Some Issues on Provision and Access to Dental Services in Norway

Thesis

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FORORD

Det er både godt og rart å sette punktum etter fire intense år hvor denne avhandlinga stort sett var det første jeg tenkte på da jeg våknet og det siste jeg tenkte på før jeg sovnet. Arbeidet har utviklet meg både som forsker og menneske og jeg er veldig takknemlig for å ha fått denne muligheten.

Mange har bidratt til at dette har vært en positiv opplevelse. En hjertelig og stor takk går til min veileder professor Jan Abel Olsen. Først og fremst for at han har delt sin eminente faglige kunnskap og entusiasme, men ikke minst for den vennlighet, sjenerøsitet og omsorg han har vist meg. Jeg har følt at jeg og mitt arbeid har hatt høy prioritet og våre veiledningsmøter har alltid vært oppturer som har gitt meg stort utbytte og glede.

Selv om jeg helt og delvis har hatt permisjon fra forskerjobben min på Norut Alta, for å skrive denne avhandlingen, er det her jeg har hatt mitt arbeidssted. Tusen takk til alle på instituttet og direktør Sveinung Eikeland som syns kompetansebygging har vært viktigere enn inntjening den perioden jeg har holdt på. Norut Alta er et sjeldent godt arbeidsfellesskap som jeg setter stor pris på å være en del av. Flerfagligheten som preger instituttet, letter tilgangen til ulike faglige perspektiv og bidrar til å utvide min horisont, men det viktigste er den gode stemningen og humoren som kjennetegner hverdagene her. Jeg vil spesielt takke min kollega seniorforsker Trine Kvidal, som ga meg uvurderlig hjelp da jeg jobbet meg gjennom diskursanalysen. - Du er en perle!

Denne avhandlingen har sitt utspring i prosjektet ”Nye drifts- og avlønningsformer i tannhelsetjenesten i Troms”, et prosjekt eid av Troms fylkeskommune, finansiert av Helsedirektoratet og administrert av Norut Tromsø. Prosjektet har bidratt med driftsmidler i stipendiatperioden. Jeg vil takke seniorforsker Frank Olsen ved Norut Tromsø for et godt faglig samarbeid, samt tidligere fylkestannlege i Troms Endre Dingsør, og tannhelsesjef i Troms fylkeskommune Peter Marstrander, for verdifulle bidrag i arbeidet med utarbeidelsen av spørreundersøkelsene. En ekstra takk til Endre, for hans utrettelige engasjement, hans evner til å skaffe finansiering, og i det hele tatt for at han involverte meg i prosjektet. Jeg vil også takke professor Eeva Widström ved Institutt for klinisk odontologi for nyttige innspill i en tidlig fase.

Takk til Institutt for samfunnsmedisin ved Universitetet i Tromsø, som ga meg universitetsstipend og syntes det var viktigere at jeg blir ferdig med dr.graden enn hvor jeg har hatt kontorsted. Dette hadde aldri gått hvis jeg ikke hadde kunnet jobbe i Alta.

Sist men ikke minst en STOR takk til min elskede Harald, som alltid tror på meg, støtter og heier meg fram, og ungene mine – Stina og Aksel, som gir og krever helt andre ting av meg enn akademia. Dere er viktigere og mer verdifull for meg enn alt annet.

Alta, juli 2009

Birgit Abelsen

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PAPERS

1 INTRODUCTION

1.1 BACKGROUND

My introduction to the Norwegian oral health care system as a field for research was quite accidental. As a Master's student in Public Health at the University of Tromsø, I was invited to participate in an ongoing project in the Public Dental Service (PDS) in the county of Troms. Inspired by New Public Management ideas, the PDS project aimed at studying alternative methods of management and provider payment in public oral health care. I wrote my master's thesis about the use and effects of performance related pay in the PDS in Troms county as a part of this project (Abelsen, 2003).

The work with my master's thesis made me aware of the striking differences that exist in Norway concerning the organisation and financing of oral health care compared to general health care. The public responsibility for general health care includes the whole population, and the scope is universal coverage involving public finance, and historically public provision as well. Concerning oral health care, there seems to be less emphasis on providing the same level of service to all citizens. The limited public responsibility for providing oral health care leaves Norwegian dentistry dominated by private providers, and most adults faced with paying all costs themselves when they seek dental services. These aspects have potential distributional consequences, which are only explored to some extent in the research literature. For me these aspects make the Norwegian oral health care system an interesting field for research.

The Norwegian discourse concerning health and health care does not evolve much around aspects of oral health and oral health care. During the last decades different parts of the general health care systems have experienced some extensive reforms (Lian, 2003). Among these are the list patient reform (*fastlegereformen*) and the hospital reform (*sykehusreformen*). The reforms have implied rather extensive changes concerning the organisation of general health care in Norway. Nevertheless, a common denominator of these reforms is that they have not involved any changes concerning the organisation or financing of *oral* health care. However, in 2004 a government committee was appointed for the purpose of evaluating public involvement in oral health care. During the time I was working on this thesis, the committee finished its work, and their suggestions were debated and concluded upon as part of a national political process. Aspects of this process are addressed as part of this thesis, although no reform similar to the ones seen in other health care areas originated from this process.

1.2 RESEARCH PROBLEMS

On a general level, the research problems focused in this thesis concern different issues on provision and access to dental services in Norway. The provision of dental services concerns the supply side of dentistry, and one of the research problems addressed is how providers should be paid for their services. Do dentists prefer performance-related pay or a fixed salary? Which form of payment further societal oral health policy objectives?

To some extent, different health professions are educated to perform the same tasks. Based on the rationale of cost efficiency, it is a stated oral health policy objective in

Norway to delegate more dental work from dentists to dental hygienists. This makes the issue of task division between dentists and dental hygienists highly relevant. Another central research problem addressed in this thesis is therefore to what extent Norwegian dentists and dental hygienists consider it desirable to delegate more tasks from dentists to dental hygienists.

Norwegian health policy is in general founded on the idea or objective of ensuring that people receive equal access to health care for equal needs. Access can be improved by making access independent of income and/or geography. In this thesis a central issue concerns adult access to dental services, and I particularly question whether there is equal geographical access to dental services among adults in Norway.

The final research problem addressed concerns how we can explain why, in a country like Norway with its strong emphasis on equal access to health care, there is such a limited public responsibility for provision and access to *oral* health care.

1.3 STRUCTURE OF THE THESIS

The second chapter of this thesis outlines theoretical and empirical aspects concerning i) the financing, ii) government, iii) need for, and iv) the regulations of oral health care, reflecting the different aspects of the four papers included in the thesis. The third chapter treats methodological issues that are relevant for the empirical analyses of the thesis. In particular, different aspects concerning survey responses are considered. A summary of the included papers, its main findings and contributions is presented in the fourth chapter.

The fifth chapter includes some final reflections. The present thesis is then organised as a collection of four separate papers with its special themes, research questions, and methods. One of the papers is co-authored with my supervisor, whereas I have authored the others alone. The papers are as follows:

I. Abelsen B. Pay scheme preferences and health policy objectives (re-submitted to the *Journal of Health Economics, Policy and Law*).

II. Abelsen B. and Olsen JA. Task division between dentist and dental hygienists in Norway, *Community Dentistry and Oral Epidemiology*. 2008, 36, 558-566.

III. Abelsen B. What a difference a place makes: Dental attendance and self-rated oral health among adults in three counties in Norway. *Health & Place*, 2008, 14, 827-838.

IV. Abelsen B. On the absence of regulations of adult dental services in Norway: A critical discourse analysis (submitted to *Social Science & Medicine*).

2 SCENE SETTING

The Norwegian oral health care system refers to the production, financing and consumption of dental services. Three important actors are involved: *patients (or households)*, *dental service providers*, and *public authorities*. The relations between these actors include dental service demand, supply, payments, and different aspects of governance, regulations and support (see illustration in Figure 1). The providers supply the patients with dental services. The patients (or households) finance this supply of dental services by direct payments to the providers and by paying tax to the public authorities. Concerning the financial part of the system, a fundamental identity links total expenditures on services, total revenues raised to pay for those services, and total incomes earned from the provision of services. This means that expenditure by one agent will always end up as a similar sized income to one or more other agents (Evans, 1997).

