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Dentistry in Sweden – Healthy work or ruthless efficiency?

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Preface

This thesis is based upon the following papers, which will be referred to in the text by their Roman numerals:

I Aronsson G, Bejerot E, Härenstam A. Healthy work – ideal and reality among public and private employed academics in Sweden. *Public Personnel Management* (Accepted).

II Bejerot E, Theorell T. Employer Control and the Work Environment: A Study of the Swedish Public Dental Service. *International Journal of Health Services* 1992;22**:**669-688.

III Bejerot E, Söderfeldt B, Aronsson G, Härenstam A, Söderfeldt M. Changes in control systems assessed by publicly employed dentists in comparison with other professionals. *Acta Odontologica Scandinavica* 1998;56:30-35.

IV Bejerot E, Söderfeldt B, Aronsson G, Härenstam A, Söderfeldt M. Perceived control systems, work conditions and efficiency among Swedish dentists: interaction between two sides of Human Resource Management (Submitted).

V Bejerot E, Söderfeldt B, Härenstam A, Aronsson G, Söderfeldt M. Towards healthy work or ruthless efficiency? The effect of managerial changes on professional work with life or things (Submitted).

Contents

1 Introduction

In Sweden, there are two types of dental health services – a private system, rather similar to that in most other countries, and a specifically Swedish public system. Indeed, the first national public dental-care system anywhere in the world, with the aim of giving all citizens access to care, was the one started in Sweden. Here, work organization and work conditions in the Swedish Public Dental Health Service (PDHS) will be investigated and compared with those for other professionals. Some attention will also be paid to private dental practitioners.

Two major reforms shaped Swedish dental care: the introduction of the PDHS in 1938, and the initiation of a national dental-insurance system in 1974. From the beginning, the PDHS has been a part of county-council administration and financed by both local taxes and national-government grants.[1] About half of all Swedish dentists work in the PDHS. The other half consists of private practitioners, although most of these are collaborate with the public system on a franchising basis (through the company, Praktikertjänst AB). Both systems are covered by dental insurance. When first introduced, the insurance amount was very generous, but it has been steadily cut down as part of the general austerity policies implemented during the 80s and 90s. At present, insurance covers dental expenses above a certain sum, and increases with the cost of care. It also covers prosthodontics. In addition to the insurance, everyone up to and including the age of 19 is fully covered for dental treatment by the county councils, and is entitled to care, including orthodontic treatment, free of charge. For adults, remuneration is set by a nationally determined fee-for-service system, including price control.[2] To sum up, the Swedish dental-care system is a blend of public and private, and is both fee-for-service and national-health based. Payments are made by both patients and third parties.

During its sixty-year history, the PDHS has undergone many changes. The organization of dental work has been an issue throughout its existence, but focal problems have varied. For a long period, recruitment of dentists willing to work in the PDHS was the central problem. On the introduction of the national-insurance plan in 1974, the structure of the organization was changed to permit stricter regulation, and also the detailed control of private care. Over the last decade, the PDHS has been characterized by accelerating organizational change. There is even a temptation to claim that the PDHS has become an experimental field for management fads and new organizational ideas.[3]

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[1] There are three levels of public administration in Sweden, each with its own independent taxation rights. The lowest is the municipality or "commune" (about 280 in the whole of Sweden). The intermediate is the county council, mainly responsible for health care but also for regional planning, traffic, etc. (about 25 in Sweden). The highest level is the state. By law, municipalities and county councils are highly independent, and can only be governed by legislation (not state order). The state is divided into the central government and various national boards/agencies, which are also highly independent and can only be governed by legislation.

[2] There is at present (May 1998) a government proposal for price freedom in the adult sector (Cabinet Proposal 1997/1998:112). The rules for National Dental Health Insurance have been changed ten times since 1974. The uncertainty this has generated is considered to lie behind the stagnation in dentistry (SOU 1998:2 pp. 64-65). According to Praktikertjänst AB, investments in private dentistry are now at their lowest since 1973.

[3] Some examples: Business development in Gothenburg PDHS (Lindell et.al 1985), the so-called "Bohus" model, with clinics' "contracts" for targets and evaluation; the PDHS in Kronoberg, with its personnel cooperative; Total Quality Management in Norrbotten County Council; the PDHS in Västmanland, with "market management (Hasselbladh, 1995); the so-called "Gustafs" project in Dalarna, based on a team consistsing of one dentist and six dental hygienists; "communications-driven change" in PDHS (Gustavsen et al., 1996, pp. 68-69).

The objective of this thesis in very general terms is to provide understanding of the organization of the PDHS and the problems therein. Analysis takes place against the background of the historical development of the PDHS (as will be described in the first part of this introduction). It will become obvious that work conditions in the PDHS have been the subject of debate for a very long time. There has been a continuous focus on how dentists should be managed in their work, in the light of their almost constant dissatisfaction with pay, pace of work, and management style.

The second part of the introduction consists of a brief review of what is known about work conditions and job satisfaction in dental care, both internationally and in a Swedish context. From this review, two essentially different images emerge: working with dentistry can be very stimulating and rewarding; or, by contrast, very stressful, pressing, exhausting, and poorly rewarded. There is a kind of reciprocal dialectic in the literature. On occasions, trying to find a true understanding of what work conditions in dentistry actually are can generate puzzlement and confusion.

It is this observation that forms the basis for the third part of the introduction. It is argued that there are indeed two aspects of work conditions in dentistry. As reflected in the title of this thesis, they can be characterized in terms of "healthy work", but also as "ruthless efficiency". An attempt will be made to describe some of the philosophical foundations of the concept of healthy work, and its opposite, that of ruthless efficiency. The concepts will be related to two main paradigms in health research: *salutogenesis*, encompassing explanations of the causes of health; and *pathogenesis*, focusing on the causes of disease. A central tenet here is that the duality of work conditions in dentistry reflects these two paradigms.

In the fourth part of the introduction, the genesis of ruthless efficiency will be traced and captured in the image of the “Panopticon" - a disciplinary strategy with long historical roots. In a sense, management *per se* can be regarded as a strategy of this kind, with the goal of disciplining and controlling the performers of work. In dentistry, this is a constant theme in discussions of organization and management. One modern management doctrine in particular, Human Resource Management, will be analyzed from this perspective.

However, the primary focus of this thesis is on dentistry itself, even if excursions into management theory, philosophy and history are required to understand the conditions under which it is practiced. A complication here is that management and control are ideas that have been largely formed in an industrial setting. As will be shown in the fifth part of the introduction, this can give rise to difficulties when the object of work is another human being (e.g. a patient). Accordingly, management doctrines will be analyzed in relation to a specific branch of organization theory, namely that of "Human Service Organizations". One hypothesis is that the duality of dental work, to a large extent, follows from the fact that the object of work is a person. Dentistry is essentially about a relation to another human being, not the application of advanced technology to a mouth that is somehow separated from the patient on whom it happens to be situated.

By now, it should be obvious that the introduction to this thesis will be unusually long. However, taking a route from the history of the Swedish PDHS through to the theory of Human Service Organizations makes it possible to formulate a series of more specific aims. There are a number of different stations on the way. Passing these will be followed by a description of the studies that form the material base of this thesis. Some attention will also be paid to the statistical methods used for analysis, which are occasionally quite sophisticated.

The thesis is concluded with a discussion of results, and with reflections on dentists' opportunities to respond to troublesome work conditions.

1.1 The Shaping of Swedish Dental Care

The first decades of the 20th century were marked by increasing awareness of deficiencies in dental health status among the Swedish population. There were few dentists (about 500 throughout Sweden in 1920), most of whom worked with adults in large towns. Lack of dental services for children, the poor and the rural population prompted criticism of the dental profession, both in the media and in parliamentary bills (Thurfjell, 1983; Bäckman et al., 1988). The historian Klas Åmark writes:

> "The intensive work of dentists to create a market for their profession through campaigns for oral hygiene led to a contradictory situation. Understanding of the problems of dentistry, both among the public and in the government, increased; but a small number of dentists and high charges made it impossible to cope with growing demand." (Åmark, 1989, p. 98).

The dentists' monopoly was threatened if they did not take on responsibility for improving the situation. If dentists "continue to plan only for the well-to-do there is a risk of socialization" (Tandläkartidningen, 1923;2:33-40). There was, for example, during the 1920s a proposal to provide shorter courses of training for a new group of dental workers, who would then carry out simpler tasks (Bäckman et al., 1988, pp. 107-122)**.** This naturally aroused opposition among dentists. This period has been described retrospectively as follows:

> "During the years 1920-1924, dentistry was the subject of very lively argument, in Parliament, in the professional press, and in the daily papers. It is no exaggeration to say that no professional group was exposed to greater and more dubious criticism during these years than dentists. It often seemed as if *the aim was to crush the Swedish dental profession* ..." (Thourén, 1939, cited in Bäckman et al., 1988, p. 116, original italics).

Constructing a public dental service for the entire population formed part of the dentists' endeavor to raise their status in society. In exchange for the privilege of monopoly, it was necessary for the profession to show some social responsibility. The established dental profession also realized that a public dental service would provide work for the growing number of dentists, and also prevent "unrestricted competition" between dentists in the cities (Tandläkartidningen, 1934; 2:70). After years of debate and investigation, the Swedish Parliament decided in 1938 to start up a public dental service under the auspices of the county councils.[4]

The public dental-service reform aroused great expectations. The very name of the service, "Folktandvård" (people's dental care), was seen as a promise of cheap dental care to everyone. Plans for development were optimistic. The new Public Dental Health Service (PDHS) was to be fully in place within ten years, which required that practically all newly certified dentists would work in public service. The recruitment of dentists to clinics in rural areas was, however, a problem that was to persist for more than 40 years.[5] A precarious situation arose, with new –

[4] Dorthe Holst (1997) has analyzed the development of public dental health in the Nordic countries, dividing it into what are called the stages of the welfare state; Experimentation (1900-40s), Consolidation (50s and 60s), Expansion (70s and 80s), and Re-orientation (beginning in the final years of the 80s).

[5] The dentists' representative in negotiations on the resolution of 1938 was Sven von Sneider. In his memoirs,

but empty – clinics in rural areas. This aroused a storm of indignation in the media, and government investigations were initiated to examine the problem (SOU 1948:53; SOU 1960:1; SOU 1970:11) Some of the measures taken to recruit dentists to the public sector were as follows:

1. One year on civil-service duty for all newly certified dentists (1943-1949).

2. Extensive recruitment of foreign dentists (in the mid-50s, four out of ten dentists in the PDHS were foreigners) (Tandläkartidningen 1954;6:175, 1957;19:187).[6]

3. Educational grants in return for which dental students pledged to work in the PDHS (1943-1970s). Dentists who tried to free themselves from such agreements were excluded from the Swedish Dental Association (Tandläkartidningen, 1950;7:147-148).

4. Dentists working at municipal school clinics were successively integrated into the PDHS. Among these, there was a large proportion of female dentists (Thurfjell, 1983, p. 60, 122).

5. An increase in the number of students at dental colleges, from 120 per year in 1943 to 480 per year in 1971.

6. Solution of the problem of recruitment by means of the introduction of a public dental-care insurance in 1974. No new private dental practices could be covered by the insurance scheme,[7] which in effect halted the establishment of new private practices. At present, in 1998, there is a discussion on whether this restriction on the establishment of private practices should be removed.[8]

Today, a combination of better dental health, cutbacks in the public dental-insurance system, and an increasing number of certified dentists has led to unemployment and emigration in the profession. In 1996, about 500 Swedish dentist were wholly or partly unemployed (1998 they were about 200), and an additional 450 dentists were working abroad (mainly in England). There is therefore hardly any problem of recruitment to the PDHS.[9]

"Sveriges Tandläkarförbund 1908-1958" (1958, pp. 175-183), he describes the great power gap between the parties in these negotiations. Von Sneider predicted that the level of salaries proposed would entail problems of recruitment, but his opponents reckoned that increased training of dentists would solve these problems.

[6] Dentists with a foreign certificate were not allowed to work as private practitioners before the 1960s. Only after five years work in the PDHS could they obtain a permanent position. Nor were they able to change municipality without their employer's permission. During the 30s and 40s dentists came form Germany, Austria, and the other Nordic countries. During the 50s and 60s municipalities actively recruited dentists at foreign colleges, e.g. in Denmark and Bulgaria (Bäckman et al., 1989, p.60; SOU 1970:11 p.131).

[7] In a comments on the bill, this was described as "... a provisional measure - as an ultimate guarantee - to limit the number of affiliated dentists during a period of at most two years" (SOU 1972:81, p. 220). The need to exercise control of establishment to restrict competition among dentists in large towns had been discussed among dentists as far back as in 1955 (Tandläkartidningen 1955; 21, Editorial, Oldmark).

[8] The Swedish Association of Private Dentists has reported Sweden to the EU Commission on the grounds that regulations for affiliation to the National Dental Health Insurance prevent free access to the dental-care market (SOU1998:2).

[9] The Federation of Swedish County Councils reported on the good availability of dentists in 1996. There was an excess of dentists in 16 of 25 county councils, and no shortage was reported anywhere in Sweden (Landstingsförbundet 1996). During the period 1990-1995 the number of dentists in the PDHS fell by 9%, from about 5,150 to 4,650 (Mimeo, the National Social Insurance Board, 1997). The need for dentists is expected further to diminish. In the year 2010, it is reckoned that 7,000 dentists will be needed in Sweden,

In sum, the development of the PDHS may be described as the product of two circumstances. The established dental profession, completely dominated by private practitioners, was in favor of socially oriented dental care. This was necessary for the reputation of the profession, but positions in the public sector were to be filled by groups of dentists other than the "established".[10] Also, the national government/county councils desired a rapid expansion of the PDHS, but were not prepared to offer competitive wages and conditions of work. The measures taken resulted in weak groups of dentists being forced into the PDHS. Sweden's dentistry problem was solved initially by steering into the PDHS professionals who were newly certified, students in need of grants,[11] immigrants, and dentists in the municipal school clinics. In the long term, recruitment was ensured by increasing the number of students, and by the introduction of a public dental- insurance system that enabled the establishment of new private practices to be halted. Figure 1 shows how male and female dentists were distributed between the private and public sectors during the 90s.

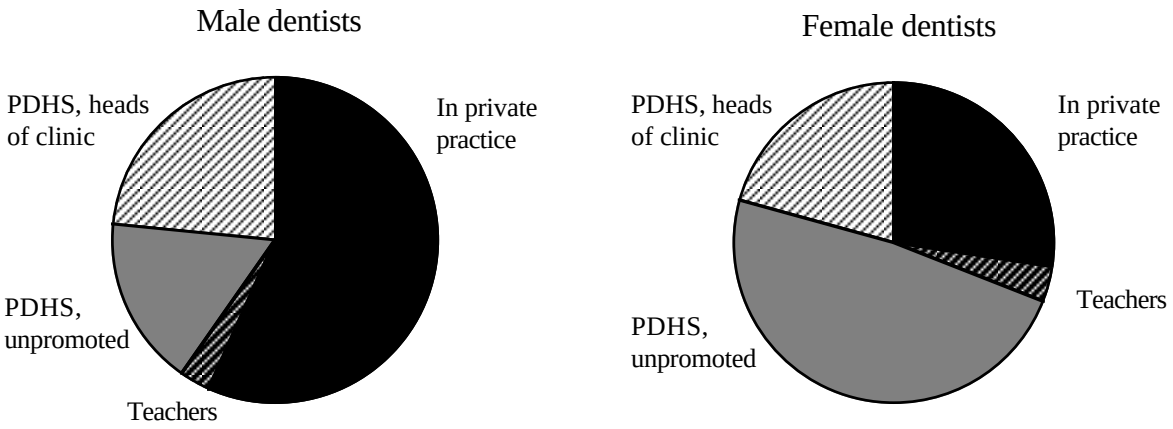

Figure 1. Distribution of male (n=5,100) and female dentists (n=3,800) between the private and public sectors, and hierarchical distribution within the PDHS. Data: Sweden's National Social Insurance Board; the Swedish Dental Association; the Federation of Swedish County Councils; Bejerot (1993).

Development of work conditions in the PDHS

While it was difficult to recruit dentists to the PDHS, it proved even more difficult to get them to stay. Every second dentist left the PDHS within two to four years, and 85 percent within five (SOU 1970:11, p. 90).The reasons for dentists failing to apply for jobs in the public sector were widely discussed. Representatives of the dental profession claimed that wages and conditions of work were not sufficiently attractive, and suggested, among other things, the establishment of part-time working, promotion schemes, and less bureaucracy and control (Tandläkartidningen: 1941;20:585-588, 1950;21:465-468, 1958;1:1-8). The problem was also addressed in a number of government investigations, but the measures suggested were largely confined to extending dental training and finding various ways of maneuvering dentists into the PDHS (SOU 1935:46; SOU 1946:12; SOU 1953:36; SOU 1960:1; SOU 1970:11).

