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Balancing Costs and Patients' Health: Dental Students' Perception of Economics in Dentistry

Abstract: One aim of higher education is to develop professional identities in students to equip them for future working life. Health professional students will work under financial pressures in a market-based environment, which can lead to conflicts with professional ethical values. This study explores how Swedish dental students perceive economic aspects of dentistry. The article is based on a study of undergraduate research projects. In the analysis of the projects, two themes were identified: (1) cost-effective organizing of dentistry and (2) costs and benefits of interventions. The students displayed socially responsible values by emphasizing the need for dentists to utilize resources effectively, which implies that professional education can support the development of the perception that economic values can be compatible with professional ethical values.

Keywords: cost-effectiveness, ethics, healthcare, higher education, social responsibility

Patients' health and the cost of the services in the healthcare sector are dependent on the behaviour of healthcare professionals. Professionals' behaviour at work is influenced by the context in which they work, but also by their professional development during their undergraduate education. During this education, the students not only learn the theoretical knowledge and skills necessary for future professional work, but they also acquaint themselves with professional norms and values and construct professional identities (Freidson, 1994). However, what it means to be a member of a particular profession and how one should conduct oneself are not obvious as meanings of identities and work are not fixed, but socially constructed (Alvesson, 2000).

Health professional educations have to prepare students for the demands and expectations they will meet in working life. The financial pressures and demands on economic success placed on health professionals have been more prevalent in recent decades; moreover, the environment in which health professionals are working has become more market-oriented through reforms that emphasize greater efficiency (Segall, 2000), and a culture of commercialism has become more prevalent (Hanlon, 1998). Additionally, the healthcare sector, which is publicly funded, is struggling with the problem of how to use available resources to achieve the greatest possible benefits. This is due to the continuous development of new medical technologies, changing demographics and expectations of patients that have to be met, and a political unwillingness to expand healthcare resources

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The aim of this article is to explore how Swedish dental students perceive economic aspects of dentistry. The dental case is of interest as business aspects and demands for cost-effectiveness are prevalent in dental practice, which might lead to conflicts with professional ethics (Masella, 2007; Nash, 2007; Weile, 2004). The article is based on a study of dental-student research projects. The student research project is an examining praxis that entails carrying out research and writing a project report. The written project reports were examined because students express values, norms and beliefs that they identify with in their writing (Ivanić, 1998).

First, I describe dentistry both as a profession and from an economic perspective. Next, I describe the role of higher education in constructing professional identities and discuss Swedish dental education. Thereafter, I present how the data was collected and analysed. To conclude, I present the findings and discuss the results of the study.

Dentistry as a profession

Dentistry is described as a classic profession (Freidson, 1994; Locker, 1989) and a true profession (Trathen & Gallagher, 2009). Dentists are educated to examine, diagnose, prevent and treat dental and oral diseases. Dental practise requires several years of higher education and training to acquire the necessary theoretical knowledge and clinical skills. After graduation, dentists apply for a license to practise, and only those with a license are permitted to practise dentistry. The ethical and moral aspects of dental professionalism are regarded as important in patient care, and it is emphasized that the core value of dentistry should be care and concern for all people and their oral health (Nash, 2007). Dentists should offer their expertise altruistically in the treatment of patients (Weile, 2004); further, they are expected to meet the moral duty of providing quality care, which means that the treatment provided must be appropriate for that patient's specific problem, and in accordance with scientific knowledge and established technical standards (Nash, 2007). The performed treatment should also be within the dentist's competencies (Newsome & Langley, 2014). These professional imperatives correspond with the ideas of evidence-based practice, which implies that the clinical decisions of healthcare professionals should be based on the best available research evidence in relation to patients' circumstances, values and preferences and the professional's clinical experiences (Rohlin, Aspelin & Levi, 2005). It is also considered important that dentists inform patients about their problem and treatment alternatives as well as listen to them and respect their decisions (Nash, 2007; Newsome & Langley, 2014). To help ensure that dentists practise their work ethically and provide quality care, ethical codes have been written by dental associations.