Seen as a political system, the Norwegian oral health care system is governed by public authorities through laws and other forms of regulation, which affect the type, amount, location, price and quality of dental service production. To be stable, the system depends on political support from the public and the providers — the latter can be seen as exchanged with professional autonomy. The internal organisation and inter-professional relationship between different provider groups is also an important part of the Norwegian oral health care system.

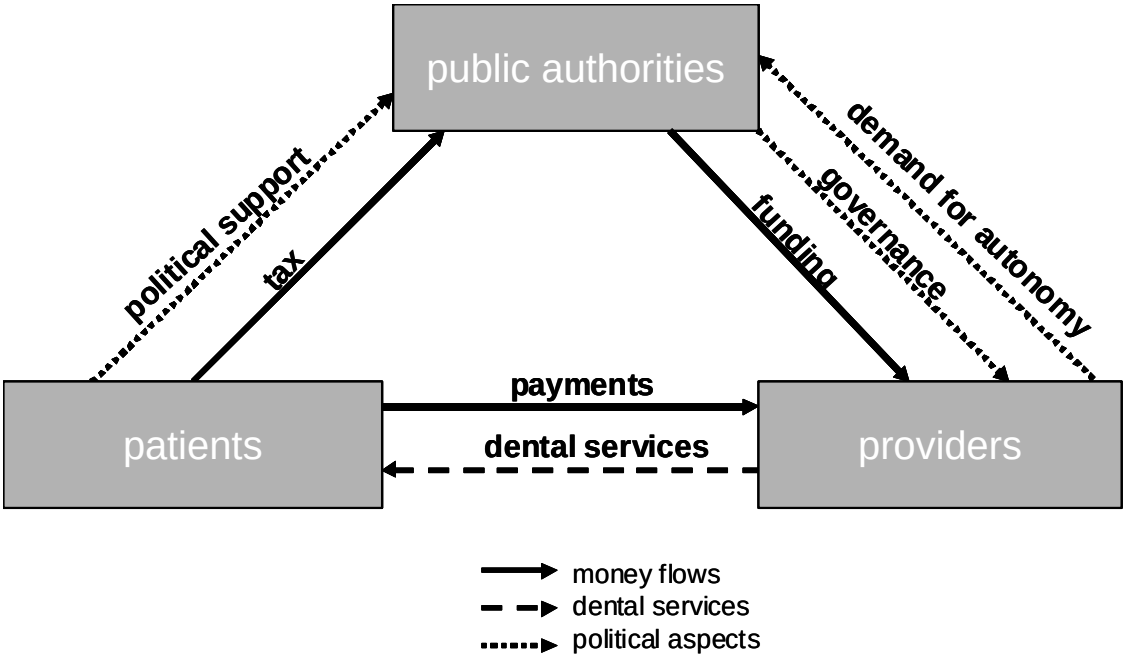

Figure 1: Model of the Norwegian oral health care system.

My scientific approach when dealing with the chosen issues concerning provision and access to dental services as they relate to the Norwegian oral health care system draws from multi disciplinary perspectives and theoretical frameworks. My basic perspective, however, is health economics, although I also focus on perspectives from sociology, political science, and critical theory.

The following parts of this chapter outline different aspects of the Norwegian oral health care system, and they point to where the papers of this thesis contribute new knowledge. Chapter 2.1 outlines the financing of dental services, particularly focusing on the parties paying for dental services and how providers are paid. Chapter 2.2 explains aspects of the government of oral health care provision, focusing in particular on the inter-professional

relationship between dentists and dental hygienists. Chapter 2.3 sets the focus on people's need for oral health care and issues of equal access. Chapter 2.4 addresses aspects concerning the regulation of oral health care provision.

2.1 FINANCING ORAL HEALTH CARE

When it comes to financing health care, the money can flow directly from the patent to the provider of health care or indirectly from the patient to the provider via a third-party payer. Finding a suitable financing arrangement depends on the need for insurance and redistribution.

In general, people's future health status is uncertain as well as their future need for health care and associated health care expenditures. The institutional response to uncertainty is developments of insurance mechanisms (Arrow, 1963; Evans, 1984; Dolan and Olsen, 2002), where individuals make regular payments to a risk-pooling agency in return for some form of guarantee of some form of reimbursement if illness occurs. The risk-pooling agency might be a public body or a private firm, payments might be taxes or premiums, and benefits might be fixed cash payments, reimbursement of all or parts of actual expenditures, or direct provision of care when services are needed.

Choices with respect to health care financing have significant distributional consequences (Evans, 1997). If a health care system is tax-financed, more contributions will be made by wealthier individuals, and less if the system is user-paid. Private insurance premiums are based on expected use of care, resulting in actuarially fair insurance premiums, which

tend to take a bigger share from people with a lower income. As such, out of pocket payments and private insurance premiums are regressive means of raising revenue, while tax-financed systems typically emerge as proportional or mildly progressive. A progressive health care finance system will result in there being less inequality in income after payments for health care have been made, and, in this sense, the payments will have a pro-poor redistributive effect (Wagstaff and van Doorslaer, 2000). In addition, tax-financed systems are more cost effective than private insurance systems when it comes to administrative costs (Dolan and Olsen, 2002).

The general health care system in Norway is tax-financed, publicly governed and based on principles of universal coverage. Oral health care for adults, however, is not a part of this system.

2.1.1 WHO PAYS FOR DENTAL SERVICES?

As Figure 1 illustrates, it is the patients (or households) who pay all expenditures for dental services. This is done either indirectly through tax payments or directly through out-of-pocket payments at dental service delivery. In 2005, direct patient payments constituted 75 percent of the total payments in Norwegian dentistry (St.meld. nr.35, 2007). Private insurance for dental expenses is practically non-existent in Norway (Kravitz and Treasure, 2008).

The Norwegian oral health care system is characterised by a distinct split between public and private sector dentistry. The Public Dental Service (PDS) is a tax financed county responsibility and the counties shall, according to the Act Relating to Dental Health Services (www.lovdata.no), offer and provide dental services on a regular basis, in order of priority, to:

a) children and adolescence under 19 years of age
b) the mentally handicapped
c) people (elderly/disabled) who are under care in institutions or at home for longer than 3 months due to long term illness
d) young people under 21 years of age
e) other groups (mostly people in prison) as prescribed in an approved plan

Dental services for the prioritised groups specified above are provided free of charge, except for group d who have to pay 25 percent of their dental service expenses out of pocket. Some of the fees for orthodontic care for people 18 years and younger is also paid out of pocket.

In general, adults have to pay *all* their dental expenses out of pocket. However, there are some limited public reimbursements for specific medical conditions. Adults are served by private dental clinics. Private clinics can be established anywhere in the country and providers are free to set the prices for dental services. However, a small part of the adult population mainly in rural areas, buys dental services in public clinics because private dental service is not available. Norway is claimed to be the only one among the advanced

welfare states not somehow providing basic dental services for adults via public policy (Holst, 1982; Erichsen, 1990).

2.1.2 HOW ARE PROVIDERS PAID?

There is reason to believe that a third-party payer will prefer a payment system for health care which further health policy objectives. Whether such a system coincides with the provider's payment preferences is another, yet interesting, question. Different payment systems involve incentives for different behaviours. Providers on a fixed salary are paid the same no matter how much their individual production increases. Performance-related pay offers an incentive for increasing the performance that is paid for, whether this performance has any health effect or not. In other words, the absence or presence of financial incentives linked to measures of performance may generate unanticipated or dysfunctional behaviour (Prendergast, 1999).

Information in the form of skilled care is what is actually being bought from professionals in general (Arrow, 1963), and from dentists in particular. An asymmetric information relationship exists when one party possesses more information than the other, and where this information is of a kind considered important to the latter (Dolan and Olsen, 2002). In the dentist/patient relationship the patients are most often insufficiently informed about the impact of dental services to their oral health status to fully protect their own interests. The information gap between patient and provider calls for some

form of control over provider entry to and conduct in health care markets and is according to Evans (1984), almost universally accepted.

