

ORIGINAL ARTICLE

## Organization and overall job satisfaction among publicly employed, salaried dentists in Sweden and Denmark

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### Abstract

**Background.** In Sweden and Denmark, clinical dentistry is changing and public dentistry is in transition towards more market orientation. Dentists' overall job satisfaction is important for how public dentistry can fulfil the new expectations from patients, the public and politicians. **Objectives.** The aim of this study was to investigate what organizational factors were important for publicly employed salaried dentists' overall job satisfaction. **Methods.** A random sample of active, general dental practitioners (private and publicly employed) was selected in Denmark and in Sweden, and they received a postal questionnaire. The number of questionnaires was 1835 and the response rate was 68% ( $n = 1226$ ). This study analysed only the publicly employed dentists. The sampling frame for the Swedish dentists was 431, response rate 68.9% ( $n = 297$ ) and for the Danish ones 194, response rate 81.9% ( $n = 159$ ). Multivariate regression was used with overall job satisfaction as a dependent variable. **Results.** Common organizational variables were important. The used model explained between 32% (Sweden) and 39% (Denmark) of the variance in overall job satisfaction. The only significant individual factor was less job satisfaction for Swedish dentists born outside Sweden. An organizational climate characterized by a focus on professional values was associated with job satisfaction in both countries. Among the Swedish dentists, number of colleagues and degree of influence were also important and among the Danish ones sufficient time for patients. **Conclusions.** Organizational factors had an impact on salaried publicly employed dentists' overall job satisfaction in both countries. The findings may have implications for other Human Service Organizations with employed professionals.

**Key Words:** dentists, public dentistry, organization, international comparison, psycho-social work environment

### Introduction

Dental care systems in the Nordic countries are considered to be special, at least in their ambitions towards a public solution to a public health problem; dental caries among children and adolescents. In an overview of dental care in the EU, the Nordic countries are regarded as a common group, characterized by large public sectors with salaried dentists [1], even though there also are considerable differences between the countries.

This study has a comparative perspective on two of the Nordic countries, Denmark and Sweden. Both countries have a high number of dentists per inhabitant [2]. However, the Public Services also differ in some aspects, briefly outlined in Table I. One important aspect in the context of this article is the fact that the

Danish service provides for children and for special groups of adults exclusively, whereas the Swedish one provides for all groups of patients.

Public dentistry in Sweden and Denmark, as elsewhere, are professional organizations [3], and such organizations usually have a focus on professional issues. However, a shift towards a focus on management and economic issues has been reported for Swedish public dentistry, most clearly from the perspective of management and employed dentists [4–6]. Also in Denmark, economic pressures exist and there has been a major reorganization with great reduction in the number of municipalities, due to a reform of the local government.

There will be problems to uphold this Nordic model, however. The number of active dentists is predicted to drop dramatically, by about a quarter,

Table I. Comparisons between dentistry in Sweden and dentistry in Denmark.

| Factor                                | Sweden                              | Denmark                           |
|---------------------------------------|-------------------------------------|-----------------------------------|
| Ratio of population to dentist        | 1238                                | 1141                              |
| Female dentists, %                    | 49                                  | 50                                |
| Number of dental specialities         | 8                                   | 2                                 |
| Dentists in public dentistry, %       | 53                                  | 25                                |
| Public dentistry offers treatment for | All groups of patients              | Children and special needs groups |
| Free care for children                | Up to 20 years                      | Up to 18 years                    |
| Choice of provider for children       | Free for patient, public or private | Mostly public                     |
| Adults                                | Comprehensive insurance             | Basic treatments insurance        |

Adapted from Kravitz [2].

in Sweden until 2023 [7] and the drop in the numbers of Danish dentists will be equally large [8]. The number of Swedish dentists working abroad was reported to be nearly 900 in the year 2002 [9]. In Denmark, on the other hand, the number of migrating dentists is small [8].

