Effect of parent education on ways to prevent dental caries in pre-school children

This is an excerpt from the full technical report, which is written in Norwegian.

The excerpt provides the report's main messages in English

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kunnskapssenteret

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We would like to thank all contributers for their expertise in this project. Norwegian Knowledge Centre for the Health Services assumes final responsibility for the content of this report.

Norwegian Knowledge Centre for the Health Services
Oslo, November 2015

Key messages (English)

Norwegian children typically have good dental health, but early childhood dental caries is a problem in some groups. Parents greatly influence what young children eat and drink and whether they clean their teeth. This report examines the effect of educating and counselling parents with pre-school children on ways to prevent dental caries.

In all the studies we summarize, the parents received education and counselling regarding dietary habits and dental hygiene practices that promote good oral health. However, both the educational content, strategy used and the number of sessions varied considerably.

We found that:

- Children of parents that received recurrent education and counselling sessions had somewhat improved short- and long-term oral status compared children of parents who did without this opportunity.
- The majority of the studies compared giving comprehensive education and counselling with giving the parents only some education, advice, or information. These studies have inconsistent findings.

Based on these findings, we cannot conclude whether some education and counselling strategies were more effective in preventing childhood dental caries. Most of the studies were conducted in populations groups where early childhood dental caries is prevalent and among vulnerable groups of parents. It can be especially difficult for these parents to change behaviours and habits.

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Type of publication:

Systematic review

A review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review. Statistical methods (meta-analysis) may or may not be used to analyse and summarise the results of the included studies.

Doesn't answer everything:

- Excludes studies that fall outside of the inclusion criteria
- No health economic evaluation
- No recommendations

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Executive summary (English)

Background

Norwegian children typically have good dental health, but early childhood dental caries is a problem in some groups. Parents and guardians greatly influence what young children eat and drink and whether they clean their teeth. The Norwegian Directorate of Health is preparing the National Guideline for good dental services to children and adolescents. A review of the research literature found little summarized evidence on the prevention of early childhood dental caries. This report will contribute to the evidence for the new guideline.

Objective

To systematically summarize the effect of education and structured counselling to parents with children aged 0-5 years on ways to prevent early dental caries.

Method

We searched for primary studies without time restrictions in Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Embase, CINAHL and Swemed + through June 2015, and checked the reference lists of included studies. Two people independently examined 3095 references, assessed 104 in full-text, and included 19 studies. The relevant study population was parents with children aged 0-5 years. The intervention was education and counselling on how parents can prevent caries in young children compared with either no intervention or other dental health interventions. Relevant outcomes were oral health behaviour, the child's oral health status, and other selected measures. We looked for both randomized controlled trials, non-randomized controlled trials, interrupted time series, and cohort studies with given criteria. Two people independently assessed risk of bias using checklists for different study designs. We retrieved data from the studies, analysed and assessment our confidence in the effect estimate as a collaboration. We used the GRADE-methodology (Grading of Recommendations Assessment, Development, and Evaluation) to indicate our confidence that the estimated effect estimates were close to the true effect. The confidence may be high, medium, low, or very low.

Results

We included 19 studies, of which 18 were randomized controlled trials (individual or cluster randomized). These were published from 1985 to 2014 in the US (5 studies), UK (4 studies), Canada (2 studies), Australia, Brazil, India, Israel, Iran, China, Sweden, and Thailand (one study from each country). The parents had generally low socioeconomic status and children younger than two years at baseline. We considered that the majority of studies have unclear risk of bias.

The education and counselling strategies varied widely between the studies – from videotaped education viewed once to recurrent individual counselling over three years. Several of the interventions had additional components, such as free toothbrushes, toothpaste or fluoride supplements, encouraging use of fluoride varnish, or distributing educational material. Seven studies used motivational interviewing as the counselling method. We first sorted the interventions by whether the parents were met with once or several times. We grouped studies that used motivational interviewing. The other studies did not specify any theoretical approach used for the education and counselling.

We considered that it was in appropriate to conduct meta-analyses. Thus, the documentation reflects findings from single primary studies only. Our confidence in the documentation of effect is low or very low.

Five studies compared providing recurrent education and counselling sessions with providing no intervention to the parents. Overall, this documentation indicates that the interventions improve the children's short- and long-term oral health status to some extent.

The majority of the studies compared giving different types of comprehensive education and counselling with giving the parents only some education, advice, or information (other dental health interventions). The conclusions are relatively similar for studies in which the parents received counselling only once and where they met several times.

Some of these studies show that comprehensive education and counselling result in better dental hygiene habits and dental health in the children compared to other oral health interventions. Other studies show possibly little or no difference between the interventions. The efficacy estimates are, in many cases, highly uncertain.

We see no obvious characteristics that indicate which strategies are more effective. There is little documentation about effects on secondary consequences of caries and whether the intervention may lead to adverse events.

Discussion

Parental education and counselling is a relatively broad category of actives that may be conceptually different, and here it was often combined with additional components. When examining multi-component interventions, it is not known if an individual component or the sum of these create an emerging effect. Several of the studies had small differences in intervention components compared with the control intervention. This creates a less optimal design, particularly when the number of study participants is relatively low.

Among the seven studies using motivational interviewing, three showed that this approach could improve dental hygiene habits and dental health in children compared with other oral health interventions. However, the remainder of these studies showed no significant difference. We found four protocols for ongoing studies using motivational interviewing to counsel parents on how they can prevent early childhood caries. In time, these will provide a better basis for a systematic review of this counselling method on its own. Overall, we find no obvious characteristics in the studies that may indicate which strategies are more effective in preventing childhood dental caries.

Most studies were conducted in population groups where early childhood dental caries is prevalent and among vulnerable groups of parents. It can be especially difficult for these parents to change behaviours and habits. The evidence is probably generalizable mainly to population groups with low socioeconomic status or parents with special follow-up needs.

Conclusion

We found that the children's short and long-term oral health status possibly is somewhat better when to the parents receive recurrent education and counselling sessions compared to providing no intervention to the parents. However, the majority of the studies compared giving the parents comprehensive education and counselling with giving parents less training, advice, or information. Some of these studies show beneficial effects in favour of the intervention, while others show little or no difference in effect between the intervention and these other dental health interventions. The efficacy estimates are, in many cases, highly uncertain.