The relationship between the dentist and the patient can be seen as a principal/agent relationship (McGuire, 2000), where the dentist is the agent acting on behalf of the principal (patient). If this agency relationship is perfect, the agent will act as if she was the patient. Evans (1984) claimed that this Hippocratic ideal case is unlikely to appear because the agent has economic interests of her own and is, therefore, likely to alter the patient's preferences and induce demand. Supplier-induced demand (SID) refers to the extent to which the provider influences a patient's demand for services to differ from what the patient would have demanded if she had the same information as the provider (Dolan and Olsen, 2002). SID is difficult to prove empirically, and its existence has been one of the most controversial topics in health economics (McGuire, 2000). If present, SID is a display of monopoly power which might be used in order to maximise the dentist's utility rather than the patient's. However, it is assumed that the professional self-regulative code of ethics will act as a powerful constraint on the profit-maximising behaviour of dentists and other health professions (Dolan and Olsen, 2002).

In the period from 1976-1995 prices for dental services in Norway were fixed and negotiated annually. Based on data from 1989, Grytten (1991) claimed to find evidence of SID among Norwegian dentists, and concluded that in areas of excess supply dentists were able to maintain their workload by increasing demand without having to move to areas of higher demand. Since 1995, free pricing for dental services has been practiced in

Norway. After that, Grytten and Sørensen (2000) have claimed to find some evidence against the inducement hypothesis. Still, there is reason to believe that the free pricing arrangement is favourable for the private dentists as official statistics for the period from 1995-2007 shows that the consumer price index for dental services has increased by 103 percent, compared to a 31 percent increase in the overall consumer price index (StatBank, Statistics Norway).

The scientific knowledge base on provider payment arrangement and payment preferences in Norwegian dentistry is meagre. **Paper I** aims at giving a contribution concerning these issues. Given the range of potential payment arrangements that exist, the paper inquires into which arrangement Norwegian dentists would prefer for themselves, and which they think would be best for achieving oral health policy objectives.

2.2 GOVERNING ORAL HEALTH CARE PROVISION

The Act Relating to Dental Health Services states that each of Norway's 19 county authorities shall ensure that sufficient health services are available to all persons resident in the county, and the county authority is given the responsibility for planning and coordinating public and private dental service. The county authority appoints a county dental officer responsible for the overall administration of dental activities in the county. Each county is further divided into dental health service districts with a district dental officer responsible for implementing public oral health activities. These activities are as a

rule performed by personnel employed in public dental clinics. In general, public clinics are small concerning the number of employees.

The private sector is also characterised by small clinics (e.g. quite a few solo practices) with a majority of self-employed dentists and sole proprietor businesses (Grytten, Skau, and Holst, 2007). Private sector dentistry is given the right to establish clinics wherever they want. The fragmented structure of private sector dentistry limits the county authorities' ability to actually plan and coordinate dental services for the whole population within their county.

Under local political governance some differences in the dental service availability is expected from one county to another. However, the variation seen among Norwegian counties e.g. when it comes to population to dentist ratios (see Table 1), is not only a result of differences in county plans and coordination — market mechanisms have to be taken into account as well. With free establishment rights and free pricing the PDS can be seen as lacking important measures to actually govern the provision of dentistry in the county.

Large differences in population to dentist ratios can be observed between the densely populated capital city/county of Oslo and thinly populated counties such as Finnmark, Nord-Trøndelag and Hedmark (see Table 1). **Paper III** presents a structural categorisation of the counties based on population density (PD) and dentist density (DD) in 2006. This structural categorisation put six counties in the high PD/high DD category

(Akershus, Oslo, Buskerud, Vestfold, Vest-Agder, Rogaland, Hordaland, and Møre og Romsdal), five counties in the low PD/high DD category (Østfold, Telemark, Sogn og Fjordane, Nordland, and Troms), and six counties in the low PD/low DD category (Hedmark, Oppland, Aust-Agder, Sør Trøndelag, Nord Trøndelag, and Finnmark).

Table 1: Dentist and dental hygienist characteristics, whole country and different counties in 2008

	DENTISTS		DENTAL HYGIENISTS		RATIO			
	n[1]	% in private practice	n[1]	% in private practice	Population density[2]	Population to dentist	Population to dental hygienists	Dentists to dental hygienists
Whole country	**4 077**	**72**	**759**	**47**	**14.6**	**1 177**	**6 320**	**5.4**
Østfold	212	76	27	60	63.5	1 270	9 874	7.8
Akershus	410	79	78	39	105.4	1 287	6 808	5.3
Oslo	624	89	92	64	1 234.5	923	6 248	6.8
Hedmark	136	68	29	35	6.9	1 398	6 577	4.7
Oppland	140	64	13	49	7.3	1 318	14 176	10.8
Buskerud	207	75	36	46	16.8	1 232	7 034	5.7
Vestfold	194	77	36	43	101.8	1 180	6 418	5.4
Telemark	145	68	18	40	10.9	1 160	9 466	8.2
Aust-Agder	83	69	15	39	11.6	1 295	7 157	5.5
Vest-Agder	138	71	20	54	22.8	1 223	8 627	7.1
Rogaland	347	70	59	53	44.0	1 211	7 116	5.9
Hordaland	454	73	95	56	29.9	1 035	4 965	4.8
Sogn og Fjordane	93	61	22	36	5.7	1 145	4 861	4.2
Møre og Romsdal	219	70	29	38	16.3	1 136	8 606	7.6
Sør Trøndelag	208	63	33	34	15.0	1 381	8 742	6.3
Nord-Trøndelag	76	71	15	39	5.8	1 727	8 543	4.9
Nordland	201	59	53	43	6.1	1 169	4 458	3.8
Troms	136	49	61	43	6.0	1 142	2 554	2.2
Finnmark	57	32	30	27	1.5	1 279	2 392	1.9

Source: KOSTRA, Statistics Norway
[1] n = number of settled man-years in 2008
[2] Population per km^2

Some counties with a relatively higher population to dentist ratio seem to compensate for the maldistribution of dentists by adding relatively more dental hygienists in the public

dental workforce (see Table 1). However, this does not appear to be a consequent policy measure.

A public responsibility for providing dental care was first implemented in Norway in 1917, when a new law ordered all city municipalities to provide free dental services to their school children (Hedum, 2007). Outside city municipalities, offering dental services to school children was optional, hence such services were hardly ever provided. This difference between the city municipalities and other municipalities introduced a rural/urban divide in oral health care, which in many ways has remained an issue up until today.

In 1949, a new law was imposed aimed at establishing a population-based public oral health care system in all counties (*folketannrøkta*). Those aged 6-18 years old should be given free dental services in public clinics. Others should also be given dental services in public clinics but they had to pay all costs themselves. A full implementation of the population-based system never succeeded because of a shortage of dentists. The system was rejected in 1983 with the enforcement of the still present Act Relating to Dental Health Services which made the counties responsible for governing oral health care (Hedum, 2007), with responsibilities as described above.

While the private sector of dentistry continues to grow, recruiting dentists to public dental service has been a challenge for decades (Ministry of Health and Care Services, 2003). Different alternative measures have been implemented to improve recruitment and

retention of dentist to the public sector, where the establishment of dentist education at the University of Tromsø in 2004, extensive recruitment of dentists from abroad, and public policy aiming at substituting dental hygienists with dentists are among the major ones. The measures also include different local county initiatives such as increased pay, extra vacation, and scholarships, although they have not proven to be very successful (Ministry of Health and Care Services, 2003).

Grytten (1991) concluded that the maldistribution of dentists is not likely to be altered by allowing market mechanisms to operate on the dental care market. However, Norwegian health authorities have been reluctant to regulate the provision of oral health care in the same manner as has been the case with general health care provision. The lack of public financial arrangements subsidising adult dental services is likely one major explanatory factor for this situation.

2.2.1 DENTAL SERVICE PROVIDERS

The Norwegian dental work force includes four professions: dentists, dental hygienists, dental technicians, and dental secretaries. Their titles are protected and they all require authorisation to practice. Authorisation is given by state authorities mainly based on educational requirements. It entails independent and personal responsibility and calls for high professional and ethical standards to ensure patient safety (www.safh.no). Dentists provide a wide spectre of dental services ranging from examination to treatment of a variety of oral diseases and disorders. Dental hygienists play a vital role in providing preventive dental services, but they also provide basic dental services overlapping the

ones provided by dentists. Dental secretaries and dental technicians can be seen as filling dental auxiliary roles. Because the tasks division between dentists and dental hygienists seems less settled than between any other pair of dental professions, it is the relationship between dentists and dental hygienists which is investigated in this thesis.

