Academic detailing in dental care

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GENERAL INTRODUCTION

Oral diseases
Oral diseases are estimated to affect 3.59 billion people worldwide. A range of conditions can be classified as oral diseases, including dental caries, periodontal diseases, oral cancers, dental erosion and dental fluorosis. Oral diseases are among the top most common non-communicable diseases which continue to be a leading public health problem in the European region. They affect people throughout their lifetime, causing pain and discomfort. They can result in problems with chewing, speaking, laughing and appearance, with low self-esteem and poor social well-being as a common consequence. Good oral health is considered a key indicator of overall health and essential for the psychosocial well-being and quality of life. Oral health status has been independently associated with diet, nutritional status, mortality and disability. The World Dental Federation (FDI) proposed a definition of oral health which shows oral health to be multi-faceted. The definition states that oral health: i) is the ability to speak, smile, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and diseases of the craniofacial complex, ii) reflects a fundamental component of health and physical and mental wellbeing, iii) is influenced by the values and attitudes of individuals and communities, iv) reflects the physiologic, social, and psychological attributes that are essential to quality of life; and v) is influenced by the individual's changing experiences, perceptions, expectations and ability to adapt to circumstances.

Oral diseases are among the top five most expensive diseases to treat. The global economic impact of dental diseases mounted to US$ 442 billion in 2010, with the highest costs seen in western European countries and North America. EU spending is estimated to be close to 79 billion Euros per annum. Oral diseases add to the increasing costs not only by direct costs that include dental treatments but also societal costs due to productivity loss. The negative impacts of poor oral health could be minimised with effective prevention of oral diseases.

Advances in dentistry
Without doubt it can be stated that dentistry has experienced major technical advances. Up to the 1960’s dentitions were so bad that a very welcome wedding gift was not the usual dowry, but payment for the extraction of all teeth with the subsequent provision of full dentures. Since then many people retain their own natural teeth onto older age. The development of advanced restorative materials
and techniques, together with increased living standards, advances in public health, the availability of fluoride toothpaste and better individual hygiene, have resulted in improved oral health of populations. These improvements should be considered milestones and have been essential for advancing dentistry, yet contemporary dentistry remains largely focussed on the treatment and restorative management of damage resulting from oral diseases, rather than changing the course and outcome of the diseases itself. The restorative approach is embedded in the infrastructure of oral healthcare, which is organised through regular dental check-ups to monitor the occurrence and progress of oral disease and the provision of restorative treatment (when indicated) to prevent worsening of oral health. To date, healthcare systems continue to incentivise such restorative management through reimbursement regulation, while dental caries and advanced gum diseases are largely preventable conditions. With more and more people retaining their natural teeth to older age, the need for prevention of oral diseases has grown.

Prevention in dentistry relies on health education, such as oral hygiene and dietary advice, and clinical prevention, such as fissure sealants and fluoride varnishes. However, so far only limited short-term effects of health educational approaches have been shown and evidence for long-term behaviour change and beneficial oral health outcomes is lacking. Furthermore, more advanced health education approaches are time and resource intensive as these are usually delivered by trained professionals. Moreover, many patients may not perceive the role of the general dental practitioner (GDP) to be their health adviser. Numerous studies have shown that sealants and topical fluorides are effective for the prevention of dental caries. As a result they have become widely used as common approaches for chair-side clinical prevention. While resources should be carefully tailored to the risks and needs of patients, providing an entire population with sealants and topical fluorides is not a cost-efficient approach to preventing oral diseases. There is concern about their disproportionate use, as those with lowest care need tend to have better access to preventive services than those with high care needs. Research aiming at determining the adequate indication and optimisation of the utility of fissure sealants and fluoride varnishes is sparse.