Dentistry from an economic perspective

The market-oriented environment and the demands for cost-effectiveness have led to a debate of professional ethics in dentistry. On the one hand, it is argued that the values and norms of dentistry as a profession are in conflict with those of dentistry as a business (Nash, 2007; Weile, 2004). This conflict arises from the fact that the primary goal of dentistry as a profession is the health of patients, while the main idea of business is to make a profit, and patients are a means to this economic end (Nash, 2007). In a similar way, Masella compares ethical values with business values in dentistry and stresses that "entrepreneurism is an enemy of professionalism" (2007, p. 208) because entrepreneurism emphasizes a high income for the dentist, and that may result in a conflict with patient interests.

Another consequence of business culture in dentistry may be that dentists help those in need less and instead prioritize those who can pay and are demanding (Trathen & Gallagher, 2009), for example, performing cosmetic interventions upon demands from patients (Weile, 2004).

On the other hand, a business mentality among dentists could be necessary. The rationale behind this opinion is that dentists working in private practice, as well as dentists in the public sector, must make appropriate use of the available financial resources; dental clinics would be forced to close down if business values were ignored and resources not used in cost-effective ways. As a result, not to possess a business mentality would be both unethical and inconsistent with the dental social responsibility to do good for people (Trathen & Gallagher, 2009). Similarly, Newsome and Langley state that “a business-like attitude is important in dentistry but this needs to fit hand in glove with a professional one” (2014, p. 501).

The issue of economic demands also includes the health economic idea of economizing the resources in the healthcare sector and expecting healthcare professionals to perform interventions (such as preventive work and treatments) in cost-effective ways as the services are partly publicly funded, and the resources are limited (Khan, Omar, Babar, & Toh, 2012). The principle of cost-effectiveness means that professionals' decisions should be based on the costs of interventions in relation to health benefits for the population. Health economics also stress that human and physical resources should be utilized cost-effectively (Anell, Glengård & Merkur, 2012). These demands on healthcare professionals fall in line with the idea of social responsibility as their decisions have an impact on how the resources are used (Cruess, Cruess & Johnston, 2000). The financing of dentistry varies between countries; however, in most countries, patients usually pay for part of their dental care. In Sweden, in both the public sector and the private sector, dental care for adults is funded by the government partly through general tax revenues and partly by user charges, while dental care for children up to the age of nineteen is free of charge and financed by local taxes. Limited economic resources have led to expectations from the Swedish state that dentists economize resources and apply effective treatments (National Board of Health and Welfare, 2011).

Construction of professional identities

Identity refers to individuals' sense of who they are and what they stand for (Sveningsson & Alvesson, 2003). It has implications for individuals' actions and concerns their feelings, opinions and values (Alvesson, Ashcraft & Thomas, 2008). The theoretical point of departure of this article is that identities are not fixed, but constructed in social and cultural contexts and rooted in language. They are constructed through individuals' perceptions of who they are and how others perceive them; it involves negotiations of meanings in social interactions (Jenkins, 2004).

In this article, professional identity is of interest. It concerns individuals' understanding of themselves as members of a profession and the kind of qualities, values, behaviour, knowledge and skills that make them good professionals (Heggen, 2008). A professional identity is a social identity, which refers to individuals' identification with a group, for example, organization, profession, gender or nation (Ashforth & Mael, 1989). However, individuals' definitions of themselves as members of a group do not necessarily imply a particular meaning. Identities are constructed in the interface between ideals and role expectations on the one hand and self-understanding on the other. It has been emphasized that individuals' definitions of themselves do not mean that they are “simply stepping into pre-packed selves”. This is because individuals' understanding of themselves involves the making of “individualized meaning in interaction with the people and

systems around them” (Alvesson et al., 2008, p. 10).

