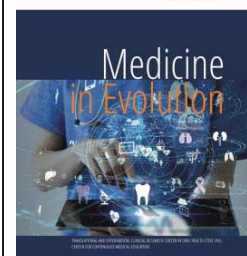


Examining the Commercial Determinants of Oral Health: A Comprehensive Review

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Abstract

The commercial determinants of oral health refer to the ways in which corporate activities, market forces, and economic policies influence oral health outcomes. Key industries, including the food and beverage, tobacco, alcohol, and pharmaceutical sectors, play a significant role in shaping oral health behaviors and disease patterns. The widespread availability and marketing of sugar-rich foods and beverages contribute to high rates of dental caries, while tobacco and alcohol consumption are major risk factors for periodontal disease and oral cancers. Additionally, corporate lobbying and regulatory policies impact access to preventive dental care and the affordability of oral health products. Socioeconomic disparities further exacerbate these issues, with lower-income populations facing greater exposure to unhealthy commercial influences and limited access to professional dental care. Addressing these determinants requires multi-sectoral collaboration, including stronger regulations on harmful product marketing, policies that promote affordable and accessible dental services, and increased public health education. By recognizing and mitigating the negative impact of commercial interests, policymakers and healthcare professionals can work towards reducing oral health inequities and improving population-wide dental health outcomes. A shift towards sustainable and health-promoting commercial practices is essential for fostering long-term improvements in global oral health.

Keywords: oral health, commercial determinants, health inequalities, oral health behaviour, socio-economic disparities

INTRODUCTION

Oral health is undeniably a crucial component of one's overall well-being, significantly influenced by a myriad of commercial factors. These commercial determinants of health encompass a wide range of strategies and practices implemented by businesses and corporations, which can have both positive and negative impacts on individuals' health outcomes.

For example, the pervasive marketing and easy accessibility of sugary foods and beverages play a pivotal role in shaping oral health trends. The relentless advertising campaigns promoting sugary snacks and drinks can lead to a surge in dental issues such as cavities and tooth decay [1]. This is particularly concerning as these products are often positioned as desirable and convenient choices, making it challenging for individuals to resist their allure.

Moreover, the affordability and widespread availability of these sugary products further exacerbate the situation, making it easier for people to indulge in unhealthy consumption habits. As a result, oral health professionals are increasingly faced with a growing number of patients presenting with preventable dental problems, highlighting the urgent need for greater awareness and education on the detrimental effects of excessive sugar intake on oral health.

The commercial landscape significantly influences oral health outcomes, underscoring the importance of promoting healthier choices and practices to safeguard individuals' well-being. By raising awareness about the impact of commercial determinants on oral health and advocating for policies that prioritize public health over corporate interests, we can strive towards a future where everyone has access to the resources and information needed to maintain optimal oral health.

Furthermore, it is essential to recognize that the dental industry not only provides oral health services but also significantly influences the overall oral health status of individuals. For instance, the availability and cost-effectiveness of dental treatments can impact how people prioritize their oral hygiene practices. Accessible and affordable dental services encourage regular check-ups and treatments, leading to better oral health outcomes in the long run.

Moreover, when discussing oral hygiene, it is imperative to consider the regulations surrounding oral care products [2,3]. Additionally, the regulation of oral hygiene products is another important aspect to consider.

The oversight and control of toothpaste, mouthwash, and dental floss ensure that these products meet certain quality and safety standards. For example, fluoride content in toothpaste is crucial for preventing tooth decay, while the antimicrobial properties of mouthwash help in reducing oral bacteria [4].

The dental industry's role in promoting oral health goes beyond just providing services; it extends to influencing behaviors and ensuring the safety and efficacy of oral care products. By addressing these various aspects comprehensively, individuals can make informed decisions about their oral health and well-being.

Furthermore, the influence of pharmaceutical and insurance companies cannot be overlooked. These entities have a stake in the oral health market and their decisions can impact the availability and affordability of treatments and preventive measures [5]. Understanding these commercial determinants is essential for policymakers to develop effective strategies and regulations that promote better oral health for all individuals. By addressing these factors, we can work towards a future where oral health disparities are minimized, and everyone has access to quality dental care.

Aim and objectives

The aim of this review is to describe the commercial determinants of oral health and highlight the importance of those determinants for future oral health research.

In future oral health research, exploring the intricate relationship between commercial determinants and oral health outcomes will be vital. By delving deeper into this connection, researchers can identify opportunities for intervention and policy changes that prioritize public health over commercial interests. Ultimately, recognizing and addressing the commercial determinants of oral health is crucial for advancing oral health research and promoting better oral health outcomes for all individuals.

