

Reflections on oral health inequalities: Theories, pathways and next steps for research priorities

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Abstract

Health inequalities, including those in oral health, are a critical problem of social injustice worldwide, while the COVID-19 pandemic has magnified previously existing inequalities and created new ones. This commentary offers a summary of the main frameworks used in the literature of oral health inequalities, reviews the evidence and discusses the potential role of different pathways/mechanisms to explain inequalities. Research in this area needs now to move from documenting oral health inequalities, towards explaining them, understanding the complex mechanisms underlying their production and reproduction and looking at interventions to tackle them. In particular, the importance of interdisciplinary theory-driven research, intersectionality frameworks and the use of the best available analytical methodologies including qualitative research is discussed. Further research on understanding the role of structural determinants on creating and shaping inequalities in oral health is needed, such as a focus on political economy analysis. The co-design of interventions to reduce oral health inequalities is an area of priority and can highlight the critical role of context and inform decision-making. The evaluation of such interventions needs to consider their public health impact and employ the wider range of methodological tools available rather than focus entirely on the traditional approach, based primarily on randomized controlled trials. Civil society engagement and various advocacy strategies are also necessary to make progress in the field.

KEYWORDS

health inequalities, health services research, health status disparities, oral health, public health

1 | INTRODUCTION

Health inequalities have not decreased over the last decades and for some outcomes have even increased, with disadvantaged groups in contemporary societies still enduring higher burdens of mortality and morbidity, including oral diseases.^{1,2} These stark inequalities in health most often take the pattern of a social gradient, whereby each lower socioeconomic position group has a higher health burden

than the immediately less deprived group.³ These social gradients are linked to structural factors like policies of economic liberalization, changes in labour markets and an austerity approach to social policies.^{4,5} Moreover, the COVID-19 pandemic has both magnified previously existing inequalities and created new ones in what has been called the syndemic of COVID-19, non-communicable diseases (NCDs) and the social determinants of health.⁶ The pandemic has exacerbated access barriers with the more disadvantaged population

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groups having had very limited access to dental care which will undoubtedly worsen the already dramatic inequalities in oral health worldwide.^{7,8} All these issues make the analysis of oral health inequalities a policy and academic priority, perhaps even more relevant now than before, as also recognized by the recent WHO Global Oral Health Strategy.⁹ This commentary first presents a broad overview of the main frameworks of oral health inequalities. Next, the evidence is briefly summarized, and the potential pathways to oral health inequalities are discussed. Finally, the last sections are focused on the next steps for research priorities and actions to tackle such inequalities.

It is worth noting that there is considerable terminology discussion, with some scholars suggesting that health inequalities (or health disparities) are the unfair, unjust, avoidable, unnecessary and systematic differences in health outcomes between population groups with different levels of wealth, prestige or power,¹⁰⁻¹² while others clearly differentiate between health inequality, which refers simply to variation in health, and health inequity (a term that conveys more appropriately the moral judgement of unfair/unjust differences in health).^{13,14} These terms have also been used interchangeably, though health inequality is the term more widely used in the public health literature.¹⁵ Throughout this manuscript, the term health inequalities is used to refer to systematic, avoidable, unfair and unjust differences in (oral) health outcomes, thereby encapsulating the moral judgement of unfairness embedded in the health equity definition.

2 | THEORETICAL FRAMEWORKS

A clear theoretical basis is critically important for all research on health inequalities. Theoretical or conceptual frameworks have been defined as “a structure that guides research by relying on a formal theory, constructed by using an established, coherent explanation of certain phenomena or relationships,”¹⁶ as well as “interlinked concepts that together provide a comprehensive

understanding of a phenomenon.”¹⁷ Even though a number of relevant frameworks have been available for a considerable time, many studies on oral health inequalities implicitly ignored these theoretical underpinnings and adopted a simplistic and usually fragmented approach to oral health determinants. This poses challenges in terms of study design, interpretation of results and their use for advocacy and public health action. Using theory-based frameworks to inform research can facilitate better understanding of oral health inequalities and their complexity. Relevant research is mostly based on the WHO social determinants of health (SDH) model^{18,19} (Figure 1A) which has helped to conceptually explain the social determinants of health, defined as “the conditions in which people live and work,” while also offering insights into potential action points at different levels. The SDH framework is in turn largely built on the framework put forward by Dahlgren and Whitehead²⁰ (Figure 1B) who in 1991 called for attention to community and societal factors (e.g., housing, work environment, agriculture and food production) related to health outcomes beyond the traditional individual and behavioural factors. This acknowledgement of health being affected by many sectors amenable to policy action set the scene for subsequent influential frameworks in both general and oral health.