2,000 fewer than today (SOU, 1998;2).

[10] The interests of young physicians in Sweden are represented by the Association of Junior Hospital Physicians (SYLF). Their interests has appeared to be quite different from those of the leadership of the Swedish Medical Association (Heidenheimer, 1980). There is no corresponding organization among dentists.

[11] It may be assumed that children of wealthy parents chose not to apply for these grants.

A further aspect of conditions in the early PDHS lay in the nature of the work itself. It was characterized by long queues of patients, many of whom were in need of extensive treatment. Work consisted to a great extent of extracting decayed teeth in children, and often total extractions in adults – which was likely to have been very emotionally demanding. This, however, was never discussed in the issues of the Journal of the Swedish Dental Association or the governmental investigations of the period. A glimpse of the situation can be found in this retrospective comment on that time:

> "A rather large part of the work consisted of total extractions and production of dentures – which is difficult and saddening work (...) Someone has described the blood-stained tracks on the snow at the side of the road in rural areas in winter, which led patients from the bus stop to the dental clinic without their needing to ask the way" (Osvald, 1958, cited in Bäckman et.al, 1988, p. 41).

Since the introduction of the PDHS, questionnaires on the work environment have been administered. These studies show that, as far back as in the 40s, dissatisfaction was prevalent among dentists concerning the problems of high demands and low rewards, piece-work wages, detailed control systems and lack of self-determination (Tandläkartidningen, 1942, 1966, 1967, 1968; SOU 1960:1 appendix 1; Sveriges Tandläkarförbund, 1976; Bejerot, 1989, 1993; Sveriges Tandläkarförbund 1990; Sveriges Tandläkarförbund et al., 1996). As an example, a questionnaire administered to PDHS dentists in Halland County Council in the 60s (Tandläkartidningen, 1966) showed that there was no opportunity for a dentist to retain his/her patients from year to year. PDHS dentists felt that they had low status, that the organization was rigid and obstructed by rules and regulations, and that work was heavily characterized by queues and patients with difficult treatment problems. A report, one year later, from dentists in Västmanland County Council confirmed the report from Halland. The conclusion was as follows:

> "To expect that the recruitment problems of the public dental service will be solved by training more dentists to fill existing vacancies would be unfortunate. This would only preserve the defects." (Tandläkartidningen, 1967;17:714).

The problems are further illustrated by the comments of dissatisfied dentists made in the Journal of the Swedish Dental Association. Here it is stated that the main problem of the PDHS lies in its leadership style, which is marked by mistrust of the dentists:

> ”In general, you would like to feel like an adult in your work, not like a suspect school boy who must always be kept under the vigilant surveillance of a strict and pedantic teacher" (Oldin, Tandläkartidningen 1949;21:399).

> "This continuous inspection of professional performances, which goes on upto retirement age, is regarded by many as a vote of no confidence" (Melander, Tandläkartidningen 1949; 18:319).

Reports such as these from the various work-environment studies suggest that work conditions and leadership style were important reasons for the recruitment problems of the PDHS.

The 1960s and 70s were the decades of work rationalization in dentistry. Ergonomic development of equipment was embarked upon during the 60s. Dentists, who had previously performed their work in a standing, twisted and forward-flexed position, were now offered a

comfortable, seated posture. All instruments were placed in ergonomically appropriate positions. However, this was also a period of rationalization of work organization. In the new system, there was an increasing division of labour, suggesting a greater emphasis on Taylorism. This development was especially pronounced in the PDHS. Winkel and Westgaard's (1996) description has given rise to the expression *"ergonomic pitfall"*.[12]

> "Working teams were established including a receptionist, dental hygienist and sterilization assistantce, and the nurse got redefined tasks. In this system one main task was left to the dentist: working in the mouth of the patient in an ergonomically 'correct' posture for most of the working hours" (Winkel and Westgaard, 1996, p. 73.)

These ergonomic and organizational rationalizations were effected during a period of major patient queuing and dental-treatment delays. In 1960, there were a total of 220,052 adults in the queue to the PDHS (Tandläkartidningen 1965;22:910). Pressure increased further when the National Dental Health Insurance was introduced in 1974, which reduced the price of treatment for patients. During this period, a number of time studies of dentists' work were carried out, and their results used in government investigations into dental services and revisions of rates of payment (SOU 1972:81; DsS 1982:12; DsS 1983:6).[13] The Swedish Dental Association took part in this, and informed its members that they should regard it as a prerogative to take part in the investigation gratis (Tandläkartidningen 1970;13:681). Piece rates were introduced into pediatric dental care in 1965 (Tandläkartidningen 1964;19:579-580). Dentists in the PDHS protested, but in vain (Tandläkartidningen 1965;3:88-90, 1965;12:538-541)[14]. In retrospect, Malmberg (1986) writes that there was strong resistance among dentists in PDHS, a resistance which was hardly manifested in the Journal of Swedish Dental Association.

The 70s, however, were also a decade when ideas of industrial democracy and employee participation deeply penetrated Swedish working life in general. Taylorism tended to be replaced by a more humane management style inspired by the school of Human Relations (see Section 1.4). The change seems to have made its mark on the PDHS. For example, the system of control by means of visiting dentistry inspectors disappeared.

One major study of the work conditions of Swedish professional groups, including dentists in the PDHS, was made during this period (SACO/SR,1976).[15] It points out that dentistry was mentally and physically demanding, and that dentists tended to suffer physical symptoms of ill-health to a greater extent than other groups of graduate workers. The work-environment program of the Swedish Dental Association (Sveriges Tandläkarförbund, 1976) was based on

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[12] Dentists in the PDHS and private practice spend 92% of their working time on patient treatment (DsFi, 1983:27, pp. 28-29). The county councils report that 85% of dentists' time is spent on patients. It is worth comparing these figures with patient time for medical staff in hospitals: physicians and nurses 35%, assistant nurses 72% (Härenstam et al., 1996, p. 7).

[13] Gustafssons' (1987, 1989) historical/sociological study of the organization of Swedish health care contains a description of rationalizations effected over the period 1940-1960 (Gustafsson, 1987, pp. 397-407). In Taylorian spirit, time studies were conducted of the work of direct carers, but the tasks of physicians were totally exempted, "… naturally, they should have full freedom to arrange their work as they found best for their patients (SOU 1951:17, p. 8, cited in Gustafsson, 1987). In dental care, the situation was quite the reverse; the focus of work studies was on the work of dentists themselves, not on auxiliary personnel.

[14] This was a question that the County Councils had pushed since the fifties, but then had been met by strong trade union resistance (Tandläkartidningen 1952;7:165-166).

[15] The study "SACO/SR - gruppernas arbetsmiljöer" (1976) has never been presented in any report. Only stencils with tables showing raw figures are available. 2,060 graduate workers responded to the questionnaire, of whom 106 were dentists (42 from the PHDS).

this study. It was mentioned that piece-work charges and piece-work wages, bureaucratic treatment programs, and detailed control of the work of dentists were important problem areas.

In response to this work-environment study, dentists' representatives contacted a group of research workers to have their problems analyzed and find strategies for improvement. Professor Kronlund and his research team were instructed to conduct a preliminary study in order to prepare a research strategy to address the overall work-environment problems faced by dental teams (Bergerling et al., 1979). The researchers soon discovered that it was not the physical design of chairs and tables that was causing the problems.

> "We thus found that the problems could not be solved by means of a classical ergonomic investigation (…) The solution of the problem must be concentrated on a genuine system organization level, where the economy and technique were the most important basic variables" (Kronlund, 1981, p.150).

The problem analysis caused frustration in the reference group. The chairman of the group resigned, and the research workers stopped the project. However, the work led eventually to a doctoral thesis, "Women in dentistry" by Thurfjell (1983), which illuminated work division, gender segregation, and hierarchy in the dental sector. She expressed her conclusions as follows:

> "It should be possible to prevent competition between different professional groups by giving dentists career opportunities (…) A sufficient number of patients and working conditions which make research possible should stimulate dentists and thus encourage them to delegate tasks and to work in a team of well-trained and competent staff. Dentists should occupy themselves only with tasks which cannot be executed by other members of the team" (Thurfjell, 1983, p. 102).

New management strategies in the 80s and 90s

By the 80s the queues for treatment had almost disappeared, and the recruitment of dentists was no longer a problem in the PDHS. The decade was characterized by quite different problems. The efficiency of the public sector in Sweden was debated in quite a new way, reflecting international trends with regard to public-sector cutbacks and austerity. In relation to dentistry for adults, comparisons were made between the public and private sectors (DsFi 1983:27; Westerberg, 1987; Jonsson, 1989), which suggested that the private sector was superior in terms of productivity. The very legitimacy of the PDHS was questioned, and there was an increased focus on its finances and productivity (SPRI, 1985). General problems of efficiency led to the government recommending that the public sector should learn from the private. This, in turn, resulted in major changes in management doctrines, involving the convergence of traditional public-administration and market models (Collin and Hansson, 1993; von Otter, 1994; Furusten, 1995). Customer orientation, management by objectives, result units, internal competition, and decentralization became key concepts. In fact, the PDHS had been subject to these private-sector management influences before many other parts of the public sector in Sweden – even before 1986 (Petersson et al., 1987; Lindell et al., 1985).

The focus on financing and profitability remained during the 90s. Competition was seen as an important strategy for stimulating increased productivity and efficiency in the dental sector, and was strongly advocated by both the government and independent academicians (Petersson and Westerberg, 1989; Jonsson, 1989; Konkurrensverket, 1993; Jönsson and Karlsson, 1994).

New management strategies continued to be introduced during the 90s. Hasselbladh's (1995) case study of one county council, performed in 1992, provides a good illustration of this

development. It shows how a new management strategy, so called “market management“, was effected within the PDHS. Hasselbladh's work demonstrates how county-council leadership became euphoric over consultants' presentation of “market management“, the norms and ideas of which legitimized increased direction and control. Heads of clinics acquired a “new language“ through leadership training (pp.79-83); a new computer-based control system was considered by the leadership as having “exchanged darkness for light“ (p.123). When these management strategies reached the rank and file, however, they were met with aversion. The justification offered by the administration for the changes, however, was that they allowed dental health to be promoted. But this project goal was never shown to have been achieved in practice. Rather, dentists felt that aims related to the quality of care were neglected. The outcome of “market management“ was the creation of a local bureaucratic process, resulting in increased control and pressure to reduce costs.

Charges, [16] based on time studies combined with the detailed follow-up of every hour worked by each dentist or dental team, provided the grounds for a detailed control system – from macro level down to the individual PDHS employee. Records of treatment and time utilization, and bonus systems are important management control systems. As well as data on quantitative results (income/hour, revenue/cost ratio, average treatment time, number of treated patients), epidemiological statistics over time (number of recovery cases attributable to faulty prosthetical works, and other qualitative assessments of treatment) can be collected. The number of fillings in different age groups, and the number of patients who do not turn up (as a measure of psychological care) are examples of measures which can be followed at the level of the individual dentist.

Another case study, Modell (1998, pp. 83-148), offers a detailed description of the PHDS management control system in a single Swedish county. Modell points to the increasing weight given to general managers' performance evaluation and feedback to the clinics. Cross-clinic comparisons are also made, and it is considered “relatively easy to identify inputs and outputs in district dentistry“ (p. 100). Graphical presentations are viewed as a means of encouraging a “competitive spirit“ among heads of clinic (p. 101).

> “The interviews with clinic managers provide obvious indications of formal control practices gaining pervasive force. Control was said to have become increasingly 'distinct' in recent years and one clinic manager claimed that there was 'an enormous power in putting things down on paper'. All district-clinic managers claimed that both they and their superiors had come to focus more strongly on the revenue/cost ratio and other financial measures“ (Modell, 1998, pp. 138-139).

The previous piece-work wage system for dentists was replaced by individual salaries and bonuses at clinical level. The reason for this has been to reinforce “team feeling“ within each clinic (p. 104). At clinic level, feedback is given collectively at regular monthly meetings, and also to all dental teams separately (which are continuously compared with annual goals established for each team). Maintaining a high level of “chargeable“ time (i.e. treatment of adults) is of particular importance for dentists who command the highest hourly fees. Revenue and cost budgets are set as “contracts“ for each team, and the performance responsibility of the dentist as a "head of team" is emphasized (p. 107).

[16] The charging principles are as follows: charge neutrality per unit of time, compensation in accordance with the fee-for-service system, and compensation based on average costings for the production of a certain item.

> "However, the clinic manager sets individual revenue targets for both dentists and hygienists. These targets are expressed in absolute terms but are divided into revenues attributable to the care of adults and children. However, revenue targets for the care of adults are also translated into hourly rates for different categories of staff and the measures were said to be extensively used for the dialogue between teams and the clinic manager" (Modell, 1998, p. 107).

From soundings of the perspectives of subordinates, it emerges that growing performance pressure is associated with varying degrees of stress and tension. What Modell called "a striking observation" is that the experience of stress was found to be more pronounced among staff with clearly specified performance targets, i.e. dentists and hygienists (p. 145). Modell's case study aims at the construction of a theory of "responsibility accounting" in highly interactive services, and is inspired by what is described as a "control package approach". To accomplish this aim, the "customer-induced uncertainty" attributable to the generic-process stages of interactive service work was identified.[17] According to Modell, this would enable the "black box" of service operations to be opened (pp. 293-294).

A further suggestion as to how management control might be developed in dentistry has been presented by Swedberg (1995). On this view, information systems should be developed (e.g. by means of a buy-and-sell system) and then combined with a computerized follow-up program through which the efficiency of a dental *team* could be measured.

To sum up, this historical survey shows that there has been a work-environment problem in public dentistry right from the outset. Dissatisfaction with leadership style is a recurring theme. The unpopular visiting inspectors of the early years of the PDHS have been replaced by the application of a more modern management style, with increased emphasis on the managerial role of heads of clinics and on circumstantial control systems based on information technology.

A more vivid picture of the consequences for dentists of the "modern" approach emerges from a questionnaire study, for which the individual views of dentists were recorded.

Voices from the PDHS

A questionnaire administered in 1992 contained a question inspired by earlier research into the discrepancy between expectations and realities in the dental profession (Schwartz and Murray, 1981; Eli, 1984). The open question was worded as follows: "If you recall the view you had of the dental profession when you were a student, what is different to what you had expected?"[18] Although the question was not designed to illustrate the impact of management control systems or changes in work conditions, the responses (in dentists' own words) provide insight into everyday difficulties and thereby facilitate understanding of management and work-related problems.

Various responses to the question were initially sorted under the main headings "Worse" and "Better", with most ending up under the heading "Worse". They were then given subheadings in accordance with the categories: "demands" (physical, mental, economic, contradictory), "material values" (status and money), and "immaterial values". Responses in the first two categories were found to be relatively uniform; while those in the latter (immaterial values) proved to be varied, and gave rise to subcategories (such as meaning of work, paths of development, and recognition). One area was characterized by descriptive phrases such as "lack

[17] Four stages were identified: the boundary-spanning stage, the pre-planning stage, the core-activity stage, and the customer-decoupling stage. District dentistry in the PDHS was considered to have lower customer-induced uncertainty at the latter three stages than work at an accounting firm (Modell, 1998, p. 271).

[18] The study is described in greater detail under the heading "Study 2" in Section 3 "Material and Methods".

of freedom“, “detailed direction and control“, “conveyor belt“ and “fettered to the chair“, which were then encompassed under the heading “enclosure“. "Demands and rewards", "meaning of work" and "enclosure" became sensitizing concepts (Patton, 1990), which guided the further process of search and interpretation. Metaphors were employed in these interpretations - a manner of proceeding inspired by the work of Göranzon (1993).

Dentists' responses concerning what had been different from what they had expected often referred to poorer salaries[19] and status than expected; also, the work was more mentally and physically demanding than they had imagined. Lack of balance between effort and reward was considered to have increased.

> "Much more mental and physical stress. Salaries are low; we used to have almost the same salaries as physicians, there is a big difference now."
>
> "The status of the profession has deteriorated considerably. Poor pay trend in comparison with the amount of work which is now expected."
>
> The pace of work has increased more and more. After 14 years, I feel totally worn out."

Many comments concerned contradictory demands: professional pride and loyalty to patients on the one hand, and economic necessities on the other. They suggest that management and employees in the PDHS do not have a shared view on the priorities and basic aims of their activities. In relation to the meaning of their work, the view expressed by dentists is almost one of desperation.

