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Oral Health

CRITICAL REVIEW

Accumulated knowledge and prevention practices in oral health*

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Abstract: This text begins by reflecting on health promotion and equity/inequity. In health, inequity is understood as a political concept that has moral implications and that is committed to social justice. A discussion follows on some issues regarding the risk and prevention of diseases, still considered a hegemonic practice, and lack of experience in oral healthcare, bearing in mind the concept of vulnerability. The risk is probabilistic and involves the mathematical chances of acquiring a disease in a certain group, whereas vulnerability addresses the potential of acquiring or not acquiring a disease in a certain environment. The need for systematic studies on determinants is stressed, with the ultimate goal of improving health and reducing inequities, and with the concern and political intention of including health equity in governmental policies.

Keywords: Oral Health; Health Inequalities; Primary Prevention; Risk Factors; Health Vulnerability.

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Introduction

The Brazilian Ministry of Health approved the National Policy of Health Promotion[1] on March 30, 2006, with the goal of "promoting the quality of life and reducing health vulnerability and risks, related to health determinants and conditioning factors—lifestyle, work conditions, housing, environment, education, leisure, culture, access to goods and essential services." The document mentions an extensive scientific production on initiatives related to the behaviors and habits of individuals. However, it underscores the concern of the Brazilian government regarding the lack of studies addressing broader strategies, as defined in Ottawa,[2] together with the guidelines proposed by the Ministry of Health, including integrality, equity, sanitation responsibility, social involvement and participation, inter-sector coordination, information, education, communication and sustainability.

The guidelines mentioned in the previous paragraph included equity, which is a principle of the Brazilian public health policy. Studies on equity have focused on two fields, one related to health conditions and the other related to the access and use of health services. The analysis for each field differs, since determining how inequality/inequity is assessed in the face of illness implies factors that are different from those involved in determining how inequality/inequity is assessed in relation to health services.[3]

This text begins by reflecting on health promotion and equity/inequity.

A discussion follows on some issues regarding the risk and prevention of diseases, still considered a hegemonic practice. This is based on the principle that health is a special asset and may not be distributed in the same way as other goods. This premise is based on the fact that health is part of an individual's well-being, and one that allows the person to "function".[4]

Furthermore, "poor health and health inequalities across individuals and social groups are caused by multiple and multi-level factors that interact in complex ways, since they are affected by a political, economic, social, and cultural context".[5]

Discussion

Health promotion

The term Health Promotion was first used scientifically by Henry E. Sigerist in 1945. He included health promotion, prevention, restoration and recovery of sick individuals among the issues to be dealt with by medicine. Sigerist associated health to conditions of life, work, education and physical conditions, as well as the availability of leisure options and rest. He stressed the need for society, including politicians, industrialists, educators and physicians, to join their efforts to promote a healthy population.[6]

The Declaration of Alma-Ata was prepared in 1978, during an international conference on primary healthcare. It holds health promotion and protection of the population "as essential to sustained economic and social development", and sustains that they contribute to quality of life and world peace. However, the greatest concern of this conference was focused on the organization of health services, with emphasis on primary healthcare, according to the proposals of the Declaration.[7]

Another movement emerged at the same time in Canada. The government was concerned about the high costs of health services in the country, and the fact that these costs did not result in the improved health of the population; therefore, it decided to evaluate the health system. In general, professionals and the population held a traditional view of healthcare, with emphasis on the importance of individual care, medicalization and hospital care. These were considered fundamental services, which added quality to the healthcare system, rather than addressing the causality of disease. After determining the limitations of this healthcare model, data identified as causes and underlying factors of disease and death were organized into four fields, called health fields, which laid down the theoretical support for health promotion:

- human biology,
- environment,
- lifestyle and
- organization of healthcare.

