Analysis of Oral Health Policies in Mexico

By

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ABSTRACT

It is unavoidable to observe through epidemiological data that oral health in Mexico is a large area of opportunity for which this analysis is very important. The most prevalent oral diseases are dental caries and periodontopathies. 60% to 90% of students worldwide have dental caries, in Mexico and in Hidalgo the figures were not so different until 2010 that Hidalgo was positioned as the first Place in Severe Early Childhood Caries (CITS) nationwide. A review of oral health policies in Mexico was carried out in a critical and sustained way through the distribution of oral morbidity in the country along with its historical context and evolution. In Mexico, health policies related to oral diseases are based on the curative-preventive model of clinical type, leaving secondary or secondary educational interventions that are essential for the control of these pathologies.

Keywords. Public Health, Oral Health and Diseases, epidemiological oral, health policies.

INTRODUCTION

Let us talk about oral health; oral health, which is essential for good health and good quality of life, can be defined as the absence of orofacial pain, mouth or throat cancer, oral infections and sores, periodontal (gum) diseases, cavities, loss of teeth and other diseases and disorders that limit the ability to bite, chew, smile and talk, while affecting their psychosocial well-being. In order to develop, we will start with the basic concepts.

Basic Concepts

In order to understand and develop the importance of oral health policies in Mexico, we must first become familiar with the basic concepts.

We begin by defining the concept of health: it is defined by Word Health Organization (WHO) as "the complete physical mental and social well-being of the individual"¹. Such definition makes us think effectively of health as a whole, based on this definition we can also define the following concept. The concept of public health which Winslow defines as: "Science and the art of preventing disease, prolonging life, promoting health and physical and mental efficiency, through the organized effort of the community for the Medium, control of communicable diseases, education of individuals in the principles of personal hygiene, organization of medical and nursing services for early diagnosis and preventive treatment of diseases"¹,⁵.

The development of social mechanisms that ensure all people an adequate standard of living for the preservation of health by organizing these benefits in such a way that each individual is in a position to enjoy his natural right to health and longevity². We can also define oral health according to the WHO as "the absence of orofacial pain, mouth or throat cancer, oral infections and sores, periodontal (gum) diseases, tooth decay and other
diseases and disorders that limit the ability of the affected person to bite, chew, smile and talk, while affecting their psychosocial well-being and through the analysis of these definitions we can say that oral health is considered as "the prevention and control of oral diseases and also the promotion of dental health through different efforts organized in the community to create effective means to make it accessible to all. It is also responsible for the research and administration of programs that contain dental care and the interventions that are used to improve the quality of life of the population".

Of the most common oral diseases, we can mention caries and periodontal disease because of their prevalence. WHO defines dental caries as "a localized process of multifactorial origin that begins after the eruption of the teeth, determining the softening of the Hard tissue of the tooth, which evolves until the formation of a cavity" and we can define as periodontal disease or periodontopathies that "series of conditions that affect the periodontium, which is of the protective structures that support the dental organs: periodontal ligament, alveolar bone and gingiva", such diseases are the common ones worldwide but, we can speak of two other pathological entities; the occlusions that are the third most prevalent oral diseases in Mexico, the study of these is very important.

In Figure 1 we can see the oral cavity of an adult patient who is also diagnosed with diabetes mellitus and hypertension, this patient also has a low economic status, all these variables will be analyzed in order to understand the importance of the oral health of the general population.

![Figure 1: patient with multiple oral diseases](image)

Malocclusions can be defined as "any situation in which the occlusion is not normal, when the gear of the maxilla and the lower jaw or the position of the teeth do not meet certain parameters that we consider normal" and despite being a disease of high prevalence and incidence in our country, there is no effort on the part of the public sector in its control and management. Another oral disease considered to be relevant is buco-pharyngeal cancer, which, because of its mortality rate, is considered of great importance for epidemiological surveillance.

**Historical evolution of oral health in Mexico**

The beginning of dentistry in Mexico is framed by the colonial period from the beginning in the early sixteenth century and the end of the nineteenth century, we must remember that it was in the hands of empirical practitioners, not as a science but as a practice, not arbitrated and without scientific knowledge about this.

