

# Oral health and social determinants in elderly adults

## Abstract

**Introduction:** Aging is a process which eventually occurs to every living being due to the interaction of the individual's genes with his environment, thus leading to loss of functions and death.

**Objective:** To determine oral health status and behavior of social determinants of health of elderly patients in Family Doctor's Office No. 5, Plaza de la Revolución.

**Methods:** A descriptive, cross-sectional study was conducted on 339 patients who were asked for their informed consent. The following variables were studied: schooling, economic well-being, satisfaction of basic needs, evaluation of health services and oral health status.

**Results:** 50% of the elderly adults who completed secondary school had a poor oral health status while those with a higher educational level exhibited a good oral health status (42.6% and 33.8% respectively). A total of 56.6% of the elderly reported that they lacked economic well-being, of which 67.7% had a regular oral health status, followed by those evaluated as poor (52.7%); 51.5% of the patients whose oral health status was rated good, had their basic needs covered while 70.6% of patients with good oral health conditions had a healthy lifestyle, 86.8% evaluated the services as adequate and presented a good oral health status.

**Keywords:** social determinants, elderly adults, oral health status

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## Introduction

Throughout history, man has always been concerned about aging. Understanding the process in its totality will continue to be one of the greatest challenges since the general vital capacity of a person decreases with aging, including the functions of important organs such as the heart, brain, liver and kidney, just to name the a few.<sup>1</sup>

Important changes in the epidemiology of aging have taken place in recent decades, characterized mainly by a major reduction in the birth rate and a decrease in the mortality rate, which have contributed to the fact that the elderly currently constitute a considerable part of the total population.<sup>2</sup>

According to UN predictions, by the year 2020, more than one billion people over sixty will be living in the world, and in this millennium, for the first time in human history, the adult population will surpass that of children and the majority will be women. At the regional level, in the last 60 years, the population of Latin America has gained 21.6 years for both sexes.<sup>3,4</sup>

In Cuba, this phenomenon is a logical result of the country's socio-demographic evolution. However, due to its speed and magnitude, the aging of the population is identified as one of the most relevant aspects to be considered within the strategies for socioeconomic development in Cuba.<sup>3</sup>

Oral-dental aging occurs more slowly and most of the time it can go unnoticed, until the person has lost several teeth or worse, all of them, without adequate prosthetic rehabilitation and the person exhibits an elderly appearance, regardless of his/her age. This aspect becomes more dramatic since the facial muscle tone is lost or atrophied, a situation that usually worsens even more if the corner of the lips wrinkle, which can become infected and ulcerated.<sup>3-6</sup> Research in Public Health has

gradually incorporated a social approach to health when addressing health inequities. In this context, social determinants referred to as the group of social, economic, political and lifestyle factors which influence and determine the health status of a population, and defined as the social conditions in which people live and work including the social characteristics in which life takes place and specific features of the social context that affects health. However, it also includes the mechanisms through which social conditions affect health.<sup>7,8</sup>

Social determinants of health were considered the basic pillars of the Primary Health Care strategy, stating "the need for a comprehensive health strategy that would not only provides health services but also address the social, economic and political causes underlying poor health."<sup>7</sup>

The pillars of the Cuba health system are promotion and prevention, with which we work incessantly. Furthermore, It has also been demonstrated that during the last decades, and especially during the 90's, the behavior of health indicators, both general and oral, have been associated with factors such as the political will to promote health and human development; inter-sectorial actions at all levels, controlled by the government and technically by the health sector; the existence of networks that promote integration, participation and social cohesion as the axis for transforming social development; the responsibility regarding health adopted by individuals, the health sector and the State, in this order; the on-going development of the health system and its services, including the training of human and social capital; coverage levels and accessibility; use, and satisfaction of the needs for health services in each area, among others.<sup>9</sup>

Oral health, like general health, is not exempt from the influence of these determinants. In the geriatric population they manifest themselves in a similar manner; however little research has been done which address the close relationship between them. One approach

is the Analysis of the Oral Health Situation in the Community. This phenomenon cannot be assessed only from a biological perspective, since it lacks the scope for understanding the essence of the problem and for finding a solution. On the other hand, social determinants of health have gained significant ground in the field of health sciences, especially for designing programs aimed at the differential treatment of each vulnerable health group.