Definitions of what a profession is vary within the literature and change over time and context. Friedson (1994) states that a profession refers only to the few occupations that are widely recognised as possessing very high prestige and a genuine monopoly over a widely demanded task, such as the old and traditional professions of medicine and law. Abbott (1988), however, defines professions as exclusive occupational groups applying abstract knowledge. He sees professions as existing in a system, and the evolution of professions as a result of their interrelations. The professions, the tasks they perform, and the links between them change continuously. Social forces such as politics and technology influence changes. Professions compete for jurisdiction and an exclusive scope of practice. Abbot claims that the struggle over jurisdiction is the key to understanding professions and their development over time. Erichsen (2003) points to jurisdictional struggles between the medical profession and dentists when she outlines the foundation of the public policy concerning oral health care in Norway, especially when she aims at explaining why oral health care at an early stage was left out of the universal general health care system.

Today, following Abbott (1988), the dental professions of Norwegian dentistry can be seen as organised around the knowledge system they apply, and hence status within and

between these professions reflects their degree of involvement with this knowledge system. As such, the status is much higher among dentists than among dental secretaries, and dentists in academic positions might enjoy a higher status than front-line dentists with direct client contact. Internal status differences create wide disparities in income, power, and prestige.

The relationship between the state and health professions is also often of the challenging kind. The relationship between the state and a health profession is typically examined either from a pressure group perspective or from an institutionalist, or state-centred, perspective (Erichsen, 1995). The pressure group perspective views professions as powerful groups outside the state, striving for *autonomy* and a minimum of regulations of professional activities, as health policies are largely interpreted as state intervention in the market. The institutionalist perspective views professions as powerful groups inside the state, as professionals are found incorporated in public bureaucracies and are expected to use their professional *authority* to influence health polices by providing information and expert analyses.

The inter-professional relationship between dentists and dental hygienists include potential conflict because they are educated to some extent to perform the same tasks. Studies have shown that the quality of dental services is maintained when shifted from dentists to dental hygienists (Wang and Holst, 1992; Wang and Riordan, 1995; Öhrn, Crossner, Borgersson, and Taube, 1996), as well as improved efficiency (Nordengen, Fylkesnes, and Søgaard, 1990; Wang and Holst, 1992; Hannerz and Weterberg, 1996;

Widström, Linna, and Niskanen, 2004). The Health Personnel Act (www.lovdata.no) enforced in Norway in 2001, relaxed the subordination of dental hygienists to dentists from Norwegian legislation. Dental hygienists are now allowed to practice independently from dentists in accordance with their professional qualifications. People's oral health has improved over time, and many individuals only require regular dental services at a level which can be provided by dental hygienists. This opens the possibility to change the dental hygienists position in the Norwegian oral health care system from labour supplement to labour substitute, a change which seems highly welcomed by Norwegian health authorities (Ministry of Health and Care Services, 2003; NOU, 2005; St.meld. nr.35, 2007). The rationale behind these policy statements rests mainly on the idea that there is scope for efficiency gains in oral health care provision through some substitution of dentists with dental hygienists. However, the required changes challenge the inter-professional relationship between dentists and dental hygienists.

Paper II aims at investigating the attitudes among dentists and dental hygienists to Norway's policy objective of delegating more dental work from dentists to dental hygienists. To what extent are the proposed changes welcomed or rejected among dentists and dental hygienists in the public and private sectors in Norway?

2.3 NEED FOR ORAL HEALTH CARE

Following Grossmann (1972), it can be assumed that people inherit an initial stock of oral health that depreciates with age and can be improved by investments. Purchasing dental services can be seen as a derived demand for oral health improvement. It is oral health

per se, and not oral health *care*, as a commodity, which is of value to people. An increased focus on preventive oral health care can be explained in this context. However, purchasing cosmetic dental services is not motivated by the investment benefits in terms of improved oral health, but rather the consumption benefits of having nice teeth.

In analysing demand, economists distinguish between wants (a desire to consume something), effective demand (a want backed up by ability and willingness to pay), and needs (the capacity to benefit from care). Not all wants or effective demand are needs and vice versa. Wants and effective demand is, to some extent, linked to judgements made by sovereign consumers, whilst a need can be seen as a condition objectively stated by skilled health professions. If an unregulated market decides the distribution of care, a simple micro-economic model suggests that a downward sloping demand curve will meet with an upward sloping supply curve and establish an equilibrium price where the number of services demanded equals the number of services supplied. Such a market meets the effective demand, but does not necessarily coincide with peoples needs (Morris, Devlin, and Parkin, 2007). In other words, the free market will fail to distribute dental services in accordance with people's needs.

Gaps between the needs for care and service delivery can be addressed by policies aimed at reducing the needs for care or at improving access to care (Leake and Birch, 2008). Reducing needs calls for improvements in oral health status which can be achieved through behavioural changes addressed through preventive care (e.g. dietary changes, reduced tobacco use, and improved oral hygiene). Access to care can be improved by

removing price barriers, and making care available so individuals are able to find providers capable and willing to deliver dental services.

Government interference in health care markets sets priority to meet with people's needs, in line with an egalitarian theory of justice. The egalitarian distributive principle of "equal access for equal need" is suggested to reflect the preferences of most individuals (van Doorslaer, Wagstaff, and Rutten, 1993; Dolan and Olsen, 2002). The egalitarian viewpoint suggests that publicly-financed systems should predominate, with care being distributed according to need and financed according to an ability to pay. A libertarian viewpoint focuses towards privately-financed systems, with care being rationed according to an individual's ability and willingness to pay. Government involvement is minimal and limited to providing a minimum standard of care for the poor (Wagstaff and van Doorslaer, 2000). Throughout Europe oral health care is financed and delivered by a mixture of systems (Andersen, Treasure, and Whitehouse, 1998; Widström and Eaton, 2004; Kravitz and Treasure, 2008), and there are traces of both ideologies in policy making.

2.3.1 PREDICTABLE NEEDS AND COSTS FOR MOST PEOPLE

The demand for health insurance is characterised by an unpredictable and potentially large monetary loss if illness occurs. Although dental diseases have high prevalence compared to most other diseases, the associated treatment costs are fairly predictable (Grytten, 1992). People's dental expenses tend to be foreseeable and controllable, more in the nature of maintenance costs than unexpected events. High costs are usually the result

of accumulated need. Dentistry has therefore traditionally been described as "uninsurable", reflecting its association with regular, small, predictable, and controllable "losses", and the absence of people at risk of ruin if illness occur in the same manner as when it comes to general health (Evans, 1984).

The lack of an insurance motive may explain why public and private insurance institutions for adults are absent in the Norwegian oral health care system. Still this does not explain why insurance institutions for dental services exist in other countries, e.g. 30 percent of adult Danes have private health insurance which include reimbursement for dental service costs (Kravitz and Treasure, 2008). The existence of such arrangements likely has historical and institutional explanations which are left unaddressed in this thesis. However, the "uninsurable" nature of dentistry does not mean that some people might not need subsidy to cope with their dental service expenses. In addition, bad oral health is found to worsen systemic conditions such as diabetes and respiratory and cardiovascular diseases (Wamala, Merlo, and Boström, 2006). A core group of modifiable risk factors related to lifestyle and standard of hygiene is common to many chronic diseases and injuries, and most oral diseases (Petersen, 2009). Therefore a movement from the isolated "uninsurable" perspective on dentistry to a perspective integrating oral and general health care might be necessary.

2.3.2 EQUAL ACCESS

In health economics, the distribution of health and health care is often normatively judged by the criteria of equity (Morris, Devlin, and Parkin, 2007). The concept of equity is defined in different ways (Mooney, 1983; Whitehead, 1992; Braveman and Gruskin, 2003), but essentially it means fairness in the distribution of health and health care. Aiming at equity means to reduce or eliminate differences which result from factors that are considered to be both avoidable and unfair. Two main forms of health equity are identified: horizontal equity which means equal access to care for equal needs, and vertical equity, which means treating those who have different needs differently. The published literature focuses to a large extent on horizontal equity, and the most prevalent theories explaining inequity outcomes concern the role of socioeconomic status (Machinko and Starfield, 2002).

