Facilitators and Barriers to the Advancement of Oral Health on the Global Health Agenda: A Qualitative Study with Key Oral Health Stakeholders

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Thesis submitted in partial fulfillment of
the requirements for the degree of
Master of Science in Global Health
in The Graduate School of Duke University

2022

ABSTRACT

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Abstract

Dental caries accounts for the primary burden of disease globally,[1] a burden which falls heavily on those least able to access treatment.[2] Despite this burden, oral health remains neglected on the global agenda. Thus, we sought to conduct a qualitative study to determine why oral health occupies the position it does on the global agenda as well as what factors might promote or prevent its ascent. Virtual interviews were conducted with key oral health stakeholders identified by the Lancet Commission on Oral Health and coded to reveal underlying themes. Our study found several reasons for the neglect of oral health by global health policymakers. These include the separation of oral health care from comprehensive health care; the lack of research and data on oral health; competing interests from multinational food companies that promote and sell sugary foods and beverages; and the dental profession's propensity for treatment over prevention. Integration of oral health into UHC schemes, expanded research and data collection, sugar taxation, and task-shifting were identified as potential avenues to facilitate oral health's prioritization on the global agenda.

Dedication

This work is dedicated to my parents, Forouzan Danesh and Saeed Byott, who worked tirelessly so that my fingers could tread gracefully in writing. To my Maman, thank you for inspiring me to further my education, setting an example of tenacity, and making it possible for me to walk in this space. To my Baba, a public health dentist, thank you for instilling in me humanity in healthcare and a relentless pursuit of justice in dentistry.

Contents

Abstract iv

List of Tables vii

Acknowledgements ix

1. Introduction 1

2. Methods 3

2.1 Setting & Participants 3

2.2 Procedures 3

2.3 Analysis 4

3. Results 5

3.1 Theme 1: Oral Health Care Has Been Separated From Comprehensive Health Care 5

3.1.1 There Are Parallels Between Mental Health and Oral Health 6

3.1.2 Integration of Oral Health Into Universal Health Coverage Could Help Raise the Priority of Oral Health 7

3. 2 Theme 2: Lack of Research on Oral Health Has Been a Factor in its Neglect on the Global Health Agenda 9

3.2.1 New Burden of Disease Indicators are Needed for Oral Health 9

3.2.2 There is Insufficient Data on Oral Health to Motivate Aid Donors 11

3.2.3 Oral Health Has Not Been Positioned as a Best Buy Intervention 11

3.2.4 The World Health Assembly Resolution and the Lancet Commission on Oral Health Have Opened Policy Windows for Action 12

3.3 Theme 3: Industry Has Pushed Back on Preventative Oral Health Reforms.........13

3.3.1 Reduction in Sugar Intake Would Reduce Oral Disease Burden but Industry Promotes Sugary Products 13

3.3.2 Industry Has Opposed Sugar Taxes and Other Regulations 13

3.3.3 Sugar and Tobacco Taxation for Financing Oral Healthcare 14

3.3.4 There are Other Stakeholders Who are Antagonistic Toward Preventative Oral Health Measures 15

3.4 Theme 4: The Global Dental Workforce Lacks Capacity and Should Be Expanded to Include Other Health Wokers..........15

3.4.1 The Global Dental Workforce Needs Capacity Building..........15

3.4.2 Task-shifting and Task-sharing Will Be Crucial for Expanding the Oral Healthcare Workforce 16

4. Discussion..........18

4.1 Implications for Policy and Practice..........18

4.1 Implications for Further Research 20

4.1 Study Strengths and Limitations 21

5. Conclusion..........22

Appendix A 23

References..........24

List of Tables

Table 1: Interviewee affiliations and corresponding pseudonyms. 5

Acknowledgements

I would like to extend a most heartfelt appreciation for my committee chair, Dr. Gavin Yamey, whose brilliant advice carried every stage of the writing process, whose sense of humor lightened this entire experience, and whose profound insights inspired my own curiosity in the field.

I would also like to thank committee members Dr. Cristin Kearns and Dr. Jay Pearson for their support throughout my graduate career and for participating in my defense.

Finally, a warm thank you to all the professionals I interviewed for not only taking the time to participate in this project, but for being overjoyed to be of service.