The product of this study is known as the Lalonde Report.[8]

Based on this report, the World Health Organization promoted the First International Conference on Health Promotion in 1986, in Ottawa. The final document is known as the Ottawa Charter. This document defines health promotion as "the process of enabling people to increase their control over their health, and to improve it".[2]

The document presents a positive concept of health, declares the involvement of social and personal resources, and highlights the responsibility of promoting health beyond the health sector and a healthy lifestyle. Nonetheless, the concept of health promotion was criticized because it detailed the determinants, placing strong emphasis on lifestyle and behavioral aspects, as opposed to the generalized concept advocated by Sigerist.[6]

In fact, some parts of the Ottawa Charter confirm this criticism, such as "ensuring equal opportunities and resources to enable all people to achieve their fullest health potential," or "people cannot achieve their fullest health potential unless they are able to take control of the things that determine their health".[2]

Other conferences were organized after the Canadian one, and underscored the need to prioritize health promotion in local, regional, national and international policies and programs.[9]

A number of factors reinforced the policy of health promotion and the need to join efforts to improve health and reduce inequities, based on systematic studies of determinants, with the concern and political intention of including health equity in governmental policies. These included an increase in

the number of studies published on the social determinants of health, the establishment of the Commission on Social Determinants of Health (CSDH), set up by the World Health Organization (WHO),[10] and the creation of the National Commission on Social Determinants of Health (*Comissão Nacional sobre Determinantes Sociais da Saúde* - CNDSS) in Brazil.[11]

The Rio Political Declaration on Social Determinants of Health, which was the final report of the World Conference on Social Determinants of Health, includes several commitments emphasizing the role played by social conditions in creating health inequality. The document highlights the importance of individual experiences in the first years of life, education, economic status, a decent job and work conditions, housing and environment, as well as effective systems for the prevention and treatment of diseases. The need to make interventions in these determinants is also reinforced as fundamental for equity and inclusion to occur, among other outcomes. The declaration emphasized especially the commitment needed by all parties involved to build more successful, more inclusive and fairer societies.[12]

The Ottawa Charter presents the following strategies needed to carry health promotion into effect:

- construction of sound public policies,
- establishment of favorable environments for health,
- reinforcement of community action,
- development of personal skills and
- redirection of health services.[2]

With this in mind, the world proposal for health and quality of life of populations, at the beginning of this century, has focused on the need for collective, inter-sector and political efforts to build a fairer and less unequal society.

Inequality and inequity

In keeping with the world proposal, Brazilian official documents have revealed the political intention to include equity as a main guideline and fundamental condition for public policies on health in Brazil. The website of the Ministry of Health, under the title of Promotion of Equity in Health, presents the following text:

> The common objective of these policies is based on the concept of social justice, in which health inequities may be treated beyond the inequalities and the cultural and ethnic differences existing among different groups. This focus characterizes the different types of health inequities, and also addresses the political concern of incorporating explicit ethical and moral values in the concept of solidarity, thus laying the basis for the social web.[13]

There are several discussions on inequality and inequity in the literature. Inequality in health is a tridimensional concept and is related to events that may be measured to express differences, variations and disparities in the health of individuals, both numerically and descriptively. Inequity in health is a political concept, with moral implications and committed to social justice.[14]

The prevalence of an oral disease may be measured in a certain locality and reveal lower DMFT in children aged 12 years, as compared with teenagers. In this case, there is a health inequality. However, even knowing the probability of this outcome—a difference explained by age—it may not be claimed that there is no inequity. This may or may not be observed, based on an analysis that considers the principles of social justice.

Whitehead[15] defines health inequities as inequalities that are considered unfair, avoidable or unnecessary. The terms avoidable or unnecessary have been questioned by some authors, because of the difficulty both of considering them as criteria for defining inequity, and of determining what is avoidable or unnecessary. For this reason, some authors prefer to consider social injustice as a criterion of the difference between inequality and inequity.[14]

There is broad knowledge on social determination, inequality and inequity,[16,17,18,19,20,21] yet there is little or no discussion on inequity and social justice. These should guide a discussion based on the principles of rightness, such as distributives of social justice (principle of right, merit and need)[22] or principles of social justice (guarantee of freedom, equitable equality of opportunities and presence of inequalities only to favor the disfavored).[23]

Costa *et al*.[19] analyzed the Brazilian data of epidemiological surveys from 1986, 2003 and 2010, and

