

The Research Agenda on Oral Health Inequalities: The IADR-GOHIRA Initiative

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Key Words

Common risk factors · Health inequalities · Health promotion · Non-communicable disease · Prevention · Social determinants of health

Abstract

The World Health Organization asserts that oral health is a basic human right, yet this is a right enjoyed by few. Oral disease is a major problem in high-income countries, where the cost of treating oral diseases often exceeds that for major non-communicable diseases. In low-to-middle income countries, oral diseases are a severe and growing public health problem. Furthermore, major inequalities exist both within and between countries in terms of disease severity and prevalence, and major social gradients exist in the prevalence of oral disease. The International Association for Dental Research (IADR) has responded to the challenge of poor oral health and oral health inequalities through the Global Oral Health Inequalities: the Research Agenda (GOHIRA) initiative. In a Call to Action it has set out the priorities for research that can lead to a reduction in oral health inequalities. Three key challenges have been identified, namely gaps in knowledge and an insufficient focus on social policy, the separation of oral health from general health, and inade-

quate evidence-based data. Ten key research priorities have been identified with due regard to the differing needs of the variety of global health care systems, and a set of prioritized outcomes and a timeline for implementation have been defined. In the wider context of the proposals set out above, five immediate priorities for action have been proposed.

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Introduction

The World Health Organization (WHO) asserts that oral health is a basic human right, yet this is a right enjoyed by few. Oral disease is a major problem in high-income countries where the cost of treating oral diseases often exceeds that for major non-communicable diseases. In low-to-middle income countries, oral diseases are a severe and growing public health problem. Furthermore, major inequalities exist both within and between countries in terms of disease severity and prevalence, and major social gradients exist in the prevalence of oral disease. Thus, the lower a person's social position, the worse their risks and health. The poor and disadvantaged have higher risks of disease and worse health.

The International Association for Dental Research (IADR) has responded to the challenge of poor oral health and oral health inequalities through the Global Oral Health Inequalities: the Research Agenda (GOHIRA) initiative and has set out the priorities for research that can lead to a reduction in inequalities in oral health within and between countries. It will tackle the social determinants of oral health and thereby improve global oral health and reduce inequalities. This approach has the potential to bring significant, real health benefits to the world's population. It is amazing that decisions about health care, including oral health care, are still being made without a solid research evidence base [1]. It is this deficiency that IADR-GOHIRA is determined to address. This paper gives an account of the IADR-GOHIRA initiative and sets out the ten key priorities for action that have been identified. It also proposes immediate priorities for action for the IADR Africa and Middle East Region.

The Global Burden of Oral Disease

Oral disease constitutes a major health burden on a global scale, and this is attributable principally to dental caries, periodontal disease, infections, oral cancer and craniofacial developmental abnormalities, particularly cleft lip and palate. Dental caries is one of the commonest chronic diseases [2]. An epidemic of dental diseases is affecting some population groups. The US Surgeon General has stated that this burden of disease restricts activities in schools, work and home, and often significantly diminishes the quality of life [3]. Over 50 million school hours a year are lost because of dental-related disease in the USA, with children from low-income families 12 times more likely to miss days at school than those from higher income families [4]. The effects of caries are even more marked in low- and middle-income countries, where ineffective prevention and limited access to dental treatment mean that much of the demand for care remains unmet.

Periodontal disease is a significant public health problem among adults. A recent important study in the USA has presented data showing that periodontal disease is much more prevalent than had previously been assumed. Eke et al. [5] estimated that the prevalence among adults aged over 30 years in the USA reaches 47%, with 64% of adults over 65 years having moderate-to-severe periodontal disease. Good prevalence data are lacking for low- and middle-income countries, but it is reasonable to

assume that figures will be at least as high as these results from the USA because oral hygiene level in general is poor in developing countries.

Oral cancer is the eighth most common cancer worldwide and the commonest cancer among men in Southeast Asia [6]. Tobacco, especially with alcohol, is a major risk factor for oral cancer, as well as for cancers of other body sites.

Not only do dental diseases cause considerable suffering, but also the global cost of dental care is enormous [7]. The provision of dental care in industrialized countries accounts for between 3% and 12.5% of health expenditure, which puts dental care among the top four or five expenditure areas. Even low-income countries like Sri Lanka spend 3.5% of their health budget on public dental care services [7]. It is disturbing that in spite of this major investment in dental care, oral disease still remains such a major problem on a global scale and it is important to understand why this is the case.

