Oral health conditions of elderly residents in the city of Manaus, Amazonas: estimates by sex

Condição de saúde bucal em idosos residentes no município de Manaus, Amazonas: estimativas por sexo

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Abstract

Aim: To characterize the oral health conditions of elderly people living in the city of Manaus, AM, according to sex. **Methods:** A cross-sectional population-based study was conducted involving 667 subjects, 65-74 years of age, randomly selected. Demographic and socioeconomic data were obtained through interviews. Oral measures were performed for caries, edentulism, use and need of prosthesis, following WHO criteria. **Results:** The study comprised 206 men and 461 women, mean age of 69.2 years, and 71.8% self-reported as brown skin color. On average they had 4.6 years of schooling and family income of $ 916.92. The DMF-T mean was 29.0±4.3 and the "missing" component was the most common (95%). The mean number of teeth per individual was 4.1±5.7 and the prevalence of edentulism was 52.2%. Only 3% of the elderly had 20 or more teeth. The use of upper and lower total prostheses was 79.2% and 37.1%, respectively. The need for total prosthesis was 42.6% for the upper arch and 34.7% for the lower arch. Elderly men presented lower DMF-T, more teeth and less edentulism compared to women. The use of upper and lower total prosthesis was higher in the elderly women and the need of upper and lower unitary and partial denture was higher in elderly men. **Conclusion:** Oral health conditions of the elderly in Manaus revealed a high occurrence of tooth loss, mainly among women. The use and need for total prosthesis were high and different according to sex.

Keywords: Oral health. Elderly. Dental caries.

Resumo

Objetivo: Caracterizar, segundo o sexo, as condições de saúde bucal em idosos residentes no município de Manaus, AM. **Métodos:** Estudo seccional de base populacional com 667 indivíduos com idade entre 65-74 anos, aleatoriamente selecionados. As informações demográficas e socioeconômicas foram obtidas através de entrevista. O exame bucal para cárie, edentulismo, uso e necessidade de próteses foi conduzido de acordo com as normas da OMS. **Resultados:** Participaram do estudo 206 homens e 461 mulheres, com idade média de 69,2 anos, e 71,8% se declararam de cor parda. Em média, os sujeitos apresentaram 4,6 anos de estudo e renda familiar de R$ 1586,27. O índice de dentes cariados, perdidos e obturados foi de 29,0 ± 4,3, com predomínio do componente perdido (95%). A média de dentes por indivíduo foi de 4,1 ± 5,7 e a prevalência de edentulismo foi de 52,2%, sendo que apenas 3% dos idosos apresentaram 20 dentes ou mais. O uso de prótese total superior e inferior foi observado em 79,2% e 37,1%, respectivamente, e a necessidade de prótese total foi de 42,6% para o arco superior e 34,7% para o inferior. Idosos do sexo masculino apresentaram menor índice de dentes cariados, perdidos e obturados, mais dentes e menos edentulismo em comparação com o sexo feminino. O uso de prótese total superior e inferior foi maior nas idosas, enquanto a necessidade de prótese unitária ou parcial superior e inferior foi maior nos idosos. **Conclusão:** As condições de saúde bucal dos idosos em Manaus caracterizaram-se pela elevada ocorrência de perda dentária, especialmente entre as mulheres. As taxas de uso e a necessidade de prótese total foram elevadas e diferentes segundo sexo.

Palavras-chave: Saúde bucal. Idoso. Cárie dentária**.**

Introduction

Nowadays Brazil, which follows a contemporary model of demographic and epidemiological transition, faces problems as a result of an aging population. Among them, there is a high prevalence of chronic and disabling diseases, changing the public health paradigm of the country[1]. From 1980 to 2000, the population group from 0 to 14 years increased only 14%, the mean population growth was 56%, while the 60-year-old or older group increased 107%. The elderly population increased proportionally 8 times more than the young population and almost two times more than the total population[2].

The demographic transition has an impact on the morbi-mortality epidemiological pattern of a population causing a series of predictable consequences. The definition of public health policies should be structured according to these changes associated with social changes[3]. In oral health, these changes also have predictable consequences and they should be considered in defining efficient measures to prevent illness and the lost of tooth structures throughout a lifetime.

Epidemiological studies of oral health among elderly people in Brazil have been restricted to specific groups, such as those conducted in institutionalized elderly persons with loco-regional inferences[4-12]. These studies have been shown a high prevalence of edentulism and dental prosthesis and periodontal treatment needs in the elderly. However, the impossibility of generalizing their findings to the general population is seen as an important limitation.