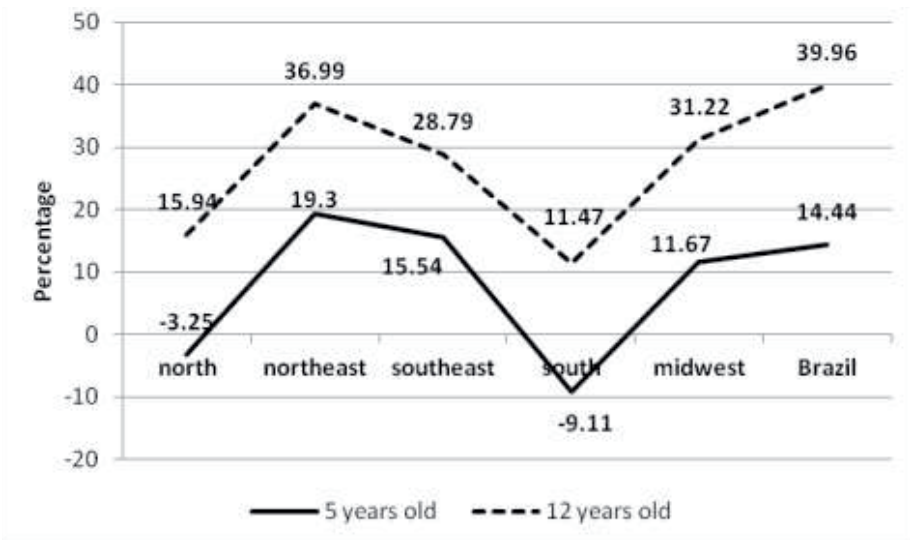

Figure 1 - Difference between epidemiological data from 2003 and 2010, in assessing the percentage of caries-free individual at the ages of 5 and 12 years. Source: Brasil 2009, Brasil 2011.[24,25]

observed inequality in the distribution of disease, in the access and use of dental services, and in the severity of the outcome, represented by dental mutilation, in a clear reference to health inequity, even though this term was not used. A judgment of value was made through the analysis of ethical principles.

Peres *et al*.[20] observed a reduction in inequalities in regard to the access and use of dental services in Brazil from 1998 to 2008, yet the inequalities between social groups remained, considered as ethically and politically unacceptable by the authors.

Data gathered by Brazilian national surveys on dental caries at the ages of 5 and 12 years, conducted from 2003 and 2010, may be used as an example.[24,25]

Figure 1 presents the percentage related to the difference in the number of caries-free children at the ages of 5 and 12 years, between 2003 and 2010. At age 5, the percentage was negative in the North and South regions, indicating that the number of caries-free children was reduced in these regions, which also presented the lowest increase in the number of caries-free children at age 12. These data evidence an outcome of inequality. A more detailed study of the life conditions of these populations would be necessary so that the occurrence of inequity could be perceived and the determinants of disease, better evaluated. In principle, the data encourage a more thorough analysis, considering the different socioeconomic conditions of the two regions.

Equity has been the subject of discussion both in health services and in academia, yet great inequalities still prevail, as observed in oral health studies.

Antunes and Narvai[26] discuss the impact of Brazilian oral health policies on health inequalities. They conclude that the introduction of public health interventions without strategic planning to direct additional funds to groups with greater needs have the undesirable effect of widening health inequalities, an effect which Victora *et al*.[27] call the "inverse equity hypothesis".

A publication in the British Medical Association, entitled *Social Determinants of Health – What Doctors Can Do*, guides health professionals (physicians) on what they can do. It emphasizes two items:

- a better understanding of the social determinants of health in the population they assist, and
- the role of clinicians, not only as professionals, but also as community leaders.[28]

We hereby transfer this question to Brazilian dentistry: What can oral health professionals do?

Risk and prevention of diseases: still a hegemonic practice

Chor and Faerstein[29] discuss prevention and health promotion based on the thoughts of Geoffrey Rose, underscoring four central ideas:

1. difficulty to establish groups of affected and non-affected individuals, since many biological

parameters occur in a *continuum*;
2. difficulty to determine the cut-off point for the null risk to a disease;
3. frequency of diseases originating in low-risk groups;
4. greater impact—despite mild alterations—on the population as a whole, compared with more exposed individuals.

According to Rose, it may be possible to achieve behavioral changes in some individuals by working exclusively with them, yet these behaviors are soon replaced by others.