The Continuing Problem of Oral Disease

Major improvements in oral health have been achieved in most high-income countries in recent years but, despite these improvements in population oral health, marked oral health inequalities persist and this mirrors the situation with wider general health [8]. This can largely be attributed to a collective failure to implement effectively what is known about prevention, coupled with a failure to understand the importance of the social determinants of health and too much reliance on dental health education directed at people adopting healthier lifestyles and avoiding unhealthy ones. The World Dental Federation – FDI Vision 2020 states: 'historically, the approach to oral health has ... overwhelmingly focused on treatment, more than on disease prevention and oral health promotion. This approach ... has limitations.' [9]. Instead of focusing on the prevention of avoidable disease and tackling the causes of dental disease, there has been a disproportionate reliance on the use of interventionist approaches. A system focused primarily on treatment of disease is not effective in controlling chronic diseases, is not economically sustainable, and is not ethically responsible.

A radical reorientation in our thinking is needed if we are to achieve sustainable improvements in oral health and a reduction in the inequalities in oral health that have been described above. It is time to start thinking about oral health in the same way that the medical profession is

viewing general health. The focus of oral health care systems on treatment rather than health promotion in industrialized countries is very similar to the way our medical colleagues have tried in the past to deal with the major non-communicable diseases, such as chronic obstructive pulmonary disease, cancer, diabetes, heart disease and stroke. If we are to meet the challenge of the global burden of oral disease and inequality in health, then we need to start thinking about them in the same way that the wider health community is dealing with non-communicable disease, rather than focusing on individual diseases in isolation.

Social Determinants of Health

Social determinants of health are the circumstances in which people are born, grow, live, work and age [10], and the life chances of people differ greatly depending on where they are born and raised. The Commission on the Social Determinants of Health [11] stated that the poorest people have the highest levels of illness and premature mortality, but that poor health is not confined to those who are worst off. At all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health. Marmot et al. [10] have further asserted that the social gradient of health in individual countries and the major inequalities between countries are caused by the unequal distribution of power, income, goods and services, globally and nationally. These structural determinants and conditions of daily life constitute the social determinants of health. The consequence of such findings is that if major reductions in health inequality are to be achieved, the structural determinants of health need to be addressed. This has profound implications for approaches to the non-communicable diseases that are the major global health challenge of the 21st century.

There is good evidence that major reductions in caries and periodontal disease in high-income countries have resulted from the wide availability of fluoridated toothpaste and changes in behaviours and social change. Furthermore, there has been considerable progress in the prevention of chronic diseases – including oral diseases – using the common risk factor approach [12], which addresses risks including bad diet, tobacco use, excessive alcohol consumption, lack of exercise and lack of control. So it is reasonable to ask ‘what evidence is there that oral diseases follow a social gradient, in common with the other non-communicable diseases, and how good is the evi-

dence that the social determinants of oral health play a role in the causation of oral disease?’ The answers have profound implications for our approach to improve oral health for all at a global level.

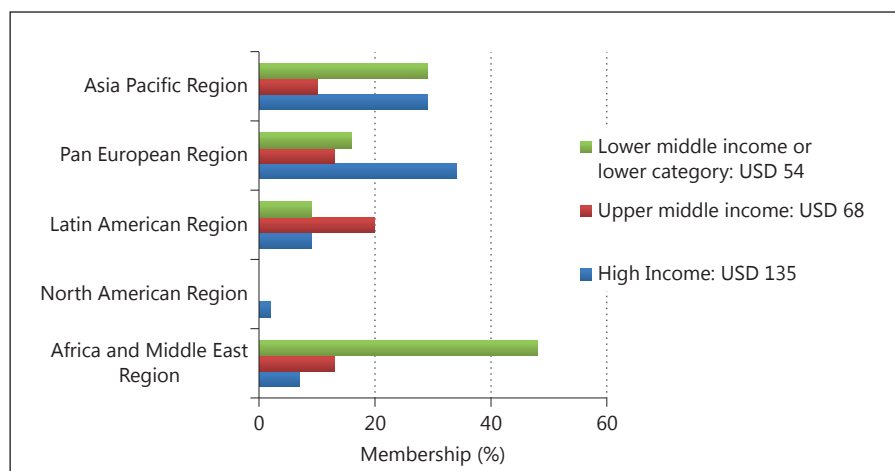
It has long been recognized that the poorest oral health is found among the socially disadvantaged [13]. However, there is now strong evidence to show that the major oral diseases are socially patterned, sharing the same social determinants as the major non-communicable diseases, and that there is a gradient of risk for oral diseases across all socioeconomic groups. Watt and Sheiham [12] have stated that ‘oral diseases, as is the case with other health outcomes, are socially patterned across the entire social hierarchy.’

