The neglect of global oral health: symptoms and solutions

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CHAPTER 1

Introduction
A global diagnosis: the neglect of oral health

The world of oral health is a world of stark contrasts. Oral diseases, in particular dental decay, are among the most common maladies on the planet, affecting more than 90% of the world’s population. Yet, the wider international health community is not aware about the pandemic character of dental caries and of oral cancer for some of the world’s regions and population groups. There is a global oral health workforce of more than 1 million dentists, about 3 million supporting oral health professionals and a well-functioning dental industry with an annual 16-billion-USD global market just for dental supplies. The WHO states that oral diseases are the 4th most expensive disease group to treat; and the United States alone are projected to spend $115 billion USD on oral health care in 2013. Contrasting to this, an estimated 2/3rds of people worldwide have no or very limited access to even basic and safe oral care, leaving most of the oral diseases untreated. While high-income countries spend between 5-10% of their health budgets on oral health services, it can be estimated that 2/3 of countries worldwide spend less than 2% of their health budget on oral health care, and some do not even have a dedicated oral health care budget at all, let alone a national policy to address oral diseases.

Oral diseases have a significant impact on quality of life, are closely related to socio-economic status and determinants of health and show great inequalities. Affluent populations, even in low- and middle income countries, enjoy access to good oral care, while the poor and marginalised suffer from a high burden of oral disease and at the same time have limited or no access to appropriate quality oral care or preventive measures. All countries are facing demographic changes, lifestyle as well as nutrition transitions with increasing sugar consumption that will affect disease burdens in the near future. If oral disease burdens are to be reduced or preferably prevented, significant changes in approaches, concepts and policies are required.

The starting point for this thesis is the diagnosis of neglect: Oral health is a generally neglected area in international, regional and national health contexts, and, consequently, suffers from low priority on political and health agendas. The principal reasons underlying the diagnosis are manifold.

Inability to attract political attention

Public health priorities and political priorities are not necessarily aligned. An example is poliomyelitis with a rather limited impact on morbidity and mortality (polio eradication) and
on the other hand, major killer diseases such as diarrhoea and infectious causes of childhood deaths, which do not receive adequate political and donor attention. Knowledge about the processes and underlying reasons for such mismatches is limited and virtually absent for oral diseases and their political priority status.

All major international stakeholders in oral health e.g., the World Health Organization’s (WHO) Global Oral Health Programme, the FDI World Dental Federation, the International Association for Dental Research (IADR), and the International Federation of Dental Educators and Associations (IFDEA) suffer from limited resources, both financially and in terms of manpower. These organisations deplore the neglected state of oral health worldwide, but their approaches, philosophies, and inherent values are very different and at times even competing, resulting in a fragmentation of the sector with little tendency to form strategic alliances or cause-related partnerships. Stakeholders in oral health on all levels are unable to raise political priority of oral diseases on the basis of an agreed global agenda. The broader international health community in general is unaware of this critical situation and the striking disparities in global oral disease burden and access to care.

**Misleading focus on dentists for service provision**

Although the absolute number of oral health professionals, is not directly related to access or quality of care many countries misleadingly attempt to address oral health only through increasing the number of dentists. Increasing the number of dentists alone creates inequities in terms of access to and affordability of oral care. The deregulated mushrooming of private dental education institutions seen in many countries, particularly in Brazil and countries of South Asia, has not shown to improve access. Because of this problem of access, many patients in low- and middle-income countries have to rely on a range of illegal oral care providers who are often socially accepted and part of the cultural context. Although filling a gap in service provision for poor populations, illegal provision of oral care is a serious public health problem, resulting in situations of low-quality care and risks for patients. It is a complex phenomenon going far beyond the legal context. It should be seen as a symptom of underlying health system and society deficits, due to low prioritization for service provision and related governance and law-enforcement. Illegal providers and quacks are often the only ones available for providing pain relief or simple emergency treatment. This informal health care sector in general, and the sector of illegal dentistry in particular, has not yet been subject to extensive research, despite the importance of informal care for entire population
groups in low- and middle-income countries. In the context of global efforts for Health Systems Strengthening and improving patient safety the problem of illegal oral care merits a closer examination.

A hidden burden of oral diseases

Oral diseases receive low political priority because the burden of morbidity from oral diseases is not recognized among constrains caused by other diseases with high mortality.

The WHO Oral Health Country/Area Profile Programme is the only authoritative source of international data, but 41% of data entries for caries are 10–19 years old, 16% are older than 20 years, while only 8% of datasets are less than 5 years old. The global picture for the prevalence of dental decay is presented in Figure 1 (using WHO/CAPP data). The map shows that prevalence of dental decay is generally high with the majority of countries reporting a prevalence of 60% or more.

Apart from a high disease burden there are several other problem areas that are symptoms of the neglect of global oral health:

