Attitudes towards financing of dental care in a Swedish population

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The aim of the present study was to describe attitudes towards financing of dental care and to investigate the importance of different background factors for these attitudes. A questionnaire was sent to a random sample of 3000 persons aged 45–69 years, living in Örebo County, Sweden, with 79.4% response. In the questionnaire the respondents indicated their agreement with four statements on issues concerning financing of dental care, using visual analogue scales. After the answers had been dichotomized, 45% agreed that 'all dental care should be free of charge', 32% agreed that 'all dental care should be provided by the county', 46% agreed that 'it is more important to use resources on heart transplants than on dental care', and 43% agreed that 'no public reimbursement should be given to cosmetic dental care'. The attitudes were associated with the following background factors: gender, age, marital status, place of residence, education, socioeconomic status, dental care system, dentist of choice, time since last dentist contact, and attitudes toward dental appearance and dental function. Different background factors were associated with each of the four different attitudes, and only educational level seemed to covary with all four attitudes. It is concluded that attitudes towards financing of dental care varied considerably within this population and that the different attitudes could be related to different background factors. □ *Attitudes; dental care; dental economics; logistic regression*

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The systems used for financing dental care in the European countries are very diverse. The source of finance varies from predominantly patient payments to full public finance, with the intermediate levels of private insurance and social security (1). In Sweden, dental care is financed by two systems, the National Dental Service until 20 years of age and the Dental Insurance above 20 years of age.

Most of the dental care for adults in Sweden is provided by dentists working in private practice. The fees are fixed by the government after a proposal from the National Insurance Board. The private practitioners are remunerated by a fee-per-item principle for most treatments and by a fee-per-hour for preventive procedures and treatments not listed with fixed fees. The patient part of the fee is relatively smaller for comprehensive care and expensive treatments ('high cost protection'), varying from 25% to 60% patient payment of the costs at the time of the study.

The publicly employed dentists are salaried, but their clinics are financed by a combination of fees and insurance coverage for the care of adults and by taxes for the care of children. At the time of the study a small part of the salary of publicly employed dentists was based on a fee-per-item. Patients 19 years of age or younger are offered care free of charge in the public dental service. Other special patient groups can receive care free of charge in both the private and the public sector. The Swedish dental finance system is thus a rather complex blend of an insurance-based, fee-for-service system and a national health service. The Swedish finance system has evolved over time in a process involving the political system and the dentists' union. The attitude of the public towards the payment system is relatively unknown and has never entered the decision-making at any important level.

A study of dental conditions and attitudes towards dental care was carried out among 45- to 69-year-old subjects in a Swedish county in 1989–90 (2). The main purposes of the study were to describe the dental conditions in this population and to assess the subjective needs for dental implants. In addition, questions on attitudes towards dental function and dental appearance and attitudes towards financing of dental care were included in the questionnaire. The aim of the present paper was to describe the attitudes towards financing of dental care in this Swedish population and to analyze the importance of some background factors for each of these attitudes.

Subjects and methods

A questionnaire was sent to 3000 randomly selected persons aged 45–69 years. The survey was performed in Örebro County, Sweden. A detailed description of the survey and the analysis of complete non-response to the questionnaire are presented elsewhere (2).

The measurement of the attitudes towards financing of dental care was based on the answers to four

Table 1. Frequency distribution on the attitude statements in percentage

Item	Visual analogue scale*, percentage of the responding							*n*	Median
	1	2	3	4	5	6	7		
All dental care should be free of charge	5.9	30.0	3.8	5.2	9.4	37.1	8.1	2099	5
All dental care should be provided by the county council	2.7	21.6	3.1	4.7	9.4	43.9	14.5	2042	6
It is more important to use resources on heart transplants than on dental care	3.1	26.7	6.3	10.0	8.9	37.4	7.6	1867	5
No public reimbursement should be given to cosmetic dental care	4.1	26.5	6.9	6.3	9.6	39.8	6.8	2091	5

* 1 = agree completely; 7 = disagree completely.

questions. The following four statements were included in the questionnaire:

1. 'All dental care should be free of charge'.
2. 'All dental care should be provided by the county council'.
3. 'It is more important to use resources on heart transplants than on dental care'.
4. 'No public reimbursement should be given to cosmetic dental care'.