Although several countries have conducted population-based oral health surveys since the first decades of the 20th century, the first study of this nature occurred in Brazil in 1986. However, the elderly people were only included in the oral health survey in 2003, which was called the Survey of Oral Health Conditions of the Brazilian Population - Project SB-Brazil 2003[13]. The findings obtained in this survey point out that only 10.2% of the population in the

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age group from 65 to 74 years (8.5% in the Northern Region) had 20 or more teeth. The DMFT index was 27.8 (28.3 in the Northern Region) with 93.0% of missing teeth (93.1% in the Northern Region). The healthy condition of the periodontium was found in only 7.9% of the studied population, close to the observed frequency in the Northern Region (7.2%). In the final considerations of this study it was stated that "edentulism is still a severe health problem in our country, especially for the elderly"[14]. The results of this survey allow inferences to be made for the country and its macro regions, but cannot be extrapolated to municipalities, especially to the capitals.

Few studies have analyzed the oral epidemiological profile of the elderly people according to gender in the country[8,11,12,15]. Besides not pre-establishing the sample size for this comparison, few studies were household-based, and in general, men presented the worst oral health conditions[12,15]. In a study using the database of the Project SB Brazil 2003, the worst rate of oral health self-assessment was higher in elderly men in comparison with elderly women[16]. However, no secondary analysis has compared the clinical oral conditions of the elderly between the sex.

The aim of this study was to characterize according to sex, the oral health conditions and the use of dental services of the elderly residents in the municipality of Manaus, AM. This information is relevant to support the planning and the assessment of the health actions directed to this population group.

Methodology

A home-based cross-sectional study was conducted with individuals in the age group from 65 to 74 years in the urban area of Manaus, AM, Brazil from April to June 2007.

The study population was composed of 27,853 elderly residents in this area. The random probabilistic sample by conglomerates was calculated in a stratified form. This stratification was proportional to the Administrative Regions of the city, namely South Central, Midwest, East, North, West and South, which is the political administrative division of the municipality under the Municipal Law No 283/85. The sampling was performed from census sectors, which were weighted drawn based on the proportion of the city population within each stratum. All the blocks of the census sectors drawn were included, and non-residential sectors were excluded. Within each block, all the streets were included and the elderly people were identified until the pre-established sample size was completed (Table 1). The sample size was calculated based on the proportion of 53% of edentulism estimated for the Northern Region[14], with 95% of significance, margin of error of 10%, a design effect of 2 and a non-response rate of 20%. After adjustment for finite populations, the estimated sample size was 807 individuals. For the comparison between sex, the sample size was established at 192 for each group, considering a type I error of 0.05, with power of 90% and prevalence of need for upper dentures of 20.73% to detect 10% of differences between the groups[14].

Persons whose general health conditions did not allow the oral examinations to be performed and those who did not achieve a minimum score in the cognitive test, determined by the Verbal Fluency test method in the animal category[17], were excluded.

Individual interviews were conducted to obtain demographic data on age, sex and race/ethnicity, and socioeconomic characteristics for education, per capita income, family income, type of residence, number of persons per room in the residence and car ownership. In addition, information was collected about the use of dental services, including at least one consultation, time since the last consultation, type of dental service used and reason for attendance.

Clinical oral measurements of dental caries, edentulism, use and need for prosthesis were collected in accordance with the criteria proposed by the World Health Organization[18]. Dental caries was assessed

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Tabela 1 - Caracterização da amostra de acordo com os setores censitários e Zonas Administrativas.

Table 1 – Characterization of the study population according to districts and census areas.

Administrative Region / District	No of census sectors drawn	Sample size	Population
East	5	82	4,727
South Central	4	68	3,102
West	4	109	4,733
South	12	245	8,873
North	5	87	3,565
Midwest	4	76	2,819
Total	33	667	27,819

using the decayed, missing and filled teeth index (DMFT), which allows an individual's teeth affected by caries disease to be identified, considering his/her present clinical condition: decayed, missing (extracted) or filled. Furthermore, the number of natural teeth and the number of sound teeth were recorded. The use and need for prosthesis were assessed by the presence of prosthetic spaces. The oral exam was performed at the residences by a single, previously calibrated examiner using artificial head light, oral plain mirror No 5 (Duflex®) and CPI periodontal probe (Stainless®), in compliance with the biosafety rules.