The development of professional identities begins during undergraduate education and continues into the workplace (Evetts, 2003; Freidson, 1994; Heggen, 2008). Students' identities are constructed in relation to their experiences and ideas of a profession in social interactions with other students, who may have different backgrounds, and teachers with different competences and work experiences (Heggen, 2008). An important educational goal is to prepare students for their future work. For example, it has been argued that the goal for medical educators should be to support the development of a medical-professional identity in line with socially negotiated ideals of physicians to ensure that the students are prepared for professional work (Cruess, Cruess, Boudreau, Snell, & Steinart, 2014). The same should be true for dental education.

Dental education

The aim of dental education is to produce dentists who are committed to helping the public achieve good oral health (Nash, 2007), which is in line with professional ethics. With the background of the changes in the dental environment towards a marketplace, Masella (2007) argues that undergraduate dental educators must stress to dental students that correct behaviour in dental work should be based on morality and ethics and not on professional self-interest, such as the desire for profit. However, it is also emphasized that dental students should be taught to be both caring and to perform dental practice in a cost-effective way. Botto (2007) argues that dental students must learn how to balance fiscal responsibility and ethical and professional responsibility because the economic aspects of dentistry cannot be ignored, and dentists should be caring, ethical and cost-effective at the same time. From the rationale that healthcare professionals should take economic aspects into account in their decision-making, dental students must also be taught certain principles of health economics, such as equity, costs and benefits (Khan et al., 2012).

Swedish dental education consists of five years of higher education. After graduation, dentists apply for a licence to practise from the National Board of Health and Welfare. Theoretical studies are combined with clinical training throughout the education. The students develop their clinical skills in the laboratory and during patient care practice. According to the learning objectives for graduation within Swedish dental education, dentists should, among other things, show empathy and a professional attitude as well as guard and respect the patients' needs. The objectives also state that dental students should demonstrate knowledge of economics and organization with relevance to dental care (Swedish Code of Statutes, 1993:100).

Since 2007, as a consequence of a Swedish higher education reform, completion of a degree project of at least 30 higher education credits is required to graduate as a dentist. These projects include carrying out a research study and the writing of a short thesis. The students may also write a review article. They are free to choose any topic which is relevant to dentistry. The project is undertaken independently by the students and supervised by tutors, and the students may carry out the degree project individually or work in pairs.

Material and method

This paper presents part of a wider study of the content of Swedish students' research projects. The data came from 74 research projects from three of the four Swedish dental schools which were completed in the spring term of 2012; thus,

they were the first projects after the restructuring of the curriculum. Degree projects from the fourth school were not included as they were not completed until the end of autumn 2012. Undergraduate student research projects are public documents in Sweden; thus, they are accessible for analysis without permission from the dental schools or the students. However, in line with ethical considerations, neither the names of the schools nor the names of the students will be exposed to guarantee anonymity. The dental schools will be named *School Q*, *School P*, and *School R* in relation to the quotations in the results section.

In the analysis of the research projects, I used an exploratory qualitative approach. In accordance with such an approach, the aim was not to measure the dispersion of the themes in the empirical material, but to pay attention to individuals' expressions of ideas (Easterby-Smith, Thorpe & Lowe, 2002): that is *how* the students wrote about economics. In the analysis I first searched for sections in which students expressed values, norms and beliefs with references to economic aspects of dentistry, but due to the exploratory nature of this paper, I did not look for some chosen key words. Twelve research projects concerned this issue. The identified parts of these projects were then categorized into themes. I used the method of constant comparison analysis, meaning the themes that emerged were compared with the rest of the data to establish analytical categories (Pope, Ziebland & Mays, 2000). This is an iterative process which involved moving back and forth across the students' reports and the literature in search of themes.

In the following results section, some of the quotations have been shortened to make them more readable. Also, some of them have been edited to reflect standard written English.

Results

In the analysis, I identified two broad themes centred on economics in dentistry: (1) cost-effective organizing of dentistry and (2) costs and benefits of interventions. The themes concerned how the resources should be utilized in relation to patients' needs and the consequences for patients' health and well-being, which are health economic considerations.