In Mexico, the teaching of dentistry by the university began with the creation of the National Dental Teaching Office that began its functions on April 19, 1904. The union congress announced this happening with the following message, The National Office of Dental Education, and thus a complete system of education for dentists was organized for the first time in Mexico, filling a void that had been lamented in education. By the year 1907, the first three dentists trained in Mexico were titled.

The Mexican Social Security Institute (IMSS), which had begun its work a short time before, provided a limited dental service in its application units, just as it currently does; The same happened in the health centers and hospitals of the Ministry of Health and Assistance (SSA). Until this time, dentistry in Mexico had almost been exclusively limited to a practice of an essentially curative and restorative nature.

It was at that time when the Mexican Felix Leycegui was the one who made a study at the University of Michigan on health dentistry, he was also the founder of the subject at the National Autonomous University of Mexico (UNAM) and collaborated as an advisor with the SSA (Secretary of Health Assistance) at both central and state level.
The priorities that joined the policy of oral health in Mexico are mainly the appearance of caries which is one of the most talked about problems, as well as periodontopathies and oral cancer, for which has been designed various components of policies such as: preventive education in school children, welfare education, fluoridation of salt. The scarcity of resources suffered by the health sector in Mexico is reflected in the reduced number and reliability of official statistics on dental health. Since there is little information, not much can be said.

The health sector in recent years has had great emphasis on matters related to oral health since it is considered that oral health is part of comprehensive health, which also encompasses the complete state of physical, mental and social well-being and not only the absence of disease. The SSA (Secretary of Health Assistance) created the Department of Dentistry with the main objectives of implementing preventive procedures in the different dental departments of the health centers of the country, which spread especially at school level. Hygienic principles were applied to promote dental health and also to study the road that led to the flowering of drinking water or salt consumption. In March 1981 salt fluoridation was decreed in Mexico. For the operation of the National Salt Fluoridation Program, an agreement was established between the SSA, the Secretary of Commerce and Industrial development and the Mexican Association of the Salt Industry for the production, distribution and commercialization of salt in the states where the supply of drinking water contains fluorine in less than optimal amount.

This program stipulated amounts recommended by international organizations following the experience of various countries in the fluoridation of salt to have desirable carioprophylactic and caryostatic effects. Systemic fluoridation and public health programs were not the only preventive strategy in place. In 1983 the concern for health in school children led to the realization of the First Hygienic Pedagogical Congress. From then on, various strategies, actions and models have been proposed to protect the child at this stage of life. Among the highlights of oral health policy in the 1980s, we can mention: all the programs that led to the flowering and iodization of salt, the publication of Mexican Official Standard NOM-F-8-1988 and the implementation of health models in school children and the oral health sub-program.

In 1990, the Directorate General of Health Promotion launched the model of oral health for school children in the main cities of the country. Among the twelve priority programs of the National Program for Health Promotion and Care between 1989 and 1994, there were two related to oral health. These were the school health program and salt fluoridation program. At this time the National Preventive Education Program against Caries Parodontopathies in Preschoolers and School children was launched to improve the oral health of the school population. Currently, preventive and educational actions directed at mexican school children are based on the NOM-009-SSA2-1993 standard for the promotion of school health, in which a component on oral health can be observed. With regard to oral health policy, it was until 1988 that the oral health component appeared for the first time in the work report of the Ministry of Health as part of the recently created Health Promotion Directorate.

In 1996, National Weeks of Oral Health began, with two programs scheduled for each year. In these activities are joined the efforts of the institutions of the health sector, in addition to trade associations and the ministry of public education. The objective was to intensify all preventive activities within a unified and standardized method, focusing on dental caries, gingivitis, malocclusions, oral cancer and dentofacial conditions that reduce quality of life for individuals. This strategy is carried out periodically in the 32 states, within clinical units and in primary schools. The characteristics of the program include respecting the internal policies of each participating agency that each state and institution organize, according to their needs, a previous training course for all personnel participating in the specific actions of the National Oral Health Week stresses that the unification of criteria is only to achieve the goals set; that each agency decide on the personnel and resources that it can allocate for the operational project.

