ORIGINAL ARTICLE

# ELDERLY PEOPLE LIVING AT HOME: GENERAL HEALTH X ORAL HYGIENE

## *IDOSOS DOMICILIADOS: SAÚDE GERAL X HIGIENE BUCAL*

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## ABSTRACT

The Integrated Home Assistance Service (IHAS) was created to provide integral home care for elderly people who are unable to go to the health care units of the Brazilian Navy. A cross-sectional, quantitative, and descriptive study was carried out to evaluate the general health and dental hygiene profile of these patients. The study included elderly people aged 60 years or older who were assisted between February 2017 and December 2022. Most of them were long-lived, with a mean age of 82.52 (±8.66) years, women (63.52%) and totally dependent on performing basic activities of daily living (88.9%). The most common diagnosis among them was dementia syndrome, accounting for 44.3% of cases. Additionally, a large portion of the elderly had associated comorbidities (71.9%), with Systemic Arterial Hypertension (59.2%) and Diabetes Mellitus (28.9%) as the most recurrent conditions. The study found a high prevalence of elderly with unsatisfactory (34.7%) or irregular (57.2%) oral hygiene. Nevertheless, there was no significant association between dental hygiene and comorbidities or the degree of dependence. Therefore, it is imperative that elderly people living at home receive guidance and undergo meticulous and ongoing monitoring, in conjunction with their caregivers to promote improvements in the oral hygiene of these patients.

**Keywords:** Aged, Elderly Health, Health Services for the Aged, Home Care Services, Comprehensive Health Care, Dental Care for Aged.

## RESUMO

O Serviço Integrado da Assistência Domiciliar (IHAS) foi criado a fim de prestar atendimento integral domiciliar a idosos que apresentam incapacidade de se locomover para as unidades de atendimento de saúde da Marinha do Brasil (MB). Com a finalidade de avaliar o perfil de saúde geral e de higiene dental desses pacientes, foi realizado um estudo transversal, quantitativo e descritivo, no qual foram incluídos idosos com 60 anos ou mais, assistidos entre fevereiro de 2017 a dezembro de 2022. Pode-se observar que a maioria dos idosos eram longevos, com média de idade de 82,52 anos (±8,66), mulheres (63,52%) e possuíam dependência total para realizar atividades básicas de vida diária (88,9%). Conclui-se que a síndrome demencial foi o diagnóstico principal mais encontrado (44,3%), a maioria possuía comorbidade associada (71,9%), sendo a Hipertensão Arterial Sistêmica (59,2%) e o Diabetes Mellitus (28,9%) as mais recorrentes. Foi encontrada uma elevada prevalência de idosos domiciliados com higiene bucal insatisfatória (34,7%) ou irregular (57,2%). No entanto, não houve associação entre higiene dental, comorbidades e grau de dependência. Assim sendo, é imprescindível que os idosos domiciliados recebam orientações e sejam submetidos a um acompanhamento rigoroso e constante, juntamente com seus cuidadores, a fim de promover a melhoria da higiene oral desses pacientes.

**Palavras-chave:** Idoso, Saúde do Idoso, Assistência a Idosos, Assistência Domiciliar, Atenção à Saúde do Idoso, Assistência Odontológica para Idosos.

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## INTRODUCTION

According to data provided by the Brazilian Institute of Geography and Statistics (IBGE), the Brazilian population over 60 years of age corresponded to 5.1% in the 1970s (1). This percentage doubled in 2021 (10.15%), and the number of people aged 65 or over is expected to reach 25.17% of the population by 2058 (2).

This exponential increase in the elderly population generates a significant change in the predominant diseases, varying from infectious and parasitic diseases (predominant in the young population) to chronic and degenerative diseases, thus requiring a complete change in the health care network (3).