1. Introduction

Nearly half of all people globally had untreated oral conditions (dental caries, severe periodontitis, and edentulism) in 2015.[1] Untreated dental caries, or tooth decay, is the single most prevalent health condition worldwide.[2] However, dental care is often neglected in universal health coverage benefit plans despite such care averaging 5% of total health expenditure and 20% of out-of-pocket expenditure in high-income countries and largely inaccessible in low- and middle income countries (LMICs).[3] Oral health might continue to remain neglected even as primary healthcare coverage expands because it is excluded from most primary healthcare systems and largely ignored in health systems research in LMICs, among other reasons.[1]

The prevalence and severity of oral disease varies significantly within and between countries, although the heaviest burden falls in the poorest communities.[4] Especially in resource-constrained settings, decaying teeth are often left untreated or they are extracted to mitigate pain, contributing to a considerable edentulous adult population globally.[5] While there is good evidence showing the effectiveness of preventative measures in reducing the burden of oral disease, these measures are not largely implemented in low- and middle-income countries (LMICs),[6] where the lack of such prevention leads to steep treatment costs.[7] Today's treatment-centric approach to oral health makes oral healthcare unaffordable for marginalized communities in high-income countries and all but inaccessible to the general population of low- and middle-income countries.[5]

Oral disease has been well-established as a significant contributor to global morbidity and diminished quality of life. Additionally, oral diseases such as periodontitis are associated with chronic conditions such as heart disease and diabetes and can exacerbate symptoms of other noncommunicable diseases (NCDs) by contributing to a persistent inflammatory state.[8] Besides

co-occurrence, oral diseases share risk factors with other NCDs including tobacco use, alcohol consumption, and poor nutrition.[4] In older adults, oral health has even been identified as an independent risk factor for death.[9]

Despite the overwhelming evidence pointing to a need for a concerted effort to reduce the burden of oral disease, oral health remains low on the global agenda. Benzian et al. in 2011 used the Schiffman & Smith framework, which evaluates global health issues in terms of their political priority, to understand the reasons why oral health has been neglected in global health policymaking. They found that the neglect was in part due to global oral health being a small sector within the large global health community, with diverging actor interests and without distinct leaders.[1] Additional factors that Benzian et al identified were the lack of a consensus for defining neglect in global oral health and a lack of agreement on a solution.[1]

This new study builds on Benzian and colleagues' work by further identifying factors that have contributed to the neglect of oral health by the global health community and factors that could help to drive oral health higher up the global health agenda. It identifies such factors through qualitative one-on-one interviews with five expert key informants. The aim of our analysis is two-pronged: first, we aim to expand on reasons for the current neglect of global OH as outlined by Benzian et al. Second, we aim to identify factors and opportunities to advance OH's current position on the global agenda.

2. Methods

2.1 Setting & Participants

The study consisted of qualitative interviews conducted virtually with key stakeholders from a variety of sectors in global oral health policymaking and development aid for oral health. Research participants were selected via purposive sampling based on expert advice from two members of the Lancet Commission on Global Oral Health who have deep knowledge of the international oral health landscape. Additional stakeholders were identified by via snowball sampling, i.e. we asked key informants for their advice on who else to interview. Participants represented five sectors: ministries of health, the World Health Organization (WHO), civil society organizations, dental manufacturers, and academic institutions. The interviewees were all high-ranking within their given organization or experts in the field.

2.2 Procedures

Thirty- to sixty-minute interviews were conducted virtually via Zoom software, audio recorded, and subsequently transcribed. We aimed to identify, interview, and analyze 10-12 interviews with stakeholders in the hope of achieving theoretical saturation. Given the time constraints of the study, we successfully completed 5 interviews, which provided an initial understanding of the global oral health landscape; in the next phase of the study, we will interview additional key informants until we reach theoretical saturation. All procedures were approved by the institutional review board at Duke University under a Category 2 exemption:

“Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least: (i) the information obtained is recorded by the investigator in such a manner that the identity of participants

cannot readily be ascertained, directly or through identifiers linked to the subjects; or (ii) any disclosure of the responses outside the research would not reasonably place the subjects at risk."

Confidentiality and anonymity were maintained for all interviewees (there are no identifying features included in the research report), and interviews and transcripts were stored on Duke Box, a secure server. All participants provided verbal consent to participate in the study and to being recorded. All interviews were conducted independently by Yasmin Byott in English, with all participants being fluent in English.

All interviewees were sent the same recruitment email template, and if they consented to the study, they were provided with a semi-structured interview guide. The interview guide was developed based on previous, similarly structured projects conducted by the research team. All interviewees were asked all questions on the guide, as well as additional probing questions based on their responses to the parent questions. The interview guide remained unchanged throughout data collection.