The respondents were asked to indicate their agreement with the attitude statements on a visual analogue scale ranging from absolute agreement to absolute disagreement, with a neutral alternative marked at the middle of the scale.

The questionnaire also collected information on background variables, of which the following were used: age, gender, marital status, place of residence, and education (up to and including 9 years of schooling/more than 9 years of schooling). The respondents were asked to indicate their socioeconomic status (coded blue-collar worker, white-collar worker, and non-worker in accordance with official Swedish classifications).

Issues of dental behavior were also addressed in the questionnaire; time since last dental visit was recorded, and the answers were classified as 'less than 1 year ago', or '1 or more years ago'. The subjects were also asked whether they attended the public or the private dental care sector. Further, the following question was asked: 'Have you usually had the possibility to visit the dentist from whom you wanted to receive treatment?', and the answers were classified as 'always/often' or 'sometimes/seldom/never'.

On the basis of the answers to seven questions on attitudes towards dental function and dental appearance, two variables were constructed (3). One of these variables measured the attitude towards dental appearance, and the other the attitude towards dental function. The variables were constructed ensuring that increasing values indicated greater agreement/importance. For the analyses in this paper, these two variables were dichotomized for maximum discrimination into appearance and function, respectively, being important or not.

The visual analogue scales for the four statements concerning attitude towards financing of dental care were classified into seven equidistant categories. The frequency for each of the attitudes was then tabulated, and the correlation between the answers to the four attitudes was calculated using Pearson's product-moment correlation for pairs of variables (4). The correlation was calculated on the continuous data. The seven categories were dichotomized (1 through 4; 5 through 7) and these dichotomized attitude variables were used as dependent variables. For the bivariate analysis the Mantel–Haenszel chi-square test was used to test the statistical significance of the associations between the dependent variables and the above-mentioned independent variables (5). The dependent variables were coded, meaning that odds ratios (OR) below 1 were equivalent to a positive attitude toward the analyzed statement. Logistic regression analysis was used for evaluating the effects of more than one variable at a time (6). All variables were dichotomized, except age and socioeconomic status, for which five and three categories were used. Only the variables that were statistically significant in the bivariate analyses with the dependent variable were included in the multivariate model. The most parsimonious model was chosen, leaving only variables that also multivariately were statistically significantly related to the dependent variable in the model. The SPSS computer program was used (4).

Results

Altogether 2382 of the selected 3000 persons returned the questionnaire, yielding an overall response rate of 79.4%. The frequency distribution of the four statements on attitudes towards financing of dental care is shown in Table 1. The varying response frequency for each item can be seen from the different number of respondents (*n*). The third item had the lowest internal response rate (78% of the total number of persons responding to the questionnaire), whereas the three

Table 2. Correlation coefficients between the four attitude statements. The correlation coefficients were calculated on the continuous data ($n = 1701$)

Item	Item			
	Free of charge	County council	Heart transplant	Cosmetic
Free of charge	1.00			
County council	0.38	1.00		
Heart transplant	0.07	0.08	1.00	
Cosmetic	−0.01	0.02	0.16	1.00

other items yielded response rates between 86% and 88%. All four attitude items showed bimodal distributions with one mode around the answer labeled 2 and one mode around the answer labeled 6. As shown in Table 1, there was a general tendency towards disagreement with the statements. The highest degree of disagreement was found for 'all dental care should be performed by the county council'.

Table 2 shows the correlation between the four attitude statements. The correlations between the answers to the statements were low, with the highest correlation between the statements 'all dental care should be free of charge' and 'all dental care should be provided by the county' ($r = 0.38$). The determination coefficient is therefore 14%—that is, 14% of the variation in the response to one of these items is explained by the variation in the response to the other item (7). Owing to this low correlation between the responses to the four attitude statements, no combination of the attitude items was attempted.