Chronic and degenerative diseases can result in a general systemic imbalance in the elderly, which can progress to a decline in functional and cognitive capacity, resulting in a high degree of dependence and, consequently, a condition of bed restriction (4). These patients require greater care due to their high level of frailty, in addition to presenting an increased risk factor for complications and health problems, such as the development of pressure injuries, worsening respiratory conditions, anxiety, infections, social isolation and depression (5). As a result of complications, elderly people end up having precarious oral conditions (6). Oliveira *et al.* identified dependence on third parties for oral care, not guaranteeing a consistent method of oral hygiene (6). Thus, the general health situation of bedridden patients also becomes more delicate due to the barriers of physical limitations, cognitive losses, dependence on other people, as well as less access to dental services (7).

Faced with the population growth of elderly people, the need for different demands and in compliance with the Statute of the Elderly and the National Policy on the Elderly, the Brazilian Navy (BN) created, in 2009, the Integrated Home Assistance Service (IHAS). Since then, around 1500 patients have benefited from this service, however there is no analysis of the patient profile for better action planning. This study seeks to elucidate the general health and oral hygiene profile of this population and verify whether there is any association between the degree of dependence, number of comorbidities and oral hygiene.

## METHODS

This is a cross-sectional, quantitative, and descriptive study carried out in a home care service in BN. Elderly people aged 60 or over, of both sexes, assisted by the IHAS dental team between February 2017 and December 2022 were included in the study.

IHAS is linked to the Geriatrics clinic at Hospital Naval Marcílio Dias (HNMD) and operates in the city of Rio de Janeiro, Brazil, providing home care to elderly people who are unable to travel to BN health care units.

The IHAS multidisciplinary team is made up of doctors, nurses and nursing technicians, a social worker, dentist, psychologist, and nutritionist. The team works together to plan the individual therapeutic plan and supervise home care provided by accredited companies.

Many patients have cognitive or communication impairments since entering the service. Therefore, to participate in IHAS, the patient needs to have the support of a responsible caregiver, who has their guardianship. The documentation is checked at the first consultation with the social worker, before the patient is included in the program.

To carry out this study, the medical records of all 603 elderly patients evaluated by the Dentistry team during the period considered in this study were consulted. All data collection from medical records and oral hygiene examinations were carried out by a dental surgeon, a member of the IHAS team. The data refer to the patients' first assessment/ consultation when entered into the program.

The information collected in the service's database refers to the patient's sex, age, degree of dependence according to the Katz scale, diseases reported as the main diagnosis and the comorbidities present in the patients. This data appears in the medical record and refers to the information filled out by the team's professionals when carrying out the first assessment of the patient when admitted to the IHAS.

Patients received for treatment at IHAS invariably present some degree of functional impairment. This degree of dependence is measured by the Katz scale, which assesses the individual's ability to independently perform the six activities considered Basic Activities of Daily Living (BADL): personal hygiene or grooming, dressing, toileting, transferring or ambulating, and eating. For each activity carried out independently, one point is awarded, and the result can vary between independent (6 points), partially dependent (3 to 5 points) and totally dependent (≤2 points). Since the patients are included in the service depending on their level of functional impairment,

the participants of the present stud have partial or total dependence on BADL.

For the initial dental hygiene examination, personal protective equipment (mask, glove, coat, and cap), artificial light, dental mirror, and exploration probe nº 5 were used. Oral hygiene was assessed at the first dental appointment, observing the presence of food residues and other dirties that can be cleaned with adequate hygiene. The effectiveness of oral hygiene was classified according to the following parameters: when in the patient who had a large amount of food residue on the teeth and tongue, hygiene was considered unsatisfactory; the patient who had a small amount of food residue on his teeth and tongue had his hygiene considered regular; and the patient who did not have food residues on his teeth and tongue, had good hygiene.

The data were tabulated and analyzed descriptively. The chi-square test was used to evaluate a possible association between oral hygiene, number of comorbidities and degree of dependence. The significance level used was 0.05, and all data were evaluated using IBM SPSS 20.0 statistical software.

The study was submitted to the Ethics and Research Committee of Hospital Marcílio Dias (CEP-HNMD) and approved with substantiated opinion number 5994432.