2.3 Analysis

Emerging themes were noted by hand during and immediately after each interview to guide coding of the interviews. Interviews were transcribed via Descript automated transcription software and subsequently edited manually for accuracy. A combined inductive and deductive approach was used for coding:[10] following completion of data collection, interview transcripts were re-analyzed for developing themes which served as the basis for inductive coding and deductive codes were extracted from interview guide [Appendix A]. During coding, some interviews inspired a novel node; the previously coded interviews were referenced to determine if they contained any information pertinent to the new node. Analysis was conducted in NVivo 12.

3. Results

Key informants (KIs) were randomly assigned numeric pseudonyms and will be hereafter referred to as KI 1, KI 2, KI 3, KI 4, and KI 5 for key informants 1-5. The affiliations of each actor are shown in Table 1.

Table 1. Interviewee affiliations and corresponding pseudonyms.

Pseudonym	Actor Industry/Organization
KI 1	Academia
KI 2	Ministry of Health
KI 3	World Health Organization
KI 4	Dental Supply Chain
KI 5	Non-Governmental Organization

3.1 THEME 1: ORAL HEALTH CARE HAS BEEN SEPARATED FROM COMPREHENSIVE HEALTH CARE

Every interviewee said that the divergence of oral health from whole-body health was a contributing factor to the current low status of oral health on the global agenda. KI 2 framed this separation of oral health from comprehensive health care as the "[removal of] the tooth from the body."

> *I think that it seems to be historical that whether it came from the dental profession or the history of medicine at some point, the mouth seems to have been excluded from the body and, in our healthcare systems, dental care has been set up differently, apart from medical care, you know, I think the same problem actually happened with mental health care too. And because dental care and mental health care has been set up separate from overall healthcare, I think that's where there's really been the neglect of dental and mental health care too. -KI 1*

KIs explained that as comprehensive health care has improved, oral health has not necessarily followed suit because of its distinction from comprehensive health care. This distinction is one reason for inequity in terms of who receives oral health care and who does not: a person's income status is more likely to determine whether they receive oral health care than the state of their oral health. As described further below, oral health's position as being distinct from

comprehensive healthcare has meant that oral health has not generally been included in publicly financed universal health care packages.

> *On a global basis, dentistry has evolved in many, many circles into a guild, a guild that has great skills, great clinical expertise, great technical expertise, and serve the needs of the people who have the funds to pay for it. -KI 4*

3. 1.1 There Are Parallels Between Mental Health and Oral Health

Several KIs noted a parallel between mental health and oral health in their distinction from comprehensive health care. This parallel, said several KIs, also points to how the oral health community could learn from the rise of mental health up the global health agenda and replicate this rise. In recent years, mental health care has received greater priority in global health. For example, the WHO initially proposed a "4 by 4" agenda for tackling non-communicable diseases (NCDs), which referred to four NCDs (cardiovascular disease, diabetes, cancer and chronic respiratory disease) and their four shared risk factors (smoking, unhealthy diet, physical inactivity, and alcohol). Mental health advocates were able to expand this agenda and it is now the "5 by 5" agenda, adding mental illness as a fifth NCD and air pollution as a fifth risk factor. In addition, while mental health was missing from the Millennium Development Goals (MDGs), it was added to the Sustainable Development Goals (SDGs). These shifts point to mental health care's rise up the global health agenda and its incorporation into comprehensive health care; such success could be a framework for the advancement of oral health.

> *For example, mental health. They also [had] a bit [of a challenge] during the MDGs period. But they also [tried] to submit [a] proposal… many times, like a resolution, and then like a Lancet Commission, mental health [was] also established, and then finally [in] 2015, [a] mental health indicator was integrated… as a part of SDGs, therefore… some indicator or… oral health indicator was missing from a key… goals or key… indicator risk, for example SDG. – KI 3*

3. 1. 2 Integration of Oral Health into Universal Health Coverage Could Help Raise the Priority of Oral Health

The 5 by 5 strategy described above excludes oral diseases, despite these diseases sharing risk factors with several of the NCDs included in the strategy. Highlighting these similarities may be the key to effecting policy change, as KI 1 explained:

> *There's so much overlap in the risk factors between, say, dental caries, which is from eating sugar and drinking sugar, with obesity and type two diabetes and cardiovascular disease. So, I think joining forces with other health promotion efforts in non-communicable diseases is really important. – KI 1*

In addition to showing linkages with other NCDs, the worldwide push to achieve universal health coverage (UHC) provides a window of opportunity to drive oral health higher on the policy agenda. Many nations are developing and establishing universal health coverage schemes, with guaranteed, publicly funded UHC packages of services. These schemes represent a key policy window for oral health to be integrated into UHC.

