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Title:

The effectiveness of oral health education provided in a school setting on oral hygiene and dental caries in children

Abstracted from: The effectiveness of oral health education on oral hygiene and dental caries in schoolchildren: Systematic review and meta-analysis. Stein C, Santos NML, Hilgert JB, Hugo FN. Community Dent Oral Epidemiol. 2018; 46:30–37.

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Question:

Does oral health education provided in a school setting improve oral hygiene and reduce dental caries in children?

Data sources:

The methodology followed the Cochrane Handbook for systematic reviews of interventions with MEDLINE/PubMed, CENTRAL, Embase and LILACS databases searched. Publication date was limited to 1995-2015 with no restriction on language.

Study Selection:

Two reviewers selected randomised controlled clinical trials involving oral health education provided by a dental care professional to children aged between 5 and 18 years old within a school setting. Eligible studies were those which had outcomes including caries, plaque accumulation, gingivitis, toothache or tooth loss. Randomisation was at group (school and/or classroom) or individual level. The control groups were not provided with an educational programme on oral health, however they could have been given an action that belonged to the school’s curricular framework.

Data extraction and synthesis:

The title and abstract of each study was reviewed and critically assessed by two independent reviewers. Risk of bias was assessed using the Cochrane Handbook. Studies where the data of interest were presented in charts or were of dichotomous data were not included in meta- analysis.

Results:

Twelve studies were included in this systematic review. Five studies showed plaque level reduction in the intervention groups and two studies found no effect of the interventions on gingivitis. There was insufficient evidence on effectiveness of the interventions in reducing dental caries.

Conclusions:

Traditional oral health educational actions were effective in reducing plaque in the short-term, but not gingivitis. There was no long-term evidence regarding the effectiveness of traditional oral health educational actions in the school environment on preventing plaque accumulation, gingivitis and dental caries in schoolchildren.

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Commentary:

With dental extractions being the most common reason for a child between 5-9 years of age in England to have a general anaesthetic, the need for effective methods of improving oral health in children cannot be underestimated [1]. Oral health education in a school setting may be an effective part of the preventive armamentarium to improve school children's' oral health; the aim of this systematic review was to determine if such interventions might improve oral health in terms of reduced plaque levels, gingivitis and dental caries.

The literature search for this review was limited to 1995-2015 with the rationale for this having been the most recent similar systematic review was completed in 1994 [2]; the search for this earlier review combed the Medline database between 1982-1994 using only the subject headings 'dental health education, oral health promotion and effectiveness'. In addition, a scoring system was used in this earlier review and papers excluded below a certain score. As such there is potential risk that other suitable publications were not identified for inclusion in the current review.

Studies were included 'without time restrictions' and as such there was no minimum follow-up period for included studies. As a result there was a varied follow- up period in the included studies e.g. one month to four years. The authors highlight the need for longer-term studies to be carried out, particularly to identify any changes in dental caries.

The authors make note that 'significant methodological variability was found among the interventions performed in the included studies'. Of note, the inclusion of studies 'disregarded the dental caries level at the study's beginning, exposure to fluoride and current

dental treatment'. This clinical heterogeneity (which also included variable sample population demographics, follow- up times and interventions), may have warranted a descriptive analysis rather than meta-analysis of the data. Although statistical homogeneity was observed, it was largely due to few number of studies and small sample size. Indeed, a number of oral health promotion reviews have noted similar heterogeneity between included studies with no meta-analyses having been carried out as a result [3-6].

Risk of bias assessment was completed for all included studies; the authors made no comment on the impact that the risk of bias may have had on the results with the risk of bias table highlighting that none of the included studies were at overall low risk of bias.

Though not specifically part of this review, the authors make no mention regarding the need for future studies to include appropriate and validated child-centred outcome measures, though they do note the need to determine the cost effectiveness of oral health education interventions.

Overall, there remains a need for further well designed randomised controlled studies with longer follow- up periods to determine the most effective methods of school-setting oral health education for improved oral health in children.

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