The oral health policy in the period 2000-2006 recognizes that in Mexico the main oral diseases are still with a high incidence and prevalence, as well as diseases of the lag that affect mainly the poor. Within this National Health Policy was generated the Oral Health Action Program, which in its general objective aims to improve the oral health of the Mexican population, contributing to the abatement of oral diseases of greater incidence and prevalence. The primary mission of this program of action is to reduce the prevalent oral diseases by establishing, strengthening and monitoring policies, strategies and programs, as well as assessing oral health conditions to improve and equitably expand care to the population with ethics, quality and efficiency.

The health sector proposed to the Directorate General of Health Promotion to launch the oral health model for school children in the main cities of the country, seeking to comprehensively involve educational, preventive and especially curative and social participation, in order to improve the oral health of all schoolchildren, as well as to promote in the school community the acquisition of knowledge and development of concepts and positive habits related to oral health.
Evolution of the epidemiological profile of oral dental diseases

As we know, the surveillance of the epidemiological profile at the national level is in charge of the National Epidemiological Surveillance System (SINAVE), this system has created what currently known. Epidemiological Surveillance System of Oral Pathologies (SIVEPAB) is the body responsible for epidemiological surveillance of oral pathologies at the national level, whose operations began in November 2004 as pilot tests in 3 federal entities, is currently present in the 32 federative entities operating with a total number of sentinel units strategically located throughout the national territory. Let us take a look at the information contained in the report for 2010. For the systematic analysis of the oral health system in Mexico, we will analyze specific data on caries and periodontal disease to realize the severity and damage caused by oral pathologies in the population.

![Figure 2: Average Dental Caries Index in Primary Dentition (cpod) by sex and age group. Mexico, SIVEPAB 2010](image)

In the figure 2 we can see the distribution of the index Dientes Cariados, Perdidos y Obturados (CPOD) index in the Mexican infant population divided by years and by age groups, it is a raw data from the epidemiological surveillance system to say that only 25% of the children population in Mexico is free of tooth decay.

The prevalence of dental caries is a primary measure of oral health and an indicator of the long-term prospects for a natural and functional dentition. In the total population examined, the prevalence of dental caries was 93.5%. The prevalence of caries was also studied in relation to age, and in all age groups it was elevated, above 85%. However, in the population older than 40 years, the prevalence was higher than 95%. We can see in the figure 3.
For the periodontal diseases, the following information was collected. Information on community periodontic index (ICP) was available for 102,335 patients who attended the first time. Approximately 58.7% had no sign of periodontal disease, slightly more than one-fifth (21.7%) had gingivitis (detected through bleeding on probing), 4.1% had signs of mild periodontal disease (superficial periodontal pockets) and 0.9% had signs of advanced periodontal disease (deep periodontal pockets). The percentage of patients with a healthy periodontium (code "0") decreases with age, for the age group 20 to 24 years, the percentage of healthy adults was 52.9%, in the 40-44 year age group 39.0%; and only 29.7% in adults aged 75 to 79 years.

From the age of 50, the category with the greatest weight was the dental calculus (code "2"), so in the group of 50 to 54 years a little more than the third part (36.7%) presents dental calculus. As the age progresses, the percentage of patients with superficial and deep bags increases, representing more than 10 percent in patients 65 years and older. Table 1 shows the distribution of the Community Periodontic Index in adults, these data are extremely important to understand the distribution of periodontal disease among adults in Mexico9.

### Table 1: Percentage of the Community Periodontic index by age group in users of Health services. Mexico, SIVEPAB 2010