> *"When oral health is integrated into oral health programs, especially in noncommunicable disease programs in primary healthcare, which are the major ones not working, then I think...we would get the priority that it needs." – KI 2*

According to KI 4, one of the critical selling points for the inclusion of oral health in UHC packages is research that has pointed to gingival infection status affecting the outcomes of several NCDs including cancer, diabetes, and cardiovascular and pulmonary diseases.

> *So, if you have periodontal disease and you're a diabetic, your care costs will go up for overall healthcare and dental, if you have it. Your quality of life will go down and your impact of the disease itself will go up... And they [the researchers] looked at individuals with diabetes, cardiovascular, and oncology [cancer], and what their oral health status was during the time of the disease. And they came away with clear indication that with good oral health, you can reduce overall healthcare costs for that patient. And then by really meaningful dollars beyond the dental costs. – KI 4*

> *We're also emphasizing kind of co-morbidities and multi-morbidity so, you know, action on diabetes has benefits for oral health and definitely vice versa or health*

actions have benefits in terms of diabetes prevention or prevention of further complications. – KI 5

Additionally, inclusion of oral health in comprehensive health coverage programs could allow for additional screening for other NCDs. One KI suggested, for example, that dental practitioners could help with screening for hypertension and diabetes if there was greater integration of oral health into primary health care and UHC (KI 5). Screening for NCDs and NCD risk factors within oral health care could also be cost effective:

This is something that would make policymakers sit up and take notice. I think if that can be demonstrated to them. So, I think just in terms of like an equitable health system where you're screening for things really early on, and that saves you costs further down the line. If, especially if you're talking about things like cancer or diabetes, then you know, there's an almost kind of win-win there from an economic perspective as well. – KI 5

According to KI 3, including oral health within UHC packages should be thought of three-dimensionally, in terms of who is covered, what kind of services are covered, and what percentage of financial protection is provided. However, inclusion in UHC packages alone is not sufficient for people to be able to access oral health, because infrastructure, workforce, and quality of care must be strengthened in order to provide adequate coverage (see section 3.4 below).

But our difficulty still goes: We are covering oral health in this package and this level of care. Do we have the infrastructure to have oral health? Do we have the workforce? I think it's good to have the package and wait for the workforce than vice versa. – KI 2

The current momentum in global oral health as well as the development of many UHC schemes represents a key window for integration of oral health into UHC schemes.

"In order to provide oral health, definitely, we should not miss the opportunity to integrate into UHC, especially like a universal benefits package." – KI 3

Because SDG's have changed 2015 to 2030, we missed the opportunity therefore every time. This situation means, I mean, we missed the opportunity and also, [countries] need to, monitor the progress of implementation of SDG or monitor the progress of some kind of like action plan, but every time oral health was not

integrated, therefore countries don't need to report [on it]. -KI 3

3. 2 THEME 2: LACK OF RESEARCH ON ORAL HEALTH HAS BEEN A FACTOR IN ITS NEGLECT ON THE GLOBAL HEALTH AGENDA

KIs argued that the lack of research and data on oral health has been a barrier to driving oral health up the global health policy agenda.

3.2.1 New Burden of Disease Indicators Are Needed for Oral Health

KIs argued that one reason why oral health is neglected on the global health agenda is that global health policymaking tends to focus on averting premature deaths, whereas most of the burden of oral disease is in impaired quality of life (rather than early deaths). As one KI noted (KI 5), the global health community prioritizes NCDs that cause premature deaths, especially in the age range of 30-70 years—which leads to de-prioritization of oral health.

Number of decaying, missing, and filled teeth (DMFT) is the predominantly used indicator for oral health. This indicator requires a familiarity with oral health-specific terminology; it is not well known among the global health community. Global health experts and practitioners commonly use deaths and disability-adjusted life years (DALYs) as indicators. This makes for a communication barrier between oral health practitioners and policymakers. Furthermore, this difference in language makes it difficult to compare the burden of oral disease with another disease that can be quantified with DALYs or mortality.