These ideas lead to the belief that more generalized health promotion actions will have a greater effect on the population's health. Moreover, as the focus on the far ends of the *continuum* of disease or risk (those healthier or less healthy and those at greater or lower risk) becomes more indistinct, the entire population becomes the target of interest.

The *continuum* observed in the development of a disease and the favorable conditions to the outcome of this development have yielded great discussions concerning the risk of acquiring a disease. This is a fundamental basis of preventive programs and actions. Considered a positive concept for non-positive phenomena (human life), the risk has been widely criticized in the literature. The guiding idea that risks should be avoided to achieve a healthy life led Forde[30] to define a healthy lifestyle as an intensive and eternal escape from risks. Almeida Filho[31] represented it as a mathematical equation, in which health is equal to $1 - risk$ or $1 - \Sigma\ risks$. Castiel[32] defines risk as the present manner to describe the future under the premise that it is possible to decide the desirable future, even though the possibility of foreseeing if there actually will be a future may be remote.

The responsibility of the disease focused exclusively on the individual is also questioned. Apparently, social behaviors influence individual choices. Therefore, actions aiming at population behavioral changes are more effective, yet not exclusive, since there is an individual component.

Rose analyzed 52 population groups in 32 countries and observed an expressive correlation between social behavior and the changes observed in a community.[33] Therefore, the author concluded that the prevalence of heavy alcohol drinkers may be predicted by the mean alcohol ingestion of the population, or that the prevalence of obesity may be predicted by the mean weight of the population. It was concluded that the habits and values of society are inseparable from its "deviations".

Planning actions based only on rational choices is often confronted with the probability of acquiring a disease in the long term, with no guarantee of being alive after this period.[34] This leads to the belief that it is necessary to know much more about human behavior and social relationships.

The advent of HIV/AIDS gave rise to intensive discussions, mostly arising from Universal Human Rights, in view of the exaggerated prejudice and stigma, mainly in the first occurrences of the disease. This led to what is known as the evolution of the concept of risk. Initially, the discussion on the determination of HIV/AIDS revolved around its being an individual risk, *i.e.*, the risk factor associated with the disease. Afterwards, when risk groups were identified and named, the prejudice and stigma became the core of a great social problem, which raised ethical and legal issues. Social involvement encouraged scientific discussion based on discoveries and advances in relation to disease control, such as counting the viral load (CD4) and using anti-retroviral drugs. On the other hand, the risk raised the idea of social vulnerability, understood as affecting "judicially or politically fragile groups or individuals, in regard to the promotion, protection or guarantee of their citizenship rights." In this case, the actions previously directed to specific groups were then redirected to the population in general.[34]

It should be underscored that the risk strategy was not effective, according to Rose's theory. New cases of HIV/AIDS appeared without any relationship to the established risk groups, *i.e.*, the entire population was at risk. This led to an evolvement from the concept of individual risk–risk group to the concept of social vulnerability–population in general.[33]

The risk is probabilistic and involves determining the mathematical chances of acquiring a disease in a certain group, based on the premise that the ex-