Simultaneously, working conditions in dentistry in Sweden have been reported to be problematic [10] and the Swedish Public Dental Health Service (PDHS) has had problems recruiting dentists nearly continuously since its start in 1939 [11]. In her thesis, Hjalms [12] concluded in one of the articles on 'good work in dentistry', on necessary and preferable conditions in a Human Service Organization (HSO):

Such an organization ought to engage and take good care of its co-workers' high commitment by giving them more freedom, influence and better support resources concerning good work issues' ([13], p. 260).

A main result of that thesis was that these conditions for good work were far from fulfilled [12]. Good work as a concept is enlarged upon further and has been described elsewhere [14].

It is important to understand what factors are essential for dentists' overall job satisfaction, eventually leading to employed dentists' deciding to stay in public service. Thus, overall job satisfaction further appears as a central concept in understanding the sustainability of public dentistry. Recently, there have been attempts to explore what dentists consider as central for having a good work [14,15] and to explain how dentists keep the balance between job demands and motivation [16,17]. Significant differences have been reported in overall job satisfaction between dentists in Sweden and Denmark, with private dentists in both countries having similar scores, while Danish public dentists had higher overall job satisfaction and the Swedish public ones had lower satisfaction [18].

The reported shift from professional to economic values in demanded qualifications for dentists in the Swedish PDHS [4,5] raises the question to which extent the organization supports dentists in their role

as health professionals. The key to many issues in dental care organizations is thus a deeper understanding of dentists' overall job satisfaction.

The purpose of this paper was therefore to analyse which organizational factors were important for overall job satisfaction among publicly employed, salaried dentists in Sweden and Denmark. To fulfil this purpose, the two constituent main concepts need to be more closely defined.

#### *Overall job satisfaction*

An individual's overall job satisfaction is influenced by factors on several levels; individual, organizational and on a national level [15].

The outcome variable in this study was overall job satisfaction as an important aspect of good work. Instead of the traditional assessment of absence of negative factors, Hjalms [12] developed a positive perspective of job satisfaction and introduced the term 'Good Work' in dentistry from the department of Oral Public Health of Malmö University. The concept was used by Pilgård et al. [19], further developed by Berthelsen et al. [14] and Bergström et al. [18]. There, positive factors were included such as doing good, feeling useful in society, helping other people, using and improving clinical skills, creative zest, positive relations with patients and co-workers [14,18].

#### *Organizational factors*

There are several possible definitions of organization in the economic literature and classically they can be defined as a number of people sharing the same objectives and working together permanently to achieve these common objectives [20,21,22]. Several issues emerge: what are the objectives, how are they measured, how do we know that the activities lead to the objectives and how are the resources used, how are members handled who work against the objectives or do not perform at all [21]. Mintzberg [22] defines the structure of an organization as the ways in which labour is divided into different tasks and how co-ordination is achieved among these tasks.

Etzioni [20] has formulated three characteristics of organizations: (1) The division of responsibilities for work, power and communication follow patterns that are not random but designed to enhance set objectives; (2) The presence of one or several centres of power that control the common efforts of the organization and also control the outputs and has power to reconstruct the organization if needed; and (3) The authority to order change of personnel, to employ or to dismiss, if needed. Organizational factors can, thus, be defined in many ways, depending on one's point of view.

However, dentistry, like other HSOs, has distinctive features as human beings are the raw material in the organization and they also constitute the output of the organization. The organizational roles and demands are often conflicting and changing, the technologies of the organizations are uncertain and, consequently, difficult to assess. All-in-all, this may render HSOs difficult to analyse from an organizational perspective [23].

From the perspective of the salaried dentists, a number of factors were identified that were hypothesized to be influential on overall job satisfaction [12,14,18]. In this study, considering factors relevant to HSOs, we have chosen to define organizational factors on a general level as; (1) size, i.e. how many employees are working in the same group, (2) how objectives and feedback for the group are formulated, (3) how control and communication of results are carried out in the group, (4) what influence is possible for the employees and, finally, (5) how divisions of tasks are decided. These factors will be addressed as to their impact on dentists' overall job satisfaction.