In addition to prevention, the demand for patient-centred and transparent oral healthcare has increased in recent years. For decades, care providers were considered to have unique expertise that was inaccessible to lay people. It was generally assumed that care providers knew what is best for their patients and made appropriate care decisions. Care providers were given the authority to judge the
quality of their own work. Scandals about errors and damages made in medical care led to an increased demand for transparency and accountability. This resulted in the collision of norms between the professional autonomy on the one hand and increased accountability on the other hand, which triggered feelings of discomfort and self-protective reactions among care providers. Nowadays, care decisions are no longer considered to be solely in the hands of the care provider. Patients have become ‘consumers’ of care and demand their care to be based on the best available information and customized to their specific situation, values and preferences. Patient-centred care is defined by the National Academy of Medicine (NAM; formerly Institute of Medicine) as the provision of care “that is respectful of and responsive to individual preferences, needs, and values, and ensuring that patient values guide all clinical decisions”. Shared decision making plays an important role in provision of patient-centred care. Shared-decision making is the concept of having the patient involved in the decision of what care to receive. Important in shared decision making is guiding the patient to the realisation and understanding of his or her needs and making decisions according to these needs.

In addition, GDPs are expected to provide evidence-based care. This is based on the assumption that what happens to patients should be based, to the greatest extend possible, on evidence. However, evidence based practice is sometimes erroneously portrayed as the best approach for everyone. Also, the enormous and rapid increase of scientific literature forms a challenge for care providers to read, digest and apply all the new evidence available for patient care. The increase in scientific literature is mainly seen in basic biomedical sciences and the development of materials, while literature on the effectiveness and efficiency of dental care and relevant patient outcomes are often lacking. In the Netherlands, the Dutch Health Council stated that dental research has primarily been fundamental and focused on the development of new techniques within oral healthcare.

In this climate of change, the competence of oral healthcare providers is no longer being taken for granted. Nowadays care providers are requested to explicitly demonstrate their competence in prevention-oriented, patient-centred, evidence-based practice. Together with shared decision making these have become important indicators of quality of oral healthcare. While little information is available on how to combine and incorporate these concepts in the care provision, it is not an easy task to comply with these requirements and current needs.
Variation in oral healthcare

While oral healthcare systems incentivise restorative treatment of oral diseases, reflection on the provided care and the causes and origins of the diseases rarely receive attention. Most GDPs, patients and policymakers are not aware of the extent to which there is variation between GDPs, localities and health systems in restorative and preventive care provided. For decades, researchers in general healthcare, and later also in oral healthcare, have documented variation in the delivery of care.\textsuperscript{20–28} Explanation of variation has gained interest over the last decades.\textsuperscript{29,30} The existence of variation in care implies that individuals are not receiving the best care or that healthcare resources are inappropriately used. However, it was soon recognized that in some cases variation is warranted. For example, different treatments can be used because of differences in patient’s needs. Therefore, healthcare providers and organisations should not seek to eliminate variation all together, but should determine what variation is or is not acceptable. Wennberg\textsuperscript{31} described three categories of unwarranted variation that may serve to identify strategies to reduce the occurrence of variation and improve quality of care:

- Effective care involves evidence that the health benefits outweigh the health risks. For such effective care situations, unwarranted variation in care concerns underuse. But not always will all patients accept the effective care offered. So accordingly, the question is whether such deviation from effective care concerns warranted variation. Do patient values take precedence over the evidence on effective care?
- Preference-sensitive care involves situations where more than one accepted intervention is available while there is no evidence that one treatment option is superior. For such preference-sensitive care, unwarranted variation in care may on the one hand concern non-patient-centred decision making and on the other hand may drive overtreatment.
- Supply-sensitive care involves situations where capacity of the healthcare system dictates care offered to patients. Supply-sensitive care situations create by definition unwarranted variation in care. In particular for non-regulated healthcare situations, supply-sensitive care on the one hand may drive overtreatment (unwarranted variation as such) and on the other hand may create barriers in accessibility and affordability of care, and more specifically contribute to health inequity.
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Reducing unwarranted variation in oral healthcare requires advanced understanding of variation in care delivery. Information on variation is important for examining the relationships between policy decisions and clinical decisions and raises important questions concerning the efficiency, safety and effectiveness of care. Moreover, the Institute of Medicine in the Quality Chasm report stated: "What is perhaps most disturbing is the absence of real progress toward restructuring healthcare systems to address both quality and cost concerns, or toward applying advances in information technology to improve administrative and clinical processes." As such, good data on variation in oral healthcare is neither routinely collected nor available. The scarce data available is often not comprehensive and is mainly focused on reimbursement of delivered oral healthcare. Data rarely includes information on prevention, oral health outcomes and the patient perspectives. Furthermore, advanced understanding is needed on the relationship between variation in oral healthcare delivery and the available evidence.