> "The good sides of the profession, positive patient contact and personal satisfaction with professional treatment, has almost disappeared in recent years. Now, they are expected to lie with their mouths wide open and money in hand when the dentist comes into the treatment room (…) If you want to have more time with a patient, you have to read the charge sheet like the Devil reads the Bible."
>
> "I had not expected to be hunting for money in the way we do today. I thought we would be able to care for patients, even if their financial situation did not permit any great outlay on dental treatment."
>
> "It is very important to do a good odontological job. But I feel that I am under pressure from my employers to increase quantity and takings. I feel that I am wearing myself out – without personal financial gain and at the cost of physical health."

One of the dimensions that becomes apparent from the analysis is control and confinement, which may be interpreted in terms of various forms of visibility and enclosure.

> "I had no idea that there would be so much control, via time reports, takings/hour, median treatment times, and so on. It's as if you're fettered to the chair."
>
> "You stand in your booth, work according to every ten- or fifteen-minute booking. I don't think you should work with people in this way. A lot of paper/administrative work. Every minute of the working day has to be accounted for!"

[19] A district dentist in the PDHS earns about 22,000 SEK/month , the equivalent of 33,000 US $/ year (Mimeo, SACO, 1996).

> “I had not expected to be so chained to the treatment chair and have so little opportunity for contact with colleagues and other staff during the working day."

These comments concern organizational and physical enclosure, marked as they are by restricted work content and a detailed reporting system. Another form of enclosure described by dentists in PDHS is narrow range of competence and limited opportunities for development.

> "I never thought there would be so few chances for development and that the intellectual stimulation would be so small."

> "Much higher pace of work and little further education, and small chances of changing your job."

> "Unfortunately, there is a crisis now, no jobs, the future looks bleak for newly qualified dentists who don't have the money to buy a practice. And that is a matter of millions."

Dentists gave evidence of enclosure or confinement on three dimensions: 1) in space, 2) in competence, and 3) on the labor market.

As pointed out above, such work-related problems have been reported in the PDHS since the 40s. An interesting question is whether these problems have changed. The studies reported here are cross-sectional by nature, and therefore cannot directly address such a longitudinal question. Nevertheless, in responses to the questionnaire, reports of a *deteriorated* situation were rather common. Change in pace of work was expressed in phrases such as "work pace has been forced upwards more and more", and "demands are increasing the whole time". Perceptions of income and prestige had also changed – as indicated by responses such as "status has deteriorated" and "previously, we had almost the same salaries as physicians". Responses describing improvement were rare. Usually, they were a matter of a head of a clinic stating that the position suited him or her well, a role he/she had not expected when in training. Still higher up in the hierarchy, a couple of PDHS general directors pointed to improved dental health as something unexpectedly positive.

Responses to the questionnaire as a whole do not support the idea that there has been any significant improvement in work conditions in the PDHS. One question that crops up is whether the problems of high mental and physical demands, contradictory demands, and the sense of being enclosed are inherent to dental practice in Western countries today or are specific phenomena in Sweden. This question lies beyond the scope of the studies presented here. Nonetheless, the survey of studies of job satisfaction and occupational stress in dentistry presented in the next chapter suggests that there may be something in the idea, and that the problems in dentistry are similar in many ways in several different countries.

1.2 Problems and Prospects in Dental Care

Findings of research into dental care before 1990, mainly in English and American journals, may be summarized as providing evidence for overall job contentment being related to satisfaction with delivery of care, relations with patients, and job autonomy. By contrast, job stress and lack of time for oneself were sources of dissatisfaction. However, two extensive review articles conclude that the dental profession has no serious problems with regard to work conditions (Kent, 1987; Mandel, 1993):

"It may be that ‘everyone knows’ dentistry is stressful but that this is based on expectations rather than experience. To say that the stress of dentistry is a myth may be too strong a conclusion, but it does not seem to be substantially greater than that of other health professions. (...) The one health problem that has turned up is low back pain, and this could be associated with anxiety“ (Kent, 1987, p.145).

“As compared to other professions, dentistry ranks low in occupation-related morbidity and mortality. Although there are concerns in the field, reasonable caution and prudent office practices can minimize occupational risks – with virtually no hazard to patients“ (Mandel, 1993, p.48).

Two versions of dentistry

The impression given by a review of international studies, published in the 90s, is that there are two different views on conditions in the dental profession. One is that the profession is characterized by stress and job dissatisfaction, whereas the other is that dentists have a high degree of job satisfaction. The studies are summarized in Table I below. Gunn and colleagues (1990) have even contended that the alleged problem of dentists' work is merely myth and rhetoric. They refer to an American study showing that dentists believe their occupation to be more stressful than others, while at the same time believing themselves to be under less stress than other dentists (O'Shea et al., 1984).

By contrast, a study of Bourassa and Baylard (1994) finds clear indications of occupational stress among Canadian dentists. Their classification of specific occupation-related stressors is based on two dimensions: task or organization (i.e.isolation, financial burden), and interpersonal relations (i.e. anxious patients, treating intricate cases). These two dimensions are mirrored in one way or another in almost every study of dentistry as an occupation.

In a study on burnout and its causes among Finnish dentists, Murtomaa and colleagues (1990) found that more than half of the dentists they investigated felt exhausted at the end of the working day. They related psychological fatigue to pace of work and poor working posture. A study of the community dental service in Wales (Humphris and Peacock, 1992) showed that extreme work pace caused fatigue in dentists but did not reduce job satisfaction, measured in terms of “achievement“. Instead, pressure from organizational demands was the best predictor of job dissatisfaction. These findings are in line with American research (Shugars et al., 1990; DiMatteo et al., 1993) showing that dentists tend to be satisfied with patient relations, professional relations and the delivery of care, but less satisfied with aspects of their professional environment (malpractice risk, income, personal time, and practice management).

A study of dentists in the UK is currently being conducted by Cooper and co-workers (Waddington, 1997). Their pilot study shows that the area of stress most often mentioned by dentists in the UK is the change in macro organization that results in changes to the system of running a practice. The uncertainty felt over possible further changes is of particular concern. Other recent reports on job-related stress also indicate that, at least among publicly employed dentists in the UK, organizational factors are regarded as important, e.g. new administrative systems (Humphris and Peacock, 1992), proportion of NHS/private work (Osborne and Croucher, 1994), and capitation scheme versus NHS (Newton and Gibbons, 1996).

A strong relation between diminishing respect for practicing dentistry and job satisfaction is discussed in some articles (Blinkhorn, 1992; Gerbert et al., 1992; DiMatteo et al., 1993; Davidove, 1996). Blinchorn’s (1992) study of dental practitioners in Britain revealed a feeling of being undervalued and trapped in a dental practice until retirement. This pessimistic view is

evidently an area of concern, which also results in difficulty in attracting students to dentistry school (Shugars et al., 1990).

A very different type of study is that of Mozer and Lloyd (1992). It concerns which personality type is satisfied with the dental profession. They found that dentists with a "risky and practical" personality were most satisfied, while those characterized as "thinking and theoretical" were least satisfied with their work.

Swedish studies

Swedish studies have shown there to be problems related to the work conditions of dentists during the last decade. A survey of the work environment in the PDHS showed that dentists had more musculoskeletal complaints and psychosomatic symptoms than their assisting nurses (Bejerot, 1989). There was a clear connection between high work tempo and problems of these kinds. The result was discussed in organizational terms, e.g. management style, piece-rate wages, constraint and isolation, and means of development. It has also been shown that dentists, both in the PDHS and in private practice, are very tired after work – more so than dental nurses (Bejerot, 1989) and other graduate workers (Bejerot, 1993). An example of widespread dissatisfaction, especially in public dentistry, is that every fifth female dentist in the PDHS feels aversion towards going to work, compared with one woman in thirteen in private practice and in other work requiring academic training. Half the dentists in both the private and public sectors were anxious that they might not be able to sustain the physical, mental and economic demands of the profession in the future (Bejerot, 1993). A questionnaire administered by the Swedish Dental Association confirms many of the results of the above-mentioned studies (Sveriges Tandläkarförbund et al., 1996). Of special interest in this context, since this study was interview rather than questionnaire based, is an investigation of female dentists in the PDHS (Strandberg, 1990). It was found that female dentists showed a higher level of "burnout" than that shown by female physicians in an equivalent study. Other problem areas were fatigue, worry, sense of being "locked-in", and discontentment with managerial style within the organization.

Hakeberg and colleagues (1992) show how the dental profession in Sweden is affected by financial considerations and the demands of employers on the one hand, and by an ambition to provide good treatment and satisfy demands of patients on the other. The study also shows that publicly employed dentists in Sweden feel that they are appreciated by patients, colleagues and the heads of clinics, a finding in sharp contrast to the lack of appreciation they perceive from their employers.

There are also studies that explicitly maintain the opposite, i.e. that dentists in Sweden's PDHS are largely satisfied with their psychosocial work conditions (Forss and Egelberg, 1990; Sjöström and Bergqvist, 1994). The emphasis here is on dentists being committed to their work, considering the variation in their work as sufficient, regarding their tasks as neither too difficult nor too simple, and being on good terms with the group in which they work and with their superiors. Dentists also feel that they have influence over their work. The authors consider their findings offer proof that the work environment is satisfactory, and that the negative image of work conditions in the PDHS suggested by other studies is misleading (referring to Bejerot, 1989). In-house personnel activities included similar ”studies of well-being” (Koch, 1990; Blank, 1990).

Other Swedish studies indicate that female dentists are especially vulnerable to adverse work conditions and liable to long-term sickness absenteeism (Goine et al., 1994), pain and

musculoskeletal problems (Rundcrantz, 1991), and work-related sickness (Petersson, 1992). The suicide rate has been shown to be relatively high among female dentists (Stefansson and Wicks, 1991). The Swedish Labor Inspectorate (Yrkesinspektionen) investigated the work environment of the PDHS, and showed that health problems were related to workload (Yrkesinspektionen, 1995). They recommended changes in work organization to reduce direct treatment time. However, this did not lead to any significant changes.

In Stockholm County Council "…an increased sickness absence of between 90 and 180 days has been noticed among women dentists over 40 years of age" (Stockholm PDHS, 1995, p. 2). In order to investigate and prevent this type of illness the so-called "Olivia" project was started in 1994, and is planned to continue until the year 2000. The project provides an interesting example of how work-environment questions are dealt with in the PDHS, and therefore deserves some attention.

Since health problems usually arise among women over 40, this prophylactic project was directed towards young women. A survey was conducted of 42 female dentists, aged 37-39, of whom only five worked full-time. The median value for stress reactions was high, and the foremost stress-related factors at work were found to be physical effort, high pressure of work, wages, leadership, and limited independence. The study participants, however, considered the work as meaningful. In the analysis of the results of the survey, it was maintained that an important cause of negative stress lay in the personality of the women dentists.

> "The stress profile of the participants presents a homogenous group of women with a high ambition to excel. They set too high demands on themselves. They not only strive to be perfect dentists, but also perfect mothers and wives" (Stockholm PDHS, 1995, p. 27).

The authors state that it is not easy for the employer to do anything about this psychological cause of the problems. Measures should instead be directed towards the physical work environment, e.g. good decisions when buying new equipment. It is further recommended that heads of clinics should be supported in their leadership role through additional management development and guidance. It is particularly pointed out that a leadership style characterized by openness and consideration is not in any way contradictory to the requirement of efficiency. The authors also recommend an examination of self-determination among dentists, since a combination of high pressure of work and a high degree of control in their own work does not usually lead to symptoms of stress. Development of this kind may even lead "to improvement of both productivity and health and well-being" (p. 23). As a whole, it is emphasized that a sensible life style, with a nourishing diet, exercise and sleep, builds up reserve energy. In addition, relaxation training, physical exercise, pause gymnastics and micro-pauses were recommended (p. 24). It is also stated that health depends only to a minor degree on environmental factors. It is claimed that the main cause of ill-health lies in life-style and way of life (pp. 30-31).

The report shows how the County Council (with the willing help of university researchers working on the side as consultants) avoided suggesting measures that would incur any great cost to the employer. Instead, the individuals, who are the victims of ill-health, are blamed, since weaknesses in personality and life-style are seen as the primary causes of illness – despite the fact that there is overwhelming evidence that addressing social and organizational factors offers the best prospects for success in health-promotion work (Söderfeldt, 1988; Haglund and Svanström, 1992). An article in the staff newspaper of Stockholm County Council (Fakta 26/2 1998, p. 7) refers to an ongoing study of the work environment in the PDHS in Stockholm.

The article indicates that the work-environment problem is still important, and that distrust of the leadership remains widespread among dentists.

Table 1. Factors associated with job satisfaction and job dissatisfaction. Studies of dentists published in the 1990s.

Job satisfaction		Job dissatisfaction, stress and burnout	
Factor	Study	Factor	Study
Relations with patients	Hakeberg et al. (1992) Shugars et al. (1990) Gunn et al. (1990) Murtomaa et al. (1990)	Difficult patients (nervous, uncooperative, unfavorable perception of dentist work)	Hakeberg et al. (1992) Bourassa & Baylard (1994) Newton & Gibbons (1996)
Work task (commitment, not too difficult, autonomy at work)	Forss & Egelberg (1990) Sjöström & Bergqvist (1994)	Work task (routine, lack of stimulation, no promotion prospects feeling isolated, trapped)	Bourassa & Baylard (1994) Blinkhorn (1992) Bejerot (1993)
		Time and scheduling pressures, pace of work	Hakeberg et al. (1992) Bourbassa & Baylard (1994) Newton & Gibbons (1996) Murtomaa et al. (1990) Stockholm PDHS (1995)
Professional work (delivery of quality care, opport. to develop skills)	Shugars et al. (1990) DiMatteo et al. (1993)	Conflict between profit needs and professional ethics	Hakeberg et al. (1992) Osborne & Croucher (1994) Newton & Gibbons (1996) Bejerot & Theorell (1992)
		Sustaining practice (financial burden, maintaining and building a practice, managing staff)	Hakeberg et al. (1992) Blinkhorn (1992) Bourbassa & Baylard (1994) Newton & Gibbons (1996) Blinkhorn (1992)
Relation to colleagues and/or head of clinic	Hakeberg et al. (1992) Forss & Egelberg (1990) Sjöström & Bergqvist (1994); Shugars et al.(1990) DiMatteo et al. (1993)	Management style (organizational demands, changes, management control, leadership)	Waddington (1997) Humphris & Peacock (1992) Stockholm PDHS (1995) Bejerot & Theorell (1992) Bejerot (1993)
		Decreased professional autonomy, insecurity, competition Small practice (professional isolation)	Romberg & Cohen (1990) Blinkhorn (1992) Bejerot & Theorell (1992) Osborne & Croucher (1994)
Solo practice, Self-employed	Gunn et al. (1990) Kaldenberg & Becker (1992) Shugars et al. (1990)	Work in public sector	Hakeberg et al. (1992) Osborne & Croucher (1994) Newton & Gibbons (1996) Murtomaa (1990) Bejerot et.al (In press)
Respect and prestige	Shugars et al. (1990)	Lack of respect and prestige, undervalued	Blinkhorn (1992) Gerbert et al. (1992) DiMatteo et al. (1993)
High income	Gunn et al. (1990) Bourbassa & Baylard (1994) Shugars et al. (1990) Romberg & Cohen (1990)	Poor working posture	Murtomaa et al (1990) Stockholm PDHS (1995)
Personality: risky and practical	Mozer & Lloyd (1992)	Personality: thinking and theoretical	Mozer & Lloyd (1992)
		Personality: perfectionist	Stockholm PDHS (1995)

1.3 Salutogenesis and pathogenesis

Studies of dentists' work conditions may be analyzed from the perspectives of two statements: 1) job satisfaction is related to the core of dentists' work; the delivery of care and relation to patients, and 2) job dissatisfaction is mainly related to organizational and material factors, such as economy and management, but also to contradictory demands and a lack of rewards and respect. These perspectives are in line with Herzberg's (1966) influential working-life research concerning motivators and hygiene factors (also called "satisfiers" and "dissatisfiers"). His main tenet is that job satisfaction and job dissatisfaction are determined by quite different sets of factors. Constituents of the "satisfiers" set are achievement, recognition, the work itself, responsibility, advancement, and possibility of growth. Constituents of the "dissatisfiers" are company policy and administration, supervision, interpersonal relations, work conditions, salary, status, and job security (pp. 76-77). The "satisfiers" are task factors; achievement in tasks that have meaning for the individual was found to give a sense of growth. "Dissatisfiers" do not possess the characteristics that are essential to this.

> "There was an approach-avoidance dichotomy with respect to job adjustment. A need to avoid unpleasant job environments led to job dissatisfaction; the need for self-realization led to job satisfaction when the opportunity for self-realization was afforded" (Herzberg, 1966, p. 78).