In the elderly population, oral health studies have focused more on risk factors than on other elements of the social structural, which also condition the position of these individuals in society and have a direct effect on oral health. Motivated by this aspect, a study was conducted in elderly adults who belong to the Doctor's Office No. 5, Plaza de la Revolución Polyclinic, in order to determine which social determinants have a direct impact on oral health. In order to find an answer to this question, a study was conducted for determining the oral health status and behavior of the social determinants of health in elderly adults from Doctor's Office No. 5, Plaza de la Revolución Polyclinic during May 2015 to January 2016.

### Material and methods

A descriptive, cross-sectional study was conducted with the participation of 339 individuals aged 60 years and over (50.4% females and 49.6% males). Ethical considerations were taken into consideration, including the informed consent of the elderly adults and that of the person accompanying them. The variables studied were grouped as follows: schooling, economic well-being, satisfaction of basic needs, lifestyle, evaluation of the health services and oral health status.

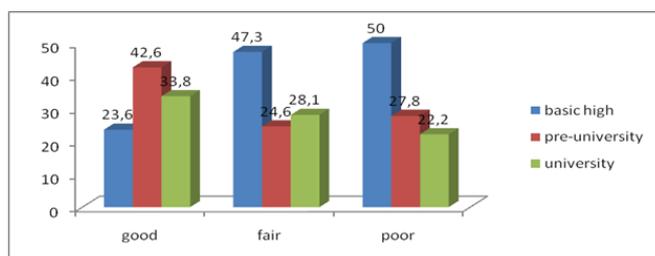
The information was obtained by means of a questionnaire conducted in the homes of the individuals, including observation of the living conditions of the elderly and a clinical examination of

the oral cavity, using the instruments and adequate protection means required for this purpose.

The information was processed and analyzed using an Intel Core i7 - 2600K CPU with Windows 7 Ultimate environment 2009, Service Pack 1, v.178. Microsoft Excel (Office 2010) was used for data processing, using the absolute value and per cent as resuming measures.

### Results

Figure 1 shows the distribution of the elderly adults and the educational level, the population with pre-university and university education levels presented good oral health status in 42.6% and 33.8% of the cases respectively, while those who concluded secondary school had poor oral health conditions (50%).



**Figure 1** Distribution of the population according to educational level and oral health status.

Table 1 shows the relationship between economic well-being and oral health status; 56.6% of the population reported having no economic well-being, of which 67.7% of the oral health status of these individuals was evaluated as regular, followed by those evaluated as poor (52.7%). The population with economic well-being represented 43.4% of the elderly, of which 79.5% had a good oral health status.

**Table 1** Shows the distribution of the elderly population according to economic well-being and oral health status

Economic well being	Oral health status						Total	
	Good		Regular		Poor		No	%
	No	%	No	%	No	%		
Yes	54	79.5	76	32.3	17	47.2	147	43.4
No	14	20.5	159	67.7	19	52.7	192	56.6
<b>Total</b>	<b>68</b>	<b>100</b>	<b>235</b>	<b>100</b>	<b>36</b>	<b>100</b>	<b>339</b>	<b>100</b>

Table 2 represents the relation between satisfaction of basic needs and oral health status. A total of 51.5% of the individuals whose oral health status was evaluated as good had satisfied their basic needs,

while those evaluated as regular or poor did not meet their needs, with values of 64.7% and 52, 8% respectively.

