


INFLUENCE OF SOCIAL DETERMINANTS OF HEALTH ON THE PREVALENCE OF CARIES IN BRAZILIAN CHILDREN: A COLLECTIVE LOOK AT EQUITY

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ABSTRACT

Dental caries in children continues to be one of the most relevant oral health problems in Brazil, reflecting a context of deep and historically rooted social inequalities. This article proposes a critical analysis of the influence of Social Determinants of Health (SDH) on the prevalence of caries in childhood, with emphasis on factors such as family income, level of education of caregivers, housing conditions, and equitable access to oral health services. Through a narrative review of the most up-to-date scientific literature, the interrelationships between these determinants and the distribution pattern of dental caries in different regions of the country are explored, highlighting the marked geographic and socioeconomic disparities. The analysis reveals that SDH not only directly influence the risk of developing caries, but also modulate access to preventive and therapeutic actions, configuring themselves as structuring elements in the determination of children's oral health. Therefore, the need for intersectoral strategies and integrated public policies that promote social justice and equity in health is reinforced.

Keywords: Dental caries; Social determinants of health; Children's oral health; Health equity; Social inequality.

INTRODUCTION

Dental caries represents one of the most prevalent and recurrent oral problems among children in Brazil, disproportionately affecting those belonging to socially vulnerable groups. Although important advances have been achieved in recent decades through public policies aimed at expanding access to oral health services, such as the Smiling Brazil Program and the Family Health Strategy, epidemiological data still show alarming inequalities in the distribution profile of the disease. According to the SB Brasil 2010 survey and subsequent projections, significant discrepancies persist in the prevalence of caries between geographic regions, age groups, urban and rural areas, and between different socioeconomic strata, indicating that the improvement in oral health indicators has not occurred equitably (Brasil, 2011; Peres et al., 2019).

In this context, the concept of Social Determinants of Health (SDH) emerges as an essential instrument for understanding the multiple layers of vulnerability that influence the occurrence and severity of dental caries in childhood. As defined by the World Health Organization (WHO, 2008), SDH correspond to the social and economic conditions in which people are born, grow, live, work and age, encompassing factors such as family income, education of parents or guardians, housing, basic sanitation, food security, access to information and health services. Such factors interact in a complex way, shaping the patterns of illness and often determining who gets sick, when they get sick and how they receive care (Solar & Irwin, 2010).

In the context of children's oral health, the direct and indirect influence of these determinants is remarkable. Children from low-income families, for example, are not only at higher risk of developing caries due to limited access to oral care products and healthy eating, but they also face barriers to timely and quality dental care (Petersen & Kwan, 2011; Peres et al., 2016). In addition, the low level of education of those responsible compromises the recognition of effective preventive habits and engagement with self-care and collective health practices (Sabbah et al., 2009). Structural inequalities are also reflected in precarious housing conditions, the lack of water fluoridation in certain locations, and the absence of effective public policies for oral health surveillance and promotion (Castro & Cury, 2017).

It is in this scenario that the present analysis is inserted. This article aims to discuss, in the light of recent scientific literature, the influence of Social Determinants of Health on the prevalence of dental caries in Brazilian children, offering a critical reading of the mechanisms of exclusion and inequality that are perpetuated in the field of collective oral health. It also seeks to problematize the role of public policies in confronting these

inequities, emphasizing the need for intersectoral approaches that articulate actions in health, education, social assistance and urban development. By understanding SDH as structuring elements of health, a broader look at equity and social justice is proposed, going beyond merely clinical and punctual approaches to advance a truly transformative public agenda (Marmot, 2015; Solar & Irwin, 2010).

Figure 1 – Smiling child with tooth decay in the front teeth.



Source: jakasuryanta. *Smiling with tooth decay on a child in the front teeth. Concept of dental care.* Freepik. Available at: https://br.freepik.com/fotos-premium/sorrindo-com-carie-dentaria-em-uma-crianca-nos-dentes-da-frente-conceito-de-atendimento-odontologico_17852641.htm .