<table>
<thead>
<tr>
<th>Age groups</th>
<th>N</th>
<th>Healthy</th>
<th>N</th>
<th>%</th>
<th>Hemorrhage</th>
<th>N</th>
<th>%</th>
<th>Calculus</th>
<th>N</th>
<th>%</th>
<th>Pocket De 4 to 5 mm</th>
<th>N</th>
<th>%</th>
<th>Pocket &gt; 6mm</th>
<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>20-24</td>
<td>15,103</td>
<td>7,995</td>
<td>52.9</td>
<td></td>
<td>3,220</td>
<td>21.3</td>
<td></td>
<td>3,682</td>
<td>24.2</td>
<td></td>
<td>197</td>
<td>1.3</td>
<td></td>
<td>39</td>
<td>0.3</td>
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<tr>
<td>25-29</td>
<td>13,826</td>
<td>6,641</td>
<td>48.0</td>
<td></td>
<td>3,116</td>
<td>22.6</td>
<td></td>
<td>3,772</td>
<td>27.3</td>
<td></td>
<td>267</td>
<td>1.9</td>
<td></td>
<td>30</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>13,211</td>
<td>6,008</td>
<td>45.5</td>
<td></td>
<td>2,999</td>
<td>22.7</td>
<td></td>
<td>3,822</td>
<td>28.9</td>
<td></td>
<td>333</td>
<td>2.5</td>
<td></td>
<td>49</td>
<td>0.4</td>
<td></td>
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<tr>
<td>35-39</td>
<td>12,411</td>
<td>5,170</td>
<td>41.7</td>
<td></td>
<td>2,708</td>
<td>21.8</td>
<td></td>
<td>4,061</td>
<td>32.7</td>
<td></td>
<td>383</td>
<td>3.1</td>
<td></td>
<td>89</td>
<td>0.7</td>
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<tr>
<td>40-44</td>
<td>10,983</td>
<td>4,280</td>
<td>39.0</td>
<td></td>
<td>2,435</td>
<td>22.2</td>
<td></td>
<td>3,703</td>
<td>33.7</td>
<td></td>
<td>453</td>
<td>4.1</td>
<td></td>
<td>114</td>
<td>1.0</td>
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<tr>
<td>45-49</td>
<td>9,406</td>
<td>3,396</td>
<td>36.1</td>
<td></td>
<td>2,077</td>
<td>22.1</td>
<td></td>
<td>3,359</td>
<td>35.7</td>
<td></td>
<td>438</td>
<td>4.9</td>
<td></td>
<td>114</td>
<td>1.2</td>
<td></td>
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<tr>
<td>50-54</td>
<td>8,319</td>
<td>2,805</td>
<td>33.7</td>
<td></td>
<td>1,785</td>
<td>21.5</td>
<td></td>
<td>3,054</td>
<td>36.7</td>
<td></td>
<td>339</td>
<td>6.5</td>
<td></td>
<td>136</td>
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<tr>
<td>55-59</td>
<td>6,460</td>
<td>2,039</td>
<td>31.6</td>
<td></td>
<td>1,351</td>
<td>20.9</td>
<td></td>
<td>2,471</td>
<td>38.3</td>
<td></td>
<td>480</td>
<td>7.4</td>
<td></td>
<td>119</td>
<td>1.8</td>
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<tr>
<td>60-64</td>
<td>4,862</td>
<td>1,536</td>
<td>31.6</td>
<td></td>
<td>991</td>
<td>20.4</td>
<td></td>
<td>1,856</td>
<td>38.1</td>
<td></td>
<td>388</td>
<td>8.0</td>
<td></td>
<td>91</td>
<td>1.9</td>
<td></td>
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<tr>
<td>65-69</td>
<td>3,382</td>
<td>1,034</td>
<td>30.5</td>
<td></td>
<td>699</td>
<td>20.7</td>
<td></td>
<td>1,268</td>
<td>37.5</td>
<td></td>
<td>310</td>
<td>9.2</td>
<td></td>
<td>71</td>
<td>2.1</td>
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<tr>
<td>70-74</td>
<td>2,285</td>
<td>701</td>
<td>30.7</td>
<td></td>
<td>462</td>
<td>20.2</td>
<td></td>
<td>868</td>
<td>38.0</td>
<td></td>
<td>206</td>
<td>9.0</td>
<td></td>
<td>48</td>
<td>2.1</td>
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<tr>
<td>75-79</td>
<td>1,268</td>
<td>377</td>
<td>29.7</td>
<td></td>
<td>233</td>
<td>18.4</td>
<td></td>
<td>510</td>
<td>40.2</td>
<td></td>
<td>119</td>
<td>9.4</td>
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<td>29</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>80+</td>
<td>817</td>
<td>263</td>
<td>32.2</td>
<td></td>
<td>120</td>
<td>14.7</td>
<td></td>
<td>321</td>
<td>39.3</td>
<td></td>
<td>93</td>
<td>11.4</td>
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<td>20</td>
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</tr>
<tr>
<td>Total</td>
<td>102,335</td>
<td>42,245</td>
<td>41.3</td>
<td></td>
<td>22,198</td>
<td>21.7</td>
<td></td>
<td>32,717</td>
<td>32.0</td>
<td></td>
<td>4,226</td>
<td>4.1</td>
<td></td>
<td>949</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>