Herzberg describes these two sets of needs at work (related to hygiene factors and the motivators) as being reflected along "two continua in mental health: a mental-illness continuum and a mental-health continuum" (p. 77). His distinction between them may be subsumed under an even more general paradigmatic cleavage, that between salutogenesis and pathogenesis.

Research in the arena of public health has been criticized for concentrating exclusively on adverse conditions and ill-health – "misery research" to employ the pejorative label sometimes attached by public-health professionals. There is overwhelming evidence that poor living conditions lead to poor health, as expressed in the stereotypical remark, "It is better to be rich and healthy than poor and sick". Critics of this approach take the view that it is not really necessary to demonstrate this time and time again. Over the last decade or so, such criticism has found expression in a new perspective on health research, one that focuses on health rather than sickness. There have even been suggestions that such a change in focus amounts to the transition to a new paradigm – called salutogenesis to contrast with the old pathogenesis. This is then presented almost as a Kuhnian "scientific revolution", where there is a focus on circumstances leading to good health instead of well-known pathogens. On the salutogenic view, of which Aaron Antonovsky (1987) has been a leading proponent, presence of health is regarded as qualitatively different from the absence of disease (Strümpfer, 1990). In a recent work on the "contours of positive human health", Ryff and Singer (1998) recognize important aspects of the "goods" of life, including work-life. Their argument is based on philosophical and biological theories. Meaningful activity, benevolence (concern for the well-being of others), self-esteem and mastery are factors that define the presence of protective mechanisms, and "wellness" rather than illness.

Healthy work or ruthless efficiency?

As in the public-health arena, much research into work and working life has the specific aim of showing the detrimental effects of work – especially health hazards of various kinds. Partly as a

reaction against what might be regarded as a "negative" approach, "healthy work" has been proposed as a key concept to define a research domain (Karasek and Theorell, 1990; Swedish Trade Union Confideration, 1991). In their book, ”Healthy work; stress, productivity, and the reconstruction of working life”, Karasek and Theorell (1990) summarized characteristics of what they called the ”new bad and good jobs” (pp. 316-317). They emphasize the importance of skill discretion, autonomy, psychological demands, social relations, social rights, meaningfulness and customer/social feedback. They do not use the term themselves, but a perspective such as theirs might well be regarded as salutogenic.

> ”The good jobs are good because they offer the potential for human development: learning, user-friendly tools, responsibility, negotiable demands, stimulating challenges, co-workers as teachers, pride of accomplishment in creative achievement, customers whose growth restimulates the workers**.** We cannot reform the bad jobs into good jobs by increasing wages, decreasing working hours, or removing physical hazards” (Karasek and Theorell, 1990, p. 314).

According to Karasek and Theorell, a ”new bad job” – although it may pay well and offer good physical work conditions – ”is still a horror of modern debilitation” (p. 314). Such a job can be characterized as one where nothing is being learned, and there is no hint of future personal development. The workers' most minute actions are prescribed and monitored, by either machines or supervisors. There are long periods of intense time pressure, often with the threat of unemployment at the end. There may also be long periods of boredom interspersed with work crises. In bad jobs, workers are socially isolated from their colleagues, and competition sets worker against worker. The implied level of trust in the worker is zero, and there is no feeling of social value in the work itself. Having a bad job lowers personal pride.

Despite the salutogenic stance implicit in their theoretical model, Karasek and Theorell generally treat pathogenic variables in their research on work and health – above all the incidence of coronary heart disease. Their job-strain model has inspired many work-life researchers, such as Johannes Siegrist who developed the effort-reward-imbalance model. In the latter, there is an explicit contrast between intrinsic and extrinsic effort on the one hand, and sources of reward (money, esteem, and job security) on the other (Siegrist, 1996; Bosma et al., 1998). These studies have shown that coronary heart disease is strongly and significantly correlated with effort-reward imbalance, as it is with job strain (according to the predictions of the Karasek and Thorell model).

The effort-reward imbalance model may be regarded as reflecting what Herbert Simon (1957) called ”ruthless efficiency”. His classical criticism of efficiency as a management goal focuses on the sharp distinction between means and ends, where means are regarded as purely technical and value-neutral, implying that the process leading to the results – i.e. work – is also neutral and purely technical by nature. All this ignores important human values, e.g. pace of work, wages, social aspects of work, and fair distributive justice for employees.

Here, the relationship between work and health will be investigated from both a salutogenetic and a pathogenetic perspective. Accordingly, both motivational and hygienic factors, along the lines implied by Herzberg's analysis, will be considered. One aim is to capture the dialectic between the two aspects of health through an analysis of work conditions in dentistry and the consequences of such work. It appears that work as a dentist has contradictory tendencies (as expressed in the reports mentioned above about job satisfaction and work conditions). On the one hand, many dentists testify to the meaningfulness of their work. Helping others is a motivation for working as a dentist that should not be underestimated. Dentistry can be, and

certainly should be, healthy work in the sense that it contributes to development and self-realization. On the other, the reality of dental-care work, with the intense economic and psychological pressure it entails, can all too often be described in terms of Herbert Simon's concept of ruthless efficiency.

To fulfil the objective of this thesis – i.e. to answer the question of whether modern dentistry in Sweden is best characterized by "healthy work" or "ruthless efficiency" – it is necessary to venture into other intellectual domains. In these, two primary questions are addressed: What do modern management theories have to say about the proper and most efficient organization of work? What particular attributes are possessed by human service work? One natural question is the extent to which (if at all) modern management theories consider such specific properties of work.

1.4 Management strategies

One father of the modern theory of work organization was the American engineer, Frederick W Taylor. His book, "The principles of scientific management" (1911), provided the basis for a rationalizing movement that swept across the Western World from the period between the wars to the end of the 60s. The core of Taylor's principles lay in the fragmentation of work – dividing planning from execution, concentrating knowledge in higher echelons of the organizational hierarchy, and the conscious employment of this knowledge to control the performance of actual work tasks. Taylor's so-called ”scientific management” formed the basis for most manufacturing industrial work. More specifically, "Taylorism" entailed a production system based on time-studies, conveyor belts and piece-rate working.

The second main organizational wave was the so-called "Human Relations" movement. Emerging in criticism of Taylorism, it focused on the social system in the workplace, on relations between workers. The management idea was that these relations could be utilized in the interest of the firm. For example, costly detailed supervision by foremen might be replaced by mutual supervision and control by fellow workers. Psychologists and personnel experts entered the workplace. The Human Relation movement has had a lasting influence on management doctrines. Concepts such as leadership style, individual attitude, group structure, social control through groups and motivation encapsulate some of the key themes in modern organizational research. Indeed, the spirit of the most popular current management doctrines can be clearly traced to the Human Relations movement.

Human Resource Management

Human Resource Management (HRM) is dominated conceptually by the *individual* and his/her resources, and his/her relations and loyalty to the organization. Here, there is a clear contrast with the more collective concepts to be found in traditional Industrial Relations theory. HRM highlights the importance of daily contact between supervisors and employees, and also of unifying four specific areas – employee influence, human-resource flow, reward systems, and work systems. In the view of its advocates (e.g. Beer et al., 1985; Guest, 1987), adopting an HRM strategy will benefit all organizational "stakeholders" – the individual worker, the organization itself, and society. This can be interpreted to mean that there is positive expectation of managerial changes integrating dialogue and communication with performance monitoring and strategic business planning. The rapid advance and wide acceptance of HRM among academics and managers is demonstrated by the appearance of several new scientific journals,

the publication of a large number of books, and the setting-up of new university courses in the arena. In their book ”Reassessing Human Resource Management”, Blyton and Turnbull (1992) give the following definition of HRM:

> ”... rather than a general theory of employee management, HRM is more appropriately viewed as an umbrella term for a series of practices that have come to prominence during the past decade.… (Blyton and Turnbull, 1992, p. viii).

In similar vein the Editor of the Human Resource Management Journal defines HRM by referring:

> ”... in the most general of senses (…) to the policies, procedures and processes involved in the management of people in work organizations” (Sisson, 1990).

From a social-psychological perspective, the difference between the Human Relations school and HRM has been described by Westlander (1993): in Human Relations, management is regarded as a resource for co-workers; in HRM, the opposite is the case (p. 171).

There is considerable discussion over what HRM really amounts to – whether it is a theory, a model, or just a map that offers some kind of guidance. Noon (1992) considers that HRM should be regarded as a philosophy rather than as a theory (or even as a "management theology"), since the abstract model has not been tested empirically. He suggests that HRM should be brought down from the lofty heights of theory to – at best – a style of management.

HRM has also been criticized as being ”brilliantly ambiguous”, with a strategy that shows a gap between rhetoric and reality. The name itself may be interpreted in two different ways. There may be a stress on *resource management* – a ”hard” version of HRM where the focus is the quantitative, rational use of human resources. These are regarded like any other production resources, such as land or capital, and should be utilized to the full. But there may also be a specific emphasis on *human* resources. This is the ”soft version” of HRM, highlighting the importance of developing employees, and stressing that employees – through their commitment, flexibility and skill – are a valuable resource for the company (Storey, 1987, 1989; Legge, 1989, 1995a). It has also been suggested, in particular by Legge (1989), that the "hard" version is applied to individuals in low positions (”peripheral” or easily replaceable workers), wheras the "soft" version is applied to those in higher positions. This, in my view, is a managerial compromise between Taylorism, reserved for the periphery, and Human Relations, reserved for the core.

The dual aspects of HRM may be conceived as different technologies for the disciplining of workers: the ”soft” version influences employee norms and values (Keenoy and Anthony, 1992); the ”hard” version is targeted at measurable accomplishment. This is reflected in HRM's close affiliation with operational management techniques, such as Total Quality Management (TQM) and Just-in-Time (JIT), which in turn are ”logically, not to say inextricably” linked to each other (Legge, 1995b, p. 218). TQM focuses on quality, customer orientation and ”value for money”, while JIT is oriented towards flexibility and ”elimination of waste”.

> ”…it is easy to see the correlation between high quality products and services and the developmental, mutuality models of ”soft” HRM. However, (…) conformance to the specification in the context of waste elimination points more directly to the ”hard” HRM model” (Legge, 1995b, p. 243).

In Legge's view, the extensive rhetoric that surrounds HRM generates a new representation of standard modern management. She points out that major groups have a vested interest in such hyping of HRM. These include consultants in the first instance, but also right-wing governments (particularly if they wish to reduce the power of trade unions). Middle managers need to protect themselves and their status, since their traditional position is being eroded via de-layering and outsourcing. "Professionalizing" over ”quality” enables middle managers to represent themselves as the ”voice of the customer”. Further, personnel managers have suffered from problems of achieving credibility and recognition among other management groups and employees. For them, the rhetoric of HRM highlights their new specialist contribution (Legge, 1995b, pp. 317-324).

Indeed, the combination of modern management and information technology solves a central traditional problem, namely the conflict between the need for detailed supervision on the one hand and the cost of building up a supervisory system on the other (Mouzelis, 1967; Braverman, 1974). In this context, a number of work-life researchers have been inspired by the work of Michel Foucault (1926-1984), historian and philosopher. He used the idea of the perfect prison, the Panopticon, as a metaphor for the technology of discipline in the modern state (Foucault, 1977). His ideas may assist the understanding of management, *nota ben*e, of dental care.

The Panopticon metaphor

It was Jeremy Bentham (1748-1832), one of the early philosophers of political liberalism, who first outlined a model for the perfect prison.[20] He called it a Panopticon, and it could be applied to schools, work places, military barracks and hospitals as well as prisons. A Panopticon has a central rotunda, with peripheral buildings forming a ring around it. The rotunda has large windows overlooking the ring which is divided into cells. In turn, each cell is well lit, and has a window facing the rotunda. No cell inhabitant can see his neighbor, but anyone at the center can look into all the cells.

Michel Foucault used the Panopticon as a metaphor for the modern disciplinary society. He writes of the creation of a new form of social power, which he regards as having crystallized in the seventeenth and eighteenth centuries. This, he describes as a ”capillary form of power” – a power which ”reaches into the very grain of individuals” (Foucault, 1980, p. 39). To Foucault, power does not belong to anyone – it is relational and only becomes apparent when exercised. His focus is on the ”how” of power, i.e. the practices, techniques and procedures that give it effect. He regards the Panopticon as a ”machine”, as a power technology that solves the problem of surveillance. Discipline is based on the fact that people are spatially distributed in relation to each other. ”The prisoner” has no means of avoiding the eye of the authorities, and he never knows when he is the object of surveillance. In this way, discipline becomes internalized in the prisoner himself; the individual becomes an obedient subject and useful citizen:

[20] Jeremy Bentham is regarded as the spiritual father of London University. Even today, 150 years after his death, he exercises control over the Faculty Committee of the University. As he requested in his will, his embalmed corpse was placed in a box with a glass front. In this state, he attends the meetings of the Committee, and is presented with the words ”Bentham present but not voting”. If it happens that votes for and against are equal, he casts his vote – always in favor of the proposal. Jeremy Bentham also has his own web site. You will find him at the address, www.ucl.ac.uk/Bentham-Project/.

> ”All that is needed, then, is to place a supervisor in a central tower and shut up in each cell a madman, a patient, a condemned man, a worker or a schoolboy. By the effect of backlighting, one can observe from the tower, standing out precisely against the light, the small captive shadows in the cells of the periphery. They are like so many cages, so many small theatres, in which each actor is alone, perfectly individualized and constantly visible. The panoptic mechanism arranges spatial units that make it possible to see constantly and to recognize immediately. (...) Full lighting and the eye of a supervisor capture better than darkness, which ultimately protected. Visibility is a trap” (Foucault, 1977, p. 200).

Dicipline itself starts with the distribution of individuals in space. Foucault identifies three important methods for imposing discipline: *enclosure* (the creation of space closed in upon itself); *partitioning* (each individual has his or her own place, and each place an individual); and *ranking* (the hierarchical ordering of people).

> ” The aim [of the discipline] was to establish presence and absence, to know where and how to locate individuals, (…) to be able, at each moment, to supervise the conduct of each individual, to assess it, to judge it, to calculate its qualities or merits. It was a procedure, therefore, aimed at knowing, mastering and using.” (Foucault, 1977, p. 143).

According to Foucault, there are two types of technologies designed to obtain knowledge about the individual, and thereby render them visible: ”examination” and ”confession”. In the spirit of Foucault, Townley (1993) has analyzed how HRM technologies construct and produce information on each separate employee, thus providing the basis for discipline. For example, she identifies developmental appraisal as a ”confession” technology, and direction and control of aims and following up results as an ”examination” technology. The link to ”soft” and ”hard” HRM is self-evident.

Other work-life researchers have developed Foucault's metaphors. Zuboff, an American historian, uses the term ”Information Panopticon” to describe how the new technology is used by managers to increase control over employees (Zuboff, 1988). And this type of employer control has also been called the ”Electronic Panopticon” (Sewell and Wilkinson, 1992). According to such authors, it is the ”superstructure of control” that characterizes new management strategies. Using modern information technology, responsibility for the quality of even a single product can be linked to an individual. The system provides total central control, with a minimum of intermediary controlling agents. The Electronic Panopticon has:

> ”… the ability to penetrate to the very core of an individual’s work activities, providing a mechanism of *Power/Knowledge* which can bring out the minutest distinctions between individuals. (...) (this) enables managers to reduce the negative divergences and exploit the positive divergences which individuals make” (Sewell and Wilkinson, 1992, p. 287).

A central theme here is whether, and if so how, employers' techniques for direction and control, i.e. management control systems, affect the work conditions of dentists in the PDHS. Dentistry is a human-service task. Modern management strategies, such as HRM, were developed for the industrial sector. But HRM is also used as a strategy to manage human-service work, and is said to be especially effective in organizations employing people motivated by challenges, autonomy, learning opportunities, and self-control (Guest, 1987). Human-service work, however, differs in kind from industrial work, and there are grounds for wondering whether contemporary management theories take its special features into account.

1.5 Human Service Organizations

The essence of a dentist's work lies in his/her relation to another human being, namely the patient. Indeed, this particular property – shared by the work of other professions such as physicians and social workers (among many others) – has provided the basis for a specialized line of thought in organization theory. This constitutes the theory of Human Service Organizations (Hasenfeld, 1983). According to Hasenfeld, there are two main properties by which such organizations (HSOs) are characterized: they are mandated to protect and promote the welfare of people; and, they work directly with the people they are intended to protect, maintain, or enhance. So-called HSO theory stresses the moral foundation of work of this kind, and contrasts it with the professed value neutrality of "ruthless efficiency". Human-service work – working with life – is founded on a moral doctrine, usually rooted in a general ideology, that reflects the value of human welfare and well-being. This premise is derived from the fact that human service work basically concerns the relation between human beings, the central concern of any moral philosophy. According to Hasenfeld (1983), there are several aspects to HSO:

1. The "raw material" as well as the "product" consists of people. Simple decisions, and routines in the HSO may have important implications for the client's life and must therefore be morally justified.

