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Caries experience among pre-school children in Westfalia

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Introduction

Oral health improvements in pre-school children have been reported (Marthaler TM. Caries Res 1990; 24:381-396) followed by first indication that the decline in caries levels in preschool children has ceased (Pitts NB, Palmer JD. Community Dent Health 1995;12:52-58). A school based preventive programme whereby dentists or dental auxiliaries providing oral health care for children attending kindergarten schools, has been in operation in parts of Germany since 1984. The preventive programme consisted of dental health education, supervised instruction in oral hygiene, diet control and use of low fluoride toothpaste (max. 500 ppm F-). Countrywide representative surveys on oral health in pre-school children are not regularly performed. Information on declining prevalence in dental caries on the basis of smaller local studies are limited.



Objectives

- The aims of the study were to evaluate the prevalence of dental caries in the deciduous dentition in 3- and 5-year-old children attending kindergarten schools in the Ennepe-Ruhr-district (EN), Westfalia in 2001.
- To compare the prevalence of caries in these 3- and 5-year-olds with those found in previous surveys in 1987 and 1997.

Materials and Methods

- A representative sample of children aged 3- and 5-years-old was selected.
- A stratified proportionate random sampling design was used with the size of schools and gender as the main stratifying factors.
- For the 1987, 1997 and 2001 surveys clinical examinations were carried out by the same dentist (HS), calibrated according to the procedures of O'Mullane et al, Stationary Office, Dublin, 1986, at the Oral Health Services Research Centre-University College Cork.
- Caries was diagnosed at the cavitation level (WHO 1987).
- Radiographs were not used.
- The dmft was calculated (SAS data base) and comparisons were made (Tukeys student range test; p value: 5%).
- Lorenz curves were calculated for describing the caries distribution in 3- and 5-year-olds in 2001.

Results and Discussion

- In 2001 for 3-year-olds a mean dmft of 0.53 (\pm 1.80) was scored.
- In 1997 and 1987 mean dmft was 0.7 (\pm 2.1) and 1.7 (\pm 2.9), respectively.
- There was a significant decline in caries from baseline 1987 to 1997 ($p < 0.0001$), but the further decline in caries to 2001 was not statistically significant ($p < 0.0392$).
- Percentage of caries free children increased from baseline 57.1% (1987) to 81% (1997) to 89% (2001).
- The present mean dmft in 5-year-olds was 1.46 (\pm 2.78).

Percentage of 3- and 5-year-olds with no caries experience in 1987, 1997 and 2001

Age group	1987	1997 caries free(%)	2001
3-year-olds	57.1	81	89
5-year-olds	38.9	64	66

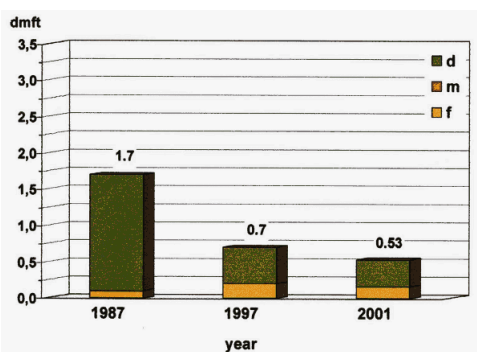
Comparisons of mean dmft in 3-year-olds in 1987, 1997 and 2001

	n	dmft	SD	
1987	287	1.7	2.9	} $p < 0.0001$
1997	165	0.7	2.1	
2001	255	0.53	1.8	} $p < 0.0392$

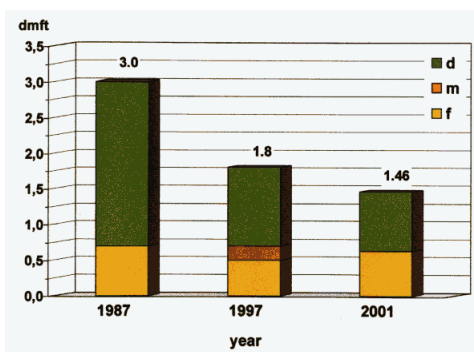
Comparisons of mean dmft in 5-year-olds in 1987, 1997 and 2001

	n	dmft	SD	
1987	683	3.0	3.5	} $p < 0.0000$
1997	531	1.8	3.4	
2001	531	1.46	2.78	} $p < 0.0747$

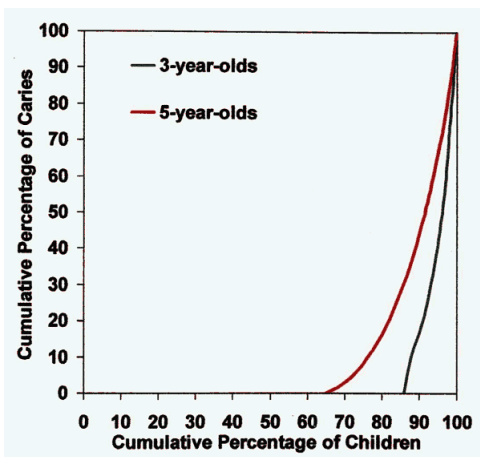
- Caries decline occurred between 1987 mean dmft 3.0 (\pm 3.5) and 1997 mean dmft 1.8 (\pm 3.4), ($p < 0.0000$), and did not further decrease until 2001 mean dmft 1.46 (\pm 2.78) ($p < 0.0747$).
- The percentage of caries free children increased from 38.9% (1987) to 64% (1997) and remained almost the same with 66% (2001).
- The skewed distribution of caries illustrated by the Lorenz curves showed in 3-year-olds that 90% of the dmft were concentrated in 7% of the children at a cut point < 2 dmft.
- In 5-year-olds nearly 80% of the caries affected teeth were concentrated in 15% of the children at a cut point < 3 dmft.



