Evaluation of information on dental health care at child health centers

Factors in caries prevention—opinions of dental personnel and their relation to parental attitudes

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Our aim was to study, by means of questionnaires, some specific opinions of dental personnel, giving information on dental health care at child health centers and Public Dental Service clinics. The questions dealt with the relative importance of dietary habits, oral hygiene, and fluoride for the occurrence of caries in small children and why some children develop caries. The material consisted of dentists, dental hygienists, and dental assistants, participating in 1983 and/or 1992. The results showed that, on the whole, the different categories had similar opinions. In both 1983 and 1992 diet was ranked first, oral hygiene second, and fluoride third, but the distribution of priorities changed. In 1992 the priority values for oral hygiene were more dispersed over the priority grades and those for fluoride considerably higher than in 1983. In contrast, parents of 4-year-old children interviewed in 1983 stated that toothbrushing is more important for dental health than diet. To the question why some children develop caries, most of the personnel responded that parents lack motivation to convert advice into practice. Besides unsatisfactory dietary habits and insufficient oral hygiene, deficiencies in the information process were other frequently quoted factors. □ *Behavioral science; diet; fluoride; oral hygiene*

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In Sweden, systematic dental health counseling at child health centers (CHC) was introduced in the 1960s. Advice to parents has generally been given, both by dentists and by dental hygienists and dental assistants, once or twice until the children were 2 years of age. Positive effects on caries in 4-year-olds have been reported (1–4). Since the latter half of the 1980s, the program has also been implemented at Public Dental Service clinics (PDS).

Effects of the information on dental health care at CHC were evaluated in a previous work (5). The material consisted of children who were 4 years old in 1983 and their parents. The study dealt with the parents' knowledge of and attitudes to dental health care in relation to their education and to received information. Comparisons were made between one parental group with caries-free children and another with children with a defined level of disease. No inter-group differences were found with regard to knowledge of dietary habits, oral hygiene, and fluoride in relation to dental health. However, parents of healthy children had a statistically significantly higher level of education than parents of the children with disease. It was concluded that the level of education did not seem to affect the knowledge as such but rather the ability to put it into practice.

Community dentistry is a discipline combining knowledge derived from medical, dental, and social sciences. One of its important tasks is to spread information aimed at disease prevention, for the benefit of both the individual and the community. Evaluation of this information has to take into account the views of both the recipients and the dental personnel giving information about dental health care.

In conjunction with the above investigation, data were therefore also collected about the opinions of the dental personnel concerning the relative importance of dietary habits, oral hygiene, and fluoride for prevention of caries in small children and on why some children get caries. To our knowledge, little attention has been paid to this issue in the literature. It is conceivable that a connection exists between the opinions of the professionals and those of the parents previously reported (5). Furthermore, the views and attitudes of the personnel may have changed since 1983, partly in that the counseling at CHC has been increasingly delegated, mainly to dental assistants. The purpose of this study was to investigate these relationships.

Materials and methods

The material consisted of dental personnel serving in Malmöhus County in 1983 and 1992. A group questionnaire was distributed in 1983 at a regular meeting with the CHC counseling staff. The answers were collected promptly. All 97 individuals present, not less than 95% of those involved in the activity, participated: 48 dentists (32 women, 16 men), 10 dental hygienists (all women), and 39 dental assistants (38 women, 1 man). In 1992, a mail inquiry with the same questions as in 1983 was distributed among those who were then counseling at CHC or at PDS. At that time, one person at each clinic generally performed the counseling. The forms were sent to all 56 clinics in the county. One reminder was distributed. Answers were received from all clinics. Sixty-four individuals, all female, replied: 1 dentist, 14 dental hygienists, and 49 dental assistants. They were asked to rank dietary habits, oral hygiene, and use of fluoride by their importance for caries prevention. The dental personnel was also asked a question about the main causes of caries in young children.

The results are reported for the separate professions and, in some cases, for dental hygienists and dental assistants combined, for each of the two occasions. Some answers gave the same priority to two or all three factors, which were then scored half a unit or a third of a unit. A comparison was made between the outcomes in 1983 and 1992. The opinions of the personnel were related to the corresponding weights that the parents of 177 4-year-old children had assigned to these factors, derived from the data base for the previous study in 1983 (5).

The chi-square test was used for analyses of differences in distribution. Differences at the 5% level of probability were considered statistically significant.