Although the Dahlgren-Whitehead model is not strictly a framework for health inequalities, but rather for health determinants,²¹ it includes the key principles to understand inequalities. In a thought-provoking recent paper marking²² the 30th anniversary of their model, Dahlgren and Whitehead mentioned how they combine their own framework with Diderichsen's model to explain the pathways and mechanisms by which the determinants of health result in social gradients in health.²¹ Diderichsen suggested four mechanisms operating on the determinants of health that help to understand inequalities: differential power and resources, differential exposure, differential vulnerability and differential consequences of health problems.²² These mechanisms collectively cover the continuum from the structural determinants to understanding how socioeconomic position is linked to vulnerability in health.

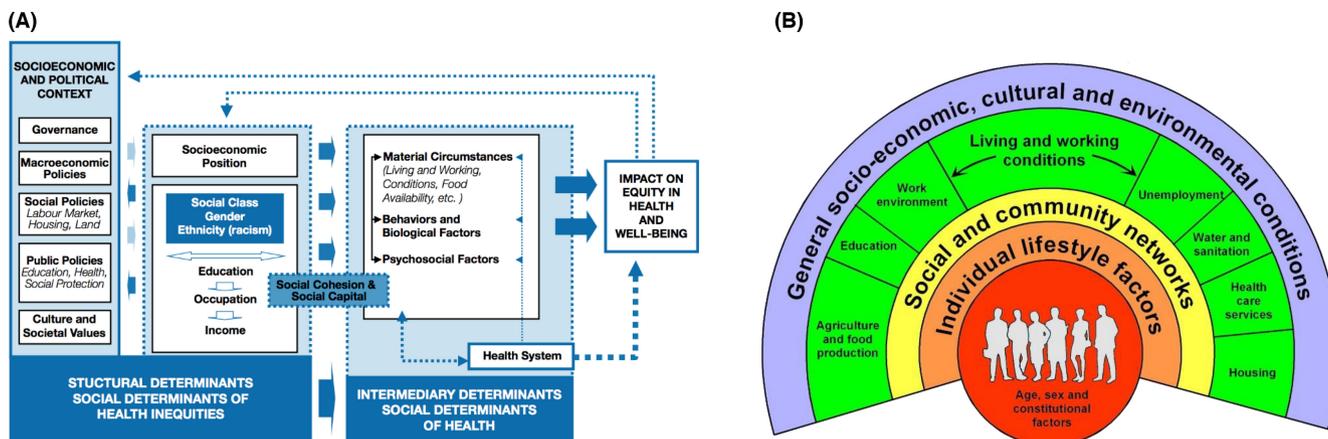


FIGURE 1 (A) WHO social determinants of health (SDH) model, 2008^{18,19}; (B) Conceptual framework by Dahlgren and Whitehead, 1991²⁰.

Those two models (Dahlgren-Whitehead and Diderichsen) were pivotal for the WHO Commission on Social Determinants of Health conceptual framework (SDH model) which highlights how structural determinants, such as economic, social and welfare policies, can generate social hierarchies and influence the socioeconomic status of individuals within societies. Socioeconomic status can then influence health through the circumstances in which people live, work and age, and the related risks for disease. These intermediate determinants include housing and working conditions, social capital, psychosocial factors such as stress and social support, and access to good-quality health care. At the most proximal point in the model, behaviours and biological processes mediate the health effects of social determinants. Based on that model, oral diseases and inequalities in oral health are caused by a complex array of individual, social, environmental, economic and political determinants.^{18,19} In a seminal contribution from a sociological perspective, social conditions have been characterized as fundamental causes of health inequalities as they operate through different pathways that reflect how individuals and population groups make use of a range of resources, both monetary and also non-monetary, such as knowledge, prestige, power and social connections, all of which affect health.^{23,24} In line with the aforementioned frameworks, access and use of these resources is deeply rooted in the social processes and political and economic structure of societies. Tackling the fundamental causes of health inequalities is key as social conditions maintain their association with health outcomes even when the intervening mechanisms change.^{23,24}