### *Aim*

The aim of this study was to determine how different factors influence overall job satisfaction amongst employed general dental practitioners working in a publicly funded system. Specifically the study examines the following hypotheses:

- (1) Organizational factors are important for overall job satisfaction.
- (2) Larger clinics will incur lower overall job satisfaction.
- (3) More perceived influence will give more overall job satisfaction.
- (4) Extensive delegation to other categories of personnel will give less overall job satisfaction.
- (5) More feedback to the dentists from the management will give more job satisfaction.

### **Materials and methods**

This study is part of a larger study on dentists overall job satisfaction. It was based on a questionnaire sent to national random samples of Swedish and Danish dentists in public and private general dentistry.

Specialists, pensioners and teachers at the dental colleges were excluded. The samples were obtained from the respective dental associations. A large majority of all active dentists in Sweden (95%) and Denmark (90%) are members of the professional organizations according to the EU manual of Dental Practice [2]. The samples were proportionally stratified, as to country and sector, private or public. Sample size was determined after a power analysis and further details have been published elsewhere [18,24].

The questionnaire was developed in several steps. A series of semi-structured, in-depth interviews with a phenomenological analysis [14] was used as a starting point. Further, a search for similar questionnaires was made and questions from other studies were added. Swedish and Danish languages are similar, but with a number of different nuances, and the questionnaires were carefully discussed among native dentists of both countries. The draft questionnaires were further tested on a number of practising dentists in both countries in an internet-based form. These procedures have been described in depth previously [18,24].

The questionnaires are available at the website of the Department of Oral Public Health at [www.mah.se](http://www.mah.se). The study was approved by The Regional Ethical Review Board in Lund, Sweden (H15 501/2008). In Denmark no such permission was required.

The respondents were sent a questionnaire in their own language (Swedish or Danish). A reminder was mailed after 1 week and a new questionnaire was sent to those who had not responded after a further 2 weeks. Data collection was finalized in February 2009.

The sampling frame was divided as to country and sector, private practitioners or publicly employed dentists. The issued number of questionnaires meeting the inclusion criteria was 1835 and the response rate in total was 68% ( $n = 1226$ ). The four groups of dentists, split on country and affiliation, have been described in detail elsewhere [18].

In the present paper, we focused on the publicly employed dentists, since the organizational issues were considered to be less relevant for the mainly self-employed private practitioners as they personally have far greater control over these issues. The sampling frame for the Swedish publicly employed dentists was 431 after exclusions, which resulted in a response rate of 68.9% ( $n = 297$ ). The Danish publicly employed dentists had a sampling frame of 194 after exclusions and, similarly, the response rate was 81.9% ( $n = 159$ ). More details have been described elsewhere [18].

### *Dependent variable*

The dependent variable was 'overall job satisfaction'. This was computed as an additive index composed of the questions how the respondents perceived 'work fulfilment', 'satisfaction with your work as a whole'

and the question 'do you feel that you have a good working life' (all three with responses on a 5-grade scale: *Not at all—to a very high degree*). The responses were added and converted to a 100-point scale where a higher score shows more satisfaction. A Principal Component Analysis has been performed on these questions and reported earlier and there a one-factor solution explained 79% of the variance for the Swedish public dentists and 82% for the Danish public dentists [18].

#### *Independent variables*

The independent variables were organized in groups that were added to the analyses in blocks: (1) Individual factors, (2) Formal organizational factors, (3) Informal organizational factors and (4) Organizational climate.

*Individual factors.* The individual background factors were gender, country of birth, whether the respondent was living alone or married/cohabitating, years since graduation as a dentist and the amount of contacts with other dentists outside work conceived as network. The latter index was made up by adding the scores on three questions 'How often have you met other dentists outside your workplace, the last year?' with alternatives 'on courses and conferences, at quality circles/association meetings or similar, in my leisure time' (each with responses, *every week, every month, seldom, never/almost never*). This was converted into a 100-point scale, with a higher score indicating more interaction.