THE ROLE OF THE FOOD AND BEVERAGE INDUSTRY

One of the most significant commercial determinants of oral health is the food and beverage industry. The consumption of sugar-rich foods and drinks, such as soft drinks, candies, and processed snacks, is a major contributor to dental caries and other oral diseases. Companies invest heavily in advertising targeted at children and low-income populations, promoting products high in sugar while often downplaying their health risks [6]. The widespread availability and affordability of these products exacerbate oral health disparities, particularly in developing countries where regulations on marketing and product composition are weaker.

The impact of the food and beverage industry on oral health cannot be overstated. For instance, sugary soft drinks are not only a popular refreshment choice but also a leading cause of tooth decay. Children, in particular, are bombarded with enticing advertisements featuring colorful packaging and celebrity endorsements that make these sugary treats hard to resist. Low-income families, often looking for budget-friendly options, fall prey to these marketing tactics, unaware of the long-term consequences on their oral health [7,8].

Moreover, the lack of stringent regulations in developing countries allows these companies to freely market and sell their sugar-laden products without much oversight. This results in a higher prevalence of dental issues among populations with limited access to proper oral healthcare. The cycle continues as individuals from these communities face challenges in maintaining good oral hygiene due to the affordability and easy availability of unhealthy snacks and beverages [9,10].

One of the primary ways the food and beverage industry affects oral health is through the production and promotion of sugary products. High consumption of sugar-rich foods and beverages, such as soft drinks, candies, pastries, and processed snacks, is a leading cause of dental caries (tooth decay). When sugar interacts with bacteria in the mouth, it leads to the production of acids that erode tooth enamel, resulting in cavities and other dental problems (6).

The food and beverage industry heavily markets these products, particularly targeting children and low-income communities, making them easily accessible and widely consumed. Studies have shown a direct correlation between frequent consumption of sugary foods and increased rates of dental caries. Furthermore, many processed foods contain hidden sugars, making it difficult for consumers to make informed dietary choices regarding their oral health (6).

THE IMPACT OF TOBACCO ON ORAL HEALTH

Tobacco use, including smoking and smokeless tobacco, is one of the most detrimental factors affecting oral health. Cigarette smoking is a leading cause of gum disease, as it weakens the immune system and reduces blood flow to the gums, making it harder for them

to heal [9,11,12]. Chronic smoking also leads to bad breath, staining of the teeth, and an increased risk of tooth loss. Smokeless tobacco products, such as chewing tobacco and snuff, are equally harmful, as they contain high levels of carcinogenic chemicals that can lead to oral cancer [13].

The tobacco industry continues to market its products aggressively, often targeting vulnerable populations, including young adults and individuals in low-income communities. Despite regulations on advertising in many countries, tobacco companies find alternative ways to promote their products, including social media campaigns and sponsorships. The widespread availability of tobacco products further exacerbates oral health issues, making it difficult to curb their harmful effects [14].

THE ROLE OF ALCOHOL IN ORAL HEALTH PROBLEMS

Alcohol consumption also plays a significant role in oral health deterioration. Excessive alcohol use is associated with dry mouth (xerostomia), which reduces saliva production. Since saliva is essential for neutralizing acids and washing away food particles, a decrease in saliva increases the risk of tooth decay and gum disease [15]. Additionally, alcoholic beverages, especially those high in sugar and acidity, contribute to enamel erosion and cavities.

One of the most severe consequences of alcohol consumption on oral health is its link to oral cancer. Heavy drinkers are at a much higher risk of developing oral cancer, particularly when alcohol consumption is combined with smoking. Alcohol acts as a solvent that enhances the penetration of harmful tobacco carcinogens into the oral tissues, increasing the likelihood of malignant cell growth [13]. Despite these risks, the alcohol industry continues to heavily market its products, particularly to young people, through advertisements, sponsorships, and promotions.

MARKETING STRATEGIES, CONSUMER BEHAVIOUR AND PUBLIC INFLUENCE

The aggressive marketing tactics employed by the food and beverage industry significantly influence consumer behavior. Advertisements, social media campaigns, and celebrity endorsements promote unhealthy products while often downplaying their health risks. Fast food chains and beverage companies also use promotional deals and packaging designs that appeal to children, reinforcing unhealthy eating habits from a young age [16].

In many cases, misleading health claims further confuse consumers. For example, some beverages labeled as "natural" or "fortified with vitamins" still contain high levels of sugar, misleading consumers into believing they are making healthier choices. Additionally, the placement of sugary products in grocery stores, convenience stores, and vending machines ensures their constant visibility and accessibility.

Both the tobacco and alcohol industries use strategic marketing techniques to promote their products, often downplaying their health risks. The use of attractive packaging, flavored products, and social media advertisements influences consumer behavior, making these harmful substances more appealing, particularly to younger demographics. The placement of tobacco and alcohol products in retail environments also ensures easy accessibility, further contributing to their widespread consumption [16,17].