2. The goals of HSOs are vague and ambiguous by virtue of the nature of their work. There are both official and operative goals, where the official goals reflect public acts or official reports, and the operative goals what the organization is actually trying to do. The latter do not necessarily coincide with the former.

3. It is difficult to know how to attain desired outcomes and also to find efficient technologies. Results are usually difficult to measure in comparison with industry.

4. The core of HSO work lies in relations between client and personnel. High quality of such relations is essential for a favorable outcome. However, the role of the client is not always voluntary. Hence, the interests of the client and the HSO may be incompatible.

Hasenfeld's conception of the HSO applies to many organizations, such as schools, prisons, social-service agencies, and hospitals. But, according to Stein (1981), the differences between organizations of this kind are more important than their similarities, and it is doubtful whether they should be forcibly subsumed under one single organizational category. Here, it is sufficient to point to the fundamental, common core element of HSOs, the human relation.

HSO theorists are critical of the general development of modern management. Their theory suggests that work where the object is a human relationship – be it with patient, client or pupil – has special properties not normally considered in management theory, and – more specifically – not modeled on work in industrial manufacturing.[21] Indeed, having human relations as work object has significant implications for many aspects of work (Söderfeldt et al., 1996a; Marshall et al., 1997). Demands not only include workload, and pace and intensity of work, but also

[21] Uncertainty in highly interactive service work is now being focused upon in economic and management research. The aim is to categorize and measure ”customer-induced uncertainty” (Modell, 1998), which is intended to promote the development of responsibility accounting in human-service work. See the section above on ”New management strategies in the 80s and 90s".

emotional aspects (such as empathy with and commitment to the work object). Control may be interpreted in terms of determination of outcome, skill discretion, or decision authority. Job motivation may increase with empathy, but decrease with depersonalization (Maslach and Jackson, 1981). Mechanisms like these mean that human services present special management problems, with consequences also for HRM.

HRM in work with life or things

General statements on the nature of work are abundant in work-life research. But such a generalizing ambition is not without problems, and should not always be taken for granted. The object of work, however, has not received much research attention. Rather, the focus has been on general aspects, such as motivation (Herzberg, 1966), job enrichment (Hackman and Oldham, 1980), intellectuality and discretion at work (Kohn and Schooler, 1983), social support at work (House, 1981), and coping and stress (Lazarus and Folkman, 1984). Even the theory of the impact on health of quantitative demands and control (Karasek, 1979) is often used in a generalizing way, despite recommendations from its originators that specific measures have to be constructed for each occupation or sector (Karasek, 1991; Theorell, 1993). In an influential work, Kohn and Schooler (1983) discuss the importance of the object of work in relation to personal development. They conclude as follows:

> ”We see the complexity of work with people as no more important than complexity of work with data or with things: Of primary importance is complexity; of only secondary importance is whether complex work is done with people, with data or with things.”(Kohn and Schooler, 1983, p. 299).

In Hellberg's (1989, 1991) analysis of professional work, a distinction is made between two kinds of knowledge: "knowledge about life" and "knowledge about things". The distinction is very similar to that made in HSO theory. When linking HSO to HRM (as analyzed above), a plausible hypothesis is that the duality of HRM is especially pronounced in "work with life. Its "soft" aspect – communication and development of human relations – is in itself an integral part of human-service work. If HRM is implemented in its "soft" version only, effects should be beneficial, since moral aspects and relational foundations of the work could then be emphasized. HRM might then contribute to ”healthy work” in the human-service sector.

However, the "hard" aspect – performance monitoring, competition and management by objectives – is alien to the nature of human service. One of the main features of human service is the general uncertainty of its technologies. Relatively few are available, and those that are available have often very uncertain effects; they are difficult to assess or evaluate, and they are often controversial. Implementation of HRM where the "hard" aspect is conspicuous would therefore lead to an increasing conflict between external demands and the nature of work – conceivably resulting in poorer work conditions. HRM might, on this interpretation, contribute to ”ruthless efficiency” in human-service work. On this line of argument, two aspects of work organization should lie at the center of attention in evaluations of the different aspects of HRM in relation to human service: "healthy work" or ”ruthless efficiency”. Analysis of these two aspects is employed to address the detailed objectives of this thesis.

2 Objectives of the thesis

The objective of this thesis in very general terms is to provide understanding of the organization of the PDHS and the problems therein. From an organizational perspective, the PDHS is distinguished in two ways: 1) the early introduction of management strategies developed for industry, and 2) the monitoring of work in an unusually detailed manner for human-service workers and professional groups. This makes dentists in the PDHS an especially interesting group to study with regard to the effects of modern management strategies. Management control systems, healthy work, effort-reward balance, and organizational efficiency are all important entities in this respect.

The first aim of this thesis is to deepen, and thereby qualify, analysis of the content of healthy work. More specific the aim was to:

- Investigate the self-perceived content of healthy work among professionals.

Since dentists are focused upon, it was necessary to study the development of management in public dental care in Sweden. Accordingly, the second aim is to:

- Investigate how control and management structures developed in Swedish, publicly organized dentistry and how they affected work conditions.

Shifting focus from the salutogenic idea of healthy work to management control structures, the third aim is to:

- Find common dimensions in publicly employed professionals' self-assessments of changes in control systems, with special emphasis on dentists.

It was found that perceived changes in control systems were distributed along different dimensions, corresponding to the duality of HRM technologies: management by *objectives* (meaning performance monitoring and competition); and, management by *dialogue* (meaning performance appraisals, dialogue with supervisor and a patient/customer orientation). Loose ends needed to be brought together. Accordingly, the fourth aim of the study is to:

- Investigate the impact of the dual aspects of HRM, as indicated by the two different control systems (management by objectives and dialogue) on work conditions. Indicators were drawn from both a pathogenetic and a salutogenetic context, and were used in a comparative analysis of dentists and other publicly employed professionals

Finally, the analysis as a whole is summarized in specified models of healthy work and effort-reward balance, the indicators of salutogenesis and pathogenesis employed. Interaction effects, as predicted by critics of HRM, were scrutinized with the general aim of simultaneously analyzing object of work, changes in management control systems, and work conditions (with special reference to dentists). Specific subaims were to investigate:

- The main effects of changes in HRM technologies on work conditions in relation to the object of work.

- Whether an increase in the duality of HRM will accentuate differences according to work object.

- Whether an increase in the duality of HRM will accentuate differences between people in different positions at work.

The aims of the thesis are clearly complex, and necessitate the employment of sophisticated analyses. This may be regarded as unfortunate, but is the consequence of having adopted a wide-ranging cross-disciplinary approach to the writing of this thesis. Dentistry is far more than biotechnology applied to mouths, which is one reason why the work is so intriguing and fascinating. An implicit general aim of the thesis is to show what can be accomplished by the synthesis of theory and data analysis – where critical analysis of seemingly self-evident administrative routines can yield new insight. I hope that this thesis will contribute to dentistry being regarded as the genuinely human and humanistic activity it is, or should be. For me, a key personal benefit lies in expressing loyalty and allegiance to all those dentists who develop good and positive relations with their patients, thereby helping them to deal with difficult problems in the face of organizational and administrative obstacles and pressures.

3 Material and methods

3.1 Bases of the studies

Besides the theoretical and historical material described in the introduction, this work is based on two empirical studies – one conducted in 1987, the other in 1992. The material from the first study was used for Paper II. The other papers are based on material from the second study. Both studies use self-reports from mailed questionnaires. Each questionnaire was sent with a pre-stamped return envelope and a letter explaining the nature of the study, assuring anonymity to all respondents. Everybody received one reminder. Response frequencies and rates for Study 1 and Study 2 are presented in Table 2.

Table 2. Response frequencies and rates for Study 1 and Study 2. Numbers of publicly and privately employed men and women in each study, excluding students. (Proportions of missing cases can be read off from the percentage response rates.)

			Responses				
	Mailed questionnaires	Response rate	Public employees*		Private employees**		Part. drop-out
			Men	Women	Men	Women	
	n	%	n	n	n	n	n
Study 1							
Dentists	896	88	335	434	-	-	5
Dental nurses	600	85	-	493	-	-	-
Study 2							
Dentists:							
Sample 1	464	66/77	134	1	112	33	53
Sample 2	293	69	-	171	-	5	25
SACO***	5384	75	1398	1261	577	262	97

* Dentists include PDHS employees only. Teachers at dental schools and researchers are excluded from the analysis, but included in the partial drop-out column.
** Includes self-employed and co-operative.
*** Members of the Swedish Confederation of Professional Associations.

Study 1 (Paper II)
In 1987, a questionnaire was sent to 896 dentists and 600 dental nurses in the PDHS in the whole of Sweden. The sample was based on county lists of staff. Regardless of size of county, 50 persons were chosen at random; 30 dentists and 20 dental nurses from each county, with the exception of Stockholm and Gothenburg from which larger samples were taken (Stockholm: 200 persons; Gothenburg: 100 persons). One county was excluded on the grounds that a local work-environment study was being carried out at the same time. 85 percent of the dental nurses and 88 percent of the dentists filled out the questionnaire. Among the dentists, 56 percent of respondents were women. The study is presented in a report in Swedish (Bejerot, 1989).

Study 2 (papers I, III, IV, V)

• Samples of dentists: In 1992, a questionnaire comprising items about work conditions was distributed to a random sample of dentists from the membership register of the Swedish Dental Association. Due to an administrative mistake, publicly employed female dentists were not included. Therefore, a supplementary sample was recruited from that group. The questionnaire was distributed about three months later than to the main study group. The first sample comprised 464 dentists, where 278 male and 34 female dentists responded (response rates: men 66%; women 77%). Of the responding dentists, 134 men and one woman worked in the PDHS, the remainder in private practice or as teachers in dental schools. The supplementary sample comprised 293 publicly employed female dentists, where 201 responded (response rate: 69%). Of these, 171 were working in the PDHS (Table 2). No information except that on gender was available for non-response analysis.

• Samples of Swedish professionals: The sample of dentists above was part of a large study of Swedish professional workers. In 1992, the same questionnaire as for dentists was administered to a random sample of two percent of the members of the Swedish Confederation of Professional Associations (SACO), except dentists. SACO represents a total membership of 332,000 persons in 24 different associations, and organizes about half of all academically educated employees in Sweden. 5,384 questionnaires were mailed and 3,595 returned (1,988 men, 1,542 women), giving a response rate of 67% (63% for men and 69% for women, $P \leq 0.001$). Accordingly, men were found to be somewhat under-represented in the sample. The sampling problem was solved by separating genders in the analyses. For analysis of non-responses, data on gender and profession were available. According to SACO's records, students constitute about 10% of the membership of its affiliated organizations, and the same proportion would be expected in a random sample. However, since only a few students responded to the questionnaire, they were excluded from the population of SACO members in this study. Accordingly, the study population can be described as "members of SACO organizations excluding students". The final response rate can then be estimated at around 75%. The study is described in greater detail elsewhere (Cocke et al., 1992; Westlander, 1995).

3.2 Variables

The questions used as a basis for the main variables in the papers are reported in Appendix 1.

Study 1

Initially, forty semi-structured interviews of one hour were conducted with dentists and dental nurses in PDHS. These interviews highlighted what they considered as the central problems in their work. On the basis of these interviews, a questionnaire was constructed – partly consisting of questions used in other studies on work environment, and partly of questions designed specially for this study. In Paper II, responses to questions on salary, charges and reporting system, and views on management and the level of demands were analyzed.

Study 2

The questionnaire contained questions drawn from several research domains. Only a small part of the material was used in the present studies. For the study on "healthy work" (Paper 1), twelve aspects of possible properties of healthy work were formulated. Participants were requested to position themselves on a three-point scale, using the judgments "very important",

"quite important" and "not so important". They were also requested to assess the extent to which each work characteristic applied to their own work, to a "high", "some" or a "low" degree. The content of the questions was governed in part by the results of previous psychosocial work-environment research (Kohn and Schooler, 1983; Karasek and Theorell, 1990), and in part by the need to tailor the questionnaire for a sample specifically of graduate employees. Some new questions were formulated. They concerned issues of intellectuality and values of work.

For the questions used in the papers on changes in management-control systems (papers III-V), special questions had to be composed. Policy documents, information material for employees, articles in the mass media and current management literature were reviewed to identify concepts or expressions currently used to describe organizational modernization and innovation. However, the questions were not explicitly designed to reflect HRM processes, and important aspects of HRM such as flexibility and teamwork were not included. Eight aspects of management-control systems were included, and respondents were asked if these aspects had ”increased”, ”decreased” or were ”unchanged”. There was also a ”do not know” response alternative.

Description of changes concerning management control systems was followed by questions designed to depict consequences for employees. The questions on work conditions emanate from the demand-control model of Karasek and Theorell (1990). Also, questions were included that could be interpreted as reflecting changes in effort-reward balance (Siegrist, 1996; Bosma et al., 1998). One question on changes in organizational efficiency was also included.

The questionnaire also contained a set of items to measure social-background variables: gender, age, employer, job position, occupation, gender of superior, and supportive supervisor. Membership of organizations affiliated to SACO provided the basis for a classification into ”life” occupations (i.e. those concerned with human-service work) and ”things/data” occupations. Two questions on position, responsibility level in organizations and degree of supervisory tasks were used to form three categories: low, middle, and high position. Those who gave the lowest alternative in both questions were set as low position (n=1,140). Those who responded that they either had responsibility for coordination or for supervisory tasks were counted as having a high position (n=421). Others were counted in the intermediary group (n=1,446).

Indices

For the analyses in papers III-V, indices were constructed and evaluated – reflecting different aspects of assessed change in management-control systems as well as assessed effects on work conditions.

Changes in control systems were captured using three indices: *changes in management by objectives* (performance monitoring, management by objectives, competition as a means of increasing production), *changes in management by dialogue* (dialogue with management, personal-development interviews, customer orientation), and *changes in hierarchy* (number of decision levels, managerial control). In what follows, the three indices are abbreviated as *objectives*, *dialogue* and *hierarchy*, respectively. *Objectives* are interpreted as mirroring the ”hard” version of HRM, *dialogue* the ”soft” version.

Testing the criticism of HRM as having a dual character requires the use of interaction models. The independent variables indicating changes in *objectives* and *dialogue* were relatively strongly correlated. In the model specification, they were consequently judged as mutually

dependent, consistent with the dual character of the HRM. They were therefore included in the models also as a multiplicative interaction term.

Two indices were constructed, measuring different aspects of assessed changes in work conditions. The first factor encompassed five variables, and was interpreted as indicating *changes concerning the core of healthy work*, i.e. intellectuality and discretion at work (Kohn and Schooler, 1983), or – employing another conceptual system – as skill discretion, decision authority and social support (Karasek and Theorell, 1990). The second factor encompassed three variables – changes in workload, pay in relation to effort, and job security – indicating *changes in effort-reward balance at work* (Siegrist 1996; Bosma et al., 1998). These two factors can also be interpreted as motivators and hygiene factors (Herzberg, 1966), or as mirroring a salutogenic versus a pathogenic perspective (Antonovsky, 1987).

3.3 Statistical methods

For Study 1 a stratified sample was used. The results were subjected to a weighting procedure. The rates in the distribution of alternative responses after weighting did not differ more than two percent in the total sample compared with the unweighted result. Accordingly, the unweighted material was used, but the result may still be regarded as a representative national average.

Scheffé's test, t-test, and the Pearson product-moment correlation were used, and also chi-square for calculation of statistical significance of associations and differences. In a material of the present size, even trivial differences become statistically significant, and therefore a measure of strength of association is necessary (Blalock, 1979). Accordingly, some variables were dichotomized, contrasting one response alternative to all others, and odds ratios were calculated as an association measure. Principal-components analysis (PCA) with varimax rotation was used for data reduction. The number of factors was determined by the Kaiser criterion and through inspection of scree plots. Factor variables were constructed as summed indices of the constituent variables.

The items in the questionnaire involved difficult assessments on the part of participants. This was manifested in the relatively high internal non-response rate. Regression analysis, however, is especially suitable in such cases, since regression coefficients are calculated as tendencies even on low-precision data. Random variations are leveled out. Logistic and multiple regression were used for analysis of residual plots, outliers, and classification plots. Logit probabilities were calculated for stereotypical persons (Paper III).

One methodological problem was that the dependent variables, in several cases were scarcely continuous interval variables, as is required for regression analysis. Regression is, however, a robust method, and the underlying assumption was that the latent constructs employed are continuous.