## RESULTS

Data collection took place through 603 medical records of elderly people assisted by IHAS. The profile of users assisted by IHAS is presented in Table 1. Most of elderly patients assisted by IHAS during the study period were female (63.52%) and their ages ranged from 60 to 102 years, with an average age of 82.52 (+8.66) years.

Most of these elderly people (88.9%) were completely dependent to carry out BADL, necessarily depending on a caregiver.

### TABLE 1 – PROFILE OF USERS ASSISTED BY IHAS.

| Variable | *n* | % |
|---|---|---|
| Sex | | |
| Men | 223 | 36.8 |
| Women | 383 | 63.52 |
| Degree of dependence | | |
| Total | 536 | 88.9 |
| Partial | 67 | 11.1 |

Regarding main diagnosis, table 2 shows that most patients were diagnosed with dementia syndrome (44.3%), and 22.9% suffered from the sequelae of a stroke – or cerebrovascular accident (CVA). Additionally, out of the 603 patients, 434 (72%) had at least one associated comorbidity (Table 3). Among the comorbidities, the most frequent diagnoses were Systemic Arterial Hypertension (SAH) and Diabetes Mellitus (DM), as presented in table 4. All elderly people underwent medical monitoring to control chronic diseases.

Regarding the oral hygiene of users assisted by IHAS (Table 5), 57.2% had regular oral hygiene, with 8.1% having good hygiene. Oral hygiene, number of comorbidities and degree of dependence did not show a significant association (table 6).

### TABLE 2 – MAIN DIAGNOSIS OF PATIENTS TREATED AT IHAS

| Variable<br>*Main diagnosis (n=603)* | *n* | % |
|---|---|---|
| Demential syndrome | 267 | 44.3 |
| Heamorragic CVA sequelae | 138 | 22.9 |
| Parkinson | 57 | 9.5 |
| Ischemic CVA sequelae | 40 | 6.6 |
| Alzheimer | 33 | 5.5 |
| Psychiatric Illness | 10 | 1.7 |
| Senility | 7 | 1.2 |
| Morbid obesity | 6 | 1 |
| Cardiopath | 5 | 0.8 |
| Amyotrophic lateral sclerosis | 5 | 0.8 |
| Others | 35 | 5.8 |

### TABLE 3 – NUMBER OF COMORBIDITIES

| Number of comorbidities | n (n=603) | % |
|---|---|---|
| None | 169 | 28.1 |
| One | 215 | 35.6 |
| Two | 146 | 24 |
| Three | 61 | 10.3 |
| Four | 12 | 2 |

## TABLE 4 – MAIN COMORBIDITIES

| *Comorbidities* | *Morbidity 1 (%)* | *Morbidity 2 (%)* | *Morbidity 3 (%)* | *Morbidity 4 (%)* |
|---|---|---|---|---|
| SAH | 357 (59.2) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| DM | 26 (4.3) | 148 (24.6) | 0 (0.0) | 0 (0.0) |
| Dyslipidemia | 1 (0.2) | 12 (2.0) | 13 (2.2) | 0 (0.0) |
| Osteoarthritis | 4 (0.7) | 3 (0.5) | 0 (0.0) | 2 (0.3) |
| Hypothyroidism | 11 (1.8) | 8 (1.3) | 13 (2.2) | 2 (0.3) |
| Osteoporosis | 0 (0.0) | 6 (1.0) | 0 (0.0) | 0 (0.0) |
| Hepatitis B | 0 (0.0) | 1 (0.2) | 0 (0.0) | 0 (0.0) |
| Femur fracture | 8 (1.3) | 1 (0.2) | 2 (0.2) | 0 (0.0) |
| Hydrocephalus | 1 (0.2) | 0 (0.0) | 0 (0.0) | 0 (0.0) |
| Glaucoma | 3 (0.5) | 3 (0.5) | 2 (0.3) | 0 (0.0) |
| Hyperthyroidism | 1 (0.2) | 1 (0.2) | 0 (0.0) | 0 (0.0) |
| Asthma | 1 (0.2) | 1 (0.2) | 1 (0.2) | 0 (0.0) |
| Chronic obstructive pulmonary disease | 0 (0.0) | 0 (0.0) | 5 (0.8) | 0 (0.0) |
| Depression | 13 (2.2) | 14 (2.3) | 10 (1.7) | 2 (0.3) |
| Neoplasia | 7 (1.2) | 15 (2.5) | 12 (2.0) | 4 (0.7) |
| Obesidity | 1 (0.2) | 4 (0.7) | 5 (0.8) | 1 (0.2) |
| arrhythmia | 0 (0.0) | 1 (0.2) | 9 (1.5) | 0 (0.0) |
| Hepatitis C | 0 (0.0) | 1 (0.2) | 1 (0.2) | 0 (0.0) |
| HIV | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.2) |
| No morbidades | 169 (28.1) | 376 (62.4) | 530 (87.9) | 591 (98.0) |