In the Norwegian system where adults pay all dental service costs out of pocket, unequal income will result in unequal access to dental services. In a recent OECD-study, 6.5 percent of the adult population in Norway reported unmet needs for dental examination, compared to 4.3 percent across OECD countries. All countries reported higher levels of unmet needs among lower socio-economic status (SES) groups, but the differences between higher an lower SES groups in Norway were among the highest in the study (de Looper and Lafortune, 2009).

Important variations in access to health care are also associated with geography, and the pursuit of territorial equity is often a central health policy objective (Rice and Smith,

2001). Unequal geographical access to dental services means that the total costs for dental services will differ between people in different geographical areas due to variations in time and travel costs to receive dental services. However, securing equal access between rural and urban areas can be quite a challenge, and people in rural areas may have to live with lower levels of service than their urban counterparts due to the trade-off that exists between equity and efficiency in the allocation of health services. Equal access to health care is anyhow a central objective of the Norwegian health policy (Proposition to the Storting No. 1 (2006-2007)).

The demand for dental services among Norwegian adults has been examined fairly regularly in national surveys since 1973 (Holst, Grytten, and Skau, 2004). To some extent, these surveys can be used to indicate something about adult access to dental services. They are, however, designed to make inferences concerning the whole population, and as such, are not designed to form the basis for comparative studies of the situation in different geographical areas within the country. Therefore, the scientific knowledge about geographical variation in access to dental services among adults in Norway is meager, which is also the case when it comes to knowledge concerning any geographical variation in oral health. **Paper III** addresses questions of geographical variation in dental attendance and self-rated oral health among adults in three different counties in Norway.

2.4 REGULATIONS

While there are rather extensive regulations in Norway concerning where providers of general health care are allowed to practise and what they can charge for their services, oral health care is not regulated in the same manner. Private dental clinics can be established anywhere in the country, and the charges for private dental services are decided by the individual provider. This leaves the counties who are given the overall responsibility for providing dental services to all county citizens, with few measures to improve people's access to dental services if needed.

The oral health care system differs from country to country, but most other European countries experience more government interference and regulations of this system than in Norway (Kravitz and Treasure, 2008). Regulation can be defined as the exercise of authority typically imposed by national governments over individuals or organizations, in order to produce socially desirable results (Saltman, 2002). Governments can pass laws and regulations that require businesses and individuals to behave in certain ways. The asymmetric relationship between patients and health care providers is one reason for regulating the provision of health care, and it's justified because the uncontrolled marketplace fails to produce results or behaviour in accordance with public interests (Baldwin and Cave, 1999).

The Norwegian welfare state share many common aspects with the welfare states in Sweden, Finland and Denmark. Typical features of the 'Nordic model' are universal public services such as education and health, provided free of charge and available to the

whole population (Kautto, Fritzell, Hvinden, Kvist, and Uusitalio, 2001). Concerning the oral health care systems there are similarities, but also distinct differences. In all four countries, the PDS provides free dental care for children and adolescents. However, Widström et al. (2005) claim that public interference in the oral health care system is greater in Sweden and Finland, than in Norway and Denmark. Table 2 sums up some characteristics concerning the oral health care system in the four countries. The population to dentist ratio is fairly similar in these countries and among the lowest compared to other countries in Europe (Kravitz and Treasure, 2008). However, the private sector of dentistry is smaller in Sweden and Finland than in Norway and Denmark. The population to dental hygienists ratio varies among the four countries and the ratio seen in Sweden and Finland is much lower than in Norway and Denmark.

When it comes to financial aspects and oral health status Norway and Denmark are actually quite different. Free pricing in private dental practice is present in all countries, except in Denmark where the fees are defined in departmental order (Kravitz and Treasure, 2008). All adults are covered by tax-financed public health insurance schemes, which mean that they are entitled to some public subsidy of dental service costs, except in Norway where only certain limited groups of adults are provided free dental care (see chapter 2.1.1).

The oral health status indicators concerning 12-year-olds presented in the table indicate differences between the four countries; the situation seems to be better in Denmark, compared to Norway. The DMFT index describes the prevalence of dental caries in

individuals by summing the number of decayed (D), missing (M), and filled (F) teeth (T). Fluoride is a substance which protects teeth against tooth decay. In Denmark, fluoride is found naturally in some water supplies — a fact which might contribute to explaining why the oral health status appear to be better among Danish 12-year-olds than among Norwegian (Kravitz and Treasure, 2008).

Table 2: Characteristics of the oral health care system in Norway, Sweden, Finland, and Denmark

	Norway	Sweden	Finland	Denmark
Population to dentist ratio	1 201	1 239	1 178	1 141
% of dentists in general practice	68	44	51	70
Dentist to dental hygienist ratio	5.3	2.3	2.6	6.0
Public dental service organising body	counties	counties	municipalities	municipalities
Free pricing in general practice	yes	yes	yes	no
General public subsidies for adults	no	yes	yes	yes
Average DMFT at age 12	1.4	1.0	1.2	0.7
% with DMFT zero at age 12	47	58	42	72

Source: (Kravitz and Treasure, 2008)

Even if the rationale behind most health care system reforms is claimed to be a perceived need to reduce the growth in health care expenses (Christensen et al., 1995), more public funds have recently been invested in oral health care in Sweden and Finland (Widström et al., 2005). Both countries have increased public resources to subsidise dental service for adults with the aim of improving access and the quality of services. Widström et al. (2005) find it interesting that there has not been heavy public pressure towards public subsidy for adult dental service costs in such a rich country like Norway.

When a government committee was appointed in 2004 to evaluate the public involvement in oral health care, the previous serious political debate concerning the question of public

funding for adult dental services in Norway dated back to 1914 (Holst, 2004). However, the committee did not end up suggesting any general arrangement concerning increased public funding for adult dental services. To improve people's access to dental services, they suggested establishment control of dental clinics and price regulation of dental services. **Paper IV** addresses the rationale for these suggestions and the public debate following them.

3 THE RESEARCH PROCESS, METHODS AND MATERIAL

My basic and pragmatic starting point when it comes to doing research, is that the nature of the research question or theme decides which research method is appropriate. Consequently, I am open to both quantitative and qualitative research approaches, as well as mixed methods (Bryman, 2007), and I consider myself a supporter of methodological polytheism, a practice attributed to Bourdieu (Bourdieu and Wacquant, 1992). The research process conducted for this thesis can be seen as multiparadigm. A research paradigm constitutes assumptions, practices and agreements among a scholarly community, and a multiparadigm research approach refers to the conduct of parallel or sequential studies using multiple paradigms (their respective methods and foci) to collect and analyse data and develop varied representations of a complex phenomenon (Lewis and Grimes, 1999). However, a multiparadigm approach may challenge intellectual hegemonies and the incommensurability of different research paradigms can be provocative to some scholars (Willmott, 1993).

Quantitative research seeks facts and accurate predictions from numerical values, and often looks for (causal) relationships between variables. Quantitative research addresses *what*, *who* and *how* questions. It claims to be value free and objective, even if the research process often involves many subjective judgements (Ercikan and Roth, 2006). The researcher is a separate observing third party who is identifying and explaining, distanced from the phenomenon itself. Reliability and validity of the measuring instruments is crucial, as is reproducibility and generalisibility of results.

Qualitative research aims to illuminate people's interpretation of facts focusing on reason and understanding. Qualitative research often addresses *why* questions, and can be characterised as the attempt to obtain an in-depth understanding of the meanings and definitions of a situation (Wainwright, 1997). It is often conducted in settings where context is taken into account. The impact of the researcher is far more obvious and more readily acknowledged in qualitative than in quantitative research. Subjectivity is often a stated determinant of the research process, and is frequently addressed by the researcher in a (self-) reflexive way (Breuer, Mruck, and Roth, 2002).

I see the work with this thesis as an educational process which opens the opportunity to explore different methodological angles and to increase my competence with different methods and methodological perspectives. Personally, I cannot see any reason why one should not be able and aim to understand and use statistical methods to analyse quantitative data as well as qualitative techniques to analyse written or spoken language. When I for the purpose of this research project have chosen to use different research approaches, it is the result of a personal, time consuming and reflective process. Limiting my research to a solely quantitative approach would be a conventional and safe option, especially considering my thorough formal training in statistics (I have a master degree in statistics). However, I feel that my decision to also include a paper based on qualitative research adds significantly to the understanding of the Norwegian oral health care system, as it addresses crucial aspects of the system which I would not be able to attend to with quantitative methods.

