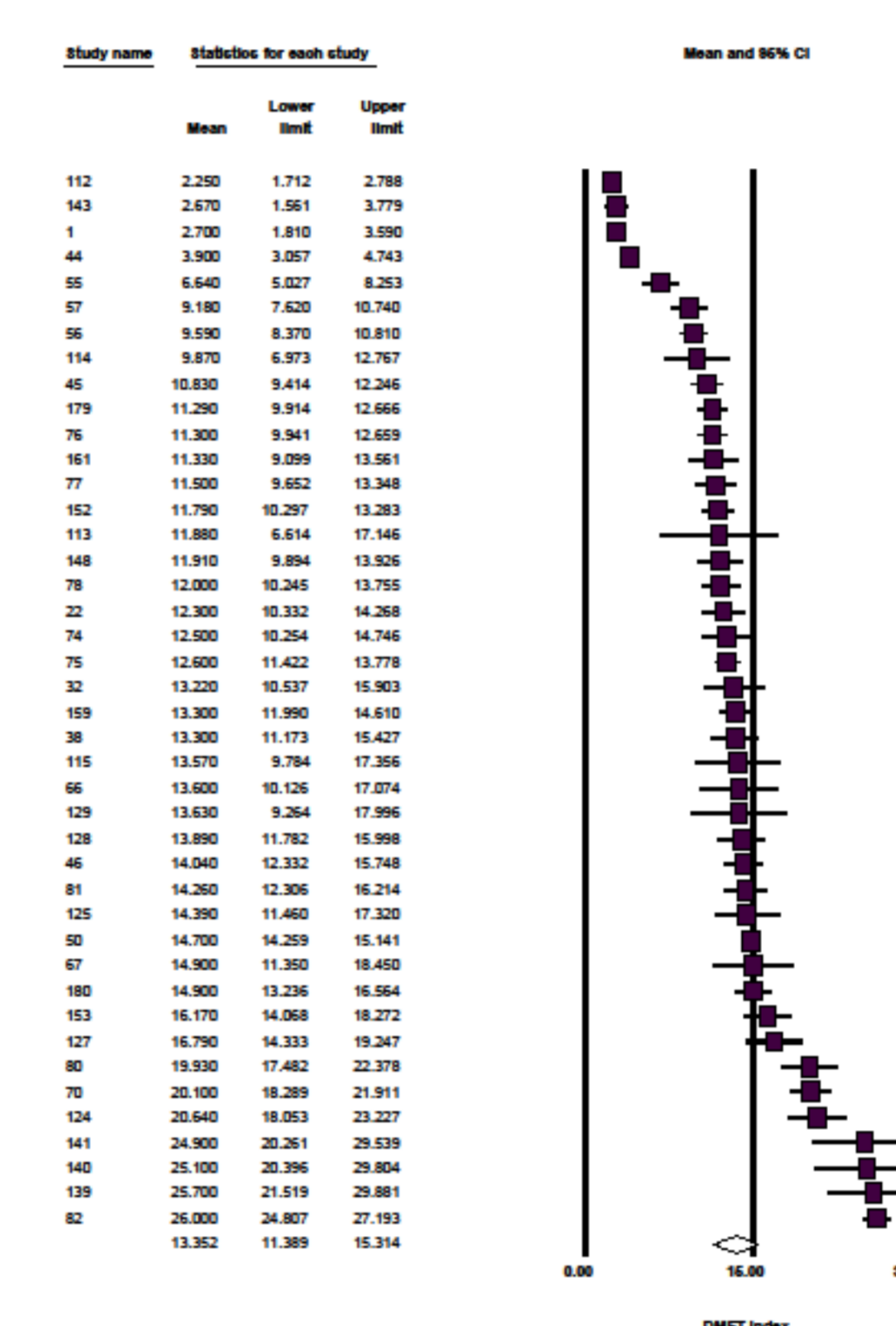
Results

112 studies (150 cohorts) including 18 339 people with CKD and 16 310 controls were analyzed. 103 cohorts were in people on dialysis, 22 cohorts were in earlier stages of CKD and 25 cohorts were in kidney transplant recipients (15.6%). Summary data are provided in the Table. The mean decay/missing/filled teeth (DMFT) index in people with CKD was 13.7 and number of teeth was 19.4. Nearly 40% of people with CKD had enamel hypoplasia and over half had periodontitis. Overall, the mean plaque index was 1.62 and periodontal pocket depth (PPD) was 2.30 mm. Approximately 25% of people with CKD reported never brushing. Two studies reported prevalence of difficulty swallowing in nearly half of