# Effects of a national dental health campaign in Finland

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In 1981 a national health campaign was launched to increase demand for dental services in Finland. The nationwide campaign was preceded by a separate campaign directed at getting the dentists to accept the responsibility for maintaining a regular treatment pattern for their patients. In the second part the public was informed of the means to keep their teeth throughout life via mass-media communication. The effects of this campaign was evaluated by the data from an interview study of 694 15- to 50-year-old Finns made in 1983 and by comparing these results with data from a nationwide study of 648 of the same age group carried out in 1980. In 1980, 54% of the interviewees had visited a dentist within the last 12 months. The corresponding percentage in 1983 was 65%. The commonest reason for the latest dental visit in both surveys was routine examination. The number of interviewees recalled by the dentist was 4% in 1980 and 8% in 1983. Oral hygiene was most frequently stated as the most important preventive dental measure. The interviewees had no doubts that teeth could be kept throughout life. Although the effect of the campaign can be considered positive, in terms of giving stimulus to visit the dentist, the insufficiency of the mass media communication in changing health behavior was also demonstrated. □ *Behavioral dental science; dental health education; questionnaires*

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In 1981 the first national dental health campaign was launched by the Finnish Dental Association. The design of this campaign was based on information obtained from a national survey of the utilization of dental surveys by Finnish adults in 1980 (1). The campaign had the following aims: to step up prevention of dental diseases and inform about the preventive measures; to emphasize the role of the family dentist; to stress the importance of regular dental visits; and to translate the dental needs of the population into a demand for services.

The nationwide campaign was preceded by a separate campaign directed at Finnish dentists. It was carried out in the fall of 1981 and its main message was 'Your own dentist is calling'. This was to encourage the dentist to take active responsibility for getting his patients to make regular dental visits. At that time all the members of the Association, totaling some 4000 dentists, were sent information about the recall system, its significance and practical aspects, and printed material on the subject. After this the nationwide campaign was directed at the public and was carried out in the fall of 1982. The message of this part was 'Teeth are made to last for a lifetime'. The nationwide campaign consisted of a 30-sec television commercial broadcast 15 times during a 3-week period in September. The campaign was supported by several radio programs and hundreds of newspapers and magazine articles. The local dental societies arranged their own programs, including free dental examinations. This survey was made to evaluate the effects of the national dental health campaign.

## Materials and methods

The effects of the campaign were studied by comparing the results of the national survey of the utilization of dental services by Finnish adults in 1980 (1) with the data from an interview study carried out in 1983.

The interviewees for both studies were selected by a two-stage cluster sampling design to represent the entire Finnish population (2). The data were collected from interviews by trained interviewers during March 1980 and March 1983. The interviews were carried out by the opinion poll organ-

ization Suomen Gallup Oy as part of their regular monthly market survey. The distribution of the interviewees (aged 15–50 years) with regard to background variables is presented in Table 1. Those interviewees who reported having last visited the dentist more than 5 years ago were excluded from the analysis. The distribution of the reduced study series, consisting of 651 persons in the 1983 study, is presented in Table 3.

In the 1983 study each subject answered five questions and had to choose the most suitable answers from a list of alternatives. Special care was taken to present questions in a form easily intelligible to the layman. The information from the interviews was reduced through cross-tabulations. The statistical significance of the differences observed within the subgroups was tested by the comparison of two frequencies and the differences within two surveys by the comparison of two proportions (3).

## Results

In 1980, 54% of the interviewees had visited a dentist within the last 12 months. The corresponding percentage in 1983 was 65% (Table 2). This difference was statistically significant ($z = -4.11$; $p < 0.001$). The frequency of last dental visits made within 24 months increased from 78% in 1980 to 87% in 1983. This difference was significant ($z = -4.35$; $p < 0.001$). When those interviewees who had last visited the dentist more than 25 months ago were compared in 1980 (22%) and in 1983 (14%), a statistically significant difference was also found ($z = -3.82$; $p < 0.001$).