While regulatory measures, such as warning labels and restrictions on advertising, have been implemented in some regions, many marketing strategies still evade strict regulations. As a result, public health campaigns must counteract these marketing efforts by educating individuals about the severe oral health consequences of tobacco and alcohol use.

SOCIOECONOMIC DISPARITIES IN ORAL HEALTH

Another major factor in the role of the food and beverage industry in oral health is the unequal access to nutritious food. Processed and sugary foods are often cheaper and more widely available than fresh fruits, vegetables, and whole grains, especially in low-income communities. Food deserts—areas with limited access to affordable, healthy food options—force residents to rely on fast food and convenience store items, exacerbating poor dietary habits and increasing oral health issues [18].

In contrast, individuals with higher socioeconomic status tend to have greater access to healthier food options and the resources to make informed dietary choices. This disparity highlights the need for policies that promote food equity, such as subsidies for fresh produce and incentives for grocery stores to offer healthier alternatives in underserved areas [16,18].

The harmful effects of tobacco and alcohol use on oral health disproportionately affect lower-income populations. These communities often experience higher rates of smoking and alcohol consumption due to targeted advertising, lower awareness of health risks, and reduced access to preventive dental care [11]. The financial burden of treating tobacco- and alcohol-related oral health issues further exacerbates health inequalities, as many individuals cannot afford necessary dental treatments.

Addressing these disparities requires policies that limit the accessibility of tobacco and alcohol products while improving access to oral health care services. Increasing taxes on tobacco and alcohol, implementing stricter advertising regulations, and funding public health initiatives are crucial steps toward reducing oral health inequities.

INDUSTRY RESPONSIBILITY AND PUBLIC HEALTH INITIATIVES

While the food and beverage industry has contributed to poor oral health outcomes, it also has the potential to play a positive role. Some companies have begun reformulating their products to reduce sugar content, offering sugar-free alternatives, and supporting public health initiatives aimed at improving nutrition. However, these efforts are often voluntary and insufficient in addressing the widespread impact of unhealthy products [19].

Governments and health organizations must take a proactive approach to regulate the industry. Implementing sugar taxes, restricting advertisements targeting children, mandating clearer food labeling, and promoting educational campaigns about the effects of sugar on oral health can help mitigate the industry's negative impact [1,19]. Encouraging corporate social responsibility within the food and beverage sector can also drive healthier product innovations. While the tobacco and alcohol industries contribute to economic growth, their products have devastating consequences for public health, particularly oral health. Governments and health organizations must implement stronger policies to mitigate these effects. Measures such as banning flavored tobacco products, increasing restrictions on alcohol advertising, and promoting smoking cessation programs can help reduce the negative impact of these industries [18].

Public health campaigns should also focus on raising awareness about the oral health risks associated with tobacco and alcohol consumption. Encouraging healthier lifestyle choices and providing access to cessation resources can play a significant role in reducing oral diseases linked to these substances [18].

THE INFLUENCE OF THE DENTAL INDUSTRY

The dental industry, encompassing both providers of dental care services and manufacturers of dental products, holds a significant influence over oral health outcomes. Despite the advancements in dental technology and treatment options that have enhanced

patient care, the commercialization of dentistry has introduced disparities in access to essential services [4]. For instance, in many regions, the exorbitant costs associated with dental procedures act as barriers for underprivileged communities seeking proper treatment. This financial burden often leaves disadvantaged populations without the necessary oral healthcare they require [20,21].

Furthermore, the emphasis on elective and cosmetic dental treatments within the industry can sometimes overshadow the importance of preventive care. This shift in focus may result in overlooking critical oral health issues that could have been addressed earlier through routine check-ups and preventative measures. Consequently, individuals may end up facing more severe dental problems that could have been avoided with timely intervention [3,21].

In essence, while the evolution of dental practices has undoubtedly improved the quality of care provided to patients, it is essential to address the inequalities in access to these services and prioritize preventive measures to ensure holistic oral health for all individuals. By striking a balance between technological advancements, affordability, and preventive care, the dental industry can truly fulfill its role in promoting oral health and well-being for everyone.

MARKETING AND REGULATION OF ORAL HYGIENE PRODUCTS

The oral hygiene product industry, encompassing manufacturers of toothpaste, toothbrushes, mouthwashes, and various dental care items, plays a crucial role in promoting oral health. These products are indispensable for maintaining optimal oral hygiene standards [2]. However, it is essential to be cautious as aggressive marketing tactics within this industry can sometimes lead consumers astray by presenting misleading information about the effectiveness of certain products. For instance, some brands may exaggerate their whitening capabilities or claim to prevent cavities without substantial scientific validation. Such unsubstantiated claims can create confusion among consumers, making it challenging for them to make informed choices [9,16].