participants. One study reported oral cancer in 2.5% of 8162 participants and over half of people with CKD had xerostomia. Limited data were available in controls without CKD and subgroup analysis had limited power to detect differences in oral disease states based upon presence of CKD. A single study in 168 people on hemodialysis identified that oral periodontal disease (moderate to-severe) increased the risk of death in people with CKD compared to mild or no periodontal disease (hazard ratio 1.80 [CI 0.7 to 4.5]). All analyses displayed marked between-study heterogeneity that was not explained by subgroup analyses for stage of CKD.

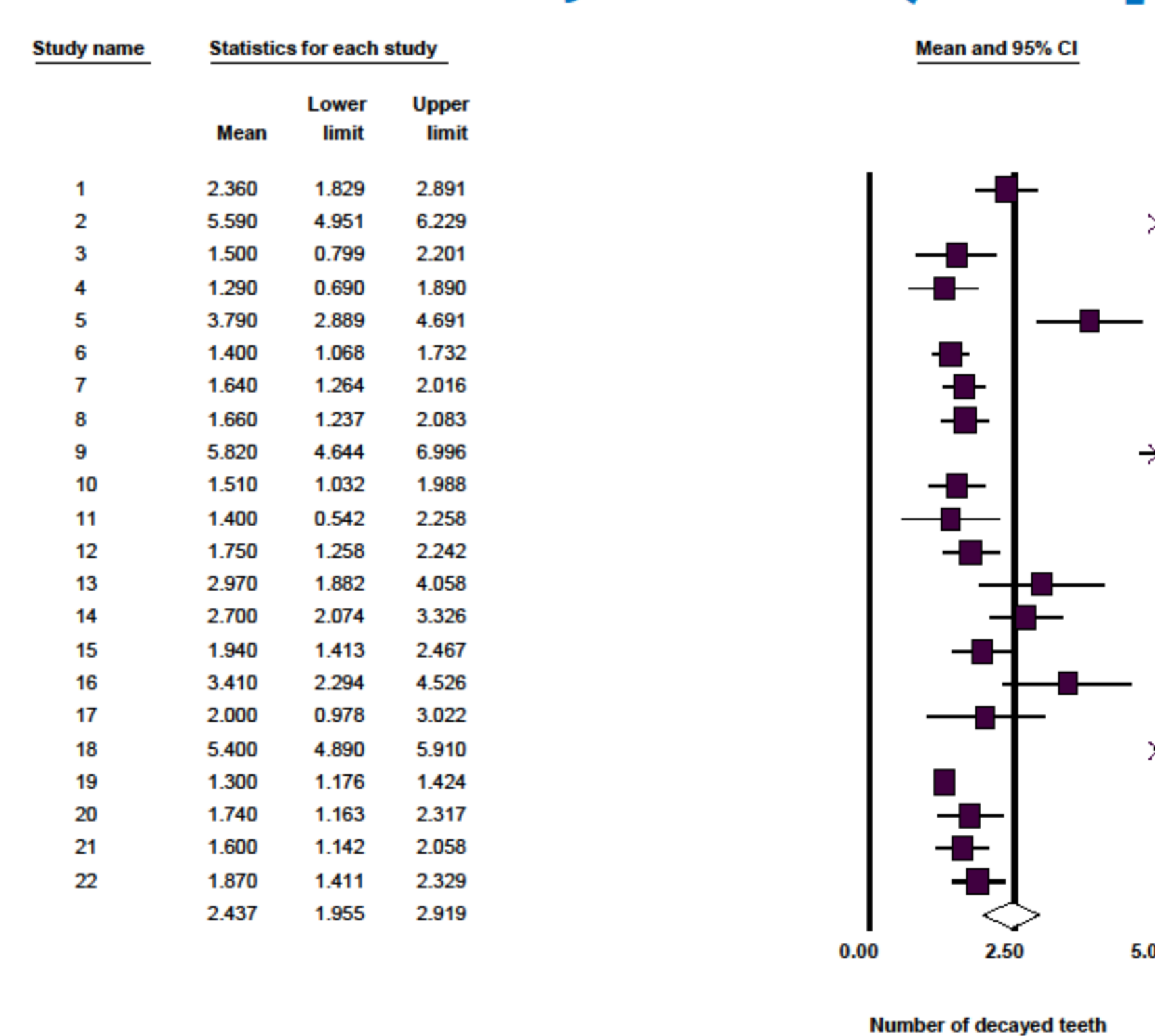
1. Percentage of patients who never brushed their teeth