The commonest reason for the latest dental visit in both surveys was routine examination (Table 3). Only 4% of the interviewees, mainly young people and those living in rural areas, had been recalled by the dentist in 1980. In 1983, 8% of the interviewees had been recalled. The difference was statistically significant ($z = -3.07$; $p < 0.01$). Most of these persons were still young, but the only significant increase during the observation time could be seen among males ($z = -2.76$; $p < 0.01$) and those living in small towns ($z = -3.06$; $p < 0.01$). In 1983 most of the latest dental visits had been made to community dental clinics (Fig. 1). Most of these visits had been made by young people and by interviewees not living in large towns. Oral hygiene was regularly stated as the most important preventive dental measure by the interviewees in 1983 (Table 4). This was a particularly common opinion among interviewees living in large towns,

Table 1. The distribution of the interviewees in 1980 and 1983 after subgrouping with regard to sex, age, education, and domicile

| | 1980 | | 1983 | |
|---|---|---|---|---|
| | No. | % | No. | % |
| Total material | 648 | 100 | 694 | 100 |
| Sex | | | | |
| Female | 340 | 52 | 354 | 51 |
| Male | 308 | 48 | 340 | 49 |
| Age | | | | |
| 15–24 years | 165 | 26 | 194 | 28 |
| 25–50 years | 438 | 74 | 500 | 72 |
| Education | | | | |
| Elementary school | 280 | 43 | 319 | 46 |
| Secondary school | 216 | 33 | 215 | 31 |
| Matriculation examination | 152 | 24 | 160 | 23 |
| Domicile | | | | |
| Rural area | 266 | 41 | 278 | 40 |
| Towns < 100,000 inhabitants | 227 | 35 | 250 | 36 |
| Towns >100,000 inhabitants | 155 | 24 | 166 | 24 |

Table 2. The interval between the last dental visit by 581 Finns interviewed in 1980 and 694 Finns interviewed in 1983, in percentages. The alternative answers are listed in accordance with increasing interval in the total material. Statistically significant differences ($p < 0.01$) within each observation group are indicated by the letters a and b. Statistically significant differences within the two surveys are indicated by asterisks (*)

| | | Sex | | Age | | Domicile | | |
|---|---|---|---|---|---|---|---|---|
| | Total material | F | M | 15–24 years | 25–50 years | Rural area | Town <100,000 inhab. | Town >100,000 inhab. |
| 0–6 months | | | | | | | | |
| 1980 | 36 | 39 | 35 | 40 | 37 | 36 | 36 | 36 |
| 1983 | 46* | 49* | 43 | 54*[a] | 37[b] | 46 | 47 | 42 |
| 7–12 months | | | | | | | | |
| 1980 | 18 | 17 | 19 | 23 | 15 | 15 | 21 | 19 |
| 1983 | 19 | 17 | 21 | 22 | 16 | 16 | 19 | 24 |
| 13–24 months | | | | | | | | |
| 1980 | 24 | 25 | 22 | 24 | 23 | 20 | 22 | 31 |
| 1983 | 22 | 24 | 19 | 16[a] | 28[b] | 20 | 22 | 24 |
| 25 months–5 years | | | | | | | | |
| 1980 | 11 | 11 | 11 | 7 | 14 | 12 | 11 | 10 |
| 1983 | 8 | 6 | 11 | 5 | 11 | 10 | 8 | 6 |
| Over 5 years | | | | | | | | |
| 1980 | 10 | 7 | 12 | 6 | 12 | 15 | 8 | 3 |
| 1983 | 5* | 4 | 6* | 2 | 8 | 8 | 4 | 3 |
| Cannot remember | | | | | | | | |
| 1980 | 1 | — | 1 | — | — | — | 1 | 1 |
| 1983 | 1 | — | 1 | — | — | 1 | 1 | 1 |

whereas interviewees living in rural areas tended to emphasize the importance of regular dental visits. In separate questioning 82% agreed with the statement 'Teeth can be maintained throughout life', which was the message of the 1983 campaign. There was a statistically significant difference between those with high education (88%) and those with only elementary education (67%) in agreement with the statement.