Calibration

Previously to the main study, the examiner calibration for oral clinical examination was performed to verify the agreement between oral parameters. Twenty functionally independent elderly persons were selected from a hospital (N=10) and from a center for social life for elderly people ("Centro de Atenção Integral a Melhor Idade") (N=10) with the purpose of including elderly people with different oral health conditions.

All the patients were examined at two times with an interval of 7 days. To assess the examiner's consistency, the Kappa Coefficient was used and the values were 0.97 for DMFT, 1.00 for edentulism, 1.00 for the use of prosthesis and 0.81 for the need for prosthesis.

Data Collection

Data collection was performed at the residences from the draw of census sectors, proportional to the population size of each Administrative Region. The route of the census sectors followed the dynamics used to conduct the demographic census that is, covering the blocks, house to house, clockwise, to identify the residences where the population of interest resided.

The initial approach was made by a social assistant who explained the research objectives and obtained a signed term of the free and informed consent from those who agreed to participate in the research. The persons who refused to participate in the research were also recorded for later calculation of the non-response rate.

The discrete and continuous variables were presented by the mean and standard deviation, while the categorical variables were expressed as proportions. The Mann-Whitney test (discrete and continuous variables) and the Chi-square test (categorical variables) were used to compare the variables between the genders. Differences with regard to the use of dental services were analyzed by the comparison of 95% of confidence intervals. The level of significance established in the analysis was 0.05. For the data analysis the software SPSS (Statistical Package for Social Sciences) was used.

The study was approved by the Research Ethics Committee of the Federal

University of Amazonas under protocol No 0234.0.115.000-07.

Results

Eight hundred and seven elderly people from 65 to 74 years of age, resident in the urban area of the municipality of Manaus, capital of Amazonas, Brazil, were invited to participate in the study. The non-response rate was 5.4% and 12.2% did not present health conditions that enabled them to undergo the oral exam or did not reach the minimum score of the Verbal Fluency test, resulting in a sample of 667 elderly persons. The characterization of the sample in accordance with the census sectors and Administrative Regions is shown in Table 1.

The mean age was 69.2 ± 3.0 years, and women (69.12%) and the brown skin color (71.8%) were the majority in the sample. The mean of years of schooling was 4.6 ± 4.0 years, while the mean per capita income was R$ 711.2 ± 900.6 and the mean family income was R$ 1,586.3 ± 1,505.2. The predominant type of housing was home ownership (94.0%) and a mean of 0.97 (± 0.73) persons per room. With regard to car ownership, 74.4% reported they had no vehicle (Table 2).

The use of dental services was reported by 98.8% of the sample and most of the participants reported that their last consultation was 1 year or more ago (74.2%). Dental attendance in the private sector was predominant (68.1%). The main reason reported for seeking attendance was check-up consultation or maintenance (59.7%), followed by pain (19.8%) and gingival bleeding or cavity in the teeth (15.9%). The reason

Tabela 2 - Caracterização demográfica e socioeconômica dos idosos de 65 a 74 anos, segundo o sexo, Manaus, AM, 2007.
Table 2 - *Characterization of study population according to sociodemographic variables by sex, Manaus, AM, 2007.*

Variables	Total n = 667	Male n = 206	Female n = 461
Age, mean (SD)	69.2 ± 3.0	69.4 ± 3.0	68.2 ± 3.0
Ethnic group n (%)			
Yellow	29 (4.35)	11 (5.30)	18 (3.90)
White	108 (16.19)	28 (13.60)	80 (17.40)
Indigenous	19 (2.85)	8 (3.90)	11 (2.40)
Brown	479 (71.81)	153 (74.30)	326 (70.70)
Black	32 (4.80)	6 (2.90)	26 (5.60)
Schooling, mean (SD)	4.61 ± 3.95	4.73 ± 4.22	4.56 ± 3.83
Per capita income, mean (SD)	711.24 ± 900.63	923.15 ± 1023.90	616.54 + 823.45
Family income, mean (SD)	1586.27 ± 1505.24	1860.79 ± 1663.22	1463.93 ± 1414.05
Type of residence, n (%)			
Own	627 (94.00)	196 (95.10)	431 (93.50)
In the process of buying	1 (0.15)	1 (0.50)	0 (0.00)
Rented	32 (4.80)	7 (3.40)	25 (5.40)
On loan	5 (0.75)	1 (0.50)	4 (0.90)
Others	2 (0.30)	1 (0.50)	1 (0.20)
No of people/room, mean (SD)	0.97 ± 0.73	1.03 ± 0.64	0.95 ± 0.77
Car ownership, n (%)			
Does not have	496 (74.36)	139 (67.47)	357 (77.44)
Has 1	136 (20.39)	51 (24.76)	85 (18.44)
Has 2 or more	35 (5.25)	16 (7.77)	19 (4.12)