Interaction models were called for in many cases on theoretical grounds. The material was therefore analyzed in multiple-regression models both with and without an interaction component (papers IV and V). Studenmund's criteria for inclusion of a variable in the model specification were followed (Studenmund, 1996). Residual plots were examined for detection of heteroscedasticity , i.e. unequal variances of residuals. The interpretation of interaction models is troublesome because the coefficients for the consistent variables are conditional (Friedrich, 1982; Jaccard et al., 1990). To facilitate interpretation, graphic representations were therefore made for various values of the variables. The numbers providing the basis for these figures were calculated on the assumption that other variables were at their mean values, except

in the cases of gender (set at ”male”), position (set at ”middle”), and employer (set at ”public”). In essence, for the interaction analysis, changes in these variables only affected the intercept. Two data points were then calculated for the independent variables *dialogue* and *objectives* (± 1 SD around the mean). When calculating points without an interaction term, the variables (*objectives* and *dialogue* respectively) were set at their mean values.

Statistical significance is indicated in the tables by stars, where *= $p \leq 0.05$, **= $p \leq 0.01$, and *** =$p \leq 0.001$. Missing data were deleted pairwise from regression analyses. All data analysis was performed in SPSS.

4 Results

Summary of Paper I, Healthy work – ideal and reality

Academically educated employees emphasized the professional nature of their work and its intellectual core. However, within this general frame of value consensus, there were also considerable differences between subcategories. Type of profession seemed to be the strongest determinant of the value pattern. Human-service professions (physicians, dentists, teachers) formed one value pattern, while work with data and things (engineers, lawyers and economists) formed another. The contributions of age, sex and position were weak compared with those of professional socialization and work context.

Two aspects of work emerged as particularly important. The first was designated as ”work intellectuality”, i.e. work that provides intellectual stimulation, and is performed freely and independently, where innovative thinking and initiative-taking are appreciated, and personal qualities can be utilized constructively. It was above all in the latter two respects that there were discrepancies between ideal and reality. The second aspect was the ”value of work”, i.e. benefit of the work to society and the extent to which it was in accord with personal values. Here, the ideal corresponded relatively well with actual conditions. Of twelve aspects judged to constitute healthy work, being well paid and having opportunities for career advancement were ranked lowest.

The study partly supported the idea of a particular public-sector motivation pattern. In two professions where private and public-sector employees could be compared, economists and engineers, the results showed that public employees had a greater desire to benefit other persons and society. On the other hand, the similarity between dentists in the private and public sector indicated that value patterns are strongly related to the content of work. Comparing dentists in the public sector with dentists in the private sector (including self-employed) revealed only small differences between assessments of what healthy work implies. Dentists in the private sector, however, reported a much higher degree of correspondence between ideal and reality compared with publicly employed dentists. The differences were largest in the area of ”work intellectuality”. Dentists in the private sector reported about three times more often than publicly employed dentists that their ideal corresponded with reality when assessing whether work could be performed freely and independently, whether innovative thinking and initiative taking were appreciated, and whether personal qualities could be utilized constructively.

Overall, dentists in PDHS showed the worst outcome of all groups studied with regard to discrepancies between ideal and reality, particularly concerning intellectual stimulation, freedom and independence, and opportunities for innovative thinking and initiative.

Summary of Paper II, Employer control and work environment

In a historical and organizational analysis, the following image emerged of dentists' work in the PDHS. Extensive, bureaucratic surveillance of staff had developed. The need for circumstantial reporting due to piece-work wages and the insurance system had legitimated exhaustive systems of surveillance, but far more data were collected than required for these insurance and wage systems. Opportunities inherent in the charges, wage, and reporting systems were used by management to increase employer control. The amount and effects of this surveillance had

increased during the last decade, due to the development of computer systems, and economic crisis-consciousness in the public sector.

The effects of the management-control system in the PDHS was studied by means of a questionnaire. Difference in form of remuneration (piece-work versus fixed wages) was not an essential factor in determining the work pace of dentists. There was no correlation between self-reported productivity (piece-work results) and reported pace of work. Objective pressure in the form of a patient queue was also of little importance for work pace. Awareness of supervision and competition were more important factors. Decentralization and computerization increased the dentists' feelings of being ”constantly” and ”to a great extent” supervised and evaluated. The relation between surveillance and competition, on the one hand, and pace of work, on the other, suggested that the current system of evaluating productivity was an effective management system for increasing the work output of staff. Female dentists, especially were affected by the employers' demand for productivity, reported as one of the primary causes of too high a pace of work. Women had lower piece-work wages, although the nurses who worked with female dentists reported a significantly higher work pace than those who worked with male dentists. Possibly, lack of self-confidence in women resulted in their underestimating and undercharging for their own work, and may explain both their low piece-work results and their reaction to surveillance.

The surveillance system of the PDHS was focused on the work of dentists. The responses of dental nurses, however, showed that they, in many ways, experienced the system in the same way as dentists, although the effects were less substantial for them.

It was concluded that the impact of the managerial control systems entails that no decisive change in work conditions would be brought about if piece-work wages were removed while the surveillance system and the focus on economic factors were maintained.

Summary of paper III, Changes in management control systems

In the public-service sector in Sweden, including dentistry, changes have occurred in management control systems. In this paper, the extent and content of such changes are described and analyzed for dentists in relation to other graduate workers.

Questions concerning various control aspects were subjected to Principal Components Analysis. The first factor emerging was interpreted as indicating that "harder", more material, criteria have applied during the period investigated, i.e. performance monitoring, competition and management by objectives. The second factor was interpreted as a "softer" factor, relating more to dialogue and communication. The third factor related to the hierarchy, and changes in decision levels. The three factors were employed as new index variables, named *objectives*, *dialogue* and *hierarchy* .They were dichotomized close to the median for maximum discrimination, and set as dependent variables in three logistic regression models.

The focus of the models was on investigation of the independent effect of being a dentist in the PDHS on the assessment of changes in control systems. The main results were as follows: There were conspicuous differences between dentists and other public employees. Dentists reported a fivefold increase in *objectives* compared with other academicians. They also reported less increase in *dialogue*-oriented control systems than other graduate workers, but there was no difference between dentists and others in the reports concerning *hierarchy* – considerable proportions of both dentists and other publicly employed graduates reported decreases in this respect. Perception of changes in control systems was also related to position at work. The

difference between men and women was rather small when position was kept constant. The main gender difference was that men and women were in different positions.

The control systems, *objectives* and *dialogue,* were intercorrelated; increases in both systems were often reported simultaneously. This strong covariation indicates that a modern management doctrine, Human Resource Management, has gained ground in public organizational systems in Sweden. This doctrine stresses both control of individual performance and goal orientation, teamwork and communication.

As a whole, it was concluded that there had clearly been changes in perceived management style among the professional groups studied, and also that some of these changes were especially obvious for dentists.

Summary of paper IV, Control systems, working conditions and efficiency

Two aspects of Human Resource Management were studied in this paper: a ”hard” version, stressing performance monitoring and competition, and a ”soft” version, stressing communication with employees. The aim was to see if these dual aspects were reflected in the experience of dentists in the PDHS in comparison with other publicly employed professionals.

The variables on work conditions were subjected to Principal Components Analysis aiming at data reduction. The result was a two-factor solution, where the first factor organized five variables and was interpreted as indicating changes in the ”core of professional work”, i.e. competence, control and cooperation. The second factor organized variation from three variables indicating changes in ”effort-reward balance at work”, i.e. changes in workload, salary in relation to effort, and job security. Additive indices were constructed from the factors and set as dependent variables in multiple regression models. A third variable, perceived efficiency, was used as a single indicator of increased perceived personal effectiveness at work.

The analysis showed that *objectives* worsened the effort-reward balance, while *dialogue* improved the scope for the core of professional work. Both *dialogue* and *objectives* increased perceived efficiency. Also, being a dentist in itself meant a worsened effort-reward balance, decreased scope for the core of professional work, and an increased sense of organizational efficiency. For dentists, however, the increases in efficiency were related to worse effort-reward balance, while increased efficiency was related to improved scope for healthy work among other professionals. This was interpreted as an element of ”ruthless efficiency” in the organizational changes in the PDHS.

The independent variables, *objectives* and *dialogue,* were relatively strongly correlated. In the model specification, they were consequently judged as mutually dependent. In accordance with the theoretical argument presented, the dual character of HRM theory was indicated. They were therefore included in the models also as a multiplicative interaction term. These interaction effects, mirroring the duality of HRM, showed that a broad process of change in management control systems often resulted in deteriorated work conditions, especially for dentists in the PDHS. The positive effect of increased management by dialogue did not compensate for the negative effects related to increased management by objectives, but rather reinforced them.

The individual attribute of organizational position was related to the dependent variables in all regression models. A low position indicated a negative assessment of the changes in work conditions, and also a less optimistic assessment of the changes in organizational efficiency. Gender had no independent effect in the regression models. It should be pointed out, however, that women were in a majority in lower positions and men in higher positions. Accordingly, it

was female professionals that to a great extent suffered deteriorated work conditions, while male professionals enjoyed the benefits of organizational change.

As a whole, it was concluded that changes in management style had an effect on work conditions and organizational efficiency. The rather drastic effects of including dentists and position in the analyses prompt interest in the importance of occupation and content of work, thereby forming the basis for the fifth and final study.

Summary of paper V, Towards healthy work or ruthless efficiency?

In this study, the relations between object of work, changes in management and outcome in terms of perceived work conditions were investigated. It was hypothesized that the duality of Human Resource Management (HRM) was especially pronounced in human-service work, and that the ”soft” aspect of HRM was an integral part of such work, while the ”hard” aspect was alien to the nature of human-service work. Further, it has been suggested that HRM leads to increased differentiation between people in different hierarchical positions. The aim of the study was to evaluate these hypotheses.

Respondents were categorized into two groups: those working with human services, and those working with material things or data. Dentists in the PDHS were included in the study group and analyzed separately. The index *objectives* operationalized managerial changes indicating ”hard” HRM, while the index *dialogue* indicated ”soft” HRM strategies. Multiple regression analyses were performed, with interaction terms included.

The results showed that pronounced duality in HRM resulted in poorer work conditions for human-service workers, especially for dentists. For the latter, the broad change in management strategies led to a deteriorated effort-reward balance, i.e. between job security, workload, and pay in relation to effort. These changes in management style did not improve scope for the core of professional work for this group. For professionals working with things or data, however, the effort-reward balance did not deteriorate with pronounced duality of HRM. As proposed by HRM advocates, their scope for healthy work improved.

Results of the analysis of professionals in different hierarchical positions showed occupants of middle positions to the most vulnerable when experiencing the duality of HRM. The effort-reward balance for this group deteriorated considerably, while the same type of changes in management style improved the scope for core of professional work for workers in high positions.

It was concluded that both object of work and hierarchical position are important differentiating factors between working professionals. The ambition to generalize across all types of work is problematic.

5 Discussion

In this concluding section, I first return to the objectives of the thesis, and discuss their degree of attainment one at a time. Thereafter, the strengths and weaknesses of the study will be briefly commented upon. In the final subsection, I broaden the perspective in an attempt to explain the causes of dentists' problems with their work conditions. In this context, Hirschman's (1970) concepts of ”exit”, ”voice”, and ”loyalty” are found particularly useful.

Paper I

The objective of the first study was to investigate the properties of ”healthy work” among professionals, and to see whether differences could be found between various types of occupations (Paper I). It was observed that when graduate workers report what they consider to be very important for healthy work, they virtually always stress the ”intellectuality of work” – intellectual stimulation, freedom and independence, and appreciation of initiative-taking. In professional groups, such as physicians and dentists, the importance of the ”value of work” is also emphasized, i.e. benefit provided to others/society, and harmony between personal and work values. This finding is in line with those of Hasenfeld (1983), where the moral basis of human-service work is given particular emphasis. It can be stated emphatically that the object of work – in this case, working with people in human services – makes a great difference. This was a starting point for – and one of the main results – of this thesis. The analyses presented here showed that dentists, the human-service professionals in focus in this study, had almost identical conceptions of the nature of healthy work regardless of whether they worked in the public or private sector. This serves to emphasize the finding that the content and object of work are of decisive importance in determining motivational patterns in working life.

By contrast, the difference between ideal and reality, between conception of healthy work and its actual fulfillment, was found to differ considerably between dentists in Sweden's Public Health Dental Service (PDHS) and those in private practice. Indeed, dentists in the PDHS showed the greatest discrepancy between ideal and reality of all the professional groups studied, whereas dentists in private practice showed the least. Differences were particularly evident with regard to independence and the encouragement of initiative-taking. It seems probable that the reasons for these differences are to be found in factors such as work organization and leadership style, i.e. aspects of power and discipline.

Paper II

An historical analysis was carried out in order to provide a perspective on work organization, management style and conditions of work in the PDHS today. The organization was planned during the 1920s and 30s, and modeled upon the Taylorist ideal of that time. Time studies, piece-work rates, and detailed reporting governed the work of dentists in the PDHS to an extent that was – and remains – unusual among professionals. For many years it was difficult to recruit dentists into the PDHS, which generated some interest in questions of the work it had to offer. During the 50s and 60s, heavy work burden, low salaries and an authoritarian leadership style were regarded as explanations for the unwillingness of dentists to work in the PDHS. Eventually, fresh recruits (in particular, newly qualified dentists) were steered into the PDHS – but without the evident basic weaknesses of the work organization being remedied. During the 80s, application of information technology increased the control exercised over dentists' work.

By such means, employers were enabled to monitor the work of every individual dentist in detail.

Paper II contains a description of the construction of the PDHS control system, and also an account of the experiences of staff. PDHS dentists reported that they felt constantly supervised and evaluated. Their pace of work was adapted to surveillance, competition and demands of the employer, not to patient queues or piece-work wages. It was concluded therefore that the system of productivity evaluation was an effective management approach for increasing the work output of staff, but at the same time it contributed to poor work conditions for dentists.[22] The study supports tenets drawn from Foucault's metaphor of the Panopticon.

Paper III

The third objective was to continue investigation of management control systems by examining how these have *changed* in the assessments of publicly employed professionals, in particular dentists in the PDHS. In Paper III, it is reported that perceived changes in control systems tend to be distributed along two different dimensions, corresponding to aspects of two Human Resource Management (HRM) technologies: 1) ”management by objectives”, including performance monitoring and competition, and 2) ”management by dialogue”, meaning developmental appraisals, dialogue with supervisors and a patient/customer orientation. The dimensions were interpreted as mirroring ”hard” and ”soft” HRM respectively. An analysis of changes in management style in the PDHS showed that ”hard” HRM technologies predominate, but also that ”soft” HRM has increased. In other words, a clear duality was apparent in changes to managerial control systems in the PDHS.

Paper IV

The succeeding goal was to investigate the impact on work conditions of dual aspects of HRM in both a pathogenetic and a salutogenetic context, as operationalized by effort-reward balance and healthy work respectively. In the analyses, dentists were also compared with other publicly employed professionals. The results of Paper IV show that the combined effects of ”hard” and ”soft” HRM technologies tend to be more negative for dentists than for other publicly employed graduate workers. Self-perceived efficiency was reported to have increased considerably in the PDHS, far more so than in other parts of the public sector. This was interpreted as a form of ”ruthless efficiency”, where work effectiveness is gained at the cost of a lack of balance between efforts and rewards. With regard to ”healthy work”, the results showed that the dual aspects of HRM did *not* improve the opportunities for dentists in the PDHS to work professionally – contrary to the prediction of HRM advocates. Rather, the results support those presented in Paper I, where dentists in the PDHS were shown to report marked discrepancies between ideal and reality with regard to self-determination, intellectual stimulation, and scope for taking initiatives.

Paper V

In the final study several threads were tied together. Its general aim was to investigate relations between objects of work, management control systems, and perceived work conditions. Graduate workers, both privately and publicly employed, were divided into two groups

[22] A conference and debate article on the financial direction-and-control system in treatment was written in the light of the results of this study. It was used as a "warning example" of developments in the health-care sector (Bejerot and Theorell, 1989; Theorell et al., 1991).

according to the basis of their knowledge, i.e. whether it lay in "things/data" or in "life". In accordance with the theory of human-service organizations, it was hypothesized that the ”soft” aspect of HRM –communication and development of human relations – would be an integral part of human-service work. If HRM is implemented in "soft" terms only, effects should be beneficial in human-service occupations. HRM would then emphasize moral aspects of work and human relations, and might be expected to contribute to healthy work. By contrast, the "hard" aspect of HRM, performance monitoring, competition and management by objectives, can be regarded as alien to the nature of human-service work, and would be expected to contribute to deteriorated work conditions. These hypotheses were confirmed in Paper V.

