

Oral health policies in the context of non-communicable diseases: a pending challenge in Chile

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Abstract: Non-communicable diseases constitute the greatest burden of disease in Chile and the world. The close preventive and therapeutic relationship between oral diseases and systemic diseases in the context of non-communicable diseases, highlights the urgent need to design health policies that allow the incorporation of oral health in the control of these diseases. Despite the implementation of programs in Chile for the treatment of the main oral diseases in prioritized groups, through explicit guarantees in health and other dental programs, these benefits are not aimed at people with cardiovascular diseases, diabetes or other non-communicable diseases with high impact on the population. The available evidence and the recommendations of international scientific organizations support the incorporation of oral health in general health plans and programs. Unfortunately, a more integrated medical-dental approach in the control and management of non-communicable diseases remains a pending challenge in Chile.

Key words: non-communicable diseases; oral health; public policies

1 Introduction

Traditionally, the most common oral diseases (dental caries and periodontal disease) have been considered a serious public health problem due to their high prevalence and impact on quality of life associated with tooth loss [1]. However, current evidence has also established a significant impact of oral diseases on the general health status of the population, contributing through bacteremia and systemic inflammation to an increased risk and/or progression of chronic non-communicable diseases (NCDs) such as cardiovascular diseases (CVD), diabetes, chronic respiratory diseases, chronic kidney disease, cancer, and Alzheimer's disease [2].

Given the growing and robust current evidence, various research teams, federations, and scientific organizations have issued a global call to action, recommending the integration of oral health policies with other programs aimed at the management and control of NCDs [3].

2 NCDs: a global challenge

NCDs are long-term, slowly progressing diseases that do not resolve spontaneously and rarely achieve a complete

Cure [4]. These diseases are responsible for more than two-thirds of all deaths worldwide, many of them before the age of 60, making timely diagnosis and treatment a priority for global health [5]. NCDs top the list of major public health challenges of the 21st century, both due to the disease burden they represent and the adverse socioeconomic impact they cause, particularly in low- and middle-income countries [1]. Therefore, if necessary measures are not taken, the human, social, and economic cost of these diseases will not abate and will exceed countries' capacity to cope [1].

According to official data from the World Health Organization (WHO), NCDs kill 41 million people each year, accounting for 71% of global deaths [5]. Each year, 15 million people aged 30 to 69 die from NCDs; more than 85% of these premature deaths occur in low- and middle-income countries [5]. CVDs account for the majority of deaths from NCDs, followed by cancer, respiratory diseases, and diabetes [5]. These four disease groups are responsible for more than 80% of all premature deaths from NCDs [1].

The critical global situation from a socio-economic and health perspective has prompted the WHO and its member states to adopt measures and commitments to address this global challenge. One of these measures was the development of the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020, which includes nine voluntary global targets and a global surveillance framework [6]. These global targets on NCDs emphasize the importance of countries prioritizing interventions aimed primarily at reducing their risk factors, such as smoking, unhealthy diets, physical inactivity, and excessive alcohol consumption—all of which are modifiable and associated with unhealthy lifestyles [6].

In this regard, the governments of different countries have a responsibility to align their policies and priorities with the control of these risk factors. This undoubtedly requires a comprehensive approach that ensures all sectors of society act in a coordinated manner to reduce the risks associated with NCDs through interventions that prevent and control them, as well as to monitor the progress attributable to these interventions in order to evaluate their effectiveness [5]. Evidence has shown that these interventions represent an excellent economic investment because, if patients receive them early, they can reduce the need for more costly treatments and improve their quality of life [6]. Furthermore, NCD control is essential to meet the targets set by the WHO to reduce the risk of premature mortality from NCDs by 25% by 2025, and the sustainable development goal target of reducing premature deaths from NCDs by 33% by 2030 [5].

Unfortunately, low-income countries often have limited capacity for the prevention and control of NCDs, primarily due to insufficient coverage of basic interventions to address these conditions [6]. Healthcare costs for NCDs can quickly deplete family resources, which partly explains these countries' difficulties in reducing poverty and advancing toward development, thereby perpetuating economic stagnation, suffering, and social injustice [5].

Meanwhile, countries transitioning from lower to higher income levels are experiencing rapid urbanization and a shift toward motorized transportation, with a consequent decrease in physical activity, a higher prevalence of obesity, and increased greenhouse gas emissions. Changes in dietary patterns include increased consumption of ultra-processed foods and beverages linked to the development of NCDs [7].