Tabela 3 - Utilização de serviços odontológicos dos idosos de 65 a 74 anos, segundo o sexo, Manaus, AM, 2007.
Table 3 - *Dental care utilization among the elderly according to sex. Manaus, AM, 2007.*

Variáveis	Total n=667 % (CI95%)	Male n = 206 % (CI95%)	Female n = 461 % (CI95%)
At least one consultation	98.8 (98.0-99.6)	99.0 (97.6-100.0)	98.7 (97.7-99.7)
Time since last consultation			
Has never been attended	1.2 (0.4-2.0)	1.0 (0.3-2.4)	1.3 (0.3-2.3)
Less than 1 year	24.6 (21.3-27.9)	22.3 (16.6-28.0)	25.6 (21.6-29.6)
1 or more years	74.2 (70.9-77.5)	76.7 (70.9-82.5)	73.1 (69.0-77.1)
Type of dental services used			
Has never been attended	1.2 (0.4-2.0)	1.0 (0.3-2.4)	1.3 (0.3-2.3)
Public or philanthropic service	30.7 (27.2-34.2)	30.6 (24.3-36.9)	31.0 (26.8-35.2)
Private or supplementary service	68.1 (64.6-71.6)	68.4 (62.1-74.7)	67.7 (63.4-72.0)
Reason for attendance			
Has never been attended	1.2 (0.4-2.0)	1.0 (0.3-2.4)	1.3 (0.3-2.3)
Check-ups/maintenance consultation	59.7 (56.0-63.4)	50.1 (43.3-56.9)	63.6 (59.0-68.0)
Pain	19.8 (16.8-22.8)	24.2 (18.4-30.0)	17.8 (14.3-21.3)
Gingival bleeding/cavities in teeth	15.9 (13.1-18.7)	19.4 (14.0-24.8)	14.3 (11.1-17.5)
Others	3.4 (2.0-4.8)	4.3 (1.5-7.1)	3.0 (1.4-4.6)

CI: Confidence Interval

for attendance was statistically different between the sex groups. The proportion of elderly women who sought dental service for check-ups or maintenance was higher in comparison with elderly men (63.6% vs 50.1%) (Table 3).

The clinical oral conditions are shown in Table 4. The DMFT mean was 29.1 ± 4.3 of which 95.5% of the index was composed of the missing component. Elderly women showed statistically higher means for DMFT and for the missing component in comparison with the elderly men (p < 0.001). The mean of teeth and sound teeth was 4.1 ± 5.7 and 2.8 ± 4.1, respectively and they were statistically higher in the elderly men. The prevalence of edentulism was 52.9% (CI 95%: 49.1 – 56.7%), and 3% of the individuals presented 20 or more teeth. The proportion of edentulous elderly men was statistically lower when compared with the elderly women (Table 4).

The use of upper dentures was 79.2%, while for the lower arch it was 37.1%. The frequency of the need for upper and lower dentures was 42.6% and 34.7%, respectively. The use of dentures was statistically higher in women in both dental arches. The need for single or partial upper prosthesis was higher for elderly men in both dental arches (p < 0.001) (Table 5).

Discussion

The present study may be considered the first population-based oral health survey with a representative sample of the elderly resident in Manaus, AM. In general, the characterization of the oral health conditions of the elderly people in Brazil has been conducted by studies with non-probabilistic and underepresentative samples of the general population. For this reason, there is a historical scarcity of information about the epidemiological condition of the elderly, which could be used to support the development of oral health strategies and policies for the elderly. Only in 2004, after the publication of the findings of the national oral health survey was it possible to be

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Tabela 4 - Caracterização de cárie dentária, número de dentes e dentes hígidos dos idosos de 65 a 74 anos, segundo o sexo, Manaus, AM, 2007.
Table 4 - *Dental caries, number of teeth and number of sound teeth among the elderly according to sex. Manaus, AM, 2007.*