Oral Health Inequality: Shifting the Paradigm

Watt [14] has argued cogently that if we are to address the challenge of poor oral health based on the evidence we now possess, we need a paradigm shift away from the current predominant biomedical and behavioural ‘downstream’ approach to oral health towards one that addresses the underlying social determinants of oral health, using a combination of complementary public health strategies. Watt is particularly critical of approaches to health education based on lifestyle interventions that fail to appreciate the fundamental underlying importance of social determinants, showing not only that the results of such approaches are disappointing, but also that they actually increase health inequalities. He argues strongly for the adoption of ‘upstream’ integrated interventions that address the determinants of health and emphasize the importance of promoting and maintaining good oral and general health. Such an approach calls for oral health programmes to be integrated into other health interventions using a common risk factor approach [12].

Reducing the burden of non-communicable disease is now recognized as one of the great challenges facing society on a global scale. The Political Declaration of the High-level Meeting of the United Nations (UN) General Assembly on the Prevention and Control of Non-Communicable Diseases in September 2011 acknowledged that the growing global burden of non-communicable diseases constitutes one of the major challenges for development in the 21st century, undermining social and economic development throughout the world and threatening the achievement of internationally agreed development goals [15]. In one of the most important statements made about the burden of oral disease, the declaration

Fig. 1. The current IADR membership dues according to 5 regions of the IADR. The distribution of countries by World Bank Classification in each of the 5 IADR regions, with the dues shown for each World Bank Classification category at 2013 levels. In the Africa and Middle East Region there is a preponderance of countries having economies in the lower middle income or lower category, in marked contrast to the other 4 IADR regions.



also recognized ‘that renal, oral and eye diseases pose a major health burden for many countries and that these diseases share common risk factors and can benefit from common responses to non-communicable diseases.’ The UN declaration presents both a challenge and an opportunity for the oral health community to take action to reduce the burden of oral disease and reduce inequalities. The challenge is formidable and we are not likely to deal with it effectively in isolation. However, the UN has offered recommendations for a way forward and we should seize the opportunity.

It is acknowledged that social injustice is killing people on a large scale and that it is imperative that public health efforts to reduce health inequalities are redoubled. However, it has been argued that if these are to be more effective, then a more sophisticated understanding of the barriers to progress will be needed. It is now equally clear that social injustice will also need to be addressed if we are to meet the growing challenges of poor oral health and inequalities. The time is now right to develop a new model for oral health care that considers oral health as an integral part of general health, addresses the needs and demands of populations, and includes an integrated public health approach to tackle the social determinants of chronic diseases.

The IADR-GOHIRA Initiative

Assembling the Evidence

The mission of the IADR is to advance research and increase knowledge for the improvement of oral health worldwide, support and represent the oral health research

community, and facilitate the communication and application of research findings. A few years ago, the IADR accepted a practical policy to reduce inequalities in its own membership dues. The dues were reduced for the members in low- and middle-income countries and increased for members from high-income countries as estimated by the World Bank (fig. 1). Building on its basic mission and the core value of health as a human right, the GOHIRA initiative is intended to refine and refocus the research directions for the immediate future: to set priorities. IADR-GOHIRA has four main aims:

- To better understand the full range of oral health determinants that include biological and environmental factors as well as behavioural and social determinants of health and well-being
- To promote research of social and physical environments, across the social gradient, with emphasis on marginalized and vulnerable communities
- To focus on research strategies that can better serve to reduce existing health inequalities, including oral health inequalities within and among countries
- To develop and maintain usable resources for compiling evidence-based systematic reviews and guidelines on methods and strategies to address the inequalities in oral health

The GOHIRA initiative was established in May 2009 at the direction of and resourced by the IADR Board, under the leadership of Past President David Williams [16]. As a first step, a series of task groups with appointed leaders were convened as follows:

- Dental Caries Task Group, Nigel Pitts [2]
- Periodontal Disease Task Group, Li Jian Jin [17]
- Oral Cancer Task Group, Newell Johnson [6]

- Oral Infections Task Group, Stephen Challacombe [18]
- Development Abnormalities Task Group, Peter Mossey [19]
- Implementation and Delivery Task Group, Aubrey Sheiham [20]

The task group leaders were responsible for assembling the members of their respective groups from the wider international research community. This initiative was undertaken with the participation of the WHO and the World Dental Federation (FDI).