The analysis further showed that managerial changes contributed to a polarization between human-service work and that of other professionals. While opportunities for healthy work increased among graduates who worked with things and data, the same changes led to worsened effort-reward balance for human-service workers (when there was a pronounced duality to HRM strategies). Hellberg’s (1989) discussion of the risk of polarization between professionals working with life and those working with things is relevant in this context. Negative effects were found to be much more pronounced for dentists than for human-service workers as a whole. There is much to indicate that they constitute an extreme subgroup within the broader group of human-service workers.

The effects of increases in the duality of HRM for those in different positions were also studied. This revealed increased discrepancies – as suggested by critics of HRM (Storey, 1989; Legge 1989, 1995a). It was found that persons in middle positions were the most vulnerable. The effort-reward balance for this group deteriorated considerably, while increased HRM duality promoted healthy work for professionals in high positions. This was not fully in line with the original hypothesis, namely that people in low positions would experience a more negative outcome than those in high positions. One explanation might lie in level of aspiration, i.e. that expectations with regard to reward increase with rising social position. Further, the findings may be interpreted in relation to the cross-pressure hypothesis employed in political science, where contradicting incentives are regarded as resulting in passivity (Allardt, 1988), or to the idea of contradictory class position, which is especially applicable in the case of this middle group (Carchedi, 1977; Söderfeldt, 1988).

Hierarchical position is an indicator of power that influences the content as well as the object of work. Professionals in higher positions will work more with data than their colleagues on the ”front line”, who deal more with life. Strictly speaking, a three-way interaction model might be more appropriate for a full understanding of the interplay between position and object of work.

The results on hierarchical position can also be considered in terms of the concept of abstraction. The level of abstraction in jobs depends on time and place, as well as on historical and social context (Abbott, 1988). The fact that downsizing has hit people in middle professional positions particularly hard is often explained by changes in organization and management strategies, the introduction of new technology, and increased education among subordinates (Kozlowski et al., 1993; Connor, 1997; Kets de Vries and Balazs, 1997). All these changes demand an increase in abstraction capacity among persons in middle positions, which is not always matched by their education and skill.

Overall findings – strengths and weaknesses

In assessing the present results, it should be pointed out that studies like the present one, which analyze associations between work exertion and outcome of work, have been criticized as being

biased by negative affectivity. The gist of this idea is that certain personality types tend to report both higher exertion and poorer outcome. However, in evaluations of the influence of this possible bias, negative affectivity has been found to be of small explanatory importance (Chen and Spector, 1991; Jex and Spector, 1996). Further, the focus in this study on occupations and hierarchical level makes such considerations relatively unimportant. There is no reason to believe that dentists, human-service workers or employees in middle positions have a higher degree of negative affectivity than others.

A further possible weakness of this study, as of many others, is that it relies on self-reports. However, self-reports have previously been found to be surprisingly reliable and valid (Semmer et al., 1996). In psychosocially oriented research into cardiovascular disease, for example, Theorell and colleagues (1998) found that indirect measures and self-rated indicators of decision latitude showed approximately the same association with risk of infarction. In the specific arena of dentistry, studies relying on observations confirm the stressfulness of work for publicly employed dentists in Finland (Ilmarinen et al., 1991), and also the outcome of managerial changes in the PDHS (Hasselbladh, 1995; Modell, 1998).

A further problem in the present study is the relatively large non-response rate, which is worsened by a large amount of missing data on particular items (Bejerot and Härenstam, 1993). (Part of the reason for this lies in the fact that the original investigations were designed to encompass a heterogeneous set of occupational groups, and certain questionnaire items were rather less appropriate for some of them.) The design of the study, fruitful though it was in many respects, suffered from the difficulty involved in performing a thorough analysis of missing cases and data. However, the gender-related response-rate differential was taken into account in the analyses, and the remaining material was still very large even after missing-data deletion. And further, age and hierarchical position were held constant for most of the analyses. Relationships would have been distorted, however, if respondents who were dissatisfied with their work conditions responded to a greater extent than those who were satisfied. One possible force driving the discontented to respond would be that the study might generate improvements at work. But the idea that dentists' responses would be more marked by such a strategy than those of other groups is contradicted by the fact that the response rate for dentists in Study 2 was somewhat lower than the average for other graduate workers. Also, other similar studies of random samples of dentists, with somewhat higher response rate than Study 2, has shown random non-response (Svensson et al., 1996; Söderfeldt et al., 1996b). Nevertheless, these types of response bias cannot be fully examined.

Taken as a whole, a Foucauldian perspective on the overall findings can be adopted. The ”Information Panopticon” or the ”Electronic Panopticon” (Zuboff, 1988; Sewell and Wilkinson, 1992) appears to be an appropriate metaphor for the management control system employed in the PDHS – as this is described both by the dentists in this study and in the case studies of Hasselbladh (1995) and Modell (1998). Nevertheless, it is part of the Panopticon metaphor that the controllers are also controlled. The "velvet grip” on the higher-level employee is such that, in the words of Whyte (1957), ”he must not only accept control, he must accept it as if he liked it". The higher the individual's position, the greater is his visibility and the greater the pressure for conformity. In this context, the observed duality of HRM in human services makes matters even worse. Work pace and goal direction increase on the "hard" side, while the "soft" side is employed for psychological control. Development appraisals become ”confessions”, customer orientation is transformed into patient surveys and market systems. From this perspective, it is

not surprising that HRM has been depicted as ”an iron fist in a velvet glove” (Sewell and Wilkinson, 1992; McKinlay and Starkey, 1998)

Exit voice and loyalty in dentistry

The seminal work by Albert Hirschman (1970), ”Exit, voice and loyalty: Responses to decline in firms, organizations and states”, offers a potentially broader understanding of dentists’ special vulnerability. His framework proves particularly applicable to the current results. Hirschman's work concerns individuals’ reactions to negative circumstances by leaving (”exit”), by protesting (”voice”), or by doing neither (”loyalty”). He shows how easy availability of the exit option makes recourse to voice less likely – but also that the effectiveness of the voice mechanism can be strengthened by the possibility of exit. One conclusion he reaches is that for long-term positive development in an organization, there should be opportunities for its members to respond to adverse conditions with a combination of exit and voice.

Hirschman’s three key concepts can be employed to improve our understanding of the problematic position of dentists. The brief historical account presented in the Introduction shows that dentists' representatives had little influence on the government investigations that shaped the Swedish dental-care system. Their weak position is described, for example, in von Sneider's (1958) recollections of the formation of the PDHS. This is also the thrust of Åredal’s (1989) interpretation of the negotiations leading to the introduction of the dental-insurance system, where dentists are described as ”hostages” and as lying in a "Procrustean bed". On my own interpretation, this entails that both exit and voice were blocked for dentists, leaving only adjustment and loyalty as their alternative.

The historical introduction also shows that conditions of work in the PDHS resulted in difficulties in recruiting dentists. Voice was indeed raised against poor work conditions, but it fell steadily in volume in conjunction with declining opportunities for exit. By accepting a large number of measures – from compulsory service in the PDHS to a stop to the right to establish private practice for a quarter of a century – the Swedish Dental Association (SDA) assisted in closing exit and silencing voice. SDA decisions were in part governed by the government’s threat to expand dental education up to the point that recruitment to the PDHS was no longer a problem. But another reason for the passivity of the SDA lay in the fact that it was dominated by private practitioners. ”Weaker” groups of dentists were steered into the PDHS: women, immigrants, those without independent means, and the newly qualified.

Dentists in the PDHS are geographically dispersed throughout Sweden, and often work in clinics with just a handful of colleagues. Given this, the SDA might be expected to play an important role as the dentists' voice. But a majority of the SDA representatives in the PDHS are heads of clinics or specialists.[23] Accordingly, agents of the employer are often also trade-union representatives for their subordinates. This may be why dentists in the PDHS have seldom made their voice heard.[24]

[23] On the Swedish Dental Association's central executive board for the PDHS sit 4 heads of clinic, one specialist, and one junior (unpromoted) dentist. Of 25 regional trade-union representatives (on most recent figures) there are 10 heads of clinic, 4 specialists, and 11 junior dentists (Mimeo, Swedish Dental Association, 1998).

[24] The one exception was the recent government bill proposing a capitation system (DsFi 1993:18). This gave rise to protests from private practitioners and PDHS dentists alike. They succeeded in stopping the proposal.

Further, dentists have made a ”large investment in membership”. Admission requirements are high, and dental training is long.[25] These are circumstances that will promote attachment – or loyalty – to an organization or profession. According to Hirschman, the presence of loyalty will postpone exit and voice. This may be why, despite the facts that dentists are pessimistic about their future[26] and that every third Swedish dentist has seriously considered changing occupation (Bejerot 1989, 1993; Sveriges Tandläkarförbund et al., 1996), only one in ten has actually made a move of this kind (Sveriges Tandläkarförbund, 1993).[27] High loyalty may also in part explain the low priority given to work environment by representatives of dentists. Research that points to problems in the work environment of the PDHS (Bejerot, 1989) is met with denial on the basis of general managers' ”studies of well-being" (Forss and Egelberg, 1990; Sjöström and Bergqvist, 1994; Koch, 1990). Diagnoses and solutions tend to be based on victim-blaming and individualization (Stockholms PDHS, 1995). This tendency is also discernible in American journals of dentistry, were the focus is often on the possibilities of individuals to change the content of work (Asmus, 1993; Freeman et al., 1995), and also views the problem as being basically one of self-esteem and image (Pride, 1991; Davidove, 1996).

It should also be pointed out that "confrontation with suffering" – entailing faithfulness to the patient – is a key aspect of loyalty in caring occupations (Theorell, 1989), one that can clearly inhibit both exit and voice (see discussion on ”public goods” in Hirschman, 1970). Similar ideas are discussed by Härenstam (1989, p. 16, p. 140) in her work on prison personnel, for whom the opportunity to do something to promote inmates' well-being was the only thing perceived to make the work worthwhile. This represents another perspective on loyalty – in line with Ryff and Singer's (1998) conception that activity and benevolence are fundamental aspects of the ”goods” of life, and also factors contributing to positive human health.

The three ways in which dentists in the PDHS can escape the combination of enclosure and visibility is to advance to the position of head of clinic, to become a specialist, or to start a private practice. Female dentists, however, often remain in lowly positions in the PDHS.[28] They also work part-time on a far greater scale than the average for well-educated women in Sweden.[29] Part-time working may be regarded as the most important exit strategy for female dentists. Frequent long-term sickness absenteeism among female dentists over 40 years of age (Goine et al., 1994; Stockholm PDHS, 1995) may also be regarded as a form of exit.

There have not been many studies so far of the relationship between being in a ”locked-in” occupational position and health. A very recent study of Aronsson and Göransson (Submitted),

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[25] Dentists' training in Sweden lasts 5.5 years, of which one year is compulsory practice in the PDHS. A shorter two-year course of training as a ”denturist” or ”dental nurse” was discussed in the planning of the PDHS (and even later), but the proposal was rejected on the grounds that any such group of personnel would be expected to leave the profession after a short period (SOU 1928:17; SOU 1935:46; SOU 1960:1). Quality of treatment, however, was the most common counter-argument.

[26] Half of the dentists, in both the private and public sectors, were uneasy about being able to cope with future job demands (Bejerot, 1993, pp. 32-33). According to a study, conducted in 1994, of a large nationwide sample of general Swedish dentists, more than 80% are pessimistic (Söderfeldt, B., pers. com.). The investments in private dentistry are now the lowest since 1973 (SOU 1998:2, pp. 64-65).

[27] One study has shown that as many as half of American dentists regret their choice of profession (Gerbert et al., 1992).

[28] 73% of the dentists in the PDHS who remain unpromoted after 10 years in the profession are women (Bejerot, 1989, p. 133). In a study of female managers in the PDHS (Ekvall et al., 1994), there is a discussion of the complicated conditions and high demands faced by members of this group.

[29] Part-time working: female dentists in the PDHS – 58%, female private dentists 51%, average of other female members of the Swedish Confederation of Professional Associations (SACO) – 40% (Bejerot, 1993:34-35).

however, demonstrates a clear association between being employed in a non-preferred occupation and health complaints such as headaches and mild depression. The authors interpret this result by reference to blocked opportunities and loss of *control over* a situation. (Note that this aspect of work is quite separate from the more commonly investigated *control within* a situation, e.g. influence over how a work task is to be performed, see Aronsson, 1989). Other studies have shown that loss of control is related to coronary disease (Theorell et al., 1998). In the light of the findings of the current study, hypotheses related to occupational "locking-in" might be interesting to test in future investigations of people in dentistry

This study has focused on the PDHS, but many of the analyses probably apply both to dentists in the private sector and to those in other countries. Successful occupational groups have different ways of protecting lucrative spheres of work, so-called ”social closure”. Indeed, this has been an important theme in research on professionals (Murphy, 1988; Torstendahl and Burrage, 1990). Such closure is brought about by means of educational requirements, certification, and so on – a strategy that has certainly been employed by dentists (Larkin, 1980; Thurfjell, 1983; Åmark, 1989). The opportunities for dentists in Sweden to obtain autonomy, higher income and social position on the basis of their monopoly of knowledge is, however, limited by the strategies of their employing counterpart, which has managed to effect what might be described as a form of ”social enclosure”. Dentists need to find structural, institutional, and individual ways of breaking down such enclosure.

6 Summary

E. Bejerot. *Dentistry in Sweden – Healthy work or ruthless efficiency?*
Arbete och Hälsa 1998:14, National Institute for Working Life, Solna, Sweden.

The general objective of this thesis is to offer understanding of the organization of Sweden's Public Dental Health Service (PDHS) and the problems it has faced. This is achieved against the background of its historical development. Work conditions in the PDHS have been discussed for a long time, with a focus on how dentists should be managed in the light of their almost constant dissatisfaction with salaries, pace of work, and management style.

A brief review is conducted of work conditions and job satisfaction in dental care, both internationally and in a Swedish setting. From this review, two essentially different images emerge: working with dentistry can be very stimulating and rewarding; or, very stressful, pressurizing and exhausting with low rewards. On this basis, it is argued that that there are two contrasting aspects of work conditions in dentistry: "healthy work" and "ruthless efficiency".

Some of the philosophical foundations of the concepts of ”healthy work” and ”ruthless efficiency" are described. The genesis of ruthless efficiency is captured in the image of the “Panopticon“ – a disciplinary strategy with long historical roots**.** One modern management doctrine in particular, Human Resource Management (HRM), is analyzed from this perspective.

The thesis comprises five papers, based on two empirical studies – one conducted in 1987, the other in 1992. Both studies use self-reports from mailed questionnaires. The sample for the first study was based on county lists of staff: 769 dentists and 493 dental nurses responded (response rate 88% and 85%, respectively). The second study was based on a random sample of dentists from the membership register of the Swedish Dental Association: 312 dentists in PDHS, and 160 dentists in private practice responded (response rate 66%-77%). This sample of dentists was part of a larger study of Swedish professional workers. The same questionnaire as for dentists was administrated to a random sample of two percent of the members of the Swedish Confederation of Professional Associations (SACO). The questionnaire was returned by 3,595 graduate employees, giving a response rate of 75%. The material was analyzed with statistical methods (PCA, logistic and multiple regressions, interaction models).

The objective of the first study was to investigate the properties of “healthy work“ among professionals, and to see whether differences could be found between various types of occupations (Paper I). It was observed that when graduate workers report what they consider to be very important for healthy work, they virtually always stress the “intellectuality of work". In some professional groups, such as physicians and dentists, the importance of the “value of work“ is also emphasized. The difference between ideal and reality, between conception of healthy work and its actual fulfillment, was found to differ considerably between dentists in the PDHS and those in private practice. Indeed, dentists in the PDHS showed the greatest discrepancy between ideal and reality of all the professional groups. Differences were particularly evident with regard to independence and the encouragement of initiative-taking. It seems probable that the reasons for these lie in factors such as work organization and leadership style.

Paper II contains a description of the development of the PDHS control system, from the travelling inspectors in the 40s to the use of modern information technology. The staff opinion

on the present control system was analyzed. PDHS dentists reported that they felt constantly supervised and evaluated. Their pace of work was adapted to surveillance, competition and demands of the employer, not to patient queues or piece-work wages. It is concluded that the system of productivity evaluation was an effective management approach for increasing the work output of staff, but at the same time it contributed to poor work conditions for dentists. The study supports tenets drawn from Foucault's metaphor of the Panopticon.

The third objective was to continue investigation of management control systems by examining how these have *changed* in the assessments of publicly employed professionals, in particular dentists in the PDHS. In Paper III, it is reported that perceived changes in control systems tend to be distributed along two different dimensions, corresponding to aspects of two HRM technologies: “management by objectives“, and “management by dialogue“.The dimensions were interpreted as mirroring “hard“ and “soft“ HRM models respectively. An analysis of changes in management style in the PDHS showed that “hard“ HRM technologies predominate, but also that “soft“ HRM has increased. A clear duality was apparent in changes to managerial control systems in the PDHS.