*Formal organizational factors.* The size of the organization/clinic was measured by the total number of employees at the clinic, i.e. dentists, hygienists and dental nurses, by adding the numbers stated in the relevant three questions. This was used rather than only the number of dentists, as the total number of persons in the working group was of interest here.

A final factor in this step was whether the respondent reported to have managerial duties or not.

*Informal organizational factors.* Primarily, informal organizational factors were employees' perceived influence on the daily running of the clinic, measured by two indices. An index on general influence was constructed by the answers to questions on how much influence there was on;

- brand of filling material used at the practice,
- choice of dental technician,
- which nurse assists,
- employment of new personnel,
- choice of own courses and
- goal formulations of the practice,

each with responses '*none, some, decide myself*'. The responses were added and converted to a 100-point scale, where a higher score indicated more influence.

Secondly, the influence on booking of patients was measured by two questions, 'time booking' and 'booking of emergency patients', each with responses '*none, some, decide myself*'. Also here the responses were added and converted to a 100-point scale, with a higher score indicating more influence.

The time available for patients and the extent of delegation of clinical tasks to dental hygienists were measured by two questions, 'How do you assess the extent of time for the patient relation?' and 'How do you assess the extent of delegation of clinical tasks to dental hygienists/dental nurses?', each with responses '*much too little, too little, adequate, too large/too much, much too large/much too much*'.

The extent of follow-up was measured by an additive index measuring the degrees of different styles of follow-up used at the clinic. This was composed of the question 'To which degree are the following methods used for evaluation of the practice?' (*little, some and high degree*) divided into 'practice meetings' and 'written evaluation', 'informal dialogue' and 'development talks'. The different types of follow-up were not distinguished in this index as the total extent of follow-up was regarded as more interesting. This was converted to a 100-point scale, with higher scores meaning more intense follow-up.

*Organizational climate.* Here, 'climate' is used in a non-specific sense to distinguish the different foci of the management that can be perceived as either emphasizing productivity or professional development, which in this context is similar to the managerial grid by Blake and Mouton [25].

These aspects were measured by two indices. Both indices used different parts of the main question 'To which degree do you think the following factors characterize your clinic?' (five grades of response '*very little—very high degree*'). The first aspect indicated a focus on productivity and was composed by the questions 'productivity', 'efficiency' and 'income oriented'. The index for focus on professionalism used the questions 'initiative', 'technical quality', 'engagement', 'flexibility', 'service oriented', 'creativity' and 'professional development'. These questions were subjected to a factor analysis, reported earlier, explaining 20% (productivity) and 41% (professional development), together 61% of the variance in a two-factor solution of the 10 variables [24]. The component variables were summed into two additive indices, measuring a focus on productivity and on professional values, respectively, each with a range between 0–100.

#### *Statistical methods*

Statistical methods used were a calculation of means and standard deviations for the used variables and ordinary least squares regression, all calculated in Statistical Package for the Social Sciences (SPSS) 17. The level of statistical significance was set to 0.05.

Table II. Regression models for the Swedish and Danish samples.