For the state of Hidalgo the data are different, on the contrary they are more alarming for the years of 2009 and 2010, it was the entity with the highest percentage of children users from 3 to 5 years who presented: severe tooth decay early child (CSIT) (52.1%). Above the national average for dental caries at age 6, Hidalgo is also in the first place with 91.5%, these data being of great importance and despite the efforts made during the last years have not achieved significant decrease10.
DISCUSSION

Analysis of oral health policies in Mexico

Although in Mexico efforts are being made to control oral pathologists, yet the results are still not very encouraging, there are determinants of health that are not being considered, the biological variables in the area of prevention and cure have been worked but not the determinants of those in the Social and cultural area. Within this analysis we have to rely on the theory of determinants of health, which has already been exposed and has representatives such as Julio Frenk and Marck Lalonde, who speak of determinant theories which tell us: there are determinants of health related to different pathological entities.

For Marck Lalonde the determinants are divided into 4 groups, the biological determinants of which do not make the observation that are unchangeable determinants, the second group are the environmental determinants, the third group are the determinants of the health system and the last determinants are called lifestyles, which for the study of the models of determinants are the most important and from which we will start for the analysis of oral health policies.

Dental diseases share risk factors with some other pathologies such as diabetes mellitus, cardiovascular diseases, cancer and some others which are considered chronic diseases and of great prevalence in Mexico, it was Seiham & Wail, who demonstrate us this association\(^1\)

![Image of an undergraduate student reviewing a patient with limited resources.](image)

**Figure 4: Undergraduate student reviewing a patient with limited resources**

It is possible to simultaneously reduce the burden of oral diseases and other chronic diseases by addressing common risk factors.

All these common factors are related to the so-called lifestyles; diet, hygiene, stress, consumption of drugs such as alcohol or cigar to mention some, although the efforts of the health policies in Mexico are directed towards the curative area and left aside the preventive area, especially the modification of healthy lifestyles, there are no adequate interventions in Mexico that suggest the path of health education, which is a very neglected sector in health policies in Mexico.

That is why our proposal for intervention is aimed in an important way to modify and work essentially in this aspect given its importance and relevance.

Modifying lifestyles will always be complicated for them we can occupy psychopedagogical type interventions such as models of psychology in health, such as; (PAP) Precautionary Adoption, and (MTT) Model Transthetic Model Approach of Processes to Healthy Action (HAPA) and Motivation as a Need for Change (figure 5)\(^12\).
These models in Mexico are not applied in educational intervention techniques, we believe promptly that the positive modification of the epidemiological profiles of dental diseases is in the modification of lifestyles through this type of interventions.

There are two more situations that need to be analyzed. The first is the lack of trained support staff in the national health campaigns, such as the national health weeks as well as the extramural activities carried out by the health sector. To employ teachers in schools to be able to comply with plans and programs, which represents a major error, although by the year 2000, the number of dentists per 100,000 inhabitants, in a total increase to 24.4%, 8% of this increase is mainly due to the number of hirings for the public health sector which, due to its demand, is insufficient to provide the necessary attention to the population.

The other relevant problem are the treatments offered in public health care for the buccal dental health in its intramural modality, since the most common filling is the filling of silver amalgam whose long term negative consequences have already been documented in different studies. Alternatives are available in all the treatments to achieve a higher quality in the treatments in the times and in the disposition of work units since this would allow the health personnel to provide better attention.

CONCLUSIONS

We can conclude that dental diseases as studied in this article have a high prevalence in the population, there are factors that we can assume have relevance for the development of these as the socioeconomic condition or accessibility to health services. However, the analysis made us understand that the efforts made by the public attention services still have areas of opportunity, which we must cover through new strategies focused on health education, whose results are favorable not only for the control of oral diseases but also for all those that share the same risk factors.

Health education represents an area of opportunity for preventive actions in oral health and to avoid diseases and complications in the health of the most vulnerable population, an education from the constructivist approach, which allows to consider those who emit health policies and the population in general.

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CONFLICT OF INTEREST

The authors declare no conflict of interests for the publication of this research paper.
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