## Discussion

The estimate of the last dental visit within a year by the interviewees can be considered reliable (4). Similar samples in this study, in both 1980 and 1983, give a sound basis for evaluation of the trends in dental health practices. The domicile of the respondents did not seem to affect the interval between the two most recent dental visits, largely because of the high dentist/population ratio and the good distribution of services at present in Finland (5). Because there were no major changes in the availability of dental services during the years of the campaign, it seems possible that there were changes in other factors known to affect utilization (6). Hence the significant increase in proportion of interviewees who reported having visited the dentist within the previous year in 1983 (Table 2) could be considered a positive result of the nationwide campaign. This concept is further substantiated by the fact that during the years 1971 and 1980 there was no change in the overall frequency of recent dental visits (1). However, the frequent dental visits by younger age groups are most probably a result of the enforcement of the Primary Health Act of 1972 in Finland. All the interviewees 15–24 years old have been eligible to visit the community dental clinics either for free or at the subsidized price in 1980. In accordance with current legislation the vast majority of new dental resources are indeed directed towards free oral health care of children and young people through community dental clinics. Most adults are still obliged to obtain their dental care from pri-

Table 3. The subjective appraisal by 581 Finns interviewed in 1980 and 651 Finns interviewed in 1983 of the reason for their latest dental visit. Statistically significant differences ($p < 0.01$) within each observation group are indicated by the letters a and b. Statistically significant differences within two surveys are indicated by asterisks (*)

| | | Sex | | Age | | Domicile | | |
|---|---|---|---|---|---|---|---|---|
| | Total material, 651 | F, 333 | M, 318 | 15–24 years, 194 | 25–50 years, 457 | Rural area, 258 | Town <100,000 inhab., 243 | Town >100,000 inhab., 160 |
| Routine examination | | | | | | | | |
| 1980 | 36 | 42[a] | 30[b] | 37 | 34 | 31[a] | 36[ab] | 44[b] |
| 1983 | 40 | 46[a] | 35[b] | 41 | 38 | 34[a] | 38[ab] | 47[b] |
| Dental caries | | | | | | | | |
| 1980 | 22 | 20 | 22 | 19 | 21 | 22 | 22 | 23 |
| 1983 | 17 | 14 | 19 | 14 | 19 | 17 | 18 | 16 |
| Toothache | | | | | | | | |
| 1980 | 16 | 15 | 17 | 12 | 18 | 17 | 15 | 15 |
| 1983 | 13 | 10 | 15 | 10 | 15 | 14 | 13 | 12 |
| Accident | | | | | | | | |
| 1980 | 8 | 8 | 7 | 5 | 10 | 8 | 7 | 10 |
| 1983 | 7 | 7 | 6 | 3 | 10 | 8 | 4 | 8 |
| Prosthetic treatment | | | | | | | | |
| 1980 | 6 | 7 | 4 | 1 | 10 | 7 | 6 | 4 |
| 1983 | 4 | 5 | 3 | 0 | 8 | 4 | 3 | 5 |
| Tooth extraction | | | | | | | | |
| 1980 | 4 | 3 | 4 | 2 | 6 | 4 | 6 | — |
| 1983 | 3 | 3 | 3 | 4 | 2 | 5 | 5 | — |
| Recall visit | | | | | | | | |
| 1980 | 4 | 4 | 3 | 12[a] | 0[b] | 7 | 5 | 1 |
| 1983 | 8* | 7 | 8* | 16[a] | 2[b] | 10 | 10* | 3 |
| Other reason | | | | | | | | |
| 1980 | 6 | 3 | 10 | 11 | 2 | 7 | 7 | 6 |
| 1983 | 9 | 7 | 11 | 12 | 6 | 8 | 10 | 9 |

vate practitioners on a fee-for-service basis (Fig. 1).

The distribution of the reasons for the latest dental visit by the interviewees did not vary much in the two surveys. To collect information as accurately as possible, those interviewees who had last visited the dentist more than 5 years ago were excluded. Acute dental care (toothache, tooth extractions, accident) as opposed to prophylactic care (routine examination, recall visit) seemed to play a decisive role in the pattern of dental treatment in Finland both in 1980 and 1983 (Table 3). Although there was a small increase in routine examination as a result of the patient's own initiative as the reason for dental visits in 1983, this reason accounts for a smaller proportion of reasons (40%) than in a nationwide Swedish study (50%) (3).