Specific frameworks suggested in the oral health literature generally keep a similar structure and overall content to the SDH model with different levels of influence from more structural (related to the economic and political context) to individual/biological factors. These frameworks have made the aforementioned constructs more relevant for the oral health community by conveying the key messages with a more familiar and detailed content. For example, the conceptual model for determinants of children's oral health by Fisher-Owens et al., (2007)²⁵ suggests five domains of determinants (genetic and biological factors, social environment, physical environment, health behaviours and dental and medical care) operating in three levels of influence, that is, child, family and community. In addition, it incorporates a time element to convey the idea that children's oral health is dynamic, and children have different developmental trajectories. In another relevant example, the framework for oral health inequalities by Lee and Divaris (2014)²⁶ highlights the role of upstream determinants such as the dynamics of globalization, migration, and the social and political environment. It also suggests various pathways to inequalities, including perceived social standing and support, allostatic load, inflammatory pathways, and epigenetics.

Recently, the Lancet oral health series suggested a framework on the social and more distal driving determinants shared between oral diseases and other NCDs. The framework also included the commercial determinants of health, thereby bringing to the oral health literature a more explicit discussion about the importance of strategies

and tactics used by private corporations to promote products and choices that are detrimental to health.¹

It is also important to recognize that many of these determinants do not happen in isolation. The intersectionality framework highlights the accumulation of multiple oppressions and helps to understand the (oral) health impacts of multiple forms of discrimination, stigma and disadvantage that result from intersecting social identities based on race, class, gender, sexuality, nationality and citizenship status, (dis)ability status, etc.^{27,28} Moreover, it offers the opportunity to analyse how structural power imbalances, systems of oppression and the general cultural, social and economic organization of societies are ultimately "embodied" by individuals who, based on their interrelated social identities, experience very different living conditions, opportunities, exclusion and discrimination. Those complex issues, in turn, interact to compound on different poor health and oral health outcomes as well as access to dental care, therefore producing and reproducing oral health inequalities.²⁷⁻³⁰

Notwithstanding their differences, all these frameworks extend beyond the reductionist biomedical and behavioural approach, though the need for an integrated framework that brings together social, political and commercial determinants is seen as crucial for a stronger public health response to health inequalities.³¹ A key contribution of the frameworks relates to implicitly suggesting pathways to explain how health inequalities arise.

3 | EVIDENCE AND PATHWAYS TO INEQUALITIES

Current evidence on the existence of oral health inequalities is increasingly abundant in terms of (1) settings and populations considered, with studies showing that social gradients in oral health are a global issue; (2) outcomes examined, with inequalities in both clinical and subjective measures of oral health; (3) age groups and stages in the life course, with inequalities evident for children, adolescents, adults and older adults; and (4) dimensions of inequality analysed, including socioeconomic position (SEP) at individual/household and area levels, race/ethnicity, geographic location, etc. Some of this evidence has been synthesized in systematic reviews showing consistent associations between socioeconomic disadvantage and poorer oral health.³²⁻³⁵ And this has also been done to some extent for racial/ethnic inequalities in oral health.³⁶ The evidence is also consistent, in general, irrespective of whether the association between SEP and oral health is looked in a more traditional analytical way through regression models where SEP is the exposure and oral health is the outcome or by using specific indicators of inequality, both in absolute and relative terms. Moreover, with few exceptions, these inequalities often take the form of social gradients with worse oral health at consecutively lower socioeconomic levels.³⁷⁻⁴³ In addition to those gradients, there is also evidence of more extreme oral health inequalities in what is called a cliff edge of inequality affecting the most marginalized groups in societies, such as those with long-term disabilities,

dependent older adults, homeless, prisoners, refugees and indigenous groups.¹ The oral health of marginalized groups, in line with their health in general, is considerably worse even from the most disadvantaged/deprived groups included in general population surveys.^{1,44} A systematic review in high-income countries documented the excessive burden of inequality for these groups and highlighted the governmental responsibility for this “shameful state of affairs for rich countries.”⁴⁵

Using some of the frameworks, studies in this area have tried to understand inequalities by assessing the potential role of different pathways. Specifically, they attempted to assess the extent to which materialist, cultural/behavioural and psycho-social mechanisms could explain the inequalities in oral health, primarily in relation to SEP.^{46–48} They are presented separately here, while acknowledging the conceptual overlap and interaction between them.

