

Int Poster J Dent Oral Med 2002, Vol 4 No 3, Poster 134

Prevention of Early Childhood Caries (ECC) Needs More Knowledge of Mothers

Language: English

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Date/Event/Venue:

21.-22.09.2001

6th Conference of the European Association of Dental Public Health

Marburg

Aims and Methods

Children are susceptible to infection by mutans streptococci (MS) between the ages of 1.5 and 3 years. The aim of the study was to investigate those factors that could be correlated with early MS transmission among German children aged 30 months and to analyse complex structured data sets of ECC.

- 155 children (85 boys, 70 girls) were included.
- For each child an index of caries (dmft) has been recorded together with the number of primary teeth, oral hygiene and gingivitis, and salivary mutans streptococci (MS) (Dentocult® SM Strip Mutans, Orion Diagnostica).



Fig. 10: Estimation of salivary mutans streptococci by spatula method

- A questionnaire was completed by the mothers. A set of structured variables, such as mothers' characteristics (education, occupation) and their effort to control the toothbrushing of the child, was included. The cariogenicity of the food was registered and the nutrition history and childhood nursing practice as well.
- A conditional independence graph (TETRAD III) with precise statistical meaning, consisting of circles representing variables and lines representing significant associations, was used for analysis of data sets.

Results

- 45% of the mothers believe that caries is a transmitted disease.
- Studying the graph as a whole, it was apparent that MS and dmfs formed a separate set with the highest significance (ϕ 0.346) (fig. 1).

Multifactorial Analyses

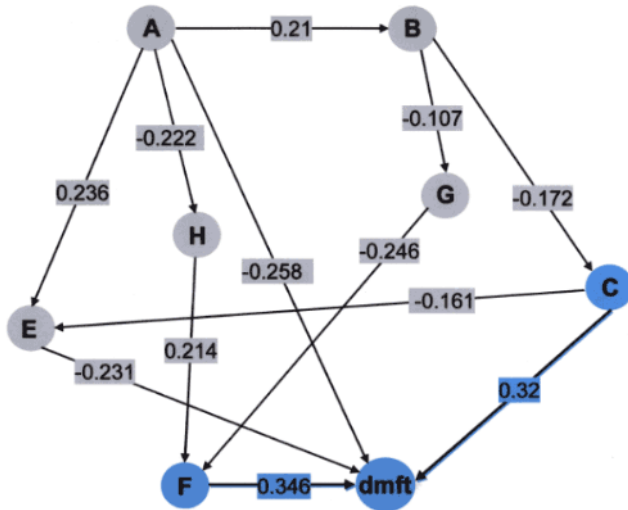


Fig. 1: Multifactorial Analyses

Variables

- A: Education of the mothers (1=at least class 10; 0=lower education)
- B: Occupation of the mothers (1=working; 0=no working)
- C: The child has the bottle at night (1=yes; 0=no)
- dmft: Caries index of deciduous teeth (0=healthy; 1=carious, to summarize d-, m-, and f-components)
- E: Visible plaque at anterior teeth (1=yes; 2=no)
- F: Scores of mutans streptococci (1=high; 0=low)
- G: Regular supervision of toothbrushing by the mothers of the children and additional toothbrushing (1=yes; 0=no)
- H: Cariogenicity of meals (1=cariogenic; 0=no cariogenic)

- The caries decay of the children was registered at a mean dmft of 0.58 (fig. 2).

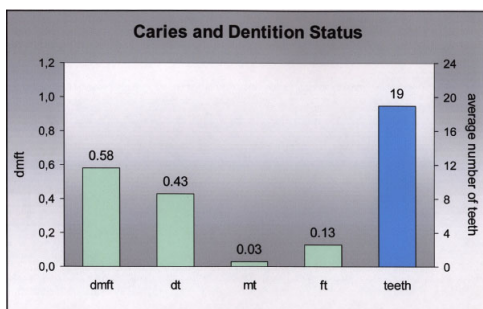


Fig. 2: Caries prevalence (dmft) of children (n=155)

- Higher scores of salivary MS correlated significantly with higher caries decay in children (Spearman's correlation coefficient 0.32712, χ^2 -test p 0.0001).

- The upper incisors showed significant frequent decay (X^2 -test p 0.001) (fig. 3). 15% of the children had developed ECC.

