Practice profile differences among Swedish dentists

A questionnaire study with special reference to prosthodontics

Mats Kronström, Sigvard Palmqvist, Torbjörn Eriksson, Björn Söderfeldt and Gunnar E. Carlsson

Department of Prosthetic Dentistry, Central Hospital, Skövde; Prosthodontic Department, Postgraduate Dental Education Center, Örebro; Prosthodontic Clinic, Public Dental Health Service, Lyckeby; Department of Prosthetic Dentistry, Center for Oral Health Sciences, Lund University, Malmö; and Department of Prosthetic Dentistry, Göteborg University, Göteborg; Sweden

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A questionnaire measuring differences in prosthodontic practice profiles was sent to 2100 Swedish dentists working as general practitioners. The response rate was 76%. Among the responders, 58% were men and 42% women. Fifty per cent were private practitioners, the other 50% being publicly employed. The practice profile variables showed a great variation, and several of the distributions differed with regard to sex and dental care system. The working hours per week and the time spent on prosthodontics were on average higher for men than for women. Private practitioners more frequently worked in large communities and cities than did dentists working in the Public Dental Health Service. Practically all (98%) of the private practitioners used more than 75% of their clinical time on treating adults, compared with less than half of the dentists in the Public Dental Health Service. Male dentists reported higher percentage figures with regard to clinical time used for dental care of adults and for prosthodontic services than did female dentists. The figures for fixed prosthodontic service rates varied in the same manner. Fixed prosthodontic services were much more common in private practice than in the Public Dental Health Service, in which more removable dentures were made. Even though private practitioners used more time for prosthodontic services, they referred fewer patients to specialists in prosthodontics and consulted a specialist less often than did the dentists in the Public Dental Health Service. ☐ *Delivery of dental care; dental clinics; dental health services*

Mats Kronström, Department of Prosthetic Dentistry, Central Hospital, S-541 85 Skövde, Sweden

Differences in dental practice profiles have been the subject of several studies (1–8). Data are available for working time, income, patient groups, various service rates, and so forth. These figures vary between countries with different traditions and socioeconomic patterns (1). For the USA, differences have been reported in practice profiles between male and female dentists (5, 6). In Sweden, there are substantial differences in practice profiles between private practitioners and dentists employed in the Public Dental Health Service. These differences, which are most obvious for prosthodontic service rates, have been largely consistent over many years even though patient fees have been the same in both delivery systems since 1974 (9–12). It has also been reported that there are great differences between individual dentists in the Public Dental Health Service concerning the service rates for fixed prosthodontics (13). An interesting finding was that, compared with male dentists, female dentists had lower frequencies for fixed prosthodontic treatments even when several background variables were kept constant in multiple regression models (14). Recently, differences between private practitioners and publicly employed Swedish dentists were reported concerning the use of radiologic examinations (15).

The findings in the study by Eriksson et al. (14) prompted a comprehensive study of variations in prosthodontic decision-making with the ambition of finding nationally generalizable results. Within this study, the aim of the present paper was to describe, on a national level, differences in prosthodontic service rates between various groups of dentists.

Materials and methods

The study population comprised Swedish dentists working as general practitioners and not older than 65 years of age. A random sample of 2100 individuals was taken from the membership register of the Swedish Dental Association. Dentists with a certificate in any speciality issued by the Swedish National Board of Health and Welfare, dentists working abroad, and those aged more than 65 years were excluded before the

sample was taken. A questionnaire was mailed to the sampled individuals. Those who had not responded within 3 weeks were sent a mailed reminder. Those who had still not responded within a further 3-week period were sent a new reminder together with a new questionnaire form. After that no further attempt was made to get responses to the questionnaire.

A total of 1608 individuals responded. Of these, 41 persons reported that they were not working as general dental practitioners and were for that reason considered not to belong to the study population. The remaining number of participants was therefore 1567. The response rate (1567 individuals of 2059) was 76%. The internal non-response was very low, for no question exceeding 0.6%. Therefore, the number of answers to each question is not given in the tables.

For analyses of the non-responders, information was available about age, sex, and dental care system. The chi-square test and the Spearman correlation test were used for these analyses.

There were no significant differences between the responders and the non-responders related to sex ($P = 0.58$) or to dental care system ($P = 0.46$). The non-responders were slightly younger than the responders ($P = 0.05$). The correlation between age and response was, however, very weak, albeit significant (the Spearman rank correlation coefficient (r) = -0.06).

Before this questionnaire study, a pilot study was performed with the prime object of testing the questionnaire instrument. Questionnaires were sent to the private general practitioners in one county and to the publicly employed general dentists in another county. The questionnaire instrument used was found quite satisfactory (16). Some of the questions were, however, altered, and new ones introduced in the final questionnaire, to obtain more detailed information.