"If we think about DALYs or mortality, oral disease… compare[d] with other disease[s]… the volume of DALYs or the mortality due to oral disorder[s] or oral disease is very, very small." – KI 3

So increasing global oral health literacy amongst policymakers, employers, and the public will create an awareness that will support increased resources for the provision of oral health services to everyone, especially those with non-communicable diseases. – KI 4

All interviewees commented on the lack of data surrounding the global burden of oral disease. KIs agreed that there is simply not enough data to indicate the need for oral health policy to policymakers. According to KI 2, even in robust health information systems, oral health information data is lacking. And even when data on oral health is available, it is rarely actionable for policymakers.

If you cannot demonstrate to a government that this is a disease that we have, and this is the burden that is there, and this is what it's costing the country or the world, or the global, the bigger picture for that matter, then it would be difficult to even demand funds or to ask for funds for anything specific. – KI 2

For diseases that were included in the SDGs, WHO member states are required to collect data on these diseases. Since oral health was not included in the SDGs, countries do not need to collect or report oral health data, contributing to a vicious cycle in which oral health is not prioritized and therefore not included in a monitoring and evaluation framework for the SDGs. In other words, data is not collected, policymakers do not understand the burden of oral disease, and oral health continues to be poorly prioritized (KI 3).

KIs pointed to a need for additional cost-benefit analyses of oral health prevention measures:

"And that [cost-benefit analysis] will then say, these are the figures, and this is what we need, or this is what oral diseases are costing this country. And here's what would save the country, if this was done." – KI 2

3.2.2 There is Insufficient Data on Oral Health to Motivate Aid Donors

KI 3 suggested that one reason why the aid donor community has neglected oral health (a horizontal program) compared with vertical programs that target specific diseases, such as neglected tropical diseases, is that the impact of oral health interventions is harder to demonstrate. The KI explained that if X amount of a drug to control a tropical disease was delivered via mass drug administration to X area, then a donor can interpret this as helping X number of people. However, these types of impacts are much more difficult to show in oral health. This difficulty, argued KI3, may explain the failure of the field to attract donors who might favor vertical programs such as vaccine distribution efforts that have impacts that are more tangible and easier to demonstrate.

> I think that's where we are with NCDs. So, you know, you've got that eradication narrative, when you talk about, you know, polio and HIV, you know… China's just declared that they've ended malaria and things like that. That's, a really appealing narrative through philanthropy of course you can say that you ended a particular disease. Um, and, and that isn't kind of within our grasp the NCDs, really with a couple of like exceptions. – KI 5

3.2.3 Oral Health Has Not Been Positioned as a Best Buy Intervention

An important moment for the global oral health movement was the May 27 2021 World Health Assembly resolution on oral health; KIs noted that the resolution called for the development of 'best-buy' interventions for oral health. These would be evidence-based, highly cost-effective interventions that could elicit meaningful improvement in the burden of oral disease. Other NCDs already have best-buy interventions, which may explain why they have had more robust support from health policymakers. According to KI 3, the academic

sector must be engaged in order to formulate successful best-buy interventions for oral health.

3.2.4 The World Health Assembly Resolution and the Lancet Commission on Oral Health Have Opened Policy Windows for Action

As mentioned above, the May 21 2021 World Health Assembly resolution on oral health was one of the most important policy windows in recent decades for raising the profile of oral health among the global health community.

> *“This [resolution] is... kind of like a... game changer, hopefully a game changer, because actually, 194 member states actually requested WHO to... progress or accelerate [the] oral health agenda.” – KI 3*

> *The adoption of the resolution on oral health now at the World Health Assembly in May was incredible. I mean, there were, I think 40 countries co-sponsoring. And that's really unusual; that's almost unprecedented that there's so many countries [that are] kind of taking [an] active interest and kind of just supporting, also behind the scenes and the negotiations between the member states in Geneva. It was actually really smooth. It was really hardly contentious at all, which is fantastic. – KI 5*

This policy window also overlapped with the establishment of the Lancet Commission on Oral Health in early 2020.

> *This kind of establishment of the Lancet [Commission is] also... quite a great opportunity to raise awareness because... we, especially [academics] from a dental background, tend to submit [to] journals for... dental research or... oral-health-related journals. But [The] Lancet actually [reaches] beyond [the] oral health community. [It reaches] more people... not only academia, but also policy makers may read [it], therefore I think [the] Lancet Commission [is a] very, very great opportunity. - KI 3*

3.3 THEME 3: INDUSTRY HAS PUSHED BACK ON PREVENTIVE ORAL HEALTH REFORMS

3.3.1 Reduction in Sugar Intake Would Reduce Oral Disease but Industry Promotes Sugary Products

As discussed, oral disease shares common risk factors with other NCDs including sugar intake. According to KI 1, reducing sugar intake via regulations and education is critical to reducing the burden of caries, yet there are industries that oppose such measures.