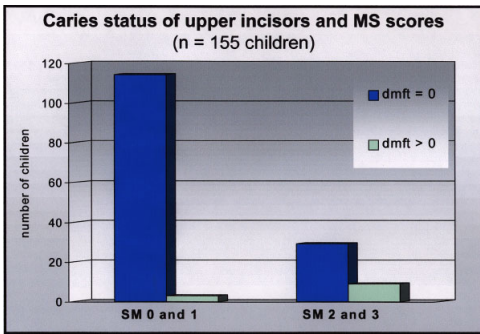


Fig. 3: Caries status of upper incisors and mutans streptococci scores (n=155 children)

- A negative correlation could be shown between mothers' education and serving of cariogenic food (ϕ -0.222) and MS counts (ϕ 0.214) (fig. 1, fig. 4).

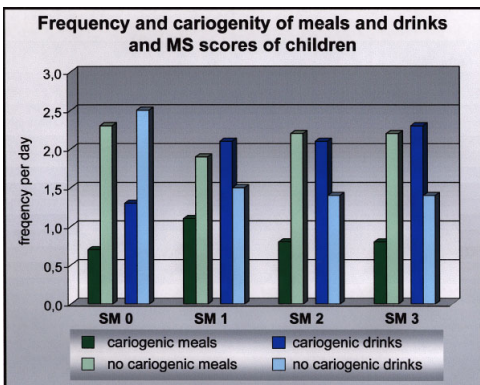


Fig. 4: Frequency and cariogenicity of meals and drinks and mutans streptococci scores of children (n=155)

- A positive correlation could be found between high salivary MS counts in children and bottle-feeding at night (X^2 -test p 0.003) (fig. 1, fig. 5).

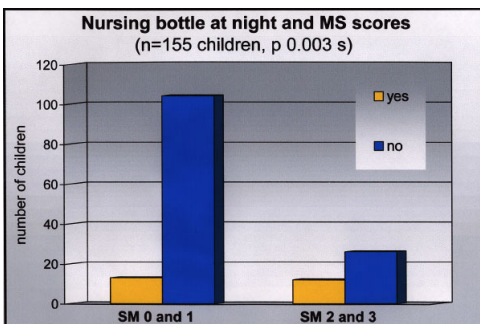


Fig. 5: Nursing bottle at night and mutans streptococci scores (n=155 children)

- Children of mothers with an occupation were put to bed without a nursing bottle of soft drinks (ϕ -0.172) and had lower plaque indices (ϕ -0.161) (fig. 1, fig. 6, fig. 7).
- Mothers with high education usually have an occupation (ϕ 0.21) and check up the toothbrushing of their children (ϕ -0.107), which have lower MS counts (ϕ -0.246) (fig. 1, fig. 8).

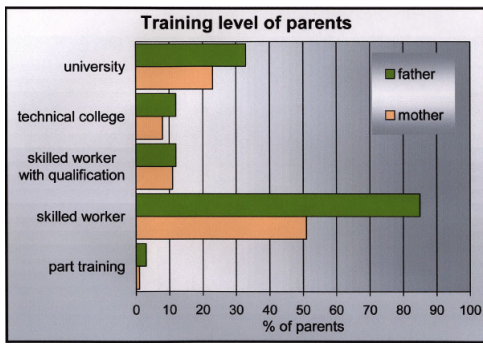


Fig. 6: Training level of parents

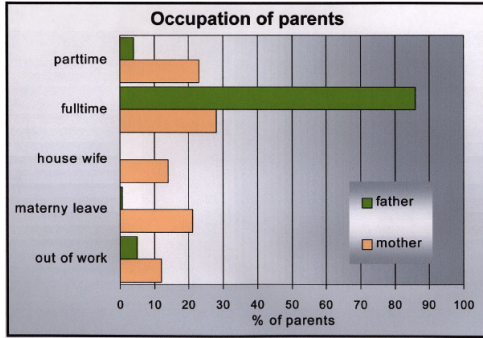


Fig. 7: Occupation of parents

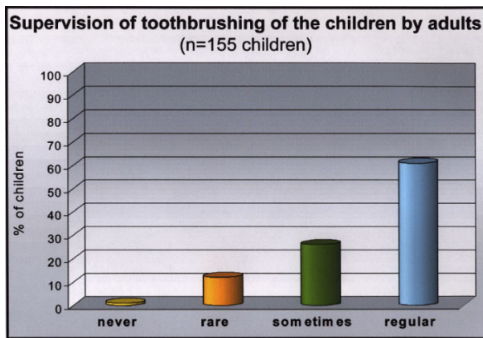


Fig. 8: Supervision of toothbrushing of the children (n=155) by the adults

- Plaque correlated positive with caries decay, especially with rampant caries (ϕ 0.231) (fig. 1, fig. 9).