**Table 2** Distribution of the population according to satisfaction of their basic needs and oral health status

Satisfaction of basic needs	Oral health status						Total	
	Good		Fair		Poor		No	%
	No	%	No	%	No	%		
Yes	35	51.5	83	35.3	17	47.2	135	39.8
No	33	48.5	152	64.7	19	52.8	204	60.2
<b>Total</b>	<b>68</b>	<b>100</b>	<b>235</b>	<b>100</b>	<b>36</b>	<b>100</b>	<b>339</b>	<b>100</b>

Figure 2 shows the relationship between lifestyle and oral health status- 70.6% of those with a good oral health status had a healthy lifestyle. Those evaluated with a poor oral health status (97.2%) had unhealthy lifestyles, 89.8%, had a regular oral health status and unhealthy lifestyles. Results presented in Table 3 compare health services with oral health status. The health services were considered adequate in 52.8%, 86.8% of the elderly who considered the services adequate had a good oral health status, while those with a oral health status evaluated as regular or poor ( 54.5% and 63.9%), respectively, considered the health services inadequate.

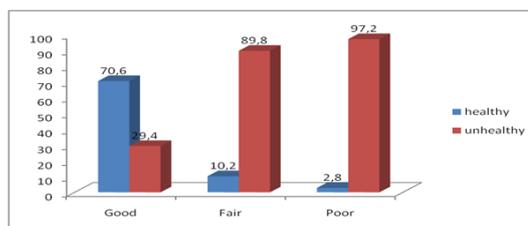


Figure 2 Distribution of the population according to lifestyle and oral health status.

Table 3 Distribution of the population according to health services and oral health status

Health services	Oral health status						Total	
	Good		Fair		Poor			
	No	%	No	%	No	%	No	%
Adequate	59	86.8	107	45.5	13	36.1	179	52.8
Inadequate	9	13.2	128	54.5	23	63.9	160	47.2
<b>Total</b>	<b>68</b>	<b>100</b>	<b>235</b>	<b>100</b>	<b>36</b>	<b>100</b>	<b>339</b>	<b>100</b>

### Discussion

Cuba has a state-backed program that focuses on each of the seven fundamental aspects considered necessary for an active and satisfactory longevity. The concept of the Cuban Health System is to provide opportunities for developing effective inter-sectorial healthcare actions for the elderly, thus providing the care required by this population group in order to improve their living conditions, offering support and resources which will contribute to minimize the isolation of this aging population; which is not possible in other societies. Nevertheless, in this study, the prevalence of an oral health status assessed as regular was observed.

Half of the population that completed secondary school had an oral health status considered regular, as opposed to individuals that completed pre-university and university education, whose oral health status was assessed as good.

These results corroborate the relationship between the individual’s educational level and oral health status, which has been widely documented in the literature. García Heredia & Miranda Tarragó JD<sup>10</sup> also coincides with the results of this study who, while studying a sample of the populations of Havana and Camagüey observed a close correlation between oral health status and educational level. In his sample there was a prevalence of individuals with primary education, who exhibited a poor oral health status. González Ramos et al.<sup>11</sup> Evangelista Souza et al.<sup>12</sup> Sueiro Sánchez<sup>13</sup> obtained similar results while Arias López<sup>14</sup> observed in a sample from the population of Ciego de Ávila, a strong correlation between individuals with a primary educational level and poor oral health status.

The schooling level as a social determinant of health is fundamental in terms of equity. It is not possible to conceive a society with high health standards if it lacks the knowledge to understand the health - disease process. Schooling is essential in order to comprehend the pillars of health promotion and prevention.

The relationship between economic well-being and oral health status, in cases in which the oral health status was considered good,

is equivalent to a favorable economic situation, while the population with a poor oral health status reported the lack adequate economic wellbeing, which is also related to the degree of satisfaction of their basic needs. Those who are able to satisfy these needs an oral health status considered good while those who did not, had a regular or poor oral health status.

When reviewing the medical literature, Evangelista Souza<sup>12</sup> in general coincides with these results, after analyzing the socioeconomic profile of edentulous patients rehabilitated in the Faculty of Dentistry of Bahia, Brazil, observed, in a low profile, that these individuals are more susceptible to suffer oral diseases. On the other hand, Márquez et al.<sup>15</sup> reported a high prevalence of oral diseases in patients with a poor economic situation, while those with a high economic level and whose basic needs had been covered, and enjoy good health.