Mean dmft with d, m and f components in 3-year-olds in 1987, 1997 and 2001



Mean dmft with d, m and f components in 5-year-olds in 1987, 1997 and 2001



Lorenz curve of 3- and 5-year-olds

Conclusion

- There was a significant decline in caries prevalence in 3- and 5-year-olds in the period 1987 to 1997.
- While the period between the last two studies from 1997 to 2001 was short, the results could be the first indication that caries decline in these 3- and 5-year old children has ceased.

This Poster was submitted by Dr. Helga Senkel.

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Caries experience among pre-school children in Westfalia

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INTRODUCTION

Oral health improvements in pre-school children have been reported (Marthaler TM. *Caries Res* 1990; 24:381-396) followed by first indication that the decline in caries levels in preschool children has ceased (Pitts NB, Palmer JD. *Community Dent Health* 1995;12:52-58).

A school based preventive programme whereby dentists or dental auxiliaries providing oral health care for children attending kindergarten schools, has been in operation in parts of Germany since 1984. The preventive programme consisted of dental health education, supervised instruction in oral hygiene, diet control and use of low fluoride toothpaste (max. 500 ppm F). Countrywide representative surveys on oral health in pre-school children are not regularly performed. Information on declining prevalence in dental caries on the basis of smaller local studies are limited.



AIMS

- The aims of the study were to evaluate the prevalence of dental caries in the deciduous dentition in 3- and 5-year-old children attending kindergarten schools in the Ennepe-Ruhr-district (EN), Westfalia in 2001.
- To compare the prevalence of caries in these 3- and 5-year-olds with those found in previous children surveys in 1987 and 1997.

MATERIALS AND METHODS

- A representative sample of children aged 3- and 5-years-old was selected.
- A stratified proportionate random sampling design was used with the size of schools and gender as the main stratifying factors.
- For the 1987, 1997 and 2001 surveys clinical examinations were carried out by the same dentist (HS), calibrated according to the procedures of O'Mullane et al. Stationary Office, Dublin, 1986, at the Oral Health Service Research Centre-University College Cork.
- Caries was diagnosed at the cavitation level (WHO 1987).
- Radiographs were not used.
- The dmft was calculated (SAS data base) and comparisons were made (Tukey's student range test; p value: 5%).
- Lorenz curves were calculated for describing the caries distribution in 3- and 5-year-olds in 2001.

RESULTS AND DISCUSSION

- In 2001 for 3-year-olds a mean dmft of 0.53 (± 1.00) was scored.
- In 1997 and 1987 mean dmft was 0.7 (± 2.1) and 1.7 (± 2.9), respectively.
- There was a significant decline in caries from baseline 1987 to 1997 (p<0.0001), but the further decline in caries to 2001 was not statistically significant (p=0.0382).
- Percentage of caries free children increased from baseline 57.1% (1987) to 81% (1997) to 88% (2001).
- The present mean dmft in 5-year-olds was 1.46 (± 2.78).
- Caries decline occurred between 1987 mean dmft 3.0 (± 3.5) and 1997 mean dmft 1.8 (± 3.4), (p<0.0000), and did not further decrease until 2001 mean dmft 1.46 (± 2.78) (p<0.0747).
- The percentage of caries free children increased from 38.9% (1987) to 64% (1997) and remained almost the same with 68% (2001).
- The skewed distribution of caries illustrated by the Lorenz curves showed in 3-year-olds that 90% of the dmft were concentrated in 7% of the children at a cut point <2 dmft.
- In 5-year-olds nearly 80% of the caries affected teeth were concentrated in 15% of the children at a cut point <3 dmft.

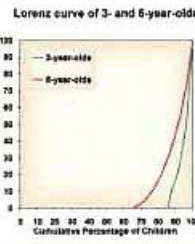
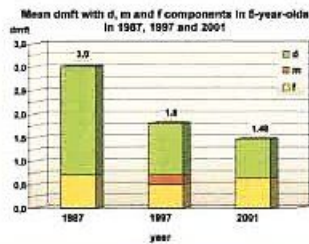
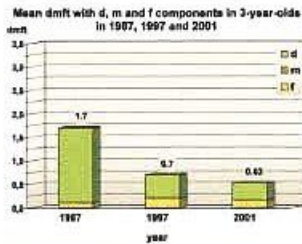
Age group	1987	1997	2001
3-year-olds	57.1	81	88
5-year-olds	38.9	64	68

	n	dmft	SD
1987	297	1.7	2.9
1997	186	0.7	2.1
2001	266	0.53	1.0

p<0.0001 (1987 vs 1997)
p=0.0382 (1997 vs 2001)

	n	dmft	SD
1987	883	3.0	3.5
1997	631	1.8	3.4
2001	621	1.46	2.78

p<0.0000 (1987 vs 1997)
p=0.0747 (1997 vs 2001)



CONCLUSION

- There was a significant decline in caries prevalence in 3- and 5-year-olds in the period 1987 to 1997.
- While the period between the last two studies from 1997 to 2001 was short, the results could be the first indication that caries decline in these 3- and 5-year old children has ceased.