Moreover, disparities in the accessibility of oral hygiene products pose a significant challenge, particularly for low-income populations. The cost of high-quality oral care products can be prohibitive for individuals with limited financial resources, leading to disparities in oral health outcomes. As a result, those who cannot afford premium products may resort to less effective alternatives or even forego essential dental care altogether. This economic barrier further exacerbates existing oral health disparities, highlighting the need for affordable and accessible oral care solutions for all segments of the population [2]. In conclusion, while oral hygiene products are vital for maintaining oral health, it is imperative to critically evaluate marketing claims and address disparities in product accessibility to ensure equitable oral health outcomes for all.

THE ROLE OF PHARMACEUTICAL AND INSURANCE COMPANIES

Pharmaceutical companies play a crucial role in promoting oral health by manufacturing essential products such as fluoride, antibiotics, and pain management medications. For instance, fluoride is widely used in toothpaste and water fluoridation programs to prevent tooth decay [2]. Antibiotics are essential in treating oral infections, while pain management medications help individuals cope with dental procedures.

However, a significant challenge arises from the high cost of these vital drugs, which can limit access for many people. This issue becomes more pronounced due to the lack of regulation on drug pricing, leading to inflated costs that burden patients. As a result,

individuals, especially those from lower-income backgrounds, may struggle to afford necessary oral health treatments [20].

Moreover, the insurance industry also plays a critical role in oral health by influencing which dental treatments are covered and at what expense. Many insurance plans offer minimal coverage for preventive and restorative dental care, creating barriers for individuals seeking essential oral health services [3]. This lack of comprehensive coverage can further exacerbate disparities in access to dental care, particularly for marginalized communities.

In conclusion, the intersection of pharmaceutical companies and the insurance industry significantly impacts oral health outcomes. Efforts to address the high cost of essential drugs and improve insurance coverage for dental care are essential in ensuring equitable access to oral health services for all individuals.

STRATEGIES TO MITIGATE NEGATIVE COMMERCIAL INFLUENCES

Addressing the negative impact of commercial determinants on oral health requires a comprehensive and strategic approach that encompasses various facets. It is imperative for governments and public health organizations to not only acknowledge the detrimental effects but also take decisive actions to mitigate them effectively. One crucial aspect involves implementing stricter regulations on the marketing and sale of sugary products. For instance, imposing sugar taxes can incentivize consumers to opt for healthier alternatives, thereby reducing the overall consumption of harmful products [1,19]. Additionally, advertising restrictions, especially targeted towards children, can shield vulnerable populations from aggressive marketing tactics that promote unhealthy eating habits.

In parallel, policies should be geared towards enhancing access to affordable dental care and essential oral hygiene products. By ensuring that individuals have the means to maintain their oral health, governments can prevent the escalation of dental issues that often result from neglect or financial constraints [18]. Moreover, strengthening insurance coverage for preventive and basic dental treatments can significantly contribute to narrowing oral health disparities across different socio-economic groups. This proactive approach not only promotes overall well-being but also underscores the importance of preventive measures in reducing the burden of oral diseases [20,21].

Furthermore, public awareness campaigns play a pivotal role in educating consumers about the risks associated with certain dietary choices and oral hygiene practices. By disseminating accurate information and raising awareness about the long-term consequences of poor oral health, individuals can make informed decisions that prioritize their well-being [6,22]. These campaigns serve as a vital tool in empowering individuals to take control of their oral health and adopt healthier lifestyles. In conclusion, a multi-faceted strategy that combines regulatory measures, access to care, insurance coverage, and public education is essential in combating the negative impact of commercial determinants on oral health.

SOCIOECONOMIC DISPARITIES IN ORAL HEALTH

The commercial determinants of oral health have a profound impact on global oral health outcomes. The food and beverage industry, dental and pharmaceutical sectors, and insurance companies all shape the accessibility, affordability, and quality of oral health care. While commercial interests often prioritize profit over public health, effective regulations, education, and policy interventions can mitigate their negative effects and promote better oral health for all. By addressing these commercial determinants, governments and health organizations can ensure equitable access to oral health resources and improve overall well-being [18,23].

The commercial determinants of oral health play a crucial role in shaping global oral health outcomes. Various industries, including the food and beverage sector, dental and pharmaceutical industries, as well as insurance companies, all contribute to the accessibility, affordability, and quality of oral health care services. For instance, the food and beverage industry's marketing strategies can influence dietary habits and impact oral health [7,22]. Similarly, dental and pharmaceutical companies may prioritize profit margins over patient well-being, affecting the types of treatments available. Furthermore, insurance companies play a role in determining coverage for oral health services, which can affect individuals' ability to seek necessary care [15]. Despite these challenges, effective regulations, educational campaigns, and policy interventions can help mitigate the negative influences of commercial interests on oral health. By addressing these commercial determinants, governments and health organizations can work towards ensuring equitable access to oral health resources and ultimately improving overall well-being on a global scale.

Conflicts of Interest

The authors declare no conflict of interest.

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