3.1 | Materialist pathway

The materialist pathway emphasizes the role of material factors (e.g., financial difficulties), and how income and wealth enable accessing goods and services that are important for health (e.g., ability to afford a healthy diet, access to health and public services) and protects from exposure to material risk factors that are detrimental to health (e.g., poor housing conditions, pollution, hazardous work environments).⁴⁶ The oral health literature supports the potential role of this pathway with studies showing significant income and wealth-based inequalities in different outcomes.^{32,49} Furthermore, income-related inequalities in dental services utilization have also been documented and they may even be higher in more affluent countries.⁵⁰ However, the limited available literature indicates that access to and use of oral health services is not sufficient to fully explain the social gradients in oral health.⁵¹ Clearly, material factors are much more extensive than dental services and it would be pertinent to further explore the role of this pathway on oral health and on how different material factors can explain oral health inequalities. The distribution of material resources in societies is heavily influenced by political decisions at different levels, such as the coverage and generosity of social policies. These decisions ultimately reflect the dynamic nature of power imbalances in a specific context and period, further highlighting the relevance of the political economy thinking towards understanding health inequalities.^{52,53}

3.2 | Cultural/Behavioural pathway

The cultural/behavioural pathway refers to inequalities as a result of differences in health-related behaviours between socio-economic groups. It suggests that people from lower socioeconomic backgrounds are more likely to engage in health-compromising behaviours than people from higher socioeconomic

backgrounds, leading to higher levels of disease.⁴⁶ Evidence has shown that there are socioeconomic inequalities in oral health-related behaviours (oral hygiene, dental service utilization, sugar consumption, etc.).^{54,55} This has been explained from a behavioural ecology perspective that also links behaviours to the broader living environment. Nettle argues that the detrimental health behaviours of people in lower socioeconomic position or those facing socioeconomic adversity is not a result of incompetence but rather an expected response to their life situations.⁵⁶ However, behavioural factors have a modest role in explaining oral health inequalities.^{51,57,58} Moreover, their role seems to vary according to the context, with some studies suggesting that it could be more profound in settings with a marked social characterization of health behaviours, and in more egalitarian societies, with stronger, universal, generous welfare states.^{59–61}

3.3 | Psychosocial pathway

The psychosocial pathway refers to the idea that social inequality influences health through perceptions of control and social standing, namely a person's position in society relative to others.⁴⁶ Psychosocial is an inclusive but not comprehensively defined term and contains a wide range of concepts that are related and at the same time quite distinct and tapping on different aspects of life. Social networks, social support, social participation, but also stress, sense of coherence, work stress and balance, as well as broader area-based measurements of social capital, have all been considered under the psychosocial “umbrella” to potentially explain inequalities. People in lower SEP are hypothesized to experience, for example, higher levels of chronic psychosocial stress and lower levels of social support which in turn affect health through direct and indirect mechanisms. Although these factors have received relatively little attention in the oral health literature, there is evidence that psychosocial factors such as allostatic load and sense of coherence could play a role in partly explaining oral health inequalities.^{62–64} Some studies have suggested that psychosocial factors could impact oral health through different mechanisms, including their influence on oral health-related behaviours, and biological responses leading to an elevated oral inflammatory load.^{65,66} The importance of the psychosocial pathway may vary according to the outcome, with a potentially greater relevance for periodontal diseases and less so for dental caries and tooth loss.^{63,67}

Overall, despite fast increasing, research on pathways to oral health inequalities is still limited both in the number of relevant papers and in terms of methodologies employed. The available evidence suggests that none of the pathways fully explains inequalities on its own. Therefore, separately focusing on each of these pathways (material, behavioural, and psychosocial) is necessary, but not sufficient to tackle oral health inequalities. More research focusing on the interactions among the different pathways is also needed.