> *I personally, I feel like the nutrition aspect is crucial, you know, making sure that people know what healthy foods and healthy drinks to consume and what to avoid, especially what to avoid getting their children from the youngest age. And, you know, we have a huge problem with childhood caries, because children are given sugary drinks in the baby bottle and sugary snacks starting in infancy, you know, all the way through childhood. And, and so I think educating the public on that. And also, having some regulation on the industries that are pushing unhealthy products would be really helpful, like banning the sale of sugary drinks and sugary snacks from schools and from clinics trying to make the environments where children and family are as healthy as possible, so that that would help with prevention. – KI 1*

> *I think that's a big thing, policies to limit the promotion of unhealthy products that are leading to poor oral health. Then that would include the sugar sweetened beverages and the junk food, but also tobacco and alcohol. Um, you know, all of those things are bad for oral health, so I think that we need to get more support for governments to limit the unhealthy products. – KI 1*

3.3.2 Industry Has Opposed Sugar Taxes and Other Regulations

KIs noted that multinational food companies that make and sell sugary products curb attempts to implement policies that will reduce consumption of the sugary foods and drinks that these companies sell. According to KI 1, involvement of private foundations such as the Bloomberg Foundation, which has seen previous success in legal battles against these industries, could be productive. The Bloomberg Foundation supported Mexico's implementation of a sugar tax (KI 1):

[Implementing a sugar tax] is really hard because the industries are very strong and there are many countries around the world that, when they've tried to implement taxes on sugar-sweetened beverages or sugary snacks, the sugar industry and the beverage industry and snack industry has really fought really hard against them. So, I think getting our foundations and World Health Organization to provide some financial and legal support to countries that want to limit the unhealthy products.

And actually, I think the Bloomberg Foundation was really helpful for Mexico to implement their sugar sweetened beverage and sugary snack tax. I think that was in 2013 and they're continually attacked by the industries. And I think that Bloomberg has continued to support them, to fight back and maintain that and also to do studies of the impact of the tax. So they've–over time–they've done studies to show that, even as early as one year after the tax went into effect, there was a reduction in the consumption of sugary beverages. – KI 1

3.3.3 Sugar and Tobacco Taxation for Financing Oral Healthcare

Several KIs pointed to sugar, tobacco, and alcohol taxation as potential avenues to fund oral healthcare.

There is a movement in some European countries to link the sugar tax for the payment of oral health care as a global movement... just like the tobacco tax in the US was used to help support the primary care pulmonology healthcare in the US... So, the sugar tax around the world is a big issue. And the activists around oral health are looking to get a piece of those revenues to pay for oral care in their country. – KI 4

You could imagine that, you know, for countries that haven't levied tobacco taxes so far, or haven't done much around alcohol taxes, certainly most countries still haven't done anything around sugar taxes. You could imagine that, in terms of making a public case for action on those fiscal measures, you can talk about, okay, this might be earmarked for health systems broadly or oral health in particular. – KI 5

According to KI 5, the mandate to develop policy recommendations by the May 2021 World Health Assembly resolution may advance these efforts.

[The policy recommendations] have to go through a kind of cost benefit analysis and show a certain level of cost-effectiveness to be... endorsed by the World Health Organization and if you now are able to bring the oral health benefits in of those kinds of policy interventions around diet, around alcohol and so on strengthens the whole package. – KI 5

3.3.4 There Are Other Stakeholders Who Are Antagonistic Toward Preventive Oral Health Measures

KI 4 argued that several competing interests may hinder oral health policymaking, including competing interests at institutions such as the American Dental Association (ADA). KI 4 distinguished between philanthropic and public health communities pushing for equitable global oral health legislation from organized dentistry, which rests on a fee for service model.

> *So, it's not unrealistic for the ADA to block legislation that would expand access to care and give people coverage, because if they have the financial resource, the next thing they would do is look for a dentist near them to get care, which would expose the member to the pressure of saying no to someone who has a genuine oral health credit card to use, but they don't like the rate that it's being used at. – KI 4*

According to KI 2, the oral health product industry may hinder the rise of global health up the global agenda by pushing to uphold the separation of oral healthcare from comprehensive care.