## TABLE 5 – ORAL HYGIENE

| Variable | *n (603)* | % |
|---|---|---|
| Oral Hygiene | | |
| Unsatisfactory | 209 | 34.7 |
| Regular | 345 | 57.2 |
| Good | 49 | 8.1 |

## TABLE 6 – ASSOCIATION BETWEEN ORAL HYGIENE, NUMBER OF COMORBIDITIES AND DEGREE OF DEPENDENCE.

| | **Oral Hygiene** | | | p-value |
|---|---|---|---|---|
| | **Good** | **Regular** | **Unsatisfactory** | |
| **Comorbidities** | | | | |
| None | 11 | 90 | 60 | 0.127 |
| One | 17 | 110 | 86 | |
| Two | 15 | 100 | 41 | |
| Three | 6 | 39 | 16 | |
| Four | 0 | 6 | 6 | |
| **Degree of dependence** | | | | |
| Total | 52 | 308 | 187 | 0.479 |
| Partial | 8 | 37 | 22 | |

## DISCUSSION

The IHAS of the BN carries out multidisciplinary home monitoring of elderly people living at home, also having the following objectives: keeping the patient within their family environment (enabling faster recovery and with a lower risk of infection), improving quality of life, prioritize prevention and health promotion, overcome patients' mobility difficulties, reduce the number of hospital admissions, speed up the release of beds in the reference hospital, encourage family participation in patient care, favor humanization of care and function as a setting for study and scientific research.

Of the 603 records of elderly people registered in IHAS, there was a prevalence of females (63.52%). According to IBGE data from the last census (2010), there are around 24% more elderly women over 60 years old than men in Brazil (2). Some studies attribute the name "feminization of old age" to this phenomenon (8,9).

The present stud showed that IHAS has many elderly people, with an average age of 82.52 years, with the oldest patient being 102 years old. Associated with this high average age,

most elderly people (88.9%) were completely dependent, which made it mandatory for the caregiver to perform BADL. Similarly, Oliveira *et al.* evaluated 123 elderly people living at home who were an average of 81.3 years old and 62.6% were women, as well as a percentage of 89.4% in relation to dependence (10).

Dementia syndrome was the main diagnosis in 44.3% of patients in this study. Dementia increases the risk of oral diseases (mainly periodontal disease and the need for tooth extraction) due to the loss of self-care capacity due to decreased motor skills, leading to poor oral health, a common condition found in patients with dementia (11 ,12). Gil-Montoya *et al.* showed that even patients with early-stage cognitive impairment have poor oral hygiene, with greater accumulation of bacterial plaque and gingival inflammation (13). The study by Elsig *et al*. found 100% of visible plaque in participants with dementia (14). Periodontal disease has been implicated as a risk factor for the onset and progression of dementia (12). Dementia also encourages the formation of a vicious circle, since it impairs chewing through impaired motor skills and lack of chewing, which consequently accelerates dementia by reducing blood flow and brain activity (15).