| Model                          | Dependent variable overall job satisfaction. |       |       |       |       |       |                                   |       |      |       |       |       |
|--------------------------------|----------------------------------------------|-------|-------|-------|-------|-------|-----------------------------------|-------|------|-------|-------|-------|
|                                | Swedish dentists ( <i>n</i> = 260)           |       |       |       |       |       | Danish dentists ( <i>n</i> = 127) |       |      |       |       |       |
|                                | 1                                            | 2     | 3     | 4     | 1     | 2     | 3                                 | 4     | 1    | 2     | 3     | 4     |
|                                | b                                            | Sig   | b     | Sig   | b     | Sig   | b                                 | Sig   | b    | Sig   | b     | Sig   |
| Variable and scale             |                                              |       |       |       |       |       |                                   |       |      |       |       |       |
| Gender (1,2)                   | -0.05                                        |       | 2.42  |       | -1.46 |       | 0.78                              |       | 2.39 |       | 0.70  |       |
| Native born (1,2)              | -8.81                                        | 0.004 | -6.61 | 0.014 | 6.83  |       | 6.54                              |       | 9.09 |       | 7.17  |       |
| Married (1,2)                  | -3.26                                        |       | -3.99 |       | 1.13  |       | 2.58                              |       | 2.18 |       | 0.73  |       |
| Years in profession            | -0.06                                        |       | -0.10 |       | 0.07  |       | -0.03                             |       | 0.04 |       | 0.10  |       |
| Network (0-100)                | 0.25                                         | 0.001 | 0.11  |       | 0.28  | 0.006 | 0.17                              |       | 0.12 |       | 0.06  |       |
| Size of clinic (no of persons) |                                              |       | 0.43  | 0.000 |       |       | 0.26                              |       | 0.28 |       | 0.19  |       |
| Manager (0,1)                  |                                              |       | -0.83 |       |       |       | 8.44                              | 0.007 | 2.72 |       | 0.91  |       |
| General influence (0-100)      |                                              |       | 0.23  | 0.000 |       |       |                                   |       | 0.16 | 0.056 | 0.10  |       |
| Booking influence (0-100)      |                                              |       | 0.10  | 0.015 |       |       |                                   |       | 0.12 | 0.021 | 0.07  |       |
| Delegation (0-100)             |                                              |       | -0.11 | 0.058 |       |       |                                   |       | 0.04 |       | -0.08 |       |
| Time for patients (0-100)      |                                              |       | 0.19  | 0.003 |       |       |                                   |       | 0.26 | 0.010 | 0.22  | 0.017 |
| Feedback (0-100)               |                                              |       | 0.16  | 0.020 |       |       |                                   |       | 0.09 |       | -0.04 |       |
| Productivity (0-100)           |                                              |       |       |       |       |       |                                   |       |      |       | -0.03 |       |
| Professionalism (0-100)        |                                              |       |       |       |       |       |                                   |       |      |       | 0.60  | 0.000 |
| <i>R</i> <sup>2</sup> adjusted | 0.06                                         |       | 0.27  |       | 0.04  |       | 0.09                              |       | 0.23 |       | 0.39  |       |

Table III. Differences between Swedish and Danish public dentists, means and standard deviations of used variables.

| Variable and scale             | Swedish dentists |      |      | Danish dentists |      |      |
|--------------------------------|------------------|------|------|-----------------|------|------|
|                                | <i>n</i> valid   | Mean | SD   | <i>N</i> valid  | Mean | SD   |
| Job satisfaction (0–100)       | 287              | 66.9 | 17.9 | 157             | 73.8 | 16.1 |
| Years in profession            | 297              | 21.4 | 12.2 | 159             | 25.9 | 8.9  |
| Network (0–100)                | 296              | 28.9 | 13.5 | 157             | 35.7 | 13.9 |
| Size of clinic (no of persons) | 289              | 19.2 | 9.2  | 155             | 10.1 | 7.5  |
| General influence (0–100)      | 291              | 47.7 | 19.3 | 155             | 56.6 | 19.1 |
| Booking influence (0–100)      | 294              | 49.5 | 23.9 | 157             | 58.9 | 26.6 |
| Delegation (0–100)             | 297              | 52.3 | 15.8 | 159             | 56.2 | 11.9 |
| Time for patients (0–100)      | 297              | 46.5 | 14.7 | 159             | 51.8 | 13.2 |
| Feed back (0–100)              | 291              | 41.2 | 14.7 | 156             | 44.0 | 14.5 |
| Productivity (0–100)           | 289              | 68.0 | 18.3 | 138             | 60.1 | 15.2 |
| Professionalism (0–100)        | 287              | 63.8 | 15.2 | 156             | 71.7 | 13.5 |

The responses were split on country level, Swedish and Danish dentists. The analyses were done separately for both countries to detect possible interaction effects from country level variables.