In his work, Álvarez Pérez<sup>16</sup> addresses the determinants, including the short and midterm consequences of the economic crisis of the 1990s or Period Especial; particularly the socio-economic effects of its first stage. The conclusions indicate that poverty increased in the Cuban urban population, and although it is not exclusive, it did exhibit a significant setback in social equity values, increasing from 8% in 1989 to 20% in the year 2000. This value increased at the end of 2009 to 27%, considered a long-term effect of the special period. During this stage, a decrease in the oral health status of the population became evident, which has gradually recovered, thanks to the measures adopted by the health authorities.

Acuña et al.<sup>17</sup> while studying social determinants based on exclusion to health services in Central America observed that the health status of the most economically disadvantaged classes is more affected. Delgado Acosta et al.<sup>18</sup> Duque Duque et al.<sup>19</sup> Ocaña Leal et al.<sup>20</sup> also agree with the results of this study, In the literature consulted, only one study was found, conducted by Diaz-Serera Fernández et al.<sup>21</sup> who, while analyzing the relationship between the socioeconomic and health dimensions in Cuban families, concluded that there is a weak association between both dimensions, which does not concur with the findings of this study.

The effect of socio-economic well-being, satisfaction of the basic needs by the population and the health dimension is evident. This phenomenon is known as the “social health gradient”, which states that inequalities in the distribution of health status of the population are related to inequalities in the social status. The situation is highly complex in terms of oral health, enhanced by important social determinants, thus deferring human biology to second place.<sup>22</sup>

The current demographic changes- characterized by an increase in the elderly population with an epidemiology of oral diseases different from the rest of the population and where the perspective of their social determinant is related to the lower income group-, demands policies aimed at economically favoring this sector of society.

While reflecting on contemporary Cuban society, the growing and gradual increase of Cuban family expenses is apparent, not only as a consequence of the special period and socio-economic changes, but also as a result of changes in the world economy that have raised the level of life in developed countries. This constitutes a social risk, in terms of the onset of disease, due to its emotional impact and because the individual focuses more on finding solutions to these problems than on protecting his/her health; this reality increases inequities in health and complicates the lives of people living in the poorest countries.

An unhealthy lifestyle was the most distinctive determinant in elderly adults; those with a good oral health status had a healthy lifestyle while those rated with poor oral health were related to an unhealthy lifestyle. The results obtained in the studies by González Ramos et al.<sup>11</sup> indicate that the elderly adult population is not aware of the harmful effect of alcohol and smoking on the structures of the oral cavity; this makes them more vulnerable to the deleterious effects that they provoke. Perez Hernández<sup>23</sup> observed a high prevalence of periodontal disease in geriatric patients who attended Grandparents Clubs in Pinar del Río, whose oral hygiene was considered poor and with little knowledge about it. Similar results were obtained by Sueiro Sánchez<sup>13</sup> who considers poor oral hygiene, smoking and alcoholism as the factors that have the greatest effect on the oral health of this population group. On the other hand, Bethancourt Santana et al.<sup>24</sup> argue that isolation and lack of support networks play an important role in the suicidal behavior of the elderly. Similar results were reported by Ocaña Leal et al.<sup>20</sup>

In this sense, the use of free time should be viewed as an action that, from a social viewpoint, can create conditions that facilitate an increase in the quality of life of these individuals and contribute to the development of healthier and autonomous lifestyles at this point in life.

The lack of knowledge regarding the harmful effects of poor oral hygiene or to unconsciously maintain poor hygiene habits, are key factors in the triggering of oral diseases. This is why individuals with poor hygiene often have a poor oral health status.

It has been suggested that alcoholics have a double risk of suffering oral diseases, as a result of poor oral hygiene associated with a decrease in the salivary flow due to the morphological and functional changes of the salivary glands. On the other hand, it has been well documented in the literature that alcohol produces epithelial atrophy of the oral mucosa, with increased permeability and solubility of toxic substances such as those derived from smoking when both addictions coexist. The latter has a negative impact on the oral health

status due to the irritation caused to the mucosa by the heat, decrease in the oxygenation of the tissues and the toxic effects of nicotine.