3.4 | Life-course perspective

Although it is not a pathway but rather an approach, it is worth mentioning the life-course perspective. This perspective states that health inequality is a result of inequalities in material, social, psychological and biological advantages and disadvantages over the life course of individuals.^{46,68} While most relevant research tends to view inequalities in a cross-sectional frame of mind, a life course approach is preferable as the association between SEP and health is dynamic⁴² and inequalities are shaped across life. Studies using this approach often analyse how socioeconomic circumstances in early life set people on trajectories over the life course, and how disadvantage accumulates over time affecting health in later life.⁶⁹ For example, early life conditions are associated with oral health status at different points in life, even in older adulthood.^{70,71} A life course approach can also be applied to examine how the material, behavioural and psychosocial pathways act and interact at different stages across the life course. Evidence on these topics is growing as more population-based cohort studies include oral health measurements.⁷²

Looking at the oral health inequalities literature in its entirety, it is evident that it tends to focus mostly on intermediary determinants, while largely ignoring the broader structural determinants that occupy the left side of the SDH framework. And this oversight has considerable policy and practical implications, as the structural determinants are related to the economic and political context. Another aspect of structural determinants relates to the geographical distribution and use of natural resources and how these may be weaponized to compound inequalities within and between countries. Assessing how institutional structures of societies, environmental issues and socio-economic changes influence health inequalities is key to fully understand contexts where inequalities are generated in the first place and hence appropriately inform strategies to address them.^{73,74} Some studies have analysed the role of welfare state regimes (groups of countries based on their general approach to social policies), governance, public expenditure on health, among others.⁷⁵⁻⁷⁷ Findings suggest that features of countries' welfare provision and other political factors could influence the nature and magnitude of oral health inequalities. There is however a need for more empirical studies in this area, particularly on the interrelationship between different aspects of political economy, the mechanisms linking structural determinants with oral health inequalities, how these structural determinants operate in middle- and low-income countries and over the life course.

4 | NEXT STEPS FOR RESEARCH PRIORITIES

Thinking ahead, it is time for a paradigm shift in terms of oral health inequalities research. Given that inequalities are evident across societies, contexts and age groups, the emphasis of research needs now to shift away from documenting oral health inequalities, towards

explaining them, understanding the complex mechanisms underlying their production and reproduction, and looking at interventions that address them.

4.1 | Data sources and analytical approaches

Many studies are based on secondary analysis of large epidemiological datasets, in some cases representative of the overall population in a setting or country, but relatively fewer have focused their analyses on the different pathways to oral health inequalities.^{57,58,65} And these studies tend to be based in more affluent societies, resulting in a research imbalance between high-income and low- and middle-income countries, where the cost and organization requirements of large population surveys can often be prohibitive. There is a need for more studies aiming to understand the role of the different pathways to oral health inequalities with theory-driven secondary data analysis, as this will help explain inequalities and inform relevant interventions. The need for theory-driven research in social epidemiology has been eloquently highlighted.⁷⁸ Large epidemiological datasets are one very useful source and longitudinal data are by definition better placed to address these research questions, as they can deal with temporality concerns that by default induce bias in the interpretation of cross-sectional analyses of associations. At the same time, fostering links and maximizing use of routinely collected data is a potentially powerful but relatively underused option in the pursuit of "big data" studies that have been helpful in the health field.^{79,80} This also partly accounts for the challenges in epidemiological surveillance and the lack of relevant good quality epidemiological studies in some countries, while also facilitating a more direct policy relevance of the findings.

Another key issue relates to the methodological clarity and use of best available analytical methodologies to answer a specific research question appropriately. For example, most studies on explaining inequalities have found a limited role for the different pathways. These studies are generally based on traditional regression analyses whereby the estimates for the association between the socioeconomic exposure and the oral health outcome usually become more modest in models that also account for factors associated with a pathway to inequalities, such as behaviours or psychosocial factors. Then, the logical conclusion is that these pathways have a limited role in explaining health inequalities. However, this analytical approach is also subject to bias in the estimates, particularly in relation to the role of potential mediators (which in essence is what we refer to here as "pathways") in the associations between a distal exposure (SEP) and a proximal outcome (oral health in this case). Longitudinal and causal inference methodologies, such as causal mediation analysis, are better suited to deal with the combined effect of exposure and mediator on the outcome, for example how lower SEP and health-damaging behaviours can interact to impact on worse oral health, look at the dynamic nature of the pathways to oral health inequalities and also account well for confounding.^{81,82} We have already called for studies that look at the role of those pathways

combined, rather than in isolation, but it is also important that they employ the stronger available methodologies to comprehensively address this issue.