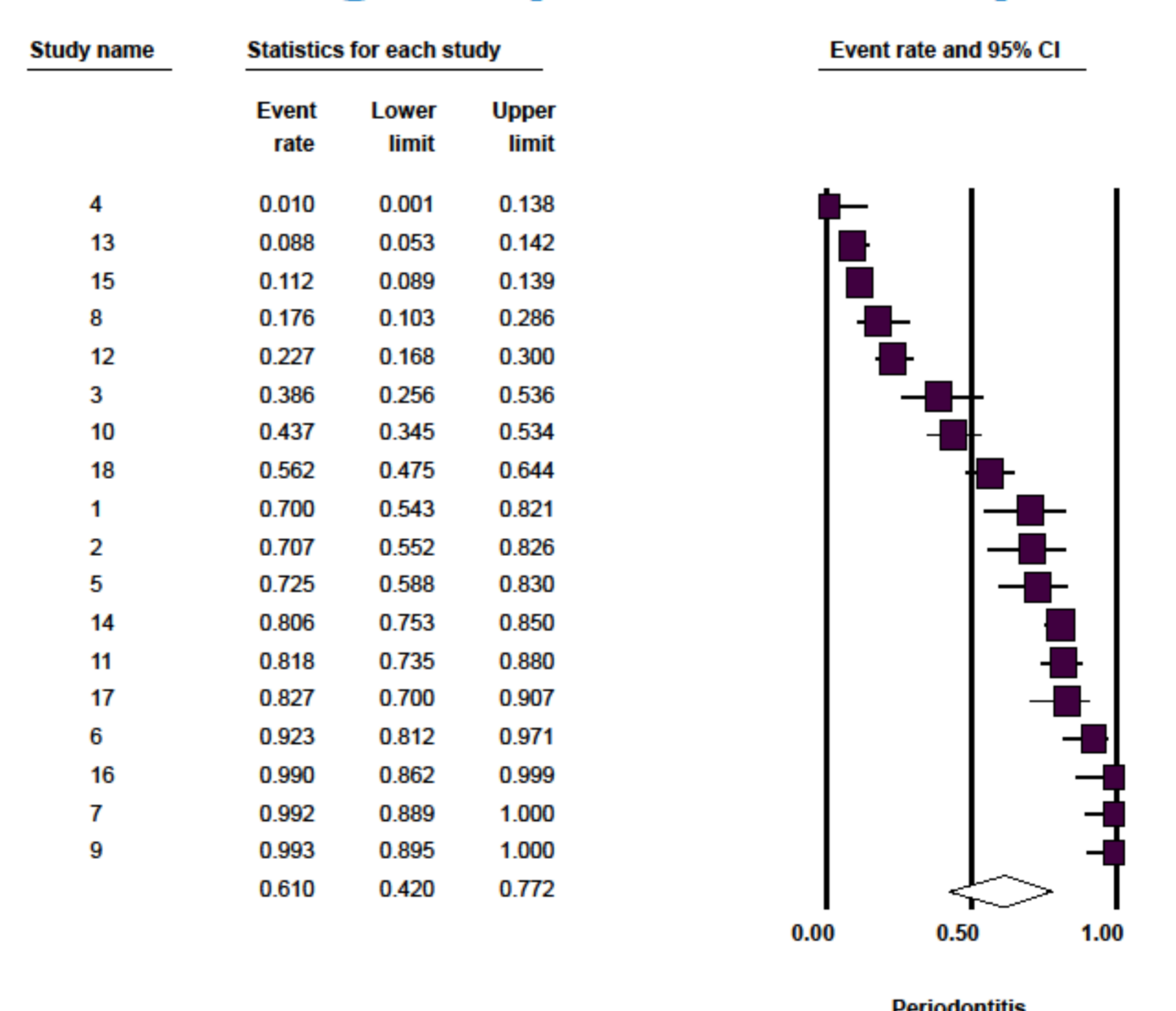
2. DMFT index (mean [SD]) in the studies



3. Number of decayed teeth (mean [SD])



4. Percentage of patients with periodontitis



Conclusion Data evaluating the prevalence and severity of oral disease in people with CKD are sparse and incomplete. Large longitudinal studies of the prevalence and clinical associations with oral disease in CKD are now needed.

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