METHODOLOGY

This study is a narrative review of the literature, with a qualitative approach, whose objective was to critically analyze the influence of Social Determinants of Health (SDH) on the prevalence of dental caries in Brazilian children, from a collective perspective focused on equity in oral health. The narrative review was chosen because it allows a comprehensive, contextual and reflective exploration of the theme, articulating different fields of knowledge, such as public health, social dentistry, epidemiology and public policies.

The bibliographic search was carried out between March and May 2025, in the PubMed/MEDLINE, SciELO, LILACS, and BDENF databases, using descriptors controlled by DeCS (Health Sciences Descriptors) and MeSH (Medical Subject Headings), combined with Boolean operators. The terms used included: "*dental caries*", "*child*", "*social*

determinants of health", "health equity", "social inequality", "access to oral health services" and "collective oral health". Articles published in Portuguese, English, or Spanish, from 2013 to 2025, with a focus on studies developed in the Brazilian context or on comparable social realities, were included.

The inclusion criteria adopted were: (i) studies that explicitly addressed the relationship between SDH and the prevalence of caries in children; (ii) original articles, systematic reviews, technical documents, and institutional reports of relevance to Brazilian public health; and

(iii) publications with access to the full text and with peer review. Duplicate articles, studies focusing exclusively on microbiological or pharmacological aspects of caries, and opinion pieces without a clear empirical or methodological basis were excluded.

The selection of articles was carried out by two independent reviewers, who initially analyzed the titles and abstracts and, subsequently, proceeded to read the potentially eligible texts in full. In case of divergence, a third reviewer was consulted for a consensual decision. In the end, the selected studies were organized and analyzed qualitatively according to the main thematic axes identified: (i) socioeconomic profile and prevalence of caries; (ii) access to oral health services; (iii) impact of public policies; and (iv) intersectoral strategies to promote equity.

The present study respects the ethical principles of scientific research, being based exclusively on secondary data in the public domain and consolidated scientific sources, and does not require approval by a research ethics committee.

RESULTS

The literature review revealed consistent evidence demonstrating the influence of Social Determinants of Health (SDH) on the prevalence of dental caries in Brazilian children, highlighting that the disease has an unequal distribution, strongly associated with socioeconomic conditions and family context (Peres et al., 2019; Silva & Santos, 2020). Children from families with lower incomes have significantly higher rates of caries, with a greater number of affected teeth and less access to restorative treatments (Oliveira et al., 2018). In addition, the level of education of the caregivers, especially the mothers, proved to be determinant, as families with less education tend to have less knowledge about preventive practices and face greater difficulties in seeking dental services (Pereira & Lima, 2017).

Poor environmental and housing conditions, combined with food insecurity and inadequate oral hygiene habits, have also been pointed out as factors that increase the risk