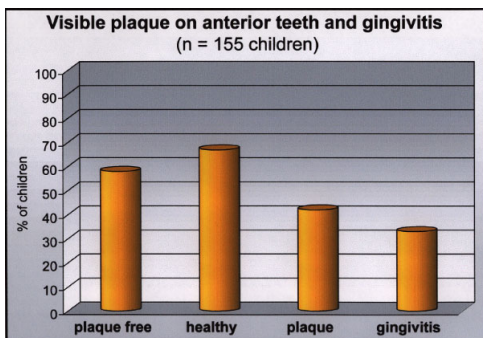


Fig. 9: Visible plaque on anterior teeth and gingivitis (n=155 children)

Conclusion

The results could show that children of mothers with low education have a high risk for ECC. In addition mothers need more information about early transmission of MS. (supported by Orion Diagnostica, Finland)

This poster was submitted by PD Dr. Susanne Kneist.

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Poster Faksimile:

Prevention of Early Childhood Caries (ECC) Needs More Knowledge of Mothers

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AIMS AND METHODS

Children are susceptible to infection by mutans streptococci (MS) between the ages of 1.5 and 3 years. The aim of the study was to investigate those factors that could be correlated with early MS transmission among German children aged 30 months and to analyse complex structured data sets of ECC.

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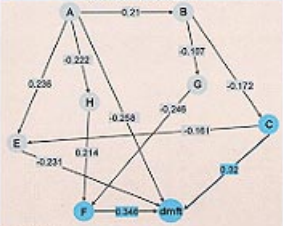


- A questionnaire was completed by the mothers. A set of structured variables, such as mothers' characteristics (education, occupation) and their effort to control the toothbrushing of the child, was included. The cariogenicity of the food was registered and the nutrition history and childhood nursing practice as well.
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RESULTS

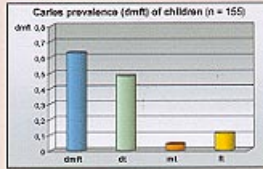
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- Studying the graph as a whole, it was apparent that MS and dmfs formed a separate set with the highest significance ($p = 0.346$).

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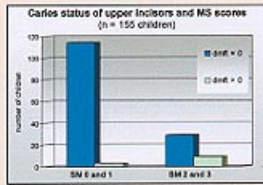


- Variables**
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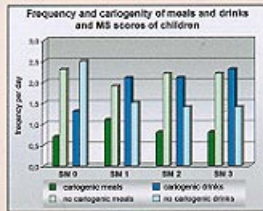
- The caries decay of the children was registered at a mean dmft of 0.6 ± 2.0



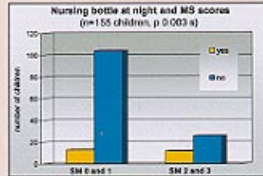
- Higher scores of salivary MS correlated significantly with higher caries decay in children (Spearman's correlation coefficient 0.32712, X^2 -test $p = 0.0001$).
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- A negative correlation could be shown between mothers' education and serving of cariogenic food ($p = 0.222$) and MS counts ($p = 0.214$).

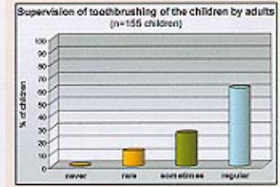
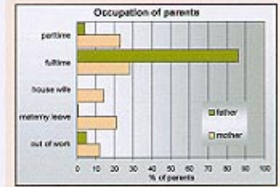
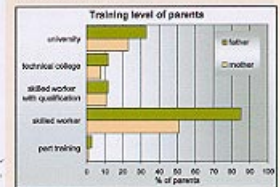


- A positive correlation could be found between high salivary MS counts in children and bottle-feeding at night (X^2 -test $p = 0.003$).

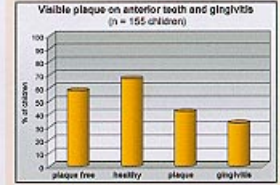


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