The increase in life expectancy leads to a greater prevalence and incidence of morbidities, characterized by an increase in chronic degenerative diseases (3). In the study, only 28.1% had no comorbidities. The main comorbidity found was arterial hypertension (59.2%), followed by Diabetes mellitus (29%). The study by Pimenta *et al.* corroborates these data with 69.9% of the elderly people evaluated being hypertensive, and 17.7% diabetic (16). It has been reported that hypertension in frail elderly people results from stiffening of the arteries, representing an increased risk for cognitive decline, loss of autonomy and cardiovascular mortality (17). Diabetes mellitus, in addition to the risk of mortality, has also been directly associated with loss of muscle function and strength (18).

The high degree of dependence of the patients evaluated (88.9%) means that the elderly people necessarily require a caregiver for all necessary activities. They present complex care demands, which make the caregiver prioritize other actions in relation to oral health care (19). The non-prioritization of oral care is reflected in our study through a very high rate of unsatisfactory oral hygiene (37.3%). Oliveira *et al.* found precarious oral health in the elderly due to caregivers with a lack of knowledge regarding oral care and difficulties in implementing it in practice, when guided (19). In our study, no significant relationship was found between degree of dependence and oral hygiene. This fact may be because patients who do not have a degree of total dependence, present partial dependence along with advanced age, representing some loss of motor skills and, thus, ability to perform adequate oral hygiene.

The oral cavity under appropriate conditions can have hundreds of microorganisms in homeostasis (20) and poor oral hygiene is one of the factors that alters the balance of the oral microbiota (21). These changes can invade subgingival sites and enter the bloodstream, as well as cross the digestive system and promote an imbalance in the intestinal flora, leading to inflammatory bowel disease. One example is the bacteria *P. gengivalis*, which proliferates due to poor oral hygiene and periodontal disease, with the ability to destroy the intestinal barrier, resulting in a systemic inflammatory response, aggravating the patient's other systemic diseases (22).

Poor oral conditions in patients with cardiovascular disorders have been related to a predisposing factor for the development of bacterial endocarditis, which, added to advanced age as another predisposing factor, makes patients extremely vulnerable to this infection (23). Another disease with a high mortality rate is aspiration pneumonia, presenting an increased risk in frail elderly people with dysphagia and poor oral hygiene (24).

The importance of individualized care, seeking to fit into a daily oral health routine, is necessary for frail elderly patients. Brushing teeth with fluoridated toothpaste twice a day is recommended, which can increase up to 5000ppm of fluoride in individuals at high risk for caries, especially in patients with root cavities (25). Kossioni *et al.* described a practical guide to help promoting oral health in frail elderly people (26). The authors highlight the suitability of a toothbrush that adapts to the caregiver and the patient, such as an electric toothbrush, a toothbrush with a better grip or one adapted to the patient, interdental brushes, and a dental floss adapter. The same researchers emphasize that tongue scrapers or soft brushes should be used to remove bacteria and dirt, and extra attention should be given to bedridden patients with dysphagia to clean the oral mucosa with a soft brush or gauze, aiming to remove food debris and biofilm to avoid bronchopulmonary aspiration (26).

By understanding the patients' conditions, it is possible to plan better care. It was realized that caregivers need to be better guided and stimulated on a constant and recurring basis. As visiting all patients constantly is unfeasible, teleconsultations are suggested in order to assess how and when oral hygiene is being performed and the problems presented. It is also necessary to carry out cohort studies to verify the evolution of the general health and oral health of the patients treated.

## CONCLUSION

The profile of the elderly people assisted was that of long-lived elderly people, with the vast majority having dementia syndrome as their main diagnosis, presenting comorbidities, with a degree of total dependence and with a predominance of females. There is a high prevalence of elderly people living at home with inadequate oral hygiene, however, there was no association between this aspect and the degree of dependence or comorbidities. Therefore, it is imperative that elderly people living at home receive guidance and undergo meticulous and ongoing monitoring, in conjunction with their caregivers to promote improvements in the oral hygiene of these patients.

The authors declare no conflicts of interest.

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