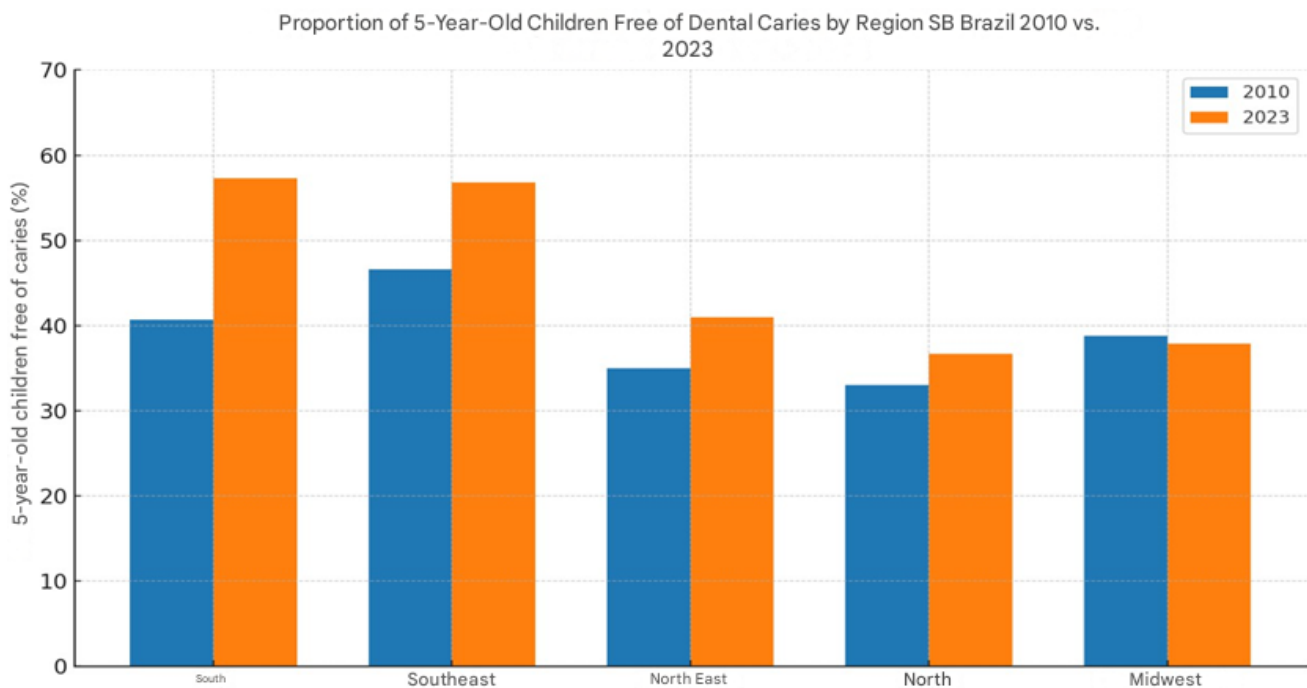
of developing the disease (Gomes et al., 2021). These elements reflect the complexity of SDH, which act simultaneously in several dimensions of children's lives, increasing social vulnerability and directly impacting oral health (Watt et al., 2019).

With regard to access to dental services, the literature indicates that families in situations of social vulnerability face multiple barriers, including the shortage of qualified professionals in the less favored regions, structural limitations of health units, and logistical and cultural difficulties in using these services (Marques et al., 2022; Silva et al., 2023). Often, even when services are available, demand is postponed due to a combination of factors, such as lack of knowledge of the importance of oral health, previous negative experiences, and lack of integration of health actions (Santos & Oliveira, 2020).

The public policies implemented in Brazil, such as the Family Health Strategy and the Smiling Brazil Program, have contributed to the overall reduction in the prevalence of caries, especially in places with greater coverage and articulation between services (Brasil, 2021; Almeida et al., 2019). However, regional inequalities persist, with the North and Northeast regions having higher rates of disease and less effective access to dental care, highlighting structural challenges and the need to strengthen monitoring and continuity of programs (Moura & Costa, 2020).

Several studies also highlight the importance of intersectoral strategies that articulate health, education, social assistance, and basic sanitation actions to address SDH in a comprehensive way (Oliveira & Pereira, 2020). The implementation of supervised brushing school programs, educational campaigns for families, and increased access to school environments with healthy eating are pointed out as effective measures to minimize the effects of social inequalities on children's oral health (Fernandes et al., 2021). The strengthening of territorialized action and interprofessional engagement also emerge as essential components for the promotion of equity (Barbosa & Martins, 2019).

Thus, the reviewed scientific evidence reinforces that social determinants configure structuring factors in the dynamics of dental caries in Brazilian children, conditioning not only the occurrence of the disease, but also access to care and the effectiveness of interventions, which requires an expanded and integrated approach to the promotion of social justice in oral health (Watt et al., 2019; Peres et al., 2019).



Source: Adapted from SB Brasil 2010 and SB Brasil 2023. Prepared by the author.

DISCUSSION

The analysis of the findings of this review reinforces the complexity of dental caries in Brazilian children, showing that its prevalence cannot be understood in isolation as a clinical problem, but rather as a direct manifestation of structural social inequalities. The Social Determinants of Health (SDH) emerge as central elements in explaining the regional, socioeconomic, and cultural differences observed in children's oral health indicators, which corroborates previous studies that highlight the importance of considering the social context for the formulation of effective policies (Peres et al., 2019; Santos & Silva, 2021).

