Reviewer's report

**Title:** Agreement between examiner-observed children's tooth brushing habits and those reported by mothers

**Version:** 1  **Date:** 8 March 2011

**Reviewer:** Ivar Espelid

**Reviewer's report:**

The paper addresses the agreement between observed habits and reported habits. The matter is observation of children's tooth brushing habits which are compared with what mothers report. Mothers are an important source of information when their child visits the clinician. Also for research purpose it is important to validate the information. Thus this is an interesting study with a well formulated aim.

**Major Compulsory Revisions**

1. **Methods.** Age distribution from 9 to 48 months. Some of the items in table 1 are not relevant for the youngest children. E.g. “Who dispenses dentifrice on toothbrush?” or “Who brushes child’s teeth”. Thus the very youngest individuals should probably be sorted out of the study population.

2. **Inclusion criteria for the population under study (e.g. age span), power calculation, drop-out and external validity should be addressed.** More details needed: “Two hundred six mothers and their children (aged nine to 48 months) from Montes Claros, Brazil, took part in this cross-sectional study.”

3. **How is the weighs of kappa done? Linear?** The agreement strength applies to kappa not weighted kappa. Weighted kappa can be manipulated towards 1 using “appropriate” weighting policy. Example from Table 1 “Amount of dentifrice dispensed on brush”. For this item can be calculated plain kappa = 0.22, kappa linear weight = 0.34 and if weight is distributed 1(hit)-0.8 (next to hit)-0, kappa is 0.50. The kappa value given in Table 1 is 0.49.

4. **Retest for a limited group could have given some idea about inter-observer variation among mothers filling in the questionnaire form.** No kind of repeated/rephrased questions included to test internal validity.

5. **Some moments which are partly addressed in the paper need more attention. Is the gold standard good enough?** Does a single point observation in another setting give a good representation of the every-day practice at home? Does the observer report consistently?

**Minor Essential Revisions**

6. **In epidemiology the common meaning of prevalence is defined as the total number of cases of the disease in the population at a given time. This referee would suggest that the term prevalence is replaced by the term frequency or**
rephrased in many places in the manuscript e.g. p.2. & 7. "the prevalence of dentifrice dispersed on all bristles (35.1%)" and “Moreover, the prevalence of habits was different between the methods employed,” and “Prevalence comparisons between the observed results and mothers’ reports were statistically different on all questions”. Several other examples could have been shown.

7. Even if mother represents such a special or unique information source in Brazil mothers may not be that unique in all cultures. It would be fine if this could be explained in a cultural context.

8. Kappa calculations should have been described in more detail in Statistical analysis p. 6. The formula given in discussion should rather be explained in this chapter.

9. p.3 “One method for evaluating children’s tooth brushing habits is through direct observation. The examiner observes without intervening or giving explanations and takes notes on the process. This method is considered quite precise [3].” Ref 3= Oliveira MJ, Paiva SM, Martins LH, Ramos-Jorge ML, Lima YB, Cury JA. Fluoride intake by children at risk for the development of dental fluorosis: comparison of regular dentifrices and flavoured dentifrices for children. Caries Res. 2007;41(6):460-6. According to aim and content in this paper the statement in the manuscript is not supported.

Discretionary Revisions

10. Abstract: “Background: Information bias can occur in epidemiological studies and compromise the scientific outcome, especially when evaluating mothers’ information regarding their children’s health.” Comment: Why especially when evaluating mothers’ information? What about father? What about adolescents? What about geriatric patients? Rephrase with a more focused message or delete.

11. The study design does not allow any inter- or intra-observer variation to be calculated for the observational part. A video recording could have ensured this possibility. E.g. see Zeedyk MS, Longbottom C, Pitts NB. Tooth-brushing practices of parents and toddlers: a study of home-based videotaped sessions. Caries Res. 2005 Jan-Feb;39(1):27-33. This study is, however, not quite similar.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

'I declare that I have no competing interests'