

## Oral Health Knowledge and Practice of Caregivers of Institutionalized Elders

*Conhecimento e Prática em Saúde Bucal dos Cuidadores de Idosos Institucionalizados*  
*Conocimiento y Práctica en Salud Bucal de los Cuidadores de Ancianos Institucionalizados*

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### Abstract

**Background:** Caregivers play an important role in maintaining adequate oral health of elders. **Objective:** The aim of this study was to evaluate the oral health knowledge and practice of caregivers of institutionalized elders in Brazil. **Methods:** This was a cross-sectional study with a sample of 27 caregivers from a long-term care institution in the city of Vitória, State of Espírito Santo, Brazil, between July and October, 2016. A form was used to assess the following characteristics of caregivers: profile, training, knowledge, practice and prevention related to oral health. All data were analyzed by descriptive statistics. **Results:** The predominant profile of the caregivers was: female (63%) and 81.5% were trained to work with elders. Although most of them knew the necessity of tooth brushing at least three times a day to prevent dental caries and periodontal disease (88.9%); 44.5% said that the caregivers performed oral hygiene for the elderly under supervision only once a day. Regarding the hygiene of dentures, only one caregiver mentioned the use of a specific chemical agent; 40.7% declared themselves unaware of any oral care protocol at the institution; 85% believed in a correlation between general health and the presence of oral diseases; 70% declared they did not know about oral diseases that could affect elders with dentures in function, and 59.3% answered that the type of food may influence oral health. **Conclusions:** Caregivers acknowledged and recognized the importance of oral health, but their practice was not consistent with their declared knowledge.

**Descriptors:** Caregivers; Dental Care for Aged; Oral Health; Oral Hygiene.

### Resumo

Muitos idosos necessitam de auxílio dos cuidadores, que exercem um papel fundamental na manutenção da adequada saúde bucal. **Objetivo:** Analisar o conhecimento e a prática em saúde bucal de cuidadores de idosos institucionalizados, na cidade de Vitória, Estado do Espírito Santo, Brasil. **Métodos:** Trata-se de um estudo transversal realizado com todos os 27 cuidadores de idosos de uma instituição de longa permanência, por meio de um formulário específico. Foram analisadas as características pessoais e de formação dos cuidadores, características sobre conhecimento, prática e prevenção relacionados à saúde bucal. Para a análise dos dados, foi realizada estatística descritiva, por meio de frequência absoluta e relativa. **Resultados:** O gênero feminino foi predominante (63%); e 81.5% receberam formação para trabalhar com idosos. Em relação ao conhecimento, embora a grande maioria conheça a necessidade de escovar os dentes pelo menos três vezes ao dia para prevenir a cárie dentária e a doença periodontal (88.9%), 44.5% disseram que a higiene bucal dos idosos não autônomos é realizada uma vez ao dia. Quanto à higienização das próteses, apenas um cuidador relatou utilizar agente químico; e 40.7% disseram não existir um protocolo de higiene oral na instituição. Cerca de 70% declararam não saber as doenças orais que podem afetar um portador de prótese; 85% dos cuidadores acreditam existir relação entre debilidade na saúde geral e o aparecimento de alterações orais; e 59.3% responderam que o tipo de alimentação pode influenciar a saúde oral do idoso. **Conclusão:** A maioria recebeu formação para cuidar de idosos e tem conhecimento sobre prevenção à cárie dental e a doenças periodontais, entretanto, não conhecem as lesões bucais que podem acometer os idosos.

**Descritores:** Cuidadores; Assistência Odontológica para Idosos; Saúde Bucal; Higiene Bucal.

### Resumen

Muchas personas mayores necesitan la ayuda de los cuidadores, quienes juegan un papel fundamental en el mantenimiento de una adecuada salud bucodental. **Objetivo:** Analizar el conocimiento y la práctica en salud bucal de cuidadores de ancianos institucionalizados, en la ciudad de Vitória, Estado de Espírito Santo, Brasil. **Métodos:** Se trata de un estudio transversal realizado con la totalidad de los 27 cuidadores de ancianos en una institución de larga estancia, utilizando un formulario específico. Se analizaron características personales y formación de los cuidadores, características sobre conocimientos, prácticas y prevención relacionada con la salud bucal. Para el análisis de los datos, se realizaron estadísticas descriptivas utilizando frecuencias absolutas y relativas. **Resultados:** Predominó el género femenino (63%); y el 81,5% recibió capacitación para trabajar con ancianos. En cuanto al conocimiento, aunque la gran mayoría conoce la necesidad de cepillarse los dientes al menos tres veces al día para prevenir la caries dental y la enfermedad periodontal (88,9%), el 44,5% dijo que la higiene bucal de los ancianos no autônomos se realiza una vez al día. En cuanto a la limpieza de las dentaduras postizas, solo un cuidador relató utilizar un agente químico; y el 40,7% dijo que no existía un protocolo de higiene bucal en la institución. Cerca del 70% declaró no conocer las enfermedades bucodentales que pueden afectar a un portador de prótesis; El 85% de los cuidadores cree que existe una relación entre la debilidad en el estado general de salud y la aparición de alteraciones bucales; y el 59,3% respondió que el tipo de alimentación puede influir en la salud bucal del adulto mayor. **Conclusión:** La mayoría recibió capacitación para el cuidado del anciano y tiene conocimiento sobre la prevención de caries dental y enfermedades periodontales, sin embargo, desconoce las lesiones orales que pueden afectar al anciano.