Analyses of inequalities based on large epidemiological datasets are also limited by data availability and their population sampling frame that tends to exclude the more vulnerable groups in society, who experience the “cliff edge of inequalities.” Even when such characteristics (e.g., race/ethnicity) are included in large studies; in many cases, the respective groups (e.g., racial/ethnic minority groups or indigenous people) may not be represented in sufficient numbers to allow for meaningful analyses.⁸³ And this is further exacerbated when other characteristics are considered, such as disability, homelessness, refugee status, and institutionalized populations. Primary studies are essential for quantifying and understanding inequalities experienced by the most vulnerable and marginalized groups in societies.

At the same time, a mixed methods approach or qualitative research studies alone can facilitate in-depth understanding of how people experience exclusion in oral health, in essence listening to the “voice” of those groups that are usually marginalized in societies and tend to be ignored by those in power. Understanding the interacting factors that influence oral health, some of which may be specific to vulnerable groups, and the role and relative importance of the different mediating pathways is relevant.⁸⁴ There is no justification to assume that what is “known” from the large population studies applies equally in those groups. Qualitative research is important for understanding the experiences of all groups in a society, not only those in extreme disadvantage, and this is an area that needs to be further developed in oral health inequalities research.

4.2 | Conceptual and theoretical perspectives

From a more conceptual standpoint, it is essential to focus research on understanding the role and influence of the structural determinants on creating and shaping inequalities in oral health.¹⁸ These are the broader factors of the social, economic, political and environmental context (at the far left side of the conceptual frameworks)^{1,18} that shape the social stratification and influence health. This wider focus will address the overemphasis on seemingly individual attributes, such as SEP, by considering also the political and economic systems that determine them. Political factors are important macro determinants of health inequalities and relevant studies have shown the importance of international comparisons in identifying how the political economy and changes in different social policies can impact on health and oral health inequalities.^{76,77,85} Macroeconomic policies and governance systems have been hardly touched upon by the oral health inequalities research, almost in contradiction with their crucial role in shaping many policies that determine population health and inequalities. This is partly due to the direction and generally limited timeframe of funding schemes that do not facilitate research on macro-level political determinants and power imbalances over a sustained period, instead being better tailored to research targeting

individual behaviours which can be of questionable effectiveness and sustainability at a societal level. Similarly, the role of commercial determinants and how they operate under different contexts to influence policy-making, research agendas and compound inequalities needs to be better understood. These should all be viewed as complex systems consisting of a range of networks of interdependent and interacting institutions and actors. Systems thinking has been introduced in oral health and its merits discussed in terms of dental public health applications.⁸⁶ Applying a systems-based approach to identifying and understanding oral health inequalities is essential, as systems thinking “encourages the consideration of how different actors (individuals, populations, or organizations) relate to one another and how activities in one part of a system may affect another.”⁸⁷ The complex and dynamic nature of a systems-based approach is well suited for the dynamic complexity of the interaction between different factors at different levels in theoretical frameworks of health inequalities.⁷⁸ Employing mixed methods and a range of relevant analytical tools, such as policy analysis, agency capacity and power mapping imbalance but also simulation modelling, can facilitate understanding of the role of structural and commercial determinants of health in shaping oral health inequalities at different levels (local, regional, national), different countries (with hardly any research coming from middle- and low-income countries) and different time periods.