The results of the bivariate and multivariate analyses of the four attitude statements are shown in Tables 3–6. Table 3 shows that gender, educational level, marital status, time since last contact with a dentist, dental care system, and attitude towards dental appearance were associated with the attitude towards 'all dental care should be free of charge'. The highest multivariate OR—indicating the highest level of disagreement with the statement—was found for educational level. Table 4 shows that attending the public dental care system, low educational level, other marital status than married, low socioeconomic status, and frequent dentist contact were related to a positive attitude towards 'all dental care should be performed by the county council'.

For the statement 'it is more important to use resources on heart transplants than on dental care', the results are shown in Table 5. The multivariate analysis showed that persons who have been examined by a dentist within the past year, elderly persons, persons having seen the dentist of choice, and less educated persons tended to agree that it was more important to

Table 3. Bivariate and multivariate logistic regression odds ratios for different predictive variables of 'all dental care should be free of charge'. The reference category is in italics

Independent variable	Bivariate odds ratio	95% CI* of the bivariate odds ratio	Multivariate odds ratio	95% CI* of the multivariate odds ratio
Gender				
Male				
Female	1.24	1.04–1.47	1.37	1.13–1.65
Dental care system				
Private				
Public	0.63	0.51–0.79	0.69	0.54–0.86
Education				
9 years +				
Less than 9	1.71	1.39–2.11	1.66	1.34–2.06
Marital status				
Married				
Other status	0.63	0.51–0.79	0.62	0.50–0.79
Socioeconomic status				
White-coll. worker			Not included	
Non-worker	0.65	0.52–0.81		
Blue-coll. worker	0.77	0.63–0.95		
Last dentist visit				
1 year +				
Less than 1	0.62	0.50–0.77	0.71	0.57–0.76
Dentist of choice			Not included	
Yes				
No	0.68	0.55–0.84		
Attitude toward dental appearance				
Important				
Not important	0.73	0.61–0.87	0.69	0.58–0.83

* CI = confidence interval.

Table 4. Bivariate and multivariate logistic regression odds ratios for different predictive variables of 'all dental care should be performed by the county council'. The reference category is in italics

Independent variable	Bivariate odds ratio	95% CI* of the bivariate odds ratio	Multivariate odds ratio	95% CI* of the multivariate odds ratio
Dental care system				
Private				
Public	0.33	0.26–0.42	0.37	0.30–0.47
Age, years				
45–49			Not included	
50–59	1.16	0.90–1.50		
60–69	0.71	0.56–0.91		
Education				
9 years +				
Less than 9	2.40	1.89–3.07	1.77	1.35–2.32
Marital status				
Married				
Other status	0.77	0.61–0.98	0.77	0.60–0.99
Socioeconomic status				
White-coll. worker				
Non-worker	0.43	0.34–0.55	0.60	0.46–0.78
Blue-coll. worker	0.57	0.45–0.72	0.81	0.62–1.05
Last dentist visit				
1 year +				
Less than 1	0.48	0.39–0.61	0.59	0.47–0.75

* CI = confidence interval.

Table 5. Bivariate and multivariate logistic regression odds ratios for different predictive variables of 'it is more important to use resources on heart transplants than on dental care'. The reference category is in italics

Independent variable	Bivariate odds ratio	95% CI* of the bivariate odds ratio	Multivariate odds ratio	95% CI* of the multivariate odds ratio
Age				
45–49				
50–59	0.76	0.59–0.96	0.66	0.51–0.84
60–69	0.63	0.49–0.80	0.77	0.61–0.99
Education				
9 years +				
Less than 9	1.38	1.12–1.71	1.33	1.07–1.65
Last dentist visit				
1 year +				
Less than 1	0.78	0.63–0.98	0.77	0.61–0.98
Dentist of choice				
Yes				
No	1.31	1.04–1.63	1.17	1.04–1.31

* CI = confidence interval.

use resources on heart transplants than on dental care. Table 6 shows that male persons, low educational level, non-workers, and persons considering dental function less important were related to a positive attitude toward 'no public reimbursement should be given to cosmetic dental care'.