Variáveis	Total n=667	Male n = 206	Female n = 461	p-value
DMFT, Mean ± SD	29.08 ± 4.25	28.08 ± 4.82	29.53 ± 3.90	< 0.001*
Decayed, Mean + SD	0.58 ± 1.60	1.08 ± 2.22	0.36 ± 1.16	< 0.001*
% of decayed DMFT	1.99	3.85	1.22	
Missing, Mean + SD	27.78 ± 5.81	26.28 ± 6.46	28.45 ± 5.36	< 0.001*
% of missing DMFT	95.53	93.59	96.34	
Filled, Mean + SD	0.72 ± 2.05	0.72 ± 1.94	0.72 ± 2.10	0.599*
% of filled DMFT	2.48	2.56	2.44	
Number of teeth, Mean ± SD	4.14 ± 5.66	5.64 ± 6.28	3.47 ± 5.23	< 0.001*
Number of sound teeth, Mean ± SD	2.83 ± 4.10	3.85 ± 4.64	2.39 ± 3.75	< 0.001*
Completely edentulous individuals, n (%)	353 (53.6)	85 (41.9)	268 (58.8)	< 0.001**
Individuals with 20 teeth or more, n (%)	20 (3.0)	12 (2.6)	8 (3.9)	0.363**

* P-value refers to the Mann-Whitney test; ** P-value refers to the Chi-square test

Tabela 5 - Frequência de uso e necessidade de prótese em idosos de 65 a 74 anos. segundo o sexo. Manaus. AM. 2007.
Table 5 - *Use and need of dental prosthesis among the elderly according to sex. Manaus. AM. 2007.*

Variáveis	Total n=667	Male n = 206	Female n = 461	p-value
Use of upper prosthesis				< 0.001
Does not use	81 (12.2)	42 (20.5)	39 (8.5)	
Single or partial prosthesis	57 (8.6)	23 (11.2)	34 (7.4)	
Denture	524 (79.2)	140 (68.3)	384 (84.0)	
Use of lower prosthesis				< 0.001
Does not use	308 (46.6)	120 (58.8)	188 (41.1)	
Single or partial prosthesis	108 (16.3)	33 (16.2)	75 (16.4)	
Denture	245 (37.1)	51 (25.0)	194 (42.5)	
Need for upper prosthesis				< 0.001
Does not need	306 (46.4)	74 (36.3)	232 (51.0)	
Single or partial prosthesis	72 (10.9)	39 (19.1)	33 (7.3)	
Denture	281 (42.6)	91 (44.6)	190 (41.8)	
Need for lower prosthesis				< 0.001
Does not need	214 (32.6)	50 (24.6)	164 (36.1)	
Single or partial prosthesis	215 (32.7)	87 (42.9)	128 (28.8)	
Denture	228 (34.7)	66 (32.5)	162 (35.7)	

p value refers to Chi-square test

aware about the oral health conditions of the elderly in the country[14]. Nevertheless, the inferences for the elderly population are at a macroregional level and therefore, they are not representative for the cities, including the capitals.

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The demographic characteristics of subjects of the present study were similar to the findings of other oral health epidemiological studies in elderly people, including the last national oral health survey[6,7,11,12,14,19]. The sample was composed of 69.1% women, whereas according to Brazilian Institute of Geography and Statistics (IBGE), 56.5% of urban population of Manaus[20] between the ages of 65 and 74 years are women[20]. The over-representation of women in the present study has been reported in the literature[6,7,12,16]. This aspect represents a limitation on the external validity of the findings, however, with little implication for its internal validity.

According to the observed oral health conditions, edentulism was the main health problem of the elderly residents in Manaus. This finding corroborates the findings of the Project SB-Brazil 2003 for the Northern Region. The prevalence of edentulism did not differ statistically between the city of Manaus (53.6% CI95%: 49.8-57.4) and the Northern Region of the country (47.3% CI95%: 43.7-50.9). The comparison of the edentulism characteristics showed differences between the capital of Amazonas and the Northern Region. In comparison with the elderly population of the Northern Region, it was observed that in the city of Manaus a higher proportion of the elderly using upper dentures (79.2% CI95%:76.1-82.3 vs 51.9% CI95%:48.3-55.5) and using lower dentures (37.1% CI95%:33.4-40.8 vs 29.4% CI95%:26.1-32.7). Although the use of dentures was higher in Manaus, the need for dentures was also high. In Manaus, the proportion of elderly persons who needed upper dentures was more than the double comparing with the Northern Region (42.6% IC95%:38.8-46.4 vs 20.7% IC95%:17.8-23.6), while for the lower arch this difference was lower (34.7% IC95%:31.1-38.3 vs 26.9% IC95%:23.7-30.1). Possible explanations for these discrepancies may be presented, including the pattern of dental services use. In Manaus, the elderly reported more use of dental services in comparison with the Northern Region (98.8% CI95%:97.9-99.6 vs 92.8% CI95%:90.9-94.7). The type of dental