Dentists are taking a more active role in accepting the responsibility for maintaining a regular dental treatment pattern for their patients (Table 3). The recall system, which was found principally to be well accepted by Finns in an earlier study (1), is becoming popular. According to Håkanson (7), 25% of adult Swedes had been contacted by the dentist. This high percentage can be considered an indication that one of the aims of the Finnish dental health care campaign was not achieved. The concept of a family dentist was well accepted by the members of the Finnish Dental Association (8), but the respective action cannot be seen in this study. The favorable attitude of the public found earlier (1) should, however, stimulate dentists to contact their patients more actively in the future.

The interviewees considered preventive

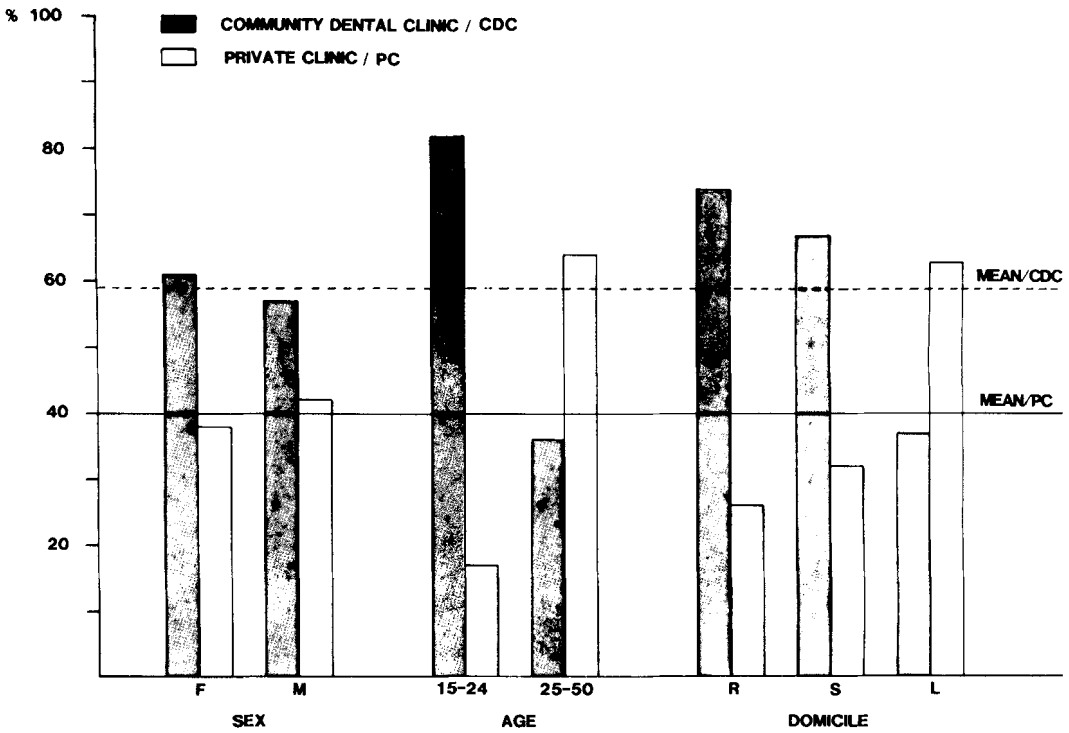


Fig. 1. The last dental clinic visited by 651 Finns interviewed in 1983 as distributed by sex (F = females, M = males), age, and domicile (R = rural area, S = towns with less than 100,000 inhabitants, and L = towns with 100,000 inhabitants or more).

dental measures to consist largely of oral hygiene measures (Table 4). This can be regarded scientifically well justified in the case of prevention of periodontal disorders. There might, however, be a general misconception as to prevention of dental caries, because fluoride therapy and restriction of sugar intake were placed very low in the rank order of preventive measures (Table 4). This notion is further reinforced by an earlier study on conceptions about etiology and prevention of caries among the Finns (2). The possible misconception could be an indication of another poorly achieved aim of the campaign. The proper roles of different preventive measures in the fight against dental diseases in Finland seem still to need further clarification.