Table 1. Percentage distribution of priorities with regard to diet (D), oral hygiene (OH), and fluorides (F) for prevention of dental caries in young children, among 47 dentists (32 women and 15 men), 9 dental hygienists (all women), and 39 dental assistants (1 man) giving advice on dental health care at child health centers in 1983 and among 14 dental hygienists and 49 dental assistants (all women) giving advice on dental health care at child health centers and Public Dental Service clinics in 1992. One male dentist and one dental hygienist did not respond in 1983

	I		II		III	
	1983	1992	1983	1992	1983	1992
Female dentists						
D	92	—	8	—	0	—
OH	8	—	83	—	9	—
F	0	—	9	—	91	—
Male dentists						
D	80	—	13	—	7	—
OH	13	—	80	—	7	—
F	7	—	7	—	86	—
Dental hygienists						
D	83	68	17	32	0	0
OH	17	32	83	36	0	32
F	0	0	0	32	100	68
Dental assistants						
D	83	77	17	13	0	10
OH	14	22	78	62	8	16
F	3	1	5	25	92	74

I = first priority; II = second priority; III = third priority.

Results

Table 1 presents the percentage distribution of the professional groups' priorities with regard to diet, oral hygiene, and fluoride in 1983 and 1992. In 1983 the differences between the groups were small, with dietary

Table 2. Percentage distribution of priorities with regard to diet, oral hygiene, and fluorides for the occurrence of dental caries in young children, among 9 dental hygienists and 39 dental assistants in 1983 and among 14 dental hygienists and 49 dental assistants in 1992, giving advice on dental health care at child health centers and Public Dental Service clinics

	I	II	III	P*
Diet				
1983	83	17	0	0.15
1992	75	18	7	
Oral hygiene				
1983	15	79	6	0.03
1992	24	56	20	
Fluorides				
1983	2	4	94	0.01
1992	1	26	73	

I = first priority; II = second priority; III = third priority.
* P values based on chi-square tests.

habits given the first (80–92%) and fluoride the third priority (86–100%). Female dentists gave diet the highest priority (92%). Dental hygienists were unanimous in giving fluoride third priority.

In 1992 dentists were excluded because only one replied. The dental hygienists and dental assistants ranked the three factors in the same order as in 1983, but opinions within the groups were less polarized, and there was less agreement between groups. This was especially evident for oral hygiene, for which the proportion of dental assistants ranking it second was almost twice that of the dental hygienists, who were evenly distributed over the priority grades.

Table 2 presents a comparison between the answers in 1983 and 1992 for dental hygienists and dental assistants combined. Diet was ranked third by 7% in 1992 compared with 0% in 1983, a non-significant difference. For oral hygiene and fluoride the distribution shows statistically significant differences between the years. Oral hygiene was given second priority by 79% in 1983, whereas in 1992 it was ranked highest by 24% and lowest by 20%. For fluoride, a shift from third to second priority was seen: 94% and 4% in 1983 versus 73% and 26% in 1992.

Table 3 presents the parents' opinions on the importance of caries-preventive measures in 1983. Among the parents, 60% claimed toothbrushing to be very important. The corresponding figures for diet and fluoride were 53% and 11%.

Table 3. Percentage distribution of the opinions about the importance of dietary habits, toothbrushing, and fluorides among parents of 177 4-year-old children in 1983 (data from Ref. 5)

	Very important	Important	Not important	Do not know
Diet	53	44	1	2
Oral hygiene	60	38	1	1
Fluorides	11	52	14	23

Opinions varied considerably as to why some young children develop caries even though their parents are given early advice on dental health care. Answers with a fairly similar content were therefore grouped under a general heading (Table 4). Few of the personnel blamed low utilization of fluoride; instead, they regarded parents' lack of motivation to put advice into practice, unsatisfactory dietary habits, insufficient oral hygiene, and deficiencies in the information process as responsible, in that order. As an example, parents' lack of motivation was brought up by 81% of the dentists (1983) and by 56–69% of the other groups. In 1983 considerably more dental hygienists (67%) considered that deficiencies in the information process were an important factor than in 1992 (7%).

Discussion

The results of this study showed that different groups of dental personnel, giving information about dental health care to parents of infants, on the whole had similar opinions about the importance of dietary habits, oral hygiene, and use of fluoride for caries prevention. The factors were ranked in that order. In a Finnish study, on the other hand, oral hygiene was considered the most important aspect of dental health education by 70% of dental hygienists (6). The dif-

Table 4. Answers given by percentages of dental personnel to the question 'Why cannot caries be prevented in all children in spite of the information given at child health centers and Public Dental Service clinics' in 1983 (47 dentists, 9 dental hygienists, 39 dental assistants) and 1992 (14 hygienists, 49 assistants)

	1983			1992	
	Dent.	Hyg.	Ass.	Hyg.	Ass.
Unsatisfactory dietary habits	51	67	51	57	65
Insufficient oral hygiene	26	56	23	36	31
Low utilization of fluorides	4	0	0	7	0
Parents' lack of motivation to convert advice into practice	81	56	67	64	69
Deficiencies of advisor and/or of practical prerequisites for information	28	67	15	7	20

ference might depend on differences in philosophy at training centers and health organizations.