Cost-effective organizing of dentistry

Four of the research projects were about the organizing of dentistry in relation to patients' needs with the aim to use the resources in cost-effective ways. In one of these projects, the research question concerned how knowledge of patients' health can be used in the planning of patient care in relation to the resources of clinics. The following was written by the students:

Are our patients getting healthier? This is an important issue in health care. To answer this question, some kind of overview of patients' health is needed. This overview could then be used to an effective planning of care so clinics can use the resources in the best way in relation to identified needs of patients. (School Q)

In another project, which was about the correction of irregularities of teeth, the students discussed utilizing dentists' competences in this field of dentistry. General dentists are qualified to perform basic and early treatments, but complicated cases have to be treated by specialists. The students investigated how general dentists regard their competence and which early treatments they actually perform. In the explanation of the background to the study, the students stressed that personnel resources should be utilized effectively:

A general principle in health care is that all interventions should be performed on the appropriate level of professional competence. Due to health economics, the level of competence should be as low as possible without negative impact of the quality of care. (School Q)

The issue of organizing and utilizing resources in dentistry was also discussed from another point of view. One project was about using dentists for the medical screening of patients, for example, examinations to detect hypertension and diabetes that usually are done by primary care providers. In this project, the student concluded that dentists could be useful in such a role, but economic aspects have to be taken into consideration for successful cooperation between healthcare and dental care services and for health benefits:

To handle the results of medical screening, good communication between healthcare and dental care providers is required. That requires financial resources as well as time. Today, medical screening is provided as a bonus at few private dental clinics. If medical screening should be part of regular dental care, dental clinics probably should be compensated by some kind of economic compensation. One solution could be a government subsidy. Presumably, in the long term, it will be rewarding both economically and for the public health if diseases and ill-health are detected and treated early. (School Q)

The issue of organizing dentistry to improve the oral health of people was also studied in the context of a developing country. In such countries, access to dental clinics might be limited due to socio-economic status and shortage of dental providers. In one project, the students emphasized the need of dental personnel and the allocation of financial resources to clinics to improve the oral health of the population:

To improve the oral health in these areas, more preventive dental care needs to be carried out, and more dental personnel are required to meet extensive needs. To achieve this, the clinic needs to continue its work and get more resources to reach out to more children. (School P)

Costs and benefits of interventions

In eight projects, students discussed the costs of interventions in relation to different kinds of benefits. The costs were discussed from a societal perspective, a clinical perspective and a patient perspective.

Opinions of the costs of interventions from a societal perspective were expressed in projects on the health effects of preventing tobacco use and on treatments of irregular teeth. In the project on the prevention of tobacco use, the students argued that it is important that young people have knowledge about the negative impact of tobacco on oral health and that dentistry should be more involved in this preventive work as it is considered effective in relation to the societal costs:

Young people have good knowledge about the link between smoking and cancer, but not the link between smoking and periodontal diseases (loss of teeth). In the guidelines from the National board of Health and Welfare, it is stated that tobacco prevention is an important part of preventing loss of teeth and that the cost is low compared to the effects. As our study shows that there is insufficient knowledge about the link between tobacco and periodontal diseases, young people should be informed about this link already at the age of 13-15. (School Q)

In the project on treatment of irregular teeth, two ways of treating overbite among young people were compared in relation to outcomes, number of visits at a dental clinic and complications. In the conclusion, the students argued that the cost-effectiveness of the treatments also should have been investigated (which should be seen in the context of treatment for children up to 19 years is free of charge and financed by local taxes in Sweden) as this aspect should be important in dentists' choices:

From a public economic approach, it should be interesting to compare the costs of treatment for overbite between removable appliances and fixed braces as cost could be a significant factor in the decision of when and how the treatment should be carried out. (School R)

In one project, the students investigated whether dental personnel work in accordance with recommended national hygiene routines. They discussed the importance of high hygienic conditions from a societal and a clinical economic perspective as well as in relation to patients' health. As a background to the project, they referred to health economic evaluations of societal costs for health care-associated infections caused by inadequate hygienic conditions in healthcare settings. To improve the hygienic conditions in dentistry, it is recommended that dental personnel should use an apron in patient care. In the project, it was found that compliance with this recommendation was low. The students discussed why and how the dental hygienic conditions could be better from an economic perspective:

There seems to be some resistance to the use of aprons and confusion about when it should be used. The compliance in the studied clinics in the public dental service was low, but none of the private clinics used aprons. Reasons could be the increased costs for the purchase and that it could be difficult to change habits and implement new routines. As the costs for good hygienic conditions is a burden for clinics but the savings will be for the society, government grants to clinics with a high hygienic standard might be an incitement for good hygiene routines. Due to the huge cost of the spread of infections for society, it should probably be a health economic gain in money that is invested in hygiene routines. (School Q)

In other projects, opinions were expressed on the cost-effectiveness of treatments from a clinical perspective in relation to patients' well-being. One of these concerned the use of CAD/CAM (digital technologies) in the production of dental restorations. In this project, the students stated that there are many benefits of the use CAD/CAM technology, which can imply that dentists can use clinical resources more effectively:

Some benefits of CAD/CAM, compared with conventional impression taking, are higher accuracy, the possibility of direct feedback on the preparations, easier communication with the dental technician, more efficient approach considering both time and costs and less discomfort for the patient during an impression taking. (School Q)

In a project on dental surgery that was performed under local or general anaesthesia, the treatments were compared to clinical costs and the well-being of patients during the surgical operation. The financial savings from the use of local anaesthesia were considerable, but in the choice of treatment, patients' desire should be taken into account, according to the student:

It doesn't seem as if it has any significance for a successful outcome whether the treatment was performed under local or general anaesthesia. This would provide great benefits. The treatment performed under local anaesthesia is more cost-effective in comparison with general anaesthesia. The surgery requires less personnel if it is performed under local anaesthesia, and the patient is able to go home immediately after the treatment is over, reducing the need for recovery beds. In addition, more extensive surgery that requires general anaesthesia could be performed within a shorter period of time. However, fearful and anxious patients may find the treatment very unpleasant. A combination of local anaesthetic and sedation may be sufficient for this group. (School Q)

Other students emphasized the importance of dentists making treatment decisions based on their judgement of both how effective different treatments are for the patients' oral health and their costs:

It is not considered cost-effective to first perform an endodontic treatment (root filling) followed by restoration of the tooth if extraction is needed soon thereafter. Therefore, demands are being set on adequate treatment planning including an evaluation of the prognosis of the tooth. (School R)

Fear of dentistry is common in the population. How dental fear can be treated was the subject of one project. The student, who had carried out the project, made a review of studies on treatment models and the outcomes of the different models. In the project, the student argued that the outcomes are not sufficient in the choice of model. Moreover, the costs of the models have to be measured and evaluated:

In the case of dental fear, cognitive behavioural therapy (CBT) has shown to be the most effective treatment method and is also the most current method. From a future point of view, good caring also requires time, which there is lack of in current dentistry. However, nothing was written on possible increased costs. It has to be practicable to apply a successful kind of treatment. (School Q)

Finally, the cost of treatment was discussed from the patient's perspective in one degree project that concerned the outcomes of computer-assisted oral surgery. These students argued for the importance of more research on the outcomes in relation to the cost for patients:

Computer-assisted surgery is still considered to be an experimental treatment. Randomized studies are required based on larger sample size with focus on quality of life effects including a cost-benefit analysis because of the considerably increased cost for the patient. (School R)

Discussion

One aim of higher education is the development of professional identities so students are equipped for future working life. This study concerned how dental students wrote about economic aspects of dentistry in their undergraduate research project reports. This focus came from the fact that the demands for efficiency have become more prevalent in health professionals' working environment, which could be in conflict with professional values and beliefs (Masella, 2007; Nash, 2007; Weile, 2004). This study showed, however, that cost-effectiveness can be balanced with concerns for patients' health and well-being. Students expressed professional values and beliefs of dentistry that can be understood around two themes: 1) cost-

effective organizing of dental care and (2) costs and benefits of interventions.