Overall Remit of Task Group

Each task group was charged with identifying:

- Global variations in diseases and their presentations, taking into account variations within as well as between countries
 - Likely reasons to account for this variation
 - Reasons for the failure to implement at scale measures that have been shown to be effective in clinical or laboratory studies
 - Priorities for both basic and applied research
 - A 5-year research agenda that would lead to key improvements in global oral health, with particular reference to inequalities between and within countries. This agenda would have defined, expected outcomes and milestones by which progress could be measured
- In addition to the foregoing, each task group was charged with considering:

- Health inequalities in low-to-middle income countries
- Health inequalities in high-income countries
- Strategies to close the implementation gap in prevention – primary, secondary and tertiary – and treatment, by translating research findings into policy and practice
- How best to promote consistency in terminology and knowledge across the domains of research, practice, epidemiology, public health and education. This should be pursued in collaboration with other organizations where appropriate
- Addressing inequalities at a regional, country and local level and improving the methodology by which these can be recognized and monitored
- Imaginative steps, built on implementation science, to get research findings into practice, policy and health systems
- How best to complement and facilitate the work of the Implementation and Delivery Task Group

These tasks were to be achieved by working with the wider research and oral health communities across ap-

propriate international organizations. The task groups were also asked to determine how best to grasp opportunities and counter threats to advance the issues outlined above.

Principal Points to Be Addressed by All IADR Global Challenge Task Groups

It was a fundamental requirement that the reports from the Task Groups should be concise. In order to ensure that the evidence gathered was systematic and capable of being analysed across task groups, each was asked to consider:

- An analysis of the current state of the evidence; consideration was to be given to the inclusion of, or reference to, systematic reviews
- Emphasis on the end stage of translational research, with identification of the priorities for implementation; this process was to be conducted with the engagement of the basic science community, in order to feed into the wider research and innovations agenda; the process would take into account the variation in needs and demands, both within and between countries
- An early focus on identifying what is already known and an emphasis on delivering current research into implementation and delivery
- Evaluation of existing guidelines or development of new guidelines if appropriate, together with a need for standardisation, so that the effectiveness of interventions globally could be compared and evaluated

The expert position papers produced by the task groups were presented in a symposium at the IADR General Assembly in Barcelona, Spain in 2010 and published in 2011 in a special issue of *Advances in Dental Research* [16, 21].

IADR Board Workshop

Drawing on the expert position papers produced by the IADR-GOHIRA Task Groups and published in *Advances in Dental Research*, an IADR Board Workshop was held in the USA in May 2011 with the following objectives:

- To formulate priorities for research and a coherent research agenda to reduce inequalities in oral health within and between countries and close the gap between research and the practical implementation of research findings

- To build on the evidence and take action, using the principles of knowledge translation and exchange; this entails the exchange, synthesis and ethically sound application of research findings within a complex system of relationships among researchers and knowledge users – the incorporation of research knowledge into policies and practice – thus translating knowledge into improved health of the population
- To develop strategies for integrating oral health research with research in other fields on the social determinants of general health and inequalities in health
- To develop a clear agreed plan to achieve the realization of the IADR-GOHIRA research agenda
- To develop frameworks to enable the global oral health research community to place research on social determinants of health and reducing inequalities in oral health high on their agendas
- To advocate to research funders that they should support research not only on the determinants of general health, including oral health, but also on their inter-relationships, thus enhancing the understanding of inequalities in health and strategies to reduce them efficiently and effectively
- Emphasize the significance of psychosocial determinants of oral health – oral health-related behaviour and oral health-care seeking behaviour – on whole populations and underprivileged communities
- Emphasize the importance of integrating research on oral health inequalities, with wider approaches to reducing health inequality as a whole
- Emphasize the importance of multidisciplinary and translational research, seeking input from a range of social scientists and health professionals
- Develop disease prevention strategies based on broad social and environmental determinants of health, adopting upstream rather than downstream strategies [20]
- Develop strategies that are capable of local interpretation in a way that respects cultural sensitivities and socioeconomic constraints for improving oral health literacy
- Develop community-based, regional and country level systems for oral health promotion and health care, recognizing previous experience and resource implications and, where appropriate, emphasizing whole and at-risk populations [23, 24]
- Raise the issue of oral health inequalities, with the need to promote proportionate universalism and specific emphasis on underprivileged communities, in wider public debates
- Advocate for the inclusion of oral health with other sectors in all policies, in line with the Adelaide Statement of Health in All Policies [25]