The purpose of the following sections of this chapter is to present some relevant methodological aspects which are not fully covered by the papers. First, aspects of the two surveys which serve as the basis for papers I-III, are focused upon. Then the critical discourse analysis which is used in paper IV is presented and discussed. Finally, I reflect on my role as a researcher in the field of oral health care.

3.1 SURVEY RESPONSE

Probability sampling is the basis for unbiased inference from relatively small observed samples to larger unobserved populations. The assumption underlying this inferential process is that elements designated for the sample are actually observed or measured. Hence, when a postal questionnaire is used as a method to observe a sample, it is crucial that people respond.

Despite the fact that mail surveys are widely used as a data producing method, there is actually very little known about why some people respond, whereas others do not (Albaum, Evangelista, and Medina, 1998). Exchange theory represents one common and plausible theory of mail survey response behaviour (Dillman, 1978). Exchange relations are by definition reciprocal, and accordingly, people will participate in mail surveys when the benefits outweigh the costs, whether economic or social. Cognitive dissonance theory represents another possibility for explaining mail survey behaviour (Furse and Steward, 1984). According to this theory, failure to respond to a mail survey will create a state of disharmony within people, which will only be reduced by answering the survey. The

theory of commitment or involvement represents yet another plausible theory (Albaum, Evangelista, and Medina, 1998; Loosveldt and Storms, 2008). People are more likely to respond to mail surveys if the topic, sponsor or researcher is relevant to them; the more relevant, the more committed they are to respond.

Increased reluctance to participate in surveys is a general trend internationally (de Leeuw and de Heer, 2002; Curtin, Presser, and Singer, 2005). Even if the common prescription for survey researchers is to minimize non-response rates, non-response can, but need not, induce non-response bias in survey estimates (Groves, 2006). There is no minimum response rate below which survey estimates are necessarily biased, and no maximum response rate above which they are never biased (Singer, 2006). Different methods can be used for assessing non-response bias. The most common tool is comparing the survey estimates with population estimates, e.g. concerning socioeconomic or demographic variables such as age and gender. There are also different post-survey methods used to adjust detected biases, among which weighting adjustment is common (Groves, 2006).

Various types of incentives are used as measures to increase response rates (Artzhammer and Klein, 1999; Larson and Chow, 2001; Edwards et al., 2003; Singer, 2006). The use of monetary and non-monetary incentives has a long history as methods of improving response rates (Shettle and Mooney, 1999; Singer, van Hoewyk, Gebler, Raughunathan, and McGonagle, 1999; Ryu, Couper, and Marans, 2005; Teisl, Roe, and Vayda, 2005) Follow-up contact, pre-notification and university sponsorship are other measures also proven to increase response rates (Edwards et al., 2003). The use of incentives is founded

on Gouldner's (1960) norm of reciprocity claiming the existence of a social normative standard, leading individuals to strive to repay favours freely given. In accordance with exchange theory the use of incentives will increase the benefits of participation, whereas it according to dissonance theory can be seen as a measure to manipulate dissonance. In general, it seems that incentives work: monetary incentives — especially cash — are more effective than non-monetary incentives, and prepaid incentives are more effective than conditional ones (Singer, van Hoewyk, and Maher, 2000; Edwards et al., 2003). There is also evidence suggesting increasing response rates with increasing value of prepaid monetary incentives (Jobber, Saunders, and Mitchel, 2004).

In the surveys conducted for this thesis, both weighing (to adjust for bias) and incentives (to increase response rate) are used.

3.2 SURVEY 1

The first survey which provided data for paper I and II was conducted in April 2005, among a sample of Norwegian dentists and dental hygienists. Questionnaires were mailed to 1,111 dentists and 268 dental hygienists. The sampling frames were the Norwegian Dental Association (NDA) and the Norwegian Dental Hygienist Association (NDHA), where 96 percent and 86 percent of all practicing dentists and dental hygienists respectively, are members. For reasons not relevant to this context, the questionnaires were mailed to all dentists and dental hygienists in two counties in Norway (161 dentists and 69 dental hygienists), in addition to a random sample of dentists and dental hygienists from the rest of the country (950 dentists and 199 dental hygienists). One follow-up

mailing was done including an offer to respond electronically on the Internet. In total, 504 dentists and 112 dental hygienists responded, which gave a rather low, but not unusual, survey response rate of 45 percent and 42 percent, respectively.

The extent (four A4 pages) of the questionnaire and its structure with several different topics are likely to have contributed to the low response rate. The non-responders might have considered the costs of participation higher than the benefits, and our ambition to include different themes in the same data production process might have given the questionnaire an unfocused and irrelevant image, counterproductive to response.

Table 3: The geographical and sector distribution among NDA and NDHA members, and the weighed dentist and dental hygienist samples

	DENTISTS		DENTAL HYGIENISTS	
	NDA members	Weighted sample	NDHA members	Weighted sample
Geographical region				
East[1]	38,8	38,8	31,7	31,8
South[2]	18,9	18,6	18,4	18,4
West[3]	22,3	22,7	20,2	20,2
Mid[4]	10,5	11,5	12,4	12,3
North[5]	8,5	8,4	17,3	17,3
Total	100,0	100,0	100,0	100,0
Sector				
Public	33	31	67	64
Private	67	65	30	35
Public and private	-	4	3	1
Total	100	100	100	100
N	4 028	504	618	112

[1] Counties of Østfold, Akershus, Oslo, Hedmark og Oppland
[2] Counties of Buskerud, Vestfold, Telemark, Vest-Agder og Aust-Agder
[3] Counties of Rogaland, Hordaland og Sogn og Fjordane
[4] Counties of Møre og Romsdal, Sør-Trøndelag og Nord-Trøndelag
[5] Counties of Nordland, Troms og Finnmark

Because the sampling method introduced a geographical bias, the data material was weighed in order to secure a representative geographical balance in the samples analysed. As the distribution of public and private dentists and dental hygienists in the weighted sample also coincided fairly well with the corresponding populations the weighed sample was considered representative of the dentist and dental hygienist population in Norway (see Table 3). For further relevant details, see Papers I and II.

3.3 SURVEY 2

The second survey produced the data used in Paper III, and was conducted in October/November of 2006. The low response rate from the first survey had taught us some lessons, so this time, the questionnaire was shorter (two A4 pages) and focused on one main issue: dental service utilisation. In order to boost the response rate, we experimented with an incentive. The questionnaire designed for this study was mailed to a random population sample of 800 adults aged 21-60 years old in each of three different counties in Norway (Akershus, Troms and Finnmark), giving a total sample of 2,400. In each county a systematically selected half of the sample (every second person on the list) received a scratch lottery ticket together with the questionnaire (incentive group), while the other half received only the questionnaire (no-incentive group), i.e. 1,200 in each of the two groups. This particular scratch lottery (Flax) is a continuously run national lottery with which most Norwegians are familiar. First prize in the scratch lottery is 1 million NOK. Six weeks after the first invitation, a reminder — a questionnaire *without* incentives — was mailed to non-respondents.

Table 4 shows higher response rates in all three counties in the group that received the scratch lottery ticket compared to those who did not. The incentive had a significant positive effect on the total response rate, with an odds-ratio of 1.257 (p-value< 0.008, 95% CI = [1.063 – 1.487]). The scratch lottery ticket incentive also increased the share of less educated people, a group which is traditionally difficult to target in surveys. The incentive experiment is presented and analysed in a separate paper (Olsen, Abelsen, and Abel Olsen, 2009). However, the response rate in the no-incentive group was actually quite high compared to the response rates experienced in survey 1 described above. This is probably due to a short, focused questionnaire with a topic found relevant among the majority of people asked to participate. The nature of the questions to the public was relatively simple as well, compared to the ones the professionals were asked which were cognitively more demanding and perhaps also controversial. For further relevant details, see Paper III.

Table 4: Response rates in the incentive and no-incentive groups between counties and total

	Incentive	No-incentive	Total	n
Akershus	63%	58%	60%	782
Troms	65%	60%	63%	772
Finnmark	65%	58%	61%	752
Total	64%	59%	61%	2 306
n	1 160	1 146	2 306	

The n's does not sum up to 1,200 or 800 due to withdraws (e.g. unknown addressees, death or illness).