The results show that students expressed ideas of economic aspects of dentistry that are in line with those of health economics, by stressing the importance of being economical with resources and performing interventions in cost-effective ways. None of the students expressed an orientation towards business values in dentistry, which is interesting considering that market-based principles are prevalent in dental care and that dental practices are competitive. It has been argued that an increasing number of dentists see themselves as businessmen or businesswomen who compete for patients and treat patients with the primary goal of making an individual profit (Nash, 2007). Instead, the students in the study expressed an orientation towards values of social responsibility by emphasizing the need to utilize resources in effective and efficient ways for the best of society and the patients. Furthermore, the need of cost-effectiveness in relation to patients' health from a clinical perspective was emphasized; thus, being dentists who balance quality and cost-effectiveness seemed to be valuable for these students

According to Freidson (2001, p. 127), professionalism is characterized by “an ideology that asserts greater commitment to doing good work than to economic gain and to the quality rather than the economic efficiency of work”. However, the meaning of economic efficiency does not necessarily mean profit; it can also refer to the health economic principle of cost-effectiveness, which means that choices of interventions should be based on the costs in relation to health effects (Anell et al., 2012). Due to resource scarcity, the need for the use of health economic evaluations in decision making in health and dental care has been emphasized in political debates, for example, in Sweden (Heintz, Arnberg, Levis, Liliemark, & Davidson, 2014). The dental students' statements should be seen in light of the view that higher education should ensure that students develop a professional identity consistent with current ideas of the “good professional”, such as the “good physician”, and that the good professional is not fixed but negotiated in a cultural and societal context (Cruess et al., 2014). This study indicates that the Swedish dental education teaches students the importance of utilizing resources effectively. However, the purpose of this study was exploratory and based on a limited number of written reports. Therefore, it is not possible to make generalisation of the Swedish dental education or of dental students' professional identities.

This study says something about the orientation of future dentists towards economics in dentistry, notwithstanding that the construction of professional identity will continue in working life and students' values and beliefs might change and be influenced by the organizational and cultural context in which they work. In a Swedish study on public dentists, it was shown that they found it more important to provide high quality treatment than to try to maximize revenue, but they also found it important to use their working hours in a cost-effective way, as the clinic would benefit from good economic results (Franzén, 2009). An English study showed that dentists found it important to act in the best interest of the patient and to practise expert knowledge and skills; nevertheless, at the same time, they focused on being cost-conscious and achieving equity of provision of dental care when resources are scarce (Harris & Holt, 2013). The students in this study expressed a rather idealistic picture of dentistry that might change when they practise dental care. Further research is recommended to enhance our understanding of the development of dental students' identities during education and then in working life.

This study contributes to knowledge on how students in a health professional education perceive economic aspects of healthcare. However, it does not give answers to the question of how different learning environments (i.e., clinical practice, lectures, and seminars) and students' interactions with teachers and other students can influence students' professional values and beliefs. Teachers' values and behaviour will likely play an important role for dental students' identity

construction; further, how teachers interact with patients, students and faculty staff will act as the “truth” in the eyes of students (Botto, 2007). Further research is required to shed more light on this issue.

Conclusion

Higher education should support students' identity development, and it includes the values and beliefs that are supposed to be important in current working life. In this article, I have shown how Swedish dental students can balance the costs of dentistry in relation to concerns for patients' health and well-being and by that express the importance of utilizing resources in the best way as regards society, dental clinics and patients in accordance with health economic principles. Thus this study indicates that dental education can develop dentists that believe that economic aspects of healthcare can go hand in hand with professional ethical values and that economic aspects do not necessarily have to conflict with patients' health or mean making a profit. However, it is important to note that this study was carried out in the Swedish dental educational context. Further research should examine dental students' perceptions of economics in other countries where the issue of efficiency is under discussion. Further research should also examine how undergraduate health professional students from other fields perceive economics of these fields and the influence of education in relation to working life.

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