service used differed between Manaus and the Northern Region. While the private dental service was higher in the city of Manaus than in the Northern Region (68.1% CI95%:64.6-71.6 vs 34.6% CI95%:31.2-38.0), in the Northern Region public or philanthropic dental service was higher than in Manaus (48.9% CI95%:45.3-52.5 vs 30.7% CI95%:27.2-34.2). The differences in use of dental services between Manaus and the Northern Region may be understood if some factors are taken into consideration. The sample of the national and Northern Region survey included municipalities with different population sizes, including those with small population size. Furthermore, the study in the Northern Region included rural and riverside populations.

In a home-based study with a probabilistic sample conducted in the city of Biguaçu, SC, it was observed that there was less frequency in the use of lower and upper dentures, and there was a higher need for upper and lower dentures in comparison with the present study[7]. Findings on the assessment of the use and need for dentures in the city of Botucatu, SP, showed lower proportions of use of dentures and higher proportions of use of lower dentures. However, the need for dentures differed significantly and it was 4 times lower for the upper arch and almost 2 times lower for the lower arch[12]. The inclusion of rural areas in the study of Collussi[7] and the socioeconomic differences between Manaus and Botucatu may be possible sources for these differences.

Dentures was the type of prosthesis that showed higher percentage of use for both the dental arches, as well as the need for upper dentures. However, with regard to the need for lower dentures, although with a discrete difference in comparison with the dentures, the highest percentage was for the need for partial prosthesis, a different finding in comparison with other studies that showed a higher percentage for dentures[7,9,14].

All the elderly in this study presented some previous experience of caries and the DMFT (29.08) was similar to the elderly people in the Northern Region of the national

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oral health survey (28.3), as well as for the elderly in the larger size municipalities of the national survey (27.3). Another similarity was the predominance of the missing tooth component in the DMFT index, which was 95.5% in this study and 93.1% in the Northern Region in the SB Brazil[14] survey. With regard to the population-based loco-regional studies conducted in Brazil, the DMFT observed in this study was similar to the values of 28.9 described by Colussi in the city of Biguaçu, SC[7]; 27.9 by Mesas in the city of Londrina, PR[11] and 29.9 by Moreira in the city of Botucatu, SP[12]. The worse oral health condition for dental caries and edentulism in women observed in the present study is similar to the finding in the studies conducted in Santa Catarina and Botucatu[7,12].

Studies with institutionalized elderly persons[8,9,10,11,22,23] report a DMFT ranging from 27.7 to 31.9 with a percentage of missing teeth component from 85.9% to 96.3%.

Despite the increasing interest in characterizing the oral health epidemiological profile of the elderly, few studies have analyzed the differences between sex. The worst oral health condition observed in women in comparison with men was the greater loss of teeth[8] and the larger number of decayed teeth[8,11,12,24], which has also been reported in previous studies. Only one study, conducted in the city of Londrina (PR), compared the use of and need for dentures between sex[11]. The use and need for upper and lower dentures were higher in the present study in comparison with the study conducted in Londrina. These differences are probably related to the smaller number of teeth in the elderly people in Manaus in comparison with Londrina. Although the above mentioned study was not representative of the elderly population of the municipality, their findings were consistent in reporting a higher prevalence of the use of upper and lower dentures in elderly women than in elderly men as well as the need for upper and lower partial prosthesis in men[11].

When comparing the results of this study with the goals proposed by the World Federation of Dentistry for the year 2000, it was observed that the oral health conditions of the elderly in Manaus is far from the goal of 50% with 20 or more natural teeth [25,14]. Despite the data of the present study having been collected in 2007, only 3% of the elderly in Manaus had 20 or more natural teeth, and this result was worse than the 8.6% observed for the country. Therefore, the data of the present study allow us to point out that the goal proposed by the World Federation of Dentistry for the year 2010, that is 96% of people with at least 20 functional teeth, will not be achieved in Manaus[26].

The high frequency of edentulism and the need for dentures for elderly in Manaus highlights an epidemiological disadvantage of oral health conditions. Taking into account the demographic trends and the clinical oral health conditions found in this study, it is important to stress that more attention in oral health is needed for this age group, not only in public health promotion policies but also in individual interventions to replace the lost teeth.

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