In contrast, many high-income countries, thanks to government policies that facilitate the adoption of healthier lifestyles and the provision of universal health coverage, have managed to significantly reduce the burden of NCDs [8]. The efforts of these developed countries have not only had an impact on certain health indicators but have also positively impacted their own economies, ultimately creating a true virtuous cycle that enables systematic improvements in people's quality of life [8].

3 NGOs in Chile

In recent decades, Chile has undergone a concerning shift in its epidemiological profile. While infectious diseases and maternal and child health issues predominated in the 1960s—a time when public policies prioritized provide food to

mothers and children at risk of malnutrition—which exceeded 19% during those years—today a significant portion of the population suffers from overnutrition and other conditions that contribute to and explain the alarming rise in NCDs [9].

Chile's neoliberal development model, established during the military regime and perpetuated by successive governments over the past 30 years, has emphasized the country's economic growth to the detriment of other dimensions of social development [10]. Thus, in Chile today there is a disconnect between economic development and sociocultural development, which prevents the achievement of true human development—that is, "development that values human life in and of itself and does not view people solely as producers of material goods" [9].

The modernization process that Chile has undergone in recent decades has generated significant benefits and greater opportunities for its inhabitants. In fact, today they enjoy higher incomes, have access to more consumer goods, and have better technologies at their disposal. However, this modernization process has also brought threats and dangers to society [11]. Indeed, Chile's economic development has not necessarily translated into a higher quality of life for the population [9]. Much of the "success" in the economy has been channeled into the consumption of unhealthy foods high in fat and refined sugar, tobacco use, and the compulsive purchase of cars, televisions, cell phones, and other technologies that encourage a sedentary lifestyle [11]. At the same time, this "culture of success" has led Chileans to spend at least a third of their lives at work, under conditions of high physical and mental strain, raising rates of stress, depression, and alcohol and drug abuse [12].

This situation explains why in Chile, as in most of the world—especially in countries like China and India that have similarly experienced rapid economic growth but with a clear lag in human development—NCDs are the leading cause of morbidity and mortality, generating the highest associated healthcare costs. Regarding indicators for our country, CVDs and malignant tumors account for more than half of all deaths, with 27.1% and 25.8%, respectively, in 2011 [12].

The study "Overview of Food and Nutritional Security in Latin America 2016" notes that Chile is the country with the highest rate of overweight individuals in Latin America and the second-highest consumer of ultra-processed foods in the region [13]. In line with these data, the latest OECD study on public health (2017) noted that Chile's greatest challenge is that 25.1% of adults are obese and 39% of children are obese or overweight [14].

In summary, NCDs account for the bulk of the country's health burden, associated with a complex and multifaceted network of determinants [15]. In this regard, the marked social inequality in Chile further exacerbates the situation, as it creates difficulties in accessing information and utilizing the health system—where most health promotion policies are concentrated—thereby hindering the opportunity to adopt healthy lifestyles [16]. In this regard, the Chilean Ministry of Health (MINSAL) has designed policies for the current decade focused on establishing strategic objectives that specifically consider social determinants as key factors for controlling the main NCDs in Chile [4]. In this context, MINSAL's guidelines for network planning and programming in 2020 propose achieving 33% coverage of the Adult Preventive Medical Examination (EMPA), 100% coverage of the Elderly Adult Preventive Medical Examination (EMPAM), 100% for the management and follow-up of chronic patients, and 100% treatment coverage for people with chronic multimorbidity [17].

Despite the health sector's efforts, the broader political framework overlooks the fact that health policies—especially in the context of NCDs—transcend the health sector and require coordination with other social sectors such as education, economy, transportation, etc., and particularly demand active public participation, even more so when it comes to changing people's habits. Paternalistic approaches based on unilateral impositions are doomed to fail. Ultimately, few preventive health measures have been successfully evaluated in Chile for the control of NCDs. These are generally limited actions that do not achieve the universality required to resolve a national epidemic [14].

4 Oral health as a risk factor for NCDs

The most common oral diseases are dental caries and periodontal diseases; both are becoming increasingly prevalent, especially among more disadvantaged social groups, and represent the leading causes of tooth loss in adults [18].