A hierarchical block regression method was used, where the four blocks described above were introduced one-by-one. Model fit was assessed by *F*-test and calculation of *R*-square, but also with inspection of residual plots and calculation of Cook distances to identify influential outliers. The *F*-statistics in the final models were 10.08 for the Swedish sample and 7.06 for the Danish. The adjusted *R*-squares are presented in Table II. A number of influential outliers were found and these (six Swedish, one Danish) were excluded from the regression analyses. The net number of dentists in the regression analyses was 260 Swedish and 127 Danish respondents.

## Results

The means and standard deviations of all interval variables used for the two groups of respondents are presented in Table III and Table IV shows the distribution of the nominal variables used.

The Danish dentists were generally more satisfied and had a greater network of other dentists outside work. The clinics in Sweden had on average twice as many employees as those in Denmark. The Danish dentists perceived a greater focus on professional

development, whereas the Swedish ones reported a greater focus on productivity. The percentage of managers were more than 4-times higher in the Danish sample and the number of dentists born outside the respective country was twice as large among the Swedish dentists. The percentage of women was larger among the Danish dentists.

The basic regression models, where only the individual factors were entered, had limited explanatory power, but some significant variables were found in the Swedish group of dentists. These effects were modified successively, as more variables were added in the following models. In the final model, the only statistically significant variable remaining from the individual block was that the Swedish dentists born outside Sweden had significantly less overall job satisfaction, even when controlling for all other variables.

In the final models, the most important variable for the Swedish dentists was size of clinic, followed by a focus on professional values and influence; both general and on booking of patients. For the Danish dentists a focus on professional values was most important. Time for patients was statistically significant for the Danish dentists and nearly so for the Swedish dentists. A negative impact on job satisfaction of a focus on productivity was found among the Swedish dentists, which, however, did not quite reach the set level of statistical significance.

Table II enlarges on that in detail. The final model explained 32% of the variance in overall job satisfaction among the Swedish dentists and for the Danish dentists the explanatory value was 39%.

## Discussion

Given the chosen level of significance, the hypotheses were supported or not as follows;

- (1) Organizational factors are important for overall job satisfaction. *Supported*

Table IV. Distribution of nominal variables.

| Variable    |               | Swedish dentists<br>( <i>n</i> = 297), % | Danish dentists<br>( <i>n</i> = 159), % |
|-------------|---------------|------------------------------------------|-----------------------------------------|
| Gender      | (Female)      | 70.6                                     | 87.4                                    |
| Native born | (Native born) | 85.9                                     | 94.3                                    |
| Married     | (Married)     | 86.2                                     | 84.9                                    |
| Manager     | (Manager)     | 14.8                                     | 62.3                                    |

- (2) Larger clinics will incur lower overall job satisfaction. *Not supported*
- (3) More perceived influence will give more overall job satisfaction. *Supported*
- (4) Extensive delegation to other categories of personnel will give less overall job satisfaction. *Not supported*
- (5) More feedback to the dentists from the management will give more job satisfaction. *Not supported*

There were different patterns of explanatory variables, which indicate differences between the employed dentists in Sweden and those in Denmark as to important factors in overall job satisfaction. For Danish dentists, the focus was on professional development and time for patients, while for the Swedish dentists some of the variables of a more organizational nature were also important. Size of clinic was the most important one, followed by a focus on professional values, while a focus on productivity was negatively associated with overall job satisfaction for the Swedish dentists.

Hjalmlers [12] found, among Swedish dentists, that increased influence and time for patients were important for the perception of having good work. In a British study, the most important factors for job satisfaction were sufficient time for patients and developing clinical skill [26], which is confirmed here, but the contribution from organizational variables has not been studied before.

