Reviewer's report

Title: Causal assessment of smoking and tooth loss: A systematic review of observational studies

Version: 3 Date: 14 March 2011

Reviewer: Thomas Dietrich

Reviewer's report:

The authors have addressed some of the reviewers’ concerns, in particular those relating to required clarifications regarding the search strategy. However, the English in this manuscript remains to be a problem and I therefore find it very difficult to follow the authors’ argument throughout the manuscript. Unfortunately, this makes it extremely difficult to evaluate this manuscript.

There also remain to be some problems with epidemiologic concepts/terminology. While references to case-control studies have been eliminated, there are still references to case-control ‘status’ in the manuscript, which is not meaningful outside the context of case-control studies.

Furthermore, the statement that the use of OR for estimating the relative risk is limited to rare phenomena is not necessarily true – and not particularly meaningful in the context of cross-sectional studies (where, depending on what one means by relative risk, no relative risk can be estimated (risk ratio), or the OR is the only appropriate measure of relative ‘risk’.) The use of comparing prevalences between exposure categories is no improvement and akin to presenting only crude, unadjusted results.

I still don’t think that the problem of different exposure categories between studies is solved, and would doubt the validity of the author’s approach of reporting effect estimated for ‘median’ categories (although it may be an improvement over the previous approach). Obviously, summarising data across different observational studies is challenging, and I am not sure what to recommend. Perhaps it would be best to present data as presented in each individual paper, and also including information on what other variables these estimates were adjusted for. In other words, make even less of an attempt to present 'summaries' across all studies.

Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.