In our study the factors were ranked in the same order in both 1983 and 1992, even though the distributions of priorities changed. But most of the parents of the children who were 4 years old in 1983 considered toothbrushing 'very important' for dental health, closely followed by dietary habits. Fluoride had a low percentage. In 1992, the priorities given to fluoride by dental hygienists and dental assistants were considerably higher, and those for oral hygiene were more dispersed than in 1983.

The dental staff singled out parents' lack of motivation for dental health measures in their children as the commonest reason for dental caries, followed by unsatisfactory habits with regard to eating, dental cleaning, and use of fluoride, in that order. The Finnish group of dental hygienists was also of the opinion that the commonest reasons for failure in health education were related to the recipients (6). Furthermore, in a recent study it was shown that the type of provider of basic counseling at Finnish well-baby clinics had no significant role in the formation of health habits (7). In our study it was notable that the personnel paid great attention to their own deficiencies in the transfer of information and also to the importance of practical prerequisites for information. The assessment did not differ substantially between 1983 and 1992, except for the latter factor in the small group of dental hygienists.

The shift in opinions about fluoride may have been influenced by revised recommendations from the National Swedish Board of Health and Welfare (8). The 1987 guidelines indicated that fluoride toothpaste could be used not only from the age of 4 years but also from the eruption of the first primary molar. Fluoride tablets, previously generally recommended from 6 months of age in areas with fluoride-deficient drinking water, were prescribed from the late 1980s in Malmöhus County only to caries-active children or to children judged at risk. The effects and use of fluoride were widely discussed at the time. The shift from the concept of systemic supply with a preeruptive effect to topical treatment promoting remineralization may also have affected the staff. Despite the earlier warning not to use fluoride toothpaste before the age of 4 years, many children did so, and there are reports of dental fluorosis in connection with the use of tablets (9, 10). The answers in 1983 may therefore reflect doubts among some of the dental personnel concerning general advice on the use of fluoride tablets at an early age. In 1992, the new directives and a presumed improvement in proficiency may have changed opinions among dental staff.

The shift in assessments of oral hygiene from 1983 to 1992 is difficult to interpret. For more than 20% of the staff the rating changed, to about the same extent, from second to either first or third priority. Maybe this reflects a current scientific debate about the importance of dental cleaning in relation

to other preventive measures. However, the factor stayed in second place.

It is nevertheless interesting that, although the dental personnel agreed that dietary habits are the most important factor for caries prevention in small children, the parents seemed to give more weight to oral hygiene. This could reflect a traditional perception from the time when the parents were children—that is, that dental health is associated with toothbrushing rather than with other preventive measures. It should, however, be noted that more than half of the parents regarded dietary habits as 'very important'.

Influencing personal habits is a delicate matter that calls for great discretion. Dietary choices and eating habits should be seen as part of ethnic and family traditions, with very profound cultural implications. It is also conceivable that practical instruction in how to brush teeth is imparted more readily than verbal information about eating habits. This might explain the lack of parental motivation, as perceived by the staff, to change established dietary habits in spite of acquired knowledge. Further, very little is known about the impact of advertisements for toothbrushes and toothpastes. The factors studied here are also being debated in the scientific community. It should be emphasized that the importance of the dietary factor may vary with the individual's age. One conclusion could be that the counseling staff should tailor their advice to the age-specific conditions.

Finally, parents today, with generally good dental health, have had little personal experience of dental problems, and this may contribute to a lack of motivation to promote preventive measures in their children. Parents are also exposed to various media signals, making it difficult to attract their attention to health information. Such factors as single parenthood, unemployment, and other socially burdening conditions must also be considered. It is also notable that the dental staff pointed to the importance of practical facilities for providing information on dental health. These may include a quiet room, arranged for the purpose, with few distracting elements (11). A substantial message is justified, but at the same time this study underlines the need for increased education in communication and psychologic motivation, in accordance with the findings of Murtomaa et al. (6) that there is a need to increase the training of dental hygienists in pedagogics and social sciences.

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