IADR-GOHIRA: A Call to Action

The IADR Board has published the IADR-GOHIRA Call to Action [22], which sets out the principal research priorities that have been identified and a timescale over which progress is to be achieved. The section below is based on this Call to Action.

The IADR-GOHIRA Research Priorities

Three key challenges have been identified:

- Gaps in knowledge and specifically insufficient focus on social policy
- The separation of oral health from general health
- Inadequate evidence-based data (including research driven programmes, capacity-building strategies, standardized systems for measuring and monitoring, etc.)

Ten key research objectives have been prioritized to address these challenges, with due regard to the differing needs of the variety of global health care systems:

- Identify critical gaps in knowledge
- Develop and implement, in partnership with cognate evidence-based medicine and dentistry organizations, a knowledge base that uses a standard set of reporting criteria and includes a registry of implementation trials

Outcome Priorities and Timeline

The prioritized outcomes and timeline for implementation of the IADR-GOHIRA Call to Action are to:

- Establish and set in motion by 2013 the Global Oral Health Inequalities Research Network (GOHIRN); this network should create a community of interest within IADR to facilitate the communication, wide dissemination and implementation of IADR-GOHIRA research priorities; GOHIRN was established at the 2012 IADR General Session at Iguacu Falls; it has also initiated symposia and oral and poster sessions at IADR meetings throughout 2012–2013
- Engage with key partners, in particular WHO and FDI, to agree on an integrated approach to the reduction of oral health inequalities [26]; after approval of the IADR Board, a joint workshop by 2014 is proposed, wherein specific measurable outcomes and timelines will be defined

- Engage in 2013 with the main research funding agencies and oral health policy makers to raise awareness and increase the political priority of global oral health research to reduce inequalities, with the goal of locating funding resources and sustainable enabling infrastructure for achieving the IADR-GOHIRA goals
- Adopt the common risk approach by 2013 and build links across general health disciplines, including child health and primary care, so as to learn from others' experiences, cross-fertilize ideas and approaches, develop lateral support, maximize lobbying capacity and address common issues
- Encourage research on health promotion by 2013 aimed at improving existing dental health policies for children and young adults, with a strong emphasis on an integrated approach to the upstream approach of disease prevention and oral health promotion
- Monitor, evaluate and conduct a comprehensive outcome assessment for the IADR-GOHIRA initiative by 2016
- Attain, by utilizing IADR leadership and collaborative world research efforts, the social and moral goal of decreasing, and even eliminating, the global disparities and inequalities of oral diseases, within one generation (by 2030)

Immediate Africa and Middle East Region Priorities: Five Practical Things to Do Now

In the wider context of the proposals set out above, it is reasonable to ask what the immediate GOHIRA priorities are for the Africa and Middle East Region of the IADR. As a starting point to stimulate further dialogue on

the subject throughout the Africa and Middle East Region constituency, the following are respectfully proposed:

- Identify key knowledge gaps and target priority areas
- Implement what we know to be effective
- Integrate oral health messages into all health promotion strategies
- Recognize the importance of partnership across disciplines
- Recognize the role of civil society and the importance of working with our communities

Conclusion

The importance of oral disease as a major global health and economic problem has been discussed. Attention has been drawn to the fact that major inequalities exist both within and between countries in terms of disease severity and prevalence, and that major social gradients exist in the prevalence of oral disease. In light of these insights there is a need to develop a new paradigm based on an understanding of the social determinants of health and the integration of oral disease prevention strategies into general strategies for disease prevention and health promotion. The research agenda that this necessitates is set out, with an explicit action plan. In addition, five immediate priorities focusing on the needs and oral health demands of the Africa and Middle East Region of the IADR have been proposed.

Disclosure Statement

The author declares no potential conflicts of interest with respect to the authorship and/or publication of this article.

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