Responses to questions about sex and dental care system (private practitioner or publicly employed) were used in the present paper. Responses to the following questions were also included (response options within parentheses):

In what type of community do you work? (small village <5000 inhabitants; village with 5000–25,000 inhabitants; village or town with 25,000–50,000 inhabitants; city with 50,000–150,000 inhabitants; suburb to one of the three big cities; one of the three big cities >200,000 inhabitants).

How many hours per week do you usually work treating patients? (<15 h; 15–20 h; 21–25 h; 26–30 h; 31–35 h; 36–40 h; >40 h).

On average, what percentage of your clinical time do you use for dental care of adults (20 years or more)? (any percentage figure could be given).

On average, what percentage of your clinical time do you use for prosthodontics? (any percentage figure could be given).

How do you assess the demand for services at your clinic? (great demand—patients queuing; enough patients—new patients may have to wait for a short period of time; a few more new patients are welcome; lack of patients).

How would you describe the majority of your patients as a group? (large need and demand for treatment, many emergency cases and patients in need of extensive rehabilitation; fairly large need and demand for treatment, some emergency cases and some patients in need of extensive rehabilitation; an average group of patients; patients as a rule with less need and demand for treatment than the average; mostly routine services).

On average, how many removable dentures do you make? (none; 1–2 per year; 1–2 per month; 3–5 per month; >5 per month).

On average, how many single crowns do you make? (none; 1–5 per year; 1–5 per month; 6–10 per month; 11–20 per month; >20 per month).

On average, how many fixed partial dentures do you make? (none; 1–2 per year; 1–2 per month; 3–5 per month; 6–10 per month; >10 per month);

On average, how many patients per year do you refer to a specialist in prosthodontics? (any number could be given).

On average, how many times per year do you consult a specialist in prosthodontics? (any number could be given).

Results

Among the respondents, 58% were male and 42% female general dentists. Fifty per cent were private practitioners, the other 50% being publicly employed. Of the male dentists, 63% were private practitioners (PP) and 37% employed in the Public Dental Health Service (PDHS). The corresponding figures for female dentists were 32% PP and 68% employed in the PDHS. The proportion of male to female dentists was 73:27 in private practice and 43:57 in the PDHS. A small percentage of the publicly employed dentists might also be working in private practice a few hours per week in their spare time, but this was not registered.

The practice profile variables showed a great variation, and several of the distributions differed with regard to sex and dental care system. The working time per week and the time used for prosthodontics were on average higher for men than for women (Table 1). PP were more frequently working in large communities and big cities than the PDHS dentists. There was a large difference between the PP and PDHS groups with regard to the amount of working time used for the care of adults. Practically all (98%) of the PP but less than half of the PDHS dentists used more than 75% of their clinical time for care of adults. Roughly 60% of the PP reported using more than 25% of their working time for prosthodontic services, compared with fewer than 40% of the PDHS dentists. The PDHS dentists reported a higher assessed level of demand for services (patients queuing) than the PP. Among the PP, 43% welcomed new patients, whereas the corresponding figure for the PDHS dentists was less than half of this percentage. For

Table 1. Percentage distribution of location of dental clinic, clinical working hours per week, for care of adults and for prosthodontic services, and characteristics of the patients with regard to gender and type of clinic (PP = private practice; PDHS = Public Dental Health Service)*

Variable	Men (n = 906)	Women (n = 661)	PP (n = 777)	PDHS (n = 786)
Working in type of community				
Small village	13	12	8	18
Village, 5000–25,000 inhabitants	23	26	18	31
Village or town, 25,000–50,000 inhabitants	13	14	12	14
City, 50,000–150,000 inhabitants	22	15	24	15
Suburb of one of three big cities	10	15	11	12
One of three big cities	19	18	27	10
Clinical working hours per week				
<15 h	2	1	2	2
15–20 h	4	6	5	5
21–25 h	3	9	6	4
26–30 h	7	27	12	20
31–35 h	26	25	26	24
36–40 h	48	30	38	42
>40 h	10	2	11	3
Percentage of clinical working time used for dental care of adults				
<20%	0.4	2	0.4	2
20–49%	1	6	0.1	6
50–74%	16	38	2	48
75–94%	23	25	14	34
95% and more	60	28	84	10
Percentage of clinical working time used for prosthodontic services				
<5%	1	3	0.3	4
5–14%	17	24	11	27
15–24%	32	25	27	31
25–49%	36	35	42	30
50% or more	14	13	19	8
Assessed level of demand for services				
Great demand, patients queuing	12	20	7	24
Enough patients	52	55	50	56
A few new patients welcome	30	21	35	17
Lack of patients	6	4	8	3
Classification of patients' need and demand				
Large need and demand	10	12	6	15
Fairly large need and demand	40	50	39	49
Average patient group	41	31	45	29
Less need and demand than the average	7	6	8	6
Mostly routine services	1	2	2	1

* Four dentists did not answer the question whether they were working as PP or in the PDHS (n = 1563).

the classification of patient needs and demands, no marked differences in distribution between the two dental care systems were seen.