The hypothesis that a larger clinic or working group would lead to less overall job satisfaction was not supported. This hypothesis was based on the notion that a larger work place would lead to a more 'factory like' environment. On the contrary, the size of the clinic was a positive factor for the Swedish, but not for the Danish dentists. The clinics in Sweden were larger in size compared to the Danish ones, but the Danes had a higher degree of job satisfaction, so this variable might be an indicator of other underlying factors. The responses with larger clinics as enhancing overall job satisfaction indicate the advantages of interaction with other dentists. In a British study, this was an important aspect in last year dental students' views on future work places [27]. Non-managerial female PDHS dentists in Sweden have reported that network participation was a good coping strategy against stressors at the work place [28], which was not found to be a significant factor here. It has also been shown that the possibility for interaction with other professionals was the most important factor for social support for Swedish and Danish dentists [24,29].

In a study on Chief Dental Officers in the Swedish PDHS, larger clinics were preferred by them on grounds of economy of scale and on good quality of care [6]. However, a British study on performance in primary care organizations found little evidence for advantages of scale [30]. One explanation can be that

the changes towards more focus on productivity in the management doctrines reported already in 1998 [31] and also reported later [4] and, hence, striving for larger clinic sizes, have been implemented earlier in the PDHS in Sweden than in the Danish service. The Swedish PDHS is in more direct competition with the private sector as it treats the same groups of patients, which is not the case for the Danish Public Dentistry (Table I).

Freidson [32] argues that there are three different governing logics for a professional organization; bureaucracy, market or a professional principle. In a bureaucratic model the managers and the administration are in power and in an organization based on the principles of the market the customers have decisional authority. In the third logic, the professionals themselves have the major influence [32]. Of course, these boundaries vary according to the present situation in an organization. Public dentistry in Sweden might be characterized by a balance between the administrative or bureaucratic forces and the market forces, leaving the professionals with little influential power. The market forces are stronger in the Swedish PDHS as it offers treatment to all groups of patients and thus is in competition with the private sector. The Danish public service offers treatments to children and to special groups of patients. In the Danish public dentistry the bureaucratic forces in the form of New Public Management (NPM) and similar might have a more limited influence, as has been noted for public administration in general [33].

The market forces have little influence in Denmark as the public and private sectors treat different categories of patients, which gives the Danish professionals a wider scope for professional values. The Swedish situation may even amount to a mismatch between the original ethos of the organization and the perceived reality of the employed dentist, as reported by Hjalmlers et al. [13].

Downer et al. [34] described the Nordic countries as rather alike in their provision for oral healthcare, with a large proportion of salaried publicly employed dentists. In comparing costs, they state that the Finnish and Swedish services were notable as

... the salaried public services were known to be less costly than the subsidized private service ... ([34], p. 10).

They also note, based on older data, that the Danish public service was costly and that the amount of chair-side preventive measures appeared excessive [34]. This might indicate that professional values were stronger in Denmark than in the other Nordic countries. In this study, the focus on professional values was highly significant in both Sweden and Denmark, while the influence of that factor on overall job satisfaction was stronger in Denmark.

The third hypothesis, that more influence gives more overall job satisfaction, was formulated based

on management literature such as Mintzberg [22] and on the professional values as outlined previously [3]. Influence was significant for both groups in the first steps, but remained so only for the Swedish dentists in the final model. This might be seen in connection with the discussion above on the wider scope for professional values for the Danish dentists in accordance with the theories by Freidson [32].

The hypothesized negative influence from lack of control due to extensive delegation of tasks to other categories was found, but had a limited and not significant influence on overall job satisfaction in the final model. The impact was measured by one question only, so this result should be treated with caution.