The public had no doubts that teeth could be kept throughout life, in good agreement with the campaign statement. A successful television commercial using this statement might have helped to create positive attitudes towards keeping one's own teeth for a lifetime. During a separate telephone survey on the information content of the commercial, the main statement was spontaneously remembered by 49% of the interviewees right after the television campaign (8). This can be considered a high percentage. However, interviewees living in rural areas and those with only elementary education had the least faith in this statement. This situation agrees well with the present concept of the possibilities in disseminating information through mass media channels (9, 10). Low social status and educational level have a clear connection with a diminished use of the media (11).

In Finnish terms the dental health care campaign constituted a serious attempt to increase utilization of dental services and to

Table 4. The conceptions of 651 Finns interviewed about the importance of preventive dental measures in 1983 in percentages. For explanation of the letters a and b, see Table 2

| | | Sex | | Age | | Domicile | | |
|---|---|---|---|---|---|---|---|---|
| | Total material | F | M | 15–24 years | 25–50 years | Rural area | Town <100,000 inhab. | Town >100,000 inhab. |
| Most important measure | | | | | | | | |
| Oral hygiene | 77 | 74 | 80 | 78 | 77 | 71[a] | 78[ab] | 83[b] |
| Regular dental visits | 9 | 8 | 10 | 8 | 9 | 16[a] | 8[ab] | 2[b] |
| Avoiding sugar-containing food | 9 | 11 | 6 | 8 | 10 | 6 | 9 | 10 |
| Fluorides | 5 | 8 | 2 | 7 | 4 | 6 | 5 | 4 |
| Don't know | — | 0 | 1 | — | 0 | 1 | — | — |
| Second most important measure | | | | | | | | |
| Oral hygiene | 16 | 16 | 15 | 15 | 17 | 18 | 16 | 16 |
| Regular dental visits | 40 | 40 | 40 | 36 | 43 | 36 | 42 | 42 |
| Avoiding sugar-containing food | 31 | 31 | 30 | 32 | 31 | 33 | 27 | 31 |
| Fluorides | 14 | 13 | 14 | 18 | 10 | 14 | 14 | 12 |
| Don't know | — | 0 | 1 | — | 0 | 0 | 1 | 0 |
| Third most important measure | | | | | | | | |
| Oral hygiene | 4 | 3 | 5 | 4 | 4 | 4 | 5 | 4 |
| Regular dental visits | 35 | 34 | 36 | 36 | 34 | 33 | 32 | 40 |
| Avoiding sugar-containing food | 32 | 32 | 22 | 31 | 32 | 32 | 32 | 32 |
| Fluorides | 28 | 31 | 25 | 29 | 26 | 32 | 30 | 22 |
| Don't know | 1 | 0 | 2 | — | 2 | 0 | 1 | 2 |

correct conceptions related to the character and preventive measures of dental diseases through mass media channels. The study material was restricted to 50-year-old or younger interviewees, to collect information on persons who are known to visit the dentist most frequently (12) and who should thus have the greatest potential for acting in accordance with the message of the campaign. Because the mass media channels have their own characteristics (9), however, it seems unrealistic to expect an easy change in dental treatment patterns, which are known to be a complex behavioral phenomenon created by various factors (13).

The effect of the campaign can be considered positive in terms of giving stimulus to visit the dentist. However, the inefficiency of the mass communication approach in changing health behavior was also demonstrated. Although there seems to be a tendency towards increasing number of dental visits among interviewees (Table 2), it remains to be seen to what extent these changes in dental treatment patterns will last after the campaign. However, the realization of campaigns of this kind should provide substantial support for individual endeavor by the dentists in the future. Further strategies on the national level are being planned, as are measures to evaluate the future trend in dental health patterns in Finland.

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