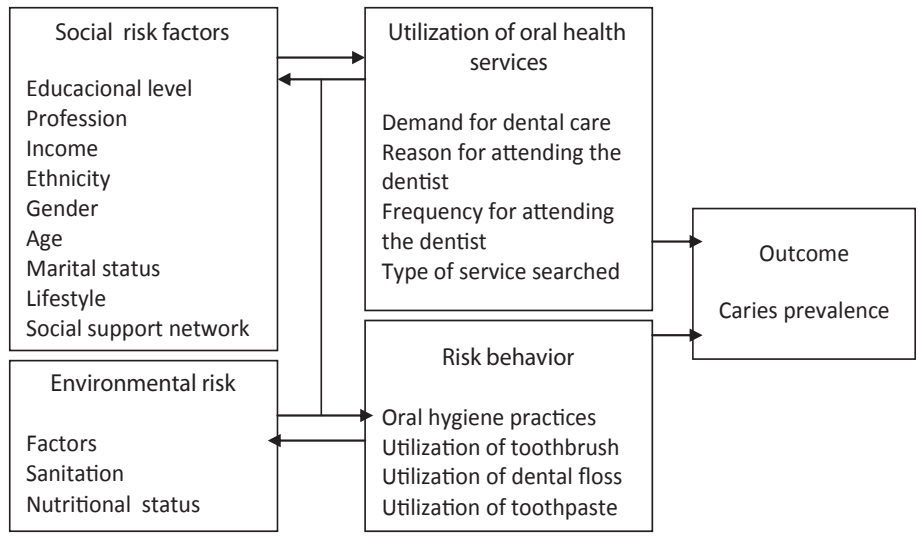

Figure 2 - Distal and proximal risk factors for analysis of dental caries. Adapted from Petersen, 2005.[37]

posed individual may be affected. The vulnerability addresses the potential of acquiring or not acquiring a disease in a certain environment, which is defined as plausibility.[34]

Preventive practices in oral health have involved efforts directed at detecting individuals, teeth or tooth surfaces that are at risk, in order to provide some type of care to individuals who are considered a priority. One classification of caries risk proposed by the oral health management of Diadema, SP,[35] and accepted by the São Paulo State Health Bureau in 2000, was adopted in several Brazilian cities, aiming at selecting priorities for healthcare activities. However, there are sparse experiences in oral healthcare in regard to the understanding of vulnerability.

The extensive body of studies on HIV/AIDS has provided firm evidence to corroborate the knowledge that information, combined with willingness, does not necessarily translate into a preventive attitude. This was and still is a strong and present statement on oral health services. The idea still prevails that health education activities, restricted to "bank-life" information, including tooth brushing techniques and dietary control, as well as preventive activities, such as topical fluoride application, often disregarding the use of fluoride in drinking water and dentifrice, would be effective to change the population's behavior.

A study conducted on children and adolescents aged 3 to 17 years in five Brazilian capitals evaluated the pattern of liquid intake. The authors observed that milk and water nearly disappeared from the subjects' diet in the study. The sugar intake in foods at the age of 11 to 17 years was analyzed. Considering an acceptable value of 18 kilograms/year, the observed intake was 26 kilograms/year, in that 21 kilograms/year were concentrated in beverages.[36]

How can the population's health be addressed considering the data of this study?

First, we must know the social determinants of the health-disease process. The issue of sweetened beverages, for instance, is much more complex than it appears to be. Figure 2 represents a model of social determination for dental caries[37] that may aid in understanding this.

Analysis of Figure 2 reveals that only one aspect of the risk behavior is influenced in recommending that beverages be replaced, and that is the issue of sugar intake frequency. The other factors that may be associated to those previously reported, such as sociocultural or environmental factors, must also be known. It is clear that traditional counseling, considered a separate determinant, is insufficient for the goal to be achieved.[5]

Any information and counseling for disease control, considering these discussions, probably would not trigger behavioral changes with effective outcomes for oral health. Industrialized beverages are often more practical and less costly. Sometimes, the

image of a fruit on the product label suggests that it is a healthy food. The choices made after receiving information may follow a rationale related to the life of each individual, and not the scientific reasoning that is expected to be followed.[33]

Conclusions

What can oral health professionals do to deal with this issue, in addition to their clinical work and to becoming community leaders?[28]

Initially, it is necessary to know the population, how people live and work, and their social relationships. This is a leader's duty. His activities should be directed at the population, and not only at people drinking a sweetened beverage. It should be borne in mind that there is no guarantee that people not drinking a beverage today will not do so in the future; therefore, the population should be informed about the effects of these beverages. The population will not escape the risk,[30] but it may be able to make other choices. Thus, in view of what has been discussed, advising and informing alone are not the best options to address this issue. Finally, this endeavor will require partnerships and multidisciplinary actions (physicians, nurses and other professionals must have a direct interest in this endeavor) and inter-sector coordinated actions (market, industry, government authorities and others).

There are difficulties, as in all actions. In this case, what should be done and the expectation of the outcomes are unknown. Knowledge comes with action, and this will only be possible if social forces coordinate their efforts. It is not a matter of speeches or waiting for behavioral changes to occur, because there is enough experience to know that this approach does not yield positive outcomes. The desired change will then be part of the context of individual and collective life.

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