Despite the identification of the three categories of unwarranted variation, the distinction between what is warranted and unwarranted variation in healthcare remains unclear. A common belief is that reduction of unwarranted variation results in standardization of care, and consequently leads to mediocre care. Some care providers believe in resolving unwarranted variation, while others do not because of malpractice concerns. Hence, providing information on variation alone will not be sufficient for actual change in care delivery. Passive approaches to reduce variation, such as information materials or holding lectures for care providers, are generally found to be ineffective and are unlikely to result in behaviour change when used alone. Multi-faceted interventions and active approaches are more likely to be effective. Studies showed that generally effective strategies to reduce variation and improve care delivery include educational outreach and reminders.

**Academic detailing to reduce variation in oral healthcare**

Academic detailing (AD) is an approach which can improve the dissemination and uptake of evidence-based practice and aims to reduce unwarranted variation in care delivery. AD is a defined form of educational outreach that can be deployed to intrinsically motivate care providers towards reflection on the care they deliver and improvement of the quality of the care they provide. It has the potential to optimise the delivery of care, advance transparency of oral healthcare and the accountability of professionals, and reduce the amount of unwarranted variation in care. AD includes face-to-face education of healthcare providers by other trained healthcare providers (peers). Care providers with intrinsic motivation to reduce variation
compared to those whose motivation is externally controlled, have more interest, excitement and confidence to change their clinical practice, which in turn enhances performance, persistence and self-esteem. Intrinsically motivating care providers has both theoretical and practical significance because it can contribute to the design of an environment that optimises performance, development of care providers and care delivery. AD provides the opportunity to use information on variation and care delivery to motivate and address care providers’ inner feelings to be motivated to change their practice to reduce variation and improve oral healthcare delivery. Data on variation and care delivery can function as feedback information for the care provider.

THE AIM AND STRUCTURE OF THIS THESIS

The research reported in this thesis is part of the ADVOCATE project (‘Added Value for Oral Care’), which was funded by the EU Commission’s Horizon 2020 programme. The research in this thesis was aimed at optimising oral healthcare in Europe by stimulating preventive, patient-centred and evidence-based oral healthcare. AD was employed together with feedback information to intrinsically motivate GDPs to improve their care delivery. To accomplish this, the first objective was to establish measures of oral healthcare to obtain routine data on oral healthcare delivery and oral health outcomes for feedback provision. A second objective of this thesis was to evaluate whether reliable and valid data can be collected from the measures of oral healthcare and whether the data can be presented in a useful way to provide feedback to GDPs. The main aim was to evaluate whether AD together with feedback information is a feasible, acceptable and useful approach to intrinsically motivate GDPs to orientate their clinical practice towards preventive, patient-centred and evidence-based oral healthcare. In addition, this thesis explored the presence of different perspectives on oral healthcare amongst GDPs, as this might provide relevant information for the improvement of oral healthcare.

Chapter 2 gives an introductory overview of where dentistry is in a time of changing expectations and needs, and highlights the need for routinely collected, consistent and comparable data on oral healthcare and outcomes. Chapter 3 describes the identification of a comprehensive list of topics that a range of stakeholders would perceive as valid, important, and relevant for describing oral health and oral healthcare for the development of relevant measures for oral healthcare. In chapter 4, reports on the formulation of measures from the topics identified in chapter 3, and provides information on the usage, reporting, validity and reliability of the measures.
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Chapter 5 describes the exploration of perspectives on preventive, patient-centred and evidence-based oral healthcare among GDPs in the Netherlands by using the Q-methodology. Chapter 6 describes the design of the ADVOCATE Field Studies; a proof-of-concept study conducted in three countries: The Netherlands, Denmark and Germany. The Field Studies investigated whether GDPs can be intrinsically motivated to orientate their clinical practice towards more prevention-oriented, patient-centred and evidence based oral healthcare through the use of AD and the provision of regular structured feedback. Chapter 7 reports on the results of the Field Studies. In chapter 8, a proof-of-principle study is described, in which the upscaling, replicability and acceptance of the Field Studies approach was explored in six countries; The Netherlands, Denmark, Germany, England, Ireland and Hungary. Chapter 9 discusses the results of this thesis. The implications of the results, strengths and limitations are described and recommendations are given for future research.
REFERENCES


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