- A focus of data collection based on DMFT as a measurement for caries, an index which does not permit the evaluation of the disease's severity and progression over time;
- Limited validity due to a lack of representativeness of studies masking differences within a country and making comparability between countries difficult;
- No up-to-date epidemiologic information available for the majority of countries;
- Lack of integration of oral health indicators as part of regular disease surveillance systems, thus promoting a separate, parallel data collection and interpretation;
- Collected data is complicated to understand for lay persons and requires expert explanation and interpretation.
Political decisions in health are often guided by impact assessments based on the Quality of Life Adjusted Year (QALY) or Disability Adjusted Life Years (DALY) concepts. These assessment methods, however, focus primarily on mortality and on older age groups, thus resulting in an underestimation of diseases with low mortality but high morbidity (like dental caries), or diseases with a high impact on younger age groups. Moreover, the DMFT index is not compatible with these impact measurement frameworks due to its cumulative nature and the fact that it doesn’t assess the consequences of untreated dental caries. Caries is not one single entity in terms of burden – different impacts in terms of pain and discomfort can result from different manifestations of the decay process. Moreover, besides the absence of epidemiologic data of severe forms of caries which are highly prevalent in low- and middle-
Income countries a possible relation between severe forms of caries and child development has received little attention. The failure to differentiate and assess the various stages of caries and their consequences for health in the DMFT index has resulted in the low calculations of burden in the context of measuring disease burden through the DALY concept. The recently published low estimations of disease burden for oral conditions are again highlighting the need to develop realistic assessment tools for the most prevalent oral diseases.\textsuperscript{40}

**Lack of attention on aspects of efficacy of fluoride toothpaste**

The corporations involved in oral care products owe much of their ever-growing economic success to the thriving global market for oral care products, which creates and meets demands of more affluent consumers.\textsuperscript{41} Yet the most important means to prevent dental decay, fluoride toothpaste, is still not used by a majority of the world’s population and remains prohibitively expensive for many.\textsuperscript{42} Furthermore, the quality and anti-caries effectiveness of fluoride toothpaste is not adequately addressed as evidenced by a total lack of attention for free available fluoride in toothpastes in the International Standard Organization (ISO) requirements.\textsuperscript{43} There are indications that fluoride toothpastes in low- and middle-income countries, with weak quality control and regulation mechanisms, vary considerably in the amount of available fluoride and thus their efficacy.\textsuperscript{44}

**Unfamiliarity with integrated mass prevention in oral health**

Available cost-effective preventive approaches, such as the universal access to appropriate fluorides for the prevention of dental caries, are not prioritised and strengthened. It has been shown, particularly for dental caries, that curative, health professional-led approaches are unrealistic for health systems of most low- and middle-income countries and are unaffordable for population groups with lower socio-economic status.\textsuperscript{19,45} Initiatives aiming at a change, such as the ‘Global Child Oral Health Task Force’\textsuperscript{46,47} and the ‘Global Caries Initiative’\textsuperscript{48,49}, are both based on vertical non-integrated approaches to oral disease prevention, are lacking comprehensive intersectoral thinking and are unlinked with the mainstream of the international health and development discourse.

Furthermore, the emerging recognition of the determinants of health and oral health, such as unhealthy diet high in salt, sugar and fat, is so far more of a conceptual approach, which has not yet found widespread reflection in the practice of oral health professionals and oral health advocates.
Lack of coordinated advocacy for oral health

Coordinated advocacy for recognition and the development of realistic models for integration of oral diseases into newly emerging health strategies, such as strategies related to the growing burden of non-communicable diseases, are lacking impact and fail to generate broad support.

Responding to a renewed interest in school health, particularly pushed by activities of the World Bank,50 and building on the lessons learnt in the Philippines, advocacy for more international attention is needed on effective schools health which is based on a conceptual framework. The underlying concepts are the common risk factor approach, intersectoral collaboration on determinants of health and integration of oral health in other disease contexts, mainly in the context of the growing international momentum related to non-communicable diseases (NCDs) which will dominate health agendas for the coming decade.10,14,51-59
**Aim of the PhD research**

The overall aim of the research presented in this thesis is to exemplify different areas of international neglect of oral diseases and to highlight possible ways to address this situation.

Specific objectives are:

1. To better understand the process and importance of political priority setting in the context of global oral health (Chapter 2);
2. To highlight symptoms of the neglected state of global oral health (Chapters 3, 5 and 7);
3. To contribute to an improved understanding of the impact of dental caries (Chapters 4 and 5); and
4. To give examples of successful activities and opportunities to address the state of neglect of oral health (Chapters 6 and 8).

**Outline of the thesis**

The key theme and argument of the thesis, the neglected state of global oral health, is presented in Chapter 2, which analyses through an analytical framework the essential factors determining political priorities. This analysis is a first step towards more effective global oral health advocacy. Chapter 3 examines the problem of service provision in oral care which is more than a legal problem and analyses the associated ethical, cultural, economic and health issues in greater detail based on a case study from Guyana. To meet the shortcomings of current dental caries indices, Chapter 4 introduces a new index for assessment of the advanced consequences of untreated dental decay, as well as the need for urgent treatment, in a simple way and complements existing epidemiological indices for caries. Chapter 4b presents the rationale for not integrating the PUFA index into an overall caries index. Chapter 5 investigates another dimension of neglect of oral diseases and explores the relation between severe untreated decay and child development in terms of Body Mass Index (BMI). The chapter also presents a conceptual framework of acknowledging dental decay in a standard framework of health determinants for child development that may point the way to more detailed future research. Chapter 6 embarks on the issue of efficacy of fluoride toothpastes in low and middle-income countries and presents guidelines for the consumers. Chapter 7 showcases a school health model that has been developed in the Philippines. It shows how oral health issues can be integrated in the broader context of general health and thereby creating more political support for sustainability. Responding to a renewed interest in school health, par-
particularly pushed by activities of the World Bank, and building on the lessons learnt in the Philippines, Chapter 8 first presents a paper advocating for more international attention and action on effective school health. Furthermore it presents reflections related to political advocacy aimed at raising the profile of oral health on political agendas and in priority-setting processes. Chapter 9 presents the summary and discusses issues related to the main findings. It also provides recommendations to facilitate political priority for global oral health.
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