The succeeding goal was to investigate the impact on work conditions of dual aspects of HRM in both a pathogenetic and a salutogenetic context, as operationalized by ”effort-reward balance” and ”the core of healthy work” respectively. Dentists were also compared with other publicly employed professionals. The results of Paper IV show that the combined effects of “hard“ and “soft“ HRM tend to be more negative for dentists than for other publicly employed graduate workers. Organizational efficiency was reported to have increased considerably in the PDHS, far more so than in other parts of the public sector. This was interpreted as a form of “ruthless efficiency“, where work effectiveness is gained at the cost of a lack of balance between efforts and rewards. With regard to “the core of healthy work“, the results showed that the dual aspects of HRM did *not* improve the opportunities for dentists in the PDHS to work professionally – contrary to the prediction of HRM advocates.

In the final study several threads were tied together. Its general aim was to investigate relations between objects of work, management control systems, and perceived work conditions. Graduate workers were divided into two groups according to whether their knowledge lay in "things/data" or in "life". The analysis showed that managerial changes contributed to a polarization between human-service work and that of other professionals. While opportunities for healthy work increased among graduates who worked with things and data, the same changes led to worsened effort-reward balance for human-service workers (when there was a pronounced duality to HRM strategies). Negative effects were found to be much more pronounced for dentists than for human-service workers as a whole. Dentists seem to constitute an extreme subgroup among human-service workers.

Dentists’ special vulnerability is discussed on the basis of the work of Hirschman (1970). His concepts concern individuals’ reactions to negative circumstances by leaving “exit“, by protesting “voice“, or by doing neither “loyalty“. One interpretation is that dentists have been forced into a position where "loyalty" is the only option available.

7 Sammanfattning (Summary in Swedish)

E. Bejerot. *Dentistry in Sweden – Healthy work or ruthless efficiency?*
Arbete och Hälsa 1998:14, National Institute for Working Life, Solna, Sweden.

Det övergripande syftet med denna avhandling är att ge en ökad förståelse av folktandvårdens organisation och dess problem. En historisk tillbakablick gjordes för att få perspektiv på dagens arbetsorganisation i folktandvården. Den visade att arbetsmiljöfrågor diskuterats ända sedan folktandvården startade, och att tandläkarnas missnöje med löner, arbetsbelastning och byråkrati varit ett återkommande tema.

En sammanställning av svenska och internationella studier om tandläkarnas arbetsmiljö gav en motsägelsefull bild av tandläkaryrket. Att vara tandläkare kan uppenbarligen både vara mycket stimulerande och givande – och mycket ansträngande med låg belöning. Dessa två versioner av tandläkaryrket speglas i avhandlingens titel.

Den teoretiska bakgrunden till begreppen ”det goda arbetet” och ”skoningslös effektivitet” behandlas. Metaforen ”Panopticon” används för att beskriva den disciplinering av arbetskraften som är en förutsättning för ”skoningslös effektivitet”. En modern riktning inom management, Human Resource Management (HRM) analyseras utifrån detta perspektiv.

Avhandlingen inbegriper fem artiklar som baseras på två empiriska undersökningar (genomförda 1987 och 1992). I båda studierna användes postenkäter för insamling av data. Urvalet för den första studien gjordes från landstingens personallistor: 769 tandläkare och 493 tandsköterskor besvarade enkäten (svarsprocent 88% respektive 85%). Den andra studien baserades på ett slumpmässigt urval från Sveriges Tandläkarförbunds medlemsregister: 312 tandläkare från folktandvården och 160 privatpraktiker svarade (svarsprocent 66%-77%). Här ingick tandläkare i en större undersökning av akademikers arbetsvillkor. Två procent av medlemmarna i Sveriges Akademikers Centralorganisation (SACO) fick samma enkät som tandläkarna: 3595 akademiker besvarade enkäten (svarsprocent på 75%). Materialet har analyserats med statistiska metoder (PCA, logistisk och multipel regression, interaktions-modeller).

Syftet i den första artikeln var att studera vad ”det goda arbetet” innebar för akademiker, och om det fanns skillnader mellan olika typer av yrken. Analysen visade att akademiker lade stor vikt vid arbetets intellektualitet. I vissa yrken, som läkare och tandläkare, betonades också arbetets värde för samhället. Diskrepansen mellan ideal och verklighet, mellan idén om ”det goda arbetet” och hur detta uppfylldes, var särskilt stor för tandläkare i folktandvården. Detta gällde framför allt i områden som självbestämmande och uppskattning av initiativ. Privattandläkare var betydligt mer nöjda med sin arbetssituation. Det framstod som troligt att orsaken till denna skillnad mellan offentliganställda och privatpraktiserande tandläkare fanns i arbetsorganisation och ledningsstil.

I den andra artikeln beskrivs hur folktandvårdens kontrollsystem utvecklats från 40-talets kringresande inspektörer till dagens användning av informationsteknik. De anställdas uppfattning om det nuvarande kontrollsystemet analyserades. Tandläkarna rapporterade att de kände sig konstant övervakade och bedömda samt att arbetstakten styrdes i högre grad av kontroll, konkurrens och arbetsgivarens krav än av patientköer och ackordlön. Slutsatsen var att nuvarande kontrollsystem var en effektiv ledningsstrategi för att öka produktiviteten – men att

det samtidigt bidrog till en problematisk arbetssituation för tandläkarna. Resultaten stämmer med tankegångarna i Foucaults Panopticonmetafor.

I den tredje studien analyserades hur styrsystemen *förändrats* för akademiker i offentlig sektor, med fokus på tandläkare i folktandvården. De rapporterade förändringarna föll inom två dimensioner, vilka korresponderade med två HRM-teknologier: ledningsstil präglad av målstyrning och ledningsstil präglad av dialogstyrning. Dessa dimensioner tolkades som ”hårda” och ”mjuka” HRM-modeller. I folktandvården dominerade förändringar av den ”hårda” typen, men även ”mjuka” förändringar hade ökat. Här fanns en tydlig dualitet i förändringsmönstret.

Därefter undersöktes hur akademikernas arbetsvillkor påverkades av förändringar i styrsystemen. Här användes både ett patogenetiskt och ett salutogenetiskt perspektiv, operationaliserat som ”balans mellan ansträngning och belöning” och ”kärnan i det goda arbetet”. Tandläkare i folktandvården jämfördes med andra offentliganställda akademiker. Resultatet i den fjärde studien visade att effekterna av en samtidig ökning av ”hård” och ”mjuk” HRM var mer negativ för tandläkare än för andra akademiker. Tandläkarna i folktandvården rapporterade i högre utsträckning än andra akademiker i den offentliga sektorn en markant ökning av verksamhetens effektivitet. Detta tolkades som ett tecken på ”skoningslös effektivitet” i folktandvården, där en höjd effektivitet åstadkommits genom ökad obalans mellan ansträngning och belöning. Analysen visade också – i motsats till förutsägelser från HRM:s förespråkare – att ”kärnan i det goda arbetet” *inte* stärktes av förändringar enligt HRM-modellen.

I den avslutande studien bands flera trådar samman och sambanden mellan typ av arbete, kontrollsystem och arbetsvillkor analyserades. Akademikerna delades in i två grupper efter sin kunskapsbas, ”ting/data” eller ”liv”. Studien visade att förändringarna i ledningsstil bidrog till en polarisering mellan dessa två grupper. En tydlig dualitet i HRM-modellen förbättrade möjligheterna för ett gott arbete för akademiker som arbetade med ting och data. Samma förändringar ledde till en försämrad balans mellan ansträngning och belöning för de akademiker vars kunskapsbas var ”liv”. För tandläkarna i folktandvården var försämringarna större än för livsyrkena som helhet. Tandläkarna tycks vara en extremgrupp i detta sammanhang.

Tandläkarnas sårbarhet diskuteras utifrån Hirschmans (1970) arbete om hur individer reagerar under negativa förhållanden genom att ”lämna”, ”protestera”, eller med ”lojalitet”. En tolkning av tandläkarnas situation är att de tvingats in i en position där endast ”lojalitet” återstår.

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Appendix: Questionnaire, Study 2

29. A. Vad kännetecknar ett "Gott arbete" för Dig?
B. I vilken utsträckning uppfylls detta i Ditt nuvarande arbete?

A "Kännetecknar ett gott arbete"				B. Uppfylls i mitt arbete		
Mycket viktigt (3)	Ganska viktigt (2)	Mindre viktigt (1)		I hög grad (3)	I viss grad (2)	I låg grad (1)
☐	☐	☐	Välavlönat arbete.	☐	☐	☐
☐	☐	☐	Möjligheter till yrkeskarriär.	☐	☐	☐
☐	☐	☐	Intellektuellt stimulerande.	☐	☐	☐
☐	☐	☐	Arbetet tillför andra/samhället något positivt.	☐	☐	☐
☐	☐	☐	Arbetet är förenligt med för mig viktiga värderingar.	☐	☐	☐
☐	☐	☐	Möjlighet att specialisera mig i mitt intresseområde.	☐	☐	☐
☐	☐	☐	Riskfri arbetsmiljö.	☐	☐	☐
☐	☐	☐	Utvecklande arbetsgemenskap.	☐	☐	☐
☐	☐	☐	Fritt och självständigt.	☐	☐	☐
☐	☐	☐	Kunna påverka viktiga beslut.	☐	☐	☐
☐	☐	☐	Den personliga läggningen kan användas konstruktivt.	☐	☐	☐
☐	☐	☐	Nytänkande och initiativ värderas högt.	☐	☐	☐

14 I vilken utsträckning får Du användning av Din högsta kompetens i Dina arbetsuppgifter?

(5)☐ Hela arbetstiden
(4)☐ Större delen av arbetstiden
(3)☐ Ungefär halva arbetstiden
(2)☐ Mindre än halva arbetstiden
(1)☐ Sällan eller aldrig

	Ökat (3)	Oförändrat (2)	Minskat (1)	Vet ej (9)
Antal beslutsnivåer.	☐	☐	☐	☐
Styrning från ledning.	☐	☐	☐	☐
Dialog med ledning.	☐	☐	☐	☐
Kund-/ patientorientering.	☐	☐	☐	☐
Uppföljning av arbetsprestationer/resultat.	☐	☐	☐	☐
Konkurrens som medel för ökad produktivitet.	☐	☐	☐	☐
Grad av målstyrning.	☐	☐	☐	☐
Utvecklingssamtal.	☐	☐	☐	☐
Annan förändring.....	☐	☐	☐	☐

25. Vilka är Dina samlade erfarenheter i stort av ovannämnda förändringar vad gäller verksamhetens effektivitet?
Effektiviteten har:

(5) ☐ Ökat väsentligt
(4) ☐ Ökat något
(3) ☐ Inte påverkats
(2) ☐ Minskat något
(1) ☐ Minskat väsentligt
(9) ☐ Ingen uppfattning, vet ej

26. Vilka är Dina erfarenheter av ovan nämnda förändringar vad gäller Dina egna arbetsförhållanden i följande avseenden?

	Förbättrats (3)	Oförändrat (2)	Försämrats (1)
Arbetsbelastning	☐	☐	☐
Samarbetet på arbetsplatsen	☐	☐	☐
Lön i förhållade till arbetsinsats	☐	☐	☐
Förutsättningarna att arbeta professionellt	☐	☐	☐
Inflytande och kontroll över egna arbetet	☐	☐	☐
Möjlighet till utvecklande av yrkeskompetens	☐	☐	☐
Medbestämmande	☐	☐	☐
Jämställdhet mellan män och kvinnor	☐	☐	☐
Anställningstrygghet	☐	☐	☐

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Most articles published in Arbete och Hälsa are original scientific work, but literature surveys are sometimes published as well. The usual language is Swedish. Doctoral theses, however, are usually written in English.

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2. Borg G. Psychophysical scaling with applications in physical work and the perception of exertion. *Scand J Work Environ Health* 1990;16, Suppl. 1: 55-58.
3. Bergkvist M, Hedberg G, Rahm M. Utvärdering av test för bedömning av styrka, rörlighet och koordination. *Arbete och Hälsa* 1992;5.
b. Chapter in book
1. Birmingham DJ. Occupational dermatoses. In: Clayton GD, Clayton FE, eds. *Patty's industrial hygiene and toxicology Vol.1*. 3rd ed. New York: John Wiley, 1978: 203–235.
c. Book
1. Griffin MJ. *Handbook of human vibration*. London: Academic, 1990.
2. Klaassen CD, Amdur MO, Doull J, eds. *Casarett and Doull's toxicology*. 3rd ed. New York: Macmillan, 1986.
d. Report
1. Landström U, Törnros J, Nilsson L, Morén B, Söderberg L. *Samband mellan vakenhetsmått och prestationsmått erhållna vid körsimulatorstudie avseende effekter av buller och temperatur*. Arbetsmiljöinstitutet, 1988 (Undersökningsrappport 1988:27).
e. Articles written in langueges other than English, French, German or one of the Nordic languages
1. Pramatarov A, Balev L. Menstrual anomalies and the influence of motor vehicle vibrations on the conductors from the city transport. *Akushersto Ginekol* 1969;8:31-37 (in Russian, English abstract).
f. Article in conference proceedings
1. Mathiassen SE, Winkel J, Parenmark G, Malmkvist AK. Effects of rest pauses and work pace on shoulder-neck fatigue in assembly work. *Work and Health Conference*. Copenhagen 22–25 February 1993: 62–63 (Abstract).
2. van Dijk F, Souman A, deVries F. Industrial noise, annoyance and blood pressure. In: Rossi G, ed. *Proceedings of the Fourth International Congress on Noise as a Public Health Problem*. Milano: Centro Ricerche e Studi Amplifon, 1983: 615-627.

Figures and tables
Figures are placed in the text and numbered in order of appearance. The figure text is below the figure. The tables are placed in the text and numbered in order of appearance. The table text is placed above the table. Tables are normally placed at the top or bottom of a page, or immediately above a subhead.

1997

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20 B Beije and P Lundberg. DECOS and NEG Basis for an Occupational Standard. Glutaraldehyde.

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22 M Lagerström, T Hansson och M Hagberg. Arbetslivsinstitutets expertkommitté för ergonomiska frågor. Dokument 2. Ländryggsbesvär i sjukvårdsarbete.

23 Z Wang. Acute Cytokine Responses to Inhaled Swine Confinement Building Dust.

24 Kriteriegruppen för hygieniska gränsvärden. Ed. P Lundberg. Vetenskapligt Underlag för Hygieniska Gränsvärden 18.

25 Criteria Group for Occupational Standards. Ed. P Lundberg. Scientific Basis for Swedish Occupational Standards XVIII.

26 A Renström. Allergy to Laboratory Animals. Risk Factors for Development of Allergy and Methods for Measuring Airborne Rodent Allergens.

27 C Sconfienza och F Gamberale. Unga mäns och kvinnors arbetssituation.

28 L Hallsten. Arbetslöshet och psykisk ohälsa 1980–1996 – en meta-analys.

29 Å Kilbom, P Westerholm, L Hallsten, B Furåker (Eds). Work after 45? Proceedings from a scientific conference held in Stockholm 22–25 September 1996. Volume 1 and 2.

30 I-L Engkvist. Events and Factors Involved in Accidents Leading to Over-exertion Back Injuries among Nursing Personnel.

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4 E Elovaara. The Nordic Expert Group for Criteria Documentation of Health Risks from Chemicals. 122. Dichlorbenzenes.

5 L Laflamme och E Menckel. Skaderelaterade faktorer i skolmiljön. Utveckling av ett instrument för registrering och analys av elevskador.

6 A Toomingas. Methods for evaluating work-related musculoskeletal neck and upper-extremity disorders in epidemiological studies.

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9 S Törnqvist, U Bergqvist, R-M Herlin, T Lindh, B Knave, F Gamberale, Å Kilbom, L-I Andersson, M Hagman och M Tesarz. Hälsorisker i arbete med elproduktion och eldistribution – slutrapport från en prospektiv studie.

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11 J-E Berg and K Skyberg. The Nordic Expert Group for Criteria Documentation of Health Risks from Chemicals. 123. Antimony.

12 A Zitting. The Nordic Expert Group for Criteria Documentation of Health Risks from Chemicals. 124. Thermal Degradation Products of Polyethylene, Polypropylene, Polystyrene, Polyvinylchloride and Polytetrafluoroethylene in the Processing of Plastics.

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14 E Bejerot. Dentristy in Sweden – Healthy work or ruthless efficiency?