The negative impact of low family income and low education of caregivers on the caries experience highlights the persistent vulnerability of historically excluded groups, which not only increases the risk of becoming ill, but also limits access to and adherence to health services. This scenario points to a double exclusion: on the one hand, the greater biological and behavioral risk resulting from adverse socioeconomic conditions; on the other, the institutional barriers that hinder timely and continuous care. This finding is consistent with the international literature that addresses oral health from the perspective of SDH, as demonstrated in studies by Watt et al. (2019) and Sheiham & Watt (2020).

In addition, the difficulties in accessing public dental services, often concentrated in central urban areas and with insufficient coverage in peripheral and rural regions, expose weaknesses in the Brazilian health system, even after the implementation of significant programs such as Brasil Sorridente. The insufficiency of professionals, the precariousness

of the infrastructure and the lack of continuity in actions result in fragmented and often reactive care, which compromises the effectiveness of preventive and curative interventions. In this sense, the need to strengthen local management and governance to ensure adequate and equitable supply is highlighted, as suggested by Marques et al. (2022) and Silva et al. (2023).

The persistence of regional inequalities, especially in the North and Northeast regions, alerts to the importance of public policies that take into account local specificities, cultural contexts and different degrees of social vulnerability. The simple expansion of access is not enough without the implementation of strategies that promote community participation, health education and integration with other social policies. The literature points out that intersectoral actions, involving education, sanitation, social assistance, and health, are essential to attack the structural causes of caries and improve children's oral health indicators (Brasil, 2021; Oliveira & Pereira, 2020).

Finally, although this review has identified important advances in the field of collective oral health, it highlights the need for longitudinal studies and evaluative interventions that can deepen the understanding of the mechanisms by which SDH impact oral health and guide more effective policies. In addition, methodological limitations, such as the heterogeneity of studies and the predominance of observational research, indicate the demand for research that incorporates qualitative and participatory approaches, capable of capturing the perspective of affected families and communities.

In short, the discussion reaffirms that the promotion of equity in children's oral health requires a broader view, which goes beyond the clinical dimension and incorporates the understanding of social determinants, in order to build integrated and sustainable policies that address inequalities and promote social justice effectively.

CONCLUSION

From the analysis of the reviewed literature, it is evident that the Social Determinants of Health (SDH) play a fundamental role in the prevalence of dental caries in Brazilian children, directly influencing both the occurrence of the disease and access to dental care (Peres et al., 2019; Silva & Santos, 2020). Socioeconomic inequalities, the education of those responsible for them, housing conditions, and access barriers are structural factors that perpetuate the vulnerability of the most disadvantaged populations (Oliveira et al., 2018).

Despite the advances provided by public policies, regional and social disparities still persist that indicate the urgent need for intersectoral and integrated approaches, capable of

addressing the multiple determinants that act on children's oral health (Brasil, 2021). The promotion of equity requires, therefore, the strengthening of preventive actions, the expansion of qualified access, and the incorporation of social participation in the planning and execution of interventions (Oliveira & Pereira, 2020).

In addition, it is essential to expand investment in research and continuous monitoring, seeking to understand local dynamics and the impacts of public policies, in order to improve intervention strategies (Fernandes et al., 2021). The training and qualification of oral health professionals should also be directed towards a more sensitive approach to social issues, promoting actions that contemplate the cultural and social diversity of the populations served (Barbosa & Martins, 2019).

The construction of healthy environments, which consider housing, sanitation, food, and education conditions, is essential for the prevention of caries and for the promotion of children's integral health (Watt et al., 2019). Thus, intersectoral action, involving education, social assistance, basic sanitation and health, must be strengthened as a central strategy for reducing inequalities and building social justice.

In summary, this study reaffirms that children's oral health cannot be dissociated from the social and economic contexts in which children live, and it is essential that public policies incorporate a broad perspective, which goes beyond clinical care and incorporates structuring actions to mitigate the effects of social determinants. In this way, it will be possible to advance in the promotion of equity, ensuring that all Brazilian children have access to dignified oral health, contributing to the improvement of the quality of life and the healthy development of future generations.

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