Further research on oral health inequalities could also benefit from theoretical and methodological links with other developments in political, economic, social and human sciences, in a genuine interdisciplinary approach. This would reflect the recognition that oral health inequalities are not simply a health problem, but also – and primarily – a political and social issue, therefore ideal for interdisciplinary research. For example, the anthropological stratified reproduction approach that explores how “inequities of race, class, and gender make raising and nurturing children challenging for particular groups”^{88,89} could offer important insights into early life determinants, including how stigma and discrimination from an early age could affect health during childhood and throughout the life course. Inequalities in health are not static or ahistorical and the role of colonialism, patriarchy and neoliberalism in their production needs to be further explored by interdisciplinary research. Topics such as the historical relations between countries, including a critical assessment of oral health according to whether the countries were/are colonial empires or colonies, as well as examining whether improved population oral health is compatible with capitalist systems of production, are still missing in the field. In line with the Consensus Statement that highlights the need to utilize insights from the social and political theories of power,⁹⁰ conceptual frameworks and research should shed light on how structural racism, as a key form of oppression, generates and amplifies (oral) health inequalities.^{23,27,91–93} Community-based participatory research processes are needed to assess the social and political determinants of oral health inequalities and in particular the power dynamics across key stakeholders and actors.⁵² Participatory research processes are also relevant to analyse and develop policy proposals that build community power and create

strategic partnerships with community organizations, social movements and civil society groups to transform oral health systems and promote greater oral health equity.⁹⁴

As a key step, it is important to consider how well and how inclusively the interventions to address inequalities are developed. The importance of context cannot be stressed enough and tailoring the interventions to account for the priorities and lived experience of the stakeholders is essential for their feasibility and implementation.⁹⁵⁻⁹⁸ Using participatory research, co-design/co-production can be very helpful in terms of revealing otherwise hidden and/or undervalued practical knowledge and coping strategies of those involved in delivering an intervention.²⁷ It helps take context into account at a more practical level and adapts an intervention so that it is relevant to the needs and realities of those it is primarily targeted towards, therefore making it potentially more applicable. Interventions to reduce oral health inequalities tend to be complex and the relevant guidance on the whole process from development to dissemination of a complex intervention⁹⁹ is a good example of how this topic is starting to move forward. Research on complex interventions should not only assess effectiveness as a final outcome, but answer the following key questions through its different phases (development, feasibility, evaluation, implementation): How does the intervention interact with its context? What is the underpinning programme theory? How can diverse stakeholder perspectives be included in the research? What are the key uncertainties? How can the intervention be refined? What are the comparative resource and outcome consequences of the intervention?⁹⁹ Such interventions need to be tailored to public health policy and consider questions that are useful for policy-making rather than focusing on what can be measured precisely but has little policy value. Good evidence is insufficient by itself to change policies and guide interventions; instead, good (or best available) evidence on research questions with direct policy implications can facilitate change and help reduce oral health inequalities.

Panel - Next Steps for Research Priorities in Oral Health Inequalities

- Studies on pathways (mechanisms) to oral health inequalities with theory-driven analysis.
- Research on understanding the role of the broader structural determinants (related to the political and economic context) on creating and shaping inequalities in oral health.
- Studies involving interacting factors, following intersectionality frameworks.
- Understanding oral health inequalities for the most vulnerable and marginalised groups in societies, and how people experience exclusion in oral health.
- Use of best available analytical methodologies including qualitative research and mixed methods.
- Theoretical and methodological links with developments in social, political and human sciences.
- Research on the design and evaluation of interventions to reduce oral health inequalities that goes beyond the “gold-standard” of RCTs.
- Align research agenda to action on and evaluation of political processes and power imbalances that are the fundamental drivers of health inequalities.
- Analysing civil society engagement and advocacy strategies and their potential impact on inequalities.

5 | TIME FOR ACTION TO ADDRESS ORAL HEALTH INEQUALITIES

Research on understanding oral health inequalities should form the basis of the evidence to guide public health action to address these inequalities. The overall principles have been laid out already in the influential frameworks, even as early as the Dahlgren and Whitehead “rainbow” model. These have been well epitomized in the New Public Health movement that called over 10 years ago for a shift in strategies that focus on changing individual behaviours and risk factors towards population-based approaches that create and facilitate health-promoting environments.¹⁰⁰ In essence, this is the health in all policies principle, a multidisciplinary and intersectoral approach to address the broader determinants of health and inequalities, with emphasis mostly outside the health services. In oral health, the need to shift more upstream and consider interventions that go beyond the health system¹⁰¹ is widely accepted, including also in the recent WHO global oral health strategy.⁹