The prosthodontic service rates varied considerably between the PP and the PDHS dentists and between male and female dentists (Table 2). The reported number of removable dentures produced was low for most dentists. However, the figures were somewhat higher for PDHS dentists than for PP. The relationship was the opposite for fixed prosthodontics. When male and female dentists were compared, the rates were higher for male dentists with regard to both single crowns and fixed partial dentures. More than a quarter of the PP did not refer patients to or consult a specialist in prosthodontics, and the rates of references and consultations were generally lower among the PP than among the PDHS dentists.

Discussion

The 2100 individuals to whom the questionnaire was sent were sampled from the membership register of the Swedish Dental Association. Ninety per cent of all Swedish dentists are members of this organization. Forty-one of the responders were not working as general practitioners and were therefore excluded from the original sample when the response rate was calculated.

Table 2. Percentage distribution of Swedish general dentists in prosthodontic service rates and in specialist referrals/consultations with regard to gender and type of clinic (PP = private practice; PDHS = Public Dental Health Service)

Variable	Men (n = 906)	Women (n = 661)	PP (n = 777)	PDHS (n = 786)
No. of removable dentures				
None	2	4	2	4
1–2 dentures per year	35	42	44	33
1–2 dentures per month	49	47	45	52
3–5 dentures per month	10	6	7	10
>5 dentures per month	3	1	2	2
No. of single crowns				
None	1	3	0.1	3
1–5 per year	3	10	2	10
1–5 per month	37	57	30	61
6–10 per month	31	22	33	21
11–20 per month	19	7	23	5
>20 per month	9	2	11	1
No. of fixed partial dentures				
None	1	0.4	0.4	4
1–2 per year	8	25	5	25
1–2 per month	53	60	55	57
3–5 per month	31	10	33	11
6–10 per month	6	2	6	3
>10 per month	2	1	2	0.1
No. of patients referred to a prosthodontist				
None	23	16	28	12
1–2 per year	36	44	36	43
3–4 per year	15	15	13	18
5–9 per year	16	19	15	20
>10 per year	10	6	8	8
No. of consultations with a prosthodontist				
None	23	15	27	12
1–2 per year	36	39	36	39
3–5 per year	26	31	24	33
>5 per year	15	16	14	17

The response rate (76%) can be considered very satisfactory for this type of postal survey.

There was no significant difference related to sex or dental care system between the responders and the non-responders. There were small differences in response rates between the age groups, with somewhat lower response figures for the younger groups. The age difference was statistically significant, mostly because of the size of the material. The correlation between age and response was, however, very weak, with a Spearman rank correlation coefficient of $r = -0.06$. On the basis of these comparisons, the responders seem to be representative of the population of Swedish general dentists.

Significance tests were not used on the results for the reason stated by Burt et al. (17): 'for groups of this size even trivial differences are usually statistically significant'.

The Public Dental Health Service started in Sweden in the 1930s with the objects of providing free dental care to children and of giving less wealthy people opportunities to obtain dental care at a low cost. The fees for removable dentures were specially low. A label of 'social welfare' was then often applied to the Public Dental Health Service. When the general dental insurance scheme was introduced in 1974, the conditions changed, and the fees are now the same for private practice and the Public Dental Health Service. However, the PDHS dentists still provide more removable denture services than the PP. Fixed prosthodontic services are still much more common in private practice than in the PDHS, which indicates both differences between patient groups and the influence of tradition. Compared with earlier reports (9–12), no great changes have occurred. Because the Public Dental Health Service by law must provide free dental care to children and adolescents up to 19 years of age, fewer adult patients can be offered treatment by the PDHS dentists than by PP.

Female dentists made considerably fewer artificial crowns and fixed partial dentures than male dentists. This result corresponds on a national level with what was shown for PDHS dentists in a specific Swedish county (14). Different practice profiles for male and

female dentists have also been reported from the USA (5, 6) but these studies did not focus on prosthodontic service rates.

Private practitioners used more time for prosthodontic services than did the PDHS dentists, yet the PP referred fewer patients to specialists in prosthodontics. There is no single factor that could explain this fact. One might believe that PP are more experienced in prosthodontics and for that reason do not need to refer patients to a specialist except in very rare cases. The economic situation might also make the PP less willing to refer patients; more PP than PDHS dentists reported lack of patients. It should also be noted that in Sweden a large majority of the specialists are publicly employed. Further, the finding might just mirror differences between PP and PDHS dentists in their professional image.

The results need to be analyzed further. An important question that should be addressed is the validity of the answers to the questions about the prosthodontic service rates. A study will be performed in which the responses from several individuals to the questions on prosthodontic service rates will be compared with the units really provided according to claims to the local dental insurance offices and data from a county council.

It can be concluded from the present study, however, that there are considerable differences in prosthodontic service rates between male and female dentists as well as between PP and PDHS dentists. The pattern of differences between the delivery systems seems to be practically unchanged over time, even though the fees are now the same for the patients in both systems.

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