3.4 LOGISTIC REGRESSION ANALYSIS

The data produced from surveys 1 and 2 are reported and analysed in Papers I-III. A variety of statistical analyses is included, but all three papers incorporate one version or another of logistic regression analysis. In practice, situations involving categorical outcomes are quite common. Logistic regression analysis extends the techniques of multiple linear regression analysis to research situations in which the outcome variable is categorical. In binary logistic regression analysis the dependent variable (Y) is a categorical dichotomy, e.g. only two values are possible (Y=0 or Y=1). The predictor variables or independent variables can be continuous or categorical, as in a multiple regression analysis.

Despite the similarities between linear and logistic regression, the non-linearity of a dichotomous dependent variable makes it inappropriate to apply linear regression to analyse this type of data (Field, 2005). One way around the non-linearity problem is to transform the data to linearity by using a logarithmic transformation. Logistic regression analysis is based on such logarithmic transformation. As such, it is the probability of Y=1 that is modelled in a logistic regression analysis.

As in linear regression, the logistic regression model estimates individual association between predictors or independent variables and the dependent variable. In linear regression analysis, this contribution is indicated by the estimated regression coefficients (b_i), which estimates the change of the dependent variable following one unit change in the predictor *i*. In a logistic regression model the estimated regression coefficient $\exp(b_i)$

(or odds ratios), estimates the change in the odds of Y=1, as the predictor *i* changes one unit, e.g. if exp(b) = 1.5, this means that the probability of Y=1 increases relatively by 50 percent as the predictor changes one unit, and if exp(b) = -0.5, this means that the probability of Y=1 decreases relatively by 50 percent as the predictor changes one unit.

In Paper II, only binary logistic regression analyses are included. In Paper I, the binary logistic regression analyses are part of a multilevel approach, as the analyses take into account both an individual and a structural level. In Paper III, a multinomial logistic regression analysis is performed. Multinomial logistic regression analysis extends the binary analysis to situations where the dependent variable has more than two values. In the analysis performed in Paper III, the dependent variable has three values. In the analysis one of these values serves as the reference category for the other two.

3.5 CRITICAL DISCOURCE ANALYSIS

Parallel to my work with this thesis, a rare public health policy debate went on in Norway. It was rare because it evolved around the public involvement in oral health care, an issue which has not often appeared on the political agenda during the last century. Following the developments of this political debate was very interesting, and Paper IV is based on this debate. Public health policy is developed more or less through debate between state and societal actors. Public argument is the process through which the underlying interests of differently empowered groups contest against each other for particular policies and practices through the negotiation of persuasive arguments (Condit, 1990).

The Green Paper (NOU, 2005) from the committee appointed in 2004 to evaluate the public involvement in oral health care can be seen as part of the contest described above as well as a reality-producing process. This is also true of the hearing documents, the White Paper (St.meld. nr.35, 2007) from the government, and other texts produced as part of this political process. However, when reading these texts it struck me how different "reality" is perceived from different positions. For a long time, I had the desire to use this particular process and the texts involved in it as the basis for scientific research, but I could not figure out how - until I discovered discourse analysis.

A discourse can be seen as a public conversation, and it includes representations of how things are and have been, as well as imaginaries — representations of how things might, could, or should be (Fairclough, 2005). Discourse analysis literally refers to the analysis of texts or language, and is increasingly used to analyze health-related discourses (Smith, 2007; Shaw and Greenhalgh, 2008). Foucault who is one of the "founding fathers" of discourse analysis referred not only to linguistic practice or statements, but also to the material and other practices that bring about a certain type of statement (Foucault, 1972). However, as discourse analysis is not a coherent research paradigm of well-defined procedures, but a theoretical approach which covers a broad range of methodological devices, there are many variants of discourse analysis (O'Reilly, Dixon-Woods, Angell, Ashcroft, and Bryman, 2009).

Critical discourse analysis (CDA) is a particular type of discourse analysis research where power or, more specifically, social power, is a central notion (van Dijk, 2001). Groups have social power if they are able to control the opinions or acts of other groups, which presupposes a power base of privileged access to scarce social resources like money, knowledge, status, authority, or public debate. As such, CDA aims at exposing social power inequalities. In CDA texts are not viewed as powerful in themselves, but are given power within the context where they are produced and used (Wodac, 2001). I use CDA to analyse text produced as part of the recent Norwegian policy debate on public involvement in oral health care, and as my point of departure, I positioned the dentist profession in possession of social power.

The purpose of the CDA is not to test hypothesis or look for associations which might explain why events occur, nor to explore the experiences of research participants. Its function is, in this context, to reflect back on how oral health policy is constructed, legitimised, and maintained. Much CDA has been criticised for being a disappointment because it yields findings that can always be predicted in advance, once the basic power relations have been sketched out (Buckholtz, 2001). This may be so, but its most valuable contribution may sometimes lie in actually sketching out the power relations and point up situations where power is not necessarily legitimate. The position of the researcher in presenting only one of a number of possible interpretations is another problematic aspect of CDA. Alternative interpretations are not presented and the researcher risks being seen as a part of the dominant ideology that she is hoping to challenge (Ballinger and Payne, 2000). The subjectivity inherent in a CDA might be “reduced” to inter-subjectivity if a

team of researchers conducted the analysis, as a CDA team would most likely emphasize shared cognition and consensus in their analysis. However, a CDA will never be objective. To capture more subjective and inter-subjective dimensions of research Finlay (1998) argues in favor of the researcher being reflexive, on both a methodological and a personal level.

3.6 ON THE OUTSIDE LOOKING IN

The research conducted for this thesis is related to a field of practice (dentistry) where I am clearly an outsider. As I am not a professional in the field of dentistry and am only slightly familiar with its knowledge base, I most certainly observe and perceive issues of dentistry and oral health care differently from insiders (dental professions). Unless I am a professional, I do not rationalise as a professional. As such, I study the field of practice from a distance. This can be seen as both a disadvantage and an advantage.

I was more aware of, and troubled by, the disadvantage in the beginning of the research process as I struggled to determine which tasks and procedures dentistry actually involved, and which professions performed these tasks. I needed knowledge to be able to write something meaningful about the task division between dentists and dental hygienists. I figured that it would be much easier to write about this issue if I was trained in the field of dentistry, and I feared that my writings would reveal my ignorance. I have, however, become reconciled with the notion that when it comes to dentistry, there are multiple realties and my perspectives on issues of provision and access to dental services

are of value merely because they are likely to differ from the views held by many insiders.

To compensate for my lack of professional knowledge a close collaboration was established with some highly qualified dentists, who held relevant experience from research as well as Public Dental Service leadership and administration. This collaboration was operative in the first part of my work with this thesis and was particularly valuable in the process where the questionnaires for the two surveys were designed.

Not being a professional probably makes me unaware of certain aspects concerning the field of practice which professionals take for granted. This, I reckon, is mostly an advantage. The astonishment which to some extent characterise my perceptions on provision and access to dental services in Norway is perhaps not an issue with a professional. However, questioning the presence of political perplexity when it comes to provision and access to oral health care can and should indeed be completed by non-professionals.

I recognise that my location as a citizen and researcher in a small town in the northernmost part of the country where the chronic lack of dentists in my home county is a reoccurring topic addressed in the local media, has been of importance for this research process. As I was reading research results concerning the Norwegian population, stating that approximately 80 percent of the adult population receive dental service on a regular

basis, I questioned these figures because they did not match up with my own experiences of the attendance among adults living in my part of the country. The survey reported in Paper III, which studies differences in dental attendance between different counties in Norway is somewhat a result of my aspiration to document and voice such marginalized conditions.

4 SUMMARY, FINDINGS AND CONTRIBUTIONS OF THE PAPERS

4.1 PAPER I

PAY SCHEME PREFERENCES AND HEALTH POLICY OBJECTIVES

Paper I is based on survey data from Norwegian dentists who have provided information about their current and preferred pay schemes, and indicated which pay scheme, in their opinion, would best further overall oral health policy objectives of efficiency, stability, and quality.

The results indicate a general preference among dentists for pay schemes including performance-related pay (PRP). These results have to be seen in relation to the fact that dentists provide easy measurable output which is also easily attributable to one dentist. As such, PRP seem suitable as part of provider payments for dental services. Public dentists would like to be exposed to more PRP, while private dentists are happy with their current high PRP exposure. However, solo practising private dentists were currently exposed to more PRP than they preferred.