Transformative upstream strategies seek to tackle the unequal distribution of wealth and power that creates the living conditions in society that fundamentally drive health inequalities.⁵² They differ from the traditional behavioural approaches in several fundamental respects. Firstly, transformative strategies focus on the underlying social problems rather than on a single health condition. Investigating and articulating the root causes of social problems fosters the creation of coalitions of interested parties and widens the support base for action beyond the narrow confines of the health system. Secondly, transformative policies begin by analysing the role of power in creating and perpetuating a social problem rather than limiting the focus on traditional disease risk factors such as health behaviours. Focusing on the political and economic power of transnational corporations who have disproportionate voice in policies that determine health and living conditions is critical in this process.¹⁰² Following the “money and power” of private corporations provides insights into the range of tactics they use to influence key policy decisions. A third difference is who leads and directs action. In a transformative approach community organizations, social movements or civil society groups often take a leadership role with health professionals playing a background supportive role. Health organizations can provide valuable evidence on the nature of the problem and future action, facilitate access to key policy decision-makers and support the evaluation/monitoring of adopted policies. Lastly, transformative approaches seek to change the political processes and power imbalances that are the fundamental drivers of poor living conditions that create health inequalities. Supporting and developing participatory democratic processes, encouraging community engagement and action and taking legal action when required to challenge vested interest groups are all key elements of this approach.

Despite the growing global consensus on the need for upstream policies to tackle health inequalities, the evidence base for such an approach is still rather limited, particularly for public policy

interventions tackling the broader determinants of health inequalities. However, umbrella reviews of the systematic reviews for different interventions provide useful insights into whether they are effective or may actually increase health inequalities (intervention-generated inequalities).¹⁰³⁻¹⁰⁵ Overall, the evidence highlights that upstream public health policies, such as fiscal, regulation/legislation, housing regeneration and interventions to improve the work environment, have the potential to reduce health inequalities, whereas mass media and some forms of health education interventions have no effect or may even increase health inequalities. The vast majority of these studies have been conducted in high-income countries with a very limited number of studies undertaken in low- and middle-income countries.

There is generally little research focus on evaluating interventions that aim to reduce oral health inequalities. A good example of such research relates to Scotland's child oral health improvement programme (Childsmile) and has shown that its components applied to the whole population contributed to a reduction of inequalities in caries.¹⁰⁶ A recent systematic review of caries preventive interventions on children found limited evidence on reducing oral health inequalities.¹⁰⁷ For dental health education (a downstream intervention), the findings were equivocal, while the evidence was more conclusive about topical fluorides and water fluoridation reducing inequalities in childhood caries.

Like for other complex public health interventions, the evaluation of interventions to reduce oral health inequalities needs to go beyond the "gold standard" of randomized controlled trials (RCT), as they are hardly ever amenable to the RCT design.¹⁰⁸ Their evaluation should consider the paramount role of context, their theoretical underpinnings and employ relevant advanced analytical methodologies. Natural experiments, differences-in-differences, regression discontinuity analysis, economic evaluations and simulation modelling analyses to quantify the potential impact of policies and interventions by targeting determinants at different levels are both relevant and powerful methodological tools that can provide robust evidence and help inform policies more precisely, in terms of which interventions can be more effective, at what time point, for which group and at which intensity.¹⁰⁹ Such precision policy responses to address oral health inequalities are challenging, still not applied in the relevant research, but an important way forward with extensive potential for social, economic and health gain.

6 | SUMMARY AND CONCLUSIONS

This commentary attempted to present the frameworks and critically summarize the evidence in relation to oral health inequalities. While documenting oral health inequalities is important, research in this area now needs to focus more on understanding the complex mechanisms underlying their production and reproduction, and looking at interventions to tackle them. This requires theory-driven interdisciplinary and intersectionality approaches, and the use of

relevant and complementary analytical methodologies. The role of structural determinants, including power imbalances and political economy, and civil society engagement and advocacy strategies are necessary to make progress in the field.

DATA AVAILABILITY STATEMENT

Data sharing not applicable - no new data generated.

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