> *I think anything that brings [of oral health care from comprehensive care], will push the oral health on the other side [deprioritized]. That comes mostly from companies that want to push the products in terms of those ones that promote oral health sometimes, can really push it to be standing alone. – KI 2*

3.4 THEME 4: THE GLOBAL DENTAL WORKFORCE LACKS CAPACITY AND SHOULD BE EXPANDED TO INCLUDE OTHER HEALTH WORKERS

3.4.1 The Global Dental Workforce Needs Capacity Building

According to KI 2, incorporation of oral healthcare into UHC schemes or attaining financing for oral healthcare are just two of many hurdles to increasing access to such care.

Countries must also have the infrastructure and workforce capacity to provide coverage. This barrier is especially challenging in LMICs, where dentists are scarce.

> *And the activists around oral health are looking to get a piece of those revenues to pay for oral care in their country. Now you're not going to be able to provide dental care for the masses in those countries, because there aren't enough dentists in the world. – KI 4*

Capacity building of ministries of health is also important to push oral health higher up on country agendas.

> *"It is also important to build the capacity of the... staff in the ministries of health in order to promote or prevent and control oral disorders." - KI 3*

3.4.2 Task-shifting and Task-sharing Will Be Crucial for Expanding the Oral Healthcare Workforce

KIs agreed that task-shifting and -sharing measures are essential to expanding the global oral health workforce and ensuring access to oral healthcare for marginalized groups. This workforce may be supplied by training maternal and child healthcare providers (KI 1), other clinicians, and community health workers in basic oral health.

> *"We need to use people who are not oral health workers, and that is now where we are heading. Train non-oral health workers on basic oral health to at least assist in doing promotion, disease prevention, and very, very minimal intervention, if needed." – KI 2*

Community health workers can deliver several cost-effective oral health interventions.

> *Where oral health care is present, not complete–not implants and advanced restorative and not cosmetic–but pure oral health filling cavities, reducing inflammation, evaluating gingivitis, all the core principles that result in disease that focus can actually be provided with a community-based health team, not a dental team, but a health team for less than $20 a person annually. – KI 4*

"New materials, silver diamine, fluoride varnishes, other preventative techniques can be delivered by community health workers and that's oral health prevention and awareness and education." – KI 4

4. Discussion

This qualitative study found that the neglect of oral health on the global health agenda has occurred in part because oral health care has been separated from comprehensive care. This meant that global oral health has remained neglected even as advancements were made in expanding access to comprehensive health care, particularly through UHC and publicly funded UHC benefits packages. Nevertheless, the study also pointed to windows of opportunity for pushing oral health higher on the global health agenda. Three key policy windows were adoption by WHO member states of the World Health Assembly resolution on oral health in 2021, the formation of the Lancet Commission on Oral Health in 2020 and the ongoing development of UHC schemes. According to Kingdon (1984), a policy window forms at the convergence of three streams including awareness of policymakers, possibilities for policy action, and political environment.[12] KIs report that UN member states are currently eager to accelerate an approach to addressing oral disease, but in order to capitalize on this emerging policy window, robust data collection around oral health and engagement by civil society are crucial.

This study also found that another important reason for the neglect of oral health by both donors and policymakers is that these stakeholders have tended to favor vertical programs that target specific diseases (e.g. HIV, TB, malaria, or vaccine-preventable childhood illnesses). Nevertheless, there has been growing donor interest in health system strengthening.[13] Thus, framing oral health interventions as capacity building of health systems, which will also improves outcomes for other NCDs, may attract donors for oral health care. By emphasizing shared risk factors of oral disease with other NCDs such as

heart disease and diabetes, oral health could attract further attention of policymakers and donors.

Additionally, there is a discrepancy in the language used by oral health practitioners and global health policymakers. The latter group largely understands DALYs and mortality as indicators of disease burden, while oral disease is measured in terms of DMFT (decayed, missing, filled teeth). Data surrounding oral disease is lacking because it has not been included in the SDGs, but this exclusion leads to the continued neglect of data collection on oral disease. Thus, policymakers often do not understand the burden of oral disease within their country. In order for oral health to garner the political capital it needs, health systems must report oral health statistics.

Even if policymakers understood the burden of oral disease, there are few actionable interventions and limited financing to implement them. As called for by the World Health Assembly resolution on oral health, developing best-buy interventions for oral health is critical for countries who are ready to act but whose ministries of health may not have the capacity to develop such interventions.