Different payment systems give incentives for different behaviour. Therefore the choice of payment systems for health care is to a large extent also a choice of health policy. Public dentists preferred pay schemes believed to further stability objectives, while private dentists preferred pay schemes believed to further efficiency objectives. Both public and private dentists believed that pay schemes furthering efficiency objectives

have to include more PRP than pay schemes believed to further stability and quality objectives.

The paper introduces the idea of split preferences; as a consumer the dentists maintain self-serving interests which are different from the interests and preferences they maintain as citizens. Their selfish preferences are not necessarily what they consider to best serve societal interests. Classical economics argue the notion that competitive markets driven by self-serving interests and Adam Smith's "invisible hand" tend to advance broader social interests. Economists, therefore, traditionally emphasize individual preferences and self-serving interests when they analyse questions concerning work payments. The findings from this paper suggest that Norwegian dentists, to some extent, recognise collective interests as different from individual ones. Further research might disclose to what extent dentists view collective interests as important to pursue through payment incentives.

4.2 PAPER II

TASK DIVISION BETWEEN DENTIST AND DENTAL HYGIENISTS IN NORWAY

The aim of the study was to investigate the attitudes among dentists and dental hygienists concerning Norway's policy objective of delegating more dental work from dentists to dental hygienists. The survey sought to explore any discrepancies between the current and preferred mix of different work tasks, as well as attitudes about to the idea of substituting dentists with dental hygienists for certain work tasks.

The results showed that dentists spent only half of their total working hours on complex dental services, i.e. tasks that only dentists are skilled to undertake. Nearly 40 percent of their time was spent on tasks that dental hygienists are qualified to perform. Still, the mix of work tasks that dentists preferred would involve only slight changes. Seemingly contrary, the majority among the dentists responded that it was desirable to delegate more tasks to dental hygienists. However, only 21 percent of the dentists agreed that dental hygienists should be the entry point for dental services. Dental hygienists would prefer to perform relatively more basic treatments and fewer examinations and screening, and the vast majority among them supported the idea that they could be the entry point for dental services.

The results suggest that there will not be major changes in the division of labour between dentists and dental hygienists in Norway, if dentists are to be held responsible for taking such initiatives. Although dentists agree that more of their current work *could* — in principle — be delegated to dental hygienists, they do not prefer to reduce much of their own current activity of those work tasks that dental hygienists are qualified to perform.

The findings from this paper imply an inefficient use of dental professions with different levels of skills. Even if there is scope for greater efficiency resistance against alterations in the task division is found within the professions, especially among the dentists. There is good reason to assume that there is scope for efficiency gains from improved task division between other health professions as well, e.g between doctors and nurses. Policy

makers in health systems characterised by global budgets and cost-containment are aware of the need to employ available labor resources in the most cost-effective manner, and the struggle for achievements in this area will continue and probably be intensified in the future. However, demonstrating the scope for efficiency gains and a need for change is not enough; initiatives like this also require appropriate incentives to actually change the way professionals work.

4.3 PAPER III

WHAT A DIFFERENCE A PLACE MAKES:
DENTAL ATTENDANCE AND SELF-RATED ORAL HEALTH
AMONG ADULTS IN THREE COUNTIES IN NORWAY

The study explores the relationships of dental attendance and self-rated oral health (SROH) to individual and structural factors among adults in Norway with different accessibility to dental services. The individual factors include various socio-demographic characteristics. The structural ones are population density (PD) and dentist density (DD). The survey sample was recruited from three counties representing three different combinations of PD and DD.

There were significant differences in both dental attendance and SROH between the counties. The multilevel logistic regression analysis showed that the probability of not attending dental service on a regular basis was four times higher in the low PD/low DD county, than in the high PD/high DD county. The findings support the theory of a structural explanation of the observed differences and they indicate evidence of supplier-suppressed demand in one of the counties.

The findings from this paper call for oral health improvement strategies in Norway reaching above the individual level. The results indicate unequal access to, and an unequal need for, dental services throughout the country. Attendance to dental services is typically studied at the individual level, with a view to ascertain perceived barriers to access. The dominant oral health preventive model, with its focus on individual risk factors, has evolved from the biomedical nature of dentistry. The multilevel analysis of this study allows the opportunity to explore the impact of *structural* factors on dental attendance and SROH as well. The paper suggests that peoples' access to dental services can be improved either by regulating the supply aspect of dentistry (e.g. by limiting the number of dentists per capita in an area), or by compensating for travel costs incurred when accessing dental services.

4.4 PAPER IV

ON THE ABSENCE OF REGULATIONS OF ADULT DENTAL SERVICES IN NORWAY: A CRITICAL DISCOURSE ANALYSIS

The paper addresses the situation of free pricing and free establishment rights in Norwegian dentistry. Price regulation of dental services and establishment control of dental clinics was suggested by the committee appointed in 2004, to evalute the public involvement in oral health care. The arguments in favour of these regulations foreground patient benefits emphasising the potential in these measures for levelling out inequallities in access to dental services.

The public debate following the suggested regulations is analysed using a critical discourse analysis perspective. This analysis takes into account official documents involved in this particular policy debate, as well as the sociocultural context in which these texts are produced and consumed and the discourse practice level which guide this text production and consumption.

The analysis shows that free-market logic as well as the professional status and autonomy arguments of the dentists came first when the Norwegian Government opposed the proposed establishment and pricing regulations, while the patient benefit arguments were lost in the process. The powerful positioning of the dentist in the Norwegian oral health care system is seen as an important explaining factor for the outcome of the debate. Another important factor explaining the outcome relates to the lack of explicit patient focus in the debate. This might be due to a poor knowledge base concerning access to dental services and the oral health status among adults in Norway, a situation which requiers more research.

The critical discourse analytical approach used in this paper allows for an emphasis of structures and processes which systematically create and recreate ideologically-based power differences in the Norwegian oral health care system. Pointing out such power structures and identifying effective rhetorical strategies and persuasive arguments in the oral health care discourse is crucial, particularly as part of future discussions and developments of the oral health care system in Norway.

5 FINAL REFLECTIONS

"Normal dental care coverage by insurance seems to have suffered from its being the ideal and ultimate, but an end to reach in the future, not now. Somehow, however, the future has never been arrived at." (Erichsen, 1990)

The above quote was one of the conclusions drawn in Erichsen's thesis – a case study conducted almost 20 years ago comparing dental care in Britain and Norway. The future has still not arrived in Norway, but the question is whether it is about to do so. As these lines are written, a new general election is nearing in Norway (September 2009), and the political parties are approaching this election with manifestos of oral health care reforms like never before. The Conservative Party is actually the only one making no such promises. Among the other parties, there seem to be unanimous political agreement that oral health care has to be included as part of the general health care system with universal public subsidy for dental service costs.

The formulations included in the election program concerning oral health care reform decided by the Norwegian Labour Party Congress can be seen as the result of an internal grassroots revolt; this is a much more radical proposition than the one suggested by the program committee that was proposed from the floor and passed. The disputed decision concerns deductions of dental service costs for all adult patients; the patient pays below a ceiling and the third-party pays above. Other political parties (SV, Sp, KrF and Venstre) have decided on similar arrangements.

Another change compared to the situation twenty years ago is the presence of Facebook and other social electronic networks. In March 2009, a Facebook-group (*Tannbehandling inn under folketrygdsystemet med egenandelskort og frikort*) was established for the purpose of exercising political pressure for increased public subsidy of peoples dental service costs. After existing for only a month the group had already attracted 100,000 members. Facebook initiatives such as this stand a chance of being brushed aside as non-committal utterances. However, they have the potential to serve as an innovative mean to voice dental patients' concerns in the oral health care discourse and alter the power balance in the oral health care system.

Time will tell if the Norwegian oral health care system actually is changed. The proposed deduction arrangements will probably contribute to solve some of the access problems. However, more public funding opens for opportunistic behaviour from both professionals and the public and increased regulations and control will be required. Deduction arrangements will probably still not solve the geographical access problems. Changes will call for more research and evaluations to assess any improvements concerning provision and access to dental services. However, even if the system is not changed, it will still be interesting for further research.

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