Discussion

The results of the present analyses show that attitudes towards financing of dental care vary considerably in a Swedish population. Further, the results show that the variation in these attitudes cannot be explained by any single factor.

For the first two of the attitude statements, the phrasing means that a positive answer corresponds to a positive attitude towards a greater community involvement in dental care (that is, dental care free of charge and dental care provided by the county council). The general tendency to disagree with these statements indicates that no increasing community involvement was

Table 6. Bivariate and multivariate logistic regression odds ratios for different predictive variables of 'no public reimbursement should be given to cosmetic dental care'. The reference category is in italics

Independent variable	Bivariate odds ratio	95% CI* of the bivariate odds ratio	Multivariate odds ratio	95% CI* of the multivariate odds ratio
Gender				
Male				
Female	1.38	1.16–1.65	1.40	1.18–1.67
Dental care system				
Private			Not included	
Public	0.78	0.62–0.97		
Age, years				
45–49			Not included	
50–59	0.94	0.75–1.19		
60–69	0.68	0.54–0.85		
Education				
9 years +				
Less than 9	1.30	1.06–1.59	1.36	1.09–1.70
Socioeconomic status				
White-coll. worker				
Non-worker	0.71	0.57–0.89	0.77	0.62–0.98
Blue-coll. worker	1.08	0.88–1.33	1.18	0.95–1.49
Attitude toward dental function				
Important				
Not important	0.82	0.69–0.98	0.82	0.70–0.99

* CI = confidence interval.

desired in the studied population. However, persons attending the public dental care system agreed strongly that 'all dental care should be performed by the county council' (OR = 0.37). In consequence, they were also positive towards the statement 'all dental care should be free of charge'. It should be noted that a great majority of the studied population (79%) received dental care provided by private practitioners.

Theoretically, a person's position on the two first attitude items should be related, but the correlation coefficient shown in Table 2 and the differing explanatory factors according to Tables 3 and 4 support the view that in the studied population these attitudes were not related. As a hypothesis, the lack of a relationship may reflect the structural composition of the dental care system in Sweden rather than any logically consistent attitudinal structure. An argument for that hypothesis may be that people whose last dentist visit occurred more than 1 year ago were positive towards a larger community involvement (ORs for the two items were 0.71 and 0.59). Attitudes may not always be a part of rational reasoning leading to behavior. Instead, they can often have a legitimizing function for already performed behavior. Speculatively, one can thus wonder whether the affirmative attitude towards greater public involvement could be a legitimization of less frequent visits to dental care. Settling of such an issue, however, requires a longitudinal design.

The last two attitude items were related to the issue of priority setting. More than half of the respondents disagreed with the content of the statements. A response to a questionnaire is not comparable to real priority setting, and it can be expected that the priorities might vary depending on one's own current situation (8). The relatively low response rate to the third statement might also indicate that judging the relative importance of dental care and heart transplants was difficult or awkward for the respondents.

Furthermore, there seemed to be a tendency towards a negative attitude towards financing of cosmetic dental care. Women and persons with low education seemed to have a more affirmative attitude towards public reimbursement of cosmetic dental care. Moreover, people who considered good dental function not important were more likely to think that no public reimbursement should be given to cosmetic dental care. Differences in attitudes towards dental appearance were not associated with the attitude towards cosmetic care. Here, too, we conclude that there was no logically consistent pattern in the attitudes, supporting the general tenet of frequent inconsistently in belief systems among the general public (9).

The general tendency to disagree with the attitude statements in the questionnaire must be taken as a true disagreement, since the respondents were guaranteed full anonymity. Further, it has been found earlier that affirmation is preferable to many persons (10). Still, the wording of the statements should be remembered; they were intentionally somewhat provocative.

In conclusion, this paper shows that attitudes towards financing of dental care varied considerably within this Swedish population. Further, the analyses show that the differences in attitudes can be explained by different background factors, but no consistent pattern was found.

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