4.1 IMPLICATIONS FOR POLICY AND PRACTICE

Prevention is cost-effective for oral disease, but dentistry remains a treatment-centric profession. A restored tooth is likely to incur re-restorations and is ultimately at greater risk for extraction.[13] Our study found that the dental profession is interested in upholding the fee-for-service model of dentistry, even when prevention would be more representative of the patient's best interests. For example, Heidmann et al. found that in a population of Norwegian youth, 6-year caries reduction at the population level was attributed to a reduction in restorative practices by dentists.[14]

Ultimately, caries risk reduction presents a more successful avenue to reducing the overall burden of disease than do surgical dental interventions. A sugar-sweetened beverage tax implemented in Germany reduced caries prevalence and generated billions in profit that could be put towards oral health care.[15] Simulated models of Thailand's sugar-sweetened beverage tax project a 21% decline in caries by 2040 for a sugar tax implemented in 2010.[16]

Dentists are not cost-effective in improving oral health.[13] Instead, preventive interventions and screening for oral disease can be accomplished on a larger scale by training community health workers and non-dental clinicians on basic dental skills, as there are not enough dentists per capita to meet global needs. Preventive dentistry does not require the expertise of a dentist; as an example, nurse midwives in Nepal with no prior dental training who were trained to perform periodontal exams did so accurately.[17]

Some of the most effective prevention measures such as reduction of sugar consumption meets pushback from sugar-sweetened beverage and snack industries. Private foundations such as the Bloomberg Foundation have successfully supported governments in implementing taxes on sugary products along with alcohol, tobacco, and other risk factors for oral and other noncommunicable diseases. These taxes can be used to finance prevention measures for oral disease.

4.2 IMPLICATIONS FOR FURTHER RESEARCH

In the next phase of this study, we will interview representatives from multilateral donors and global oral health providers. We will interview additional KIs who were identified by snowball sampling.

This study highlights the need for further cost-benefit analyses for oral health interventions in order to determine a best-buy intervention as well as research into effective task-sharing models for dentistry.

4.3 STUDY STRENGTHS AND LIMITATIONS

To the best of our knowledge, this study was the first to undertake an analysis of key informant interviews in relation to the neglect of oral health on the global health agenda. Strengths of this study lie in its inclusion of actors from an array of sectors within global oral health who were established in the field. Interviewees were well-motivated to contribute to research within the field and thus provided rich, thorough accounts of their experiences and knowledge. However, due to the study timeline, the number of interviews conducted fell short of our goal, and each stakeholder group was represented by no more than one or two interviewees. Thus, insight was limited to that individual's perspective.

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5. Conclusion

Oral health has been neglected within the broader global health field. Reasons for this neglect include the separation of oral health care from comprehensive health care; the lack of research and data on oral health; competing interests from multinational food companies that promote and sell sugary foods and beverages; and the dental profession's propensity for treatment over prevention. Integration of oral health into UHC schemes, expanded research and data collection, sugar taxation, and task-shifting were identified as potential avenues to facilitate oral health's prioritization on the global agenda.

Appendix A: Interview Guide

Facilitators and barriers to pushing oral health up the global agenda: a qualitative study with key oral health stakeholders

Semi-Structured Interview Guide

February 15, 2021

Semi-structured questionnaire

1. Where do you think oral health stands on your country's/global agenda? (depending on stakeholder)
2. Previous research suggests that oral health is not high on the global agenda; what do you think some of the reasons for that might be?
3. What do you think could push oral health down the agenda or hinder its prioritization? What are some opportunities to improve its prioritization?
    a. Probes:
        a. Are there any upcoming windows of opportunity for prioritization?
        b. Are there opportunities to mobilize funding?
        c. Could civil society engagement play a role? For example, civil society played a large role in pushing HIV up the global health agenda, do you think there could be a similar push for oral health?
4. What do you think the impact of these changes would be on your country? (Or globally, depending on actor)
5. Do you think your country's government would help finance these changes?
6. What is your organization doing on oral health internationally?
7. What role, if any, could your organization play in facilitating oral health's prioritization on the global agenda?
8. Can you identify any leaders or champions or global oral health? If so, who?
9. Where do you see oral health fitting into universal health coverage schemes?
10. Any studies or documents I should review?
11. Is there anyone else within or outside of your organization you recommend that we interview?

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