The amount of feedback had limited influence on overall job satisfaction for these dentists, which we found rather surprising. One possibility is, of course, that our variables did not cover the concept sufficiently, another that the role of feedback maybe is less important than envisaged in management doctrines, especially in a professional organization.

Only relatively few of the dentists were born outside Sweden or Denmark. Swedish dentists born outside Sweden had a lower overall job satisfaction, which should be investigated further, as a larger number of dentists from other countries in the European Union will be expected to seek employment in Sweden [7]. There may be informal organizational mechanisms at play here, challenging the processes of socialization in the organization.

The data presented were based on answers to a questionnaire, which are always subjective. The respondents interpret our questions individually and assign different meanings to our concepts. So might, for example, the concept of influence lead to different interpretations between managers and non-managers. However, the core construct of influence is based on an individual's own perceptions at the time of answering the questionnaire and is reported, thus, in the answers. The questionnaire was based on information from earlier questionnaires and on the specially conducted interviews by two of the authors (KH and HB) [14] and duly tested. The translations between Swedish and Danish were thoroughly debated among all the authors, which leads us to claim that the meanings of the questions would have been perceived in similar ways. Also, it is difficult to see any practical way of gathering data on such a widespread population in any other way. One weakness, shared with questionnaires in general, was the moderate overall response rate, but responses from the studied groups of publicly employed dentists were deemed satisfactory and to be representative [18,24]. A strength is the cross-country design in two countries with similar basic welfare systems but different organizational solutions for their public dental care.

The constructing of simple additive indices where it is presumed that each part contributes the same amount and that the steps between the alternatives

in the answers are equal might also be considered a weakness. However, the dependent variable and its components had been tested previously by a factor analysis [18]. Weighting of the variables in the additive indices might be considered as an alternative; either as set weights to each variable or as a self-weighting process, where each respondent attributes individual weights to each variable. However, as there was no way of ascertaining the relative values of the underlying questions the respondents might have had, we chose a transparent way of construction these indices. It has also been noted that all weighting has an inherent subjective component [35]. Moreover, in using self-weighting in self-reported health data it was found that non-weighted data were as valid as those calculated by more complex methods [36,37]. The additive indices were chosen here on practical grounds to make the results more easily comprehensible to the readers. The addition of answers into indices also assumes that the variable has a continuous character.

The cross-sectional design makes conclusions on causality difficult and it is only possible to draw conclusions on co-variation, to serve as observations and to inspire further studies. The variables used in this study were based on a model and the variables included were theoretically based on other studies and their inclusion in the models followed the criteria recommended by Studenmund [38]. Other models or variables and other selections of criteria might give different results, but the relatively good level of explanatory power in the model indicates its relevance.

The professionals' decisions to stay in the service will be a critical factor for any public HSO employing professionals and organizational factors as measured in this study were important for overall job satisfaction for publicly employed, salaried dentists in these two countries. It seems reasonable to suggest that the management of such HSOs should consider the findings here.

The differences in determinants for job satisfaction between publicly employed dentists are of importance to other public HSOs managed by some form of adapted NPM and need to be investigated further. Management of employed dentists should be studied further, considering the tension between professional focus and a management based more economic focus, as found here and also reported in other studies [6,11,31].

Finally, the effects of dentists' overall job satisfaction on quality of care and on patients' satisfaction in different settings and different management doctrines are not studied here but are naturally very important. This will need to be further explored.

## Conclusions

Different organizational factors were important for dentists' overall job satisfaction in different settings,

but a focus on professional development was important for both the Swedish and the Danish salaried dentists. It was the most important factor for the Danish salaried dentists, while also time for patients was important. For the Swedish dentists, size of clinic was the most important factor. Perceived influence was also important.

This should have implications for how NPM can be implemented in a professional organization. Consequently, overall job satisfaction for professionals in HSOs will be increasingly important as the demands on services increase, both from owners/politicians and from consumers/patients. Further studies on the effects on dentists and on quality-of-care under different managerial doctrines are needed.

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