Among the main risk factors of premalignant and malignant lesions of the oral cavity are: consumption of hot foods and the ingestion of alcoholic beverages. On the other hand, tobacco, alcohol and psychoactive substances are considered risk factors in the development of oral cancer, lesions of the oral mucosa and periodontal disease.<sup>25</sup>

Regarding the lifestyle dimension, it is necessary to analyze its components and how they relate to senior adults, for example, the effects of retirement on the individual depends on his/her perception, either as a situation of rest, uselessness or loss of social prestige. The use of free time should be viewed as an action that from a social stand can create conditions that facilitate an increase of the quality of life of these individuals and contribute to the development of healthier and autonomous lifestyles. The results shown in Table 14, compare health services and oral health status.

The health services noted by the elderly adults included in the study were considered adequate, who also presented a good oral health status, while those with an oral health status assessed as regular and poor reported that health services were inadequate. Studies conducted by Delgado Acosta et al.<sup>18</sup> observed instability in health services provided in Area I of Cienfuegos Municipality regarding compliance with the number of consultations and home visits planned, which resulted in an increase in emergency services, exposure to cardiovascular risk factors and communicable diseases.

Arias Lopez et al.<sup>14</sup> refers to the analysis of some psychological variables observed in an elderly adult institutionalized in Ciego de Avila, where a high degree of patient satisfaction with the treatment received in these institutions was reported. Results obtained in Chile by Valenzuela<sup>26</sup> after developing a program for the oral health care of the elderly adults concludes that what has been done so far in terms of health equity, is insufficient due to poor organization of the services, which increased the need of resorting to the private sector, which is practically inaccessible due to high costs and low income of this population group.

Martínez Abreu et al.<sup>15</sup> refers to the high POP (COP) indexes of Latin American capitalist countries, such as Brazil, Uruguay, Chile and Venezuela, where the organization of health services is not enough to guarantee healthcare to the population unable to access private healthcare services.

Acuña et al.<sup>17</sup> describes the social determinants for accessing health services and medicines in Guatemala, Honduras, and Nicaragua, noting that these difficulties are the result of inadequate public health policies which generate crises among the poor populations, thus corroborating the important role played by the health system as a social determinant of health.

When studying the equity of health services in Chile Delgado et al.<sup>18</sup> considers that the population with a low socioeconomic status or part of an ethnic group living in the rural areas with public health insurance, has a greater possibility for not receiving the health services they requested.

Reyes Fernández et al.<sup>27</sup> studied the satisfaction of patients regarding oral health services in Acapulco, Mexico and concluded that the patients were generally satisfied. For this purpose, the time spent waiting to be seen by the doctor, comfort of the waiting room,

dental chair, degree of satisfaction with the way he /she was treated by the dentist and the nurse, including the reason for consultation, were taken into account.

It is important to recall that oral health indexes are associated with structural factors available to the population in order to reduce inequities. The Cuban health system is universal, free and regionalized, with inter-sectorial and equitable distribution of services. There are also numerous programs for providing comprehensive care to the population, regardless of age, sex or skin color, thus ensuring access to treatment to all Cubans. Therefore, the health determinants with the greatest impact on the development of oral diseases are the ones related to lifestyle and not precisely with the patient's accessibility to the services, since the state guarantees free healthcare for all regardless of costs.

In the present study, cases in which the health services were considered inadequate included architectural barriers, since the clinical areas are mostly located in high places, the waiting time before the patient is seen by the doctor and the length of the consultation, which sometimes is too long.

## Conclusion

The oral health status evaluated as regular and good prevailed. Most of the individuals had a secondary school academic level and more than half of all the elderly stated that they enjoyed economic well-being and that their basic needs had been met. Predominance of an unhealthy lifestyle, approximately half of the population considers the health services adequate.

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## Conflicts of interest

Author declares that there are no Conflicts of interest.

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