It has been proposed that dental caries and periodontal diseases are NCDs, as they share social determinants and risk factors that include, among others, poor nutritional quality, obesity, smoking, and stress [19]. Furthermore, inflammation and the presence of oral septic foci resulting from dental caries and/or periodontal disease in a patient with NCDs may contribute to their development, and the treatment of these infectious-inflammatory processes improves NCD control by reducing systemic inflammation [2]. It has been reported that periodontitis, one of the main forms of periodontal disease, can increase the risk of poor glycemic control [20], causing elevations in pro-inflammatory cytokines such as Tumor Necrosis Factor (TNF)- α and Interleukin-1 in serum, and reactive oxygen species that lead to metabolic syndrome and increased insulin resistance [21,22]. A recent systematic review concluded that periodontal therapy results in an average reduction in glycated hemoglobin (HbA1c) of 0.56% after 3 months compared to no treatment [23]. The clinical implications of improved glycemic control are well established; specifically, diabetes-related microvascular complications are reduced by 35% for every 1% decrease in HbA1c levels; Additionally, a 1% absolute decrease in HbA1c levels can reduce the risk of any diabetes-related death by 21% [24]. Similarly, periodontal inflammation, by increasing the production of proinflammatory serum cytokines, can induce elevations in C-reactive protein (CRP) levels, triggering endothelial dysfunction, which in turn promotes atherogenic phenomena [25]. CRP is described as one of the main markers of CVD and increases in the presence of periodontitis [26]. Systematic reviews and meta-analyses have categorically indicated that there is a significant association between periodontitis and CVD [27]. In this regard, it has been observed that treatment of periodontitis, by reducing CRP levels, reduces the risk of CVD [23,26]. Other NCDs such as respiratory diseases, cancer, and Alzheimer's disease have also been linked to chronic inflammatory processes in the mouth; however, further intervention studies are needed to determine the magnitude of their effect [19].

Based on the available body of evidence, several teams of research, international federations, and scientific organizations have launched initiatives to integrate oral health into general health strategies, programs, and plans [3]. The International Diabetes Federation, for example, published a guideline recommending that primary care providers routinely inquire about oral health and oral self-care, including advice and referral strategies for timely dental care [27]. For its part, the European Society of Cardiology has stated that oral health should be promoted as part of a healthy lifestyle and as an important component in the prevention of CVD [28,29]. Similarly, the International Diabetes Federation, the American Diabetes Association, and the European Federation of Periodontology have recommended that the treatment of periodontal diseases be incorporated into the comprehensive care of patients with diabetes [30]. It has also been proposed that oral health be incorporated into a system with universal health coverage, on the assumption that dentistry could contribute to the management and control of other NCDs [3]. However, in Chile, oral health in patients with CVD, diabetes, or other NCDs does not receive specific attention from government agencies. It has only been proposed as a pilot program for 2020 within the Guidelines for Network Planning and Programming: periodontal treatment in primary care for 2% of patients with diabetes over the age of 35 [17,31]. This initiative, given its extremely low coverage, remains insufficient as a public health policy.

5 Conclusion and future perspectives

NCDs constitute the greatest burden of disease in Chile and worldwide. The close preventive and therapeutic interrelationship between oral diseases and systemic diseases in the context of NCDs highlights the urgent need to design health policies that incorporate oral health into the management of these diseases. Although Chile has implemented

programs and healthcare services guaranteed by law for the treatment of major oral diseases in prioritized population groups, these services do not necessarily include patients at highest risk for NCDs, with the exception of a modest initiative to achieve 2% coverage of periodontal care for patients with diabetes. Therefore, coordination with the rest of the proposals developed for NCDs and their respective programs remains an unresolved challenge in Chile. In this context, it would be particularly appropriate to incorporate comprehensive dental care for all patients in the Cardiovascular Health Program and all patients with type 2 diabetes who are covered by the Explicit Health Guarantee (GES). Regarding the latter, it is highly curious that the GES clinical guideline for type 2 diabetes itself does not include the word "mouth" in its 75 pages, nor anything related to the importance of oral health in the context of metabolic control for patients with diabetes.

From a general perspective, it is necessary to promote strategies aimed at controlling risk factors shared among NCDs, among which we must also include, in light of the evidence, the most prevalent oral diseases such as dental caries and periodontal diseases. Under this logic, promoting healthy lifestyles with a comprehensive and cross-cutting approach—one that seeks, through concrete actions, to influence the social determinants of health by improving access, information, and active participation among the population—is a fundamental task. In this regard, community education on oral health and general self-care, combined with the control, treatment, and follow-up of oral diseases in the context of NCDs as part of a universal health coverage policy in Chile, could constitute a high- impact strategy to improve health and achieve higher levels of human development and social well-being.

6 Clinical relevance

Evidence supports the incorporation of oral health into general health programs, especially in the context of noncommunicable diseases. However, in Chile, oral health policies aimed at managing and controlling these diseases have not yet been implemented. The call is for the development of strategies that integrate oral health into general health plans and programs.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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