**Descriptores:** Cuidadores; Cuidado Dental para Ancianos; Salud Bucal; Higiene Bucal.

### INTRODUCTION

The reality of global demography has pointed out the need to seek new strategies in oral health to improve quality of life of institutionalized elders. With the increase in

lifespan of the population, concern about their quality of life has gained importance<sup>1,2</sup>. This is an immense challenge, and to enable elders to benefit from this increase in life span, health promotion and good oral health are necessary<sup>3,5</sup>.

As people age, changes in the life style become more evident, such as health problems, loneliness, family omission and the implications of the physiological process of aging. Among the clinical conditions that may be present in oral cavity of elderly people are xerostomia, reduced sense of taste, changes in the teeth and the periodontium; moreover, the number of denture users may increase<sup>6,7</sup>. The lack of oral health care could affect nutritional levels, physical and mental well-being, and decrease their enjoyment in general, and particularly of an active and healthy social life<sup>7</sup>.

With aging, third party assistance from family members or caregivers in daily routine activities is known to become of the utmost importance. These caregivers should have some knowledge about how to take care of the elderly and their needs to assist them in the best possible way<sup>8,9</sup>.

Analyzing the knowledge of caregivers in order to understand their limitations and find solutions to improve their oral hygiene practice in institutionalized elders is necessary<sup>5</sup>. Thus, the aim of this study was to evaluate the oral health knowledge and practice of caregivers of institutionalized elders in Vitória, Brazil.

#### **MATERIAL AND METHOD**

##### *Study design and population*

This was a cross-sectional survey conducted with a sample of caregivers of institutionalized elders in a long-term care institution in the city of Vitória, state of Espírito Santo, Brazil. The studied population consisted of 27 caregivers who worked in this philanthropic institution, taking care of 78 elderly people. All participants were instructed about the study and its purposes and that participation was voluntary. They signed a written term of free and informed consent and answered a form designed for this study, which was conducted in full accordance with the World Medical Association Declaration of Helsinki. The study protocol was approved by the University of Espírito Santo Ethics and Research Committee (# 1.616.346).

##### *Data collection*

The data were collected between July and October 2016, by means of specific form designed for this study based, on the studies developed by Alves<sup>10</sup>, Cornejo-Ovalle<sup>11</sup>, Vieira<sup>12</sup>. The survey was carried out by a single calibrated examiner who conducted all interviews at the institution during all working shifts.

The instrument consisted of two parts, one of closed multiple-choice questions and another of open questions. The aim of the first

part with 17 questions was to characterize the caregiver according to sociodemographic data (age, educational level, and gender), seniority, shift period, professional training, one question related to oral health self-perception, and other about their interest to participate in oral health education. The second part consisted of 25 questions to evaluate the oral health knowledge and practice of caregivers and means of prevention of the main diseases that could affect oral cavity health of elders.

The form included questions regarding the etiology of dental cavities and periodontal disease and their prevention; moreover, questions related to oral hygiene performed in dependent and non-dependent elders.

##### *Data analyses*

Data analyses consisted of descriptive statistics through absolute and relative frequency, calculating the percentage for the qualitative variables; and means for the quantitative variables. Although the questions were open, the possibility of answers was restricted and objective, therefore, categories were created for these variables using a Statistical Package software for the Social Sciences, version 17.0 (SPSS Inc., Chicago, USA).

#### **RESULTS**

Twenty-seven (27) caregivers responded the survey. The mean age of the sample was 41.2 years (SD  $\pm$ 11.6); seniority within the institution was 36 months (SD  $\pm$ 57.9). Of the caregivers, 63% were women. Another sociodemographic characteristic analyzed was the educational level, showing that 48.1% of caregivers completed their high school education. Related to self-perception, 63% answered that they had good oral health status (Table 1).

The data related to professional training characteristics and experience of caregivers is presented in Table 2. Regarding specific training in working with elders, 81.5% of the participants responded having been trained and having concluded the elderly caregiver's training course.

The most outstanding source of knowledge about oral health in elders reported by the caregivers was media communication (television, radio, and lectures). A considerable number of caregivers (92.6%) said they were interested in receiving oral hygiene instructions for elders. All caregivers declared they enjoyed working with elders.

Among caregivers, 85% believed there was a relationship between general health frailty and the presence of oral diseases, and they also

believed that poor oral hygiene was the main cause of dental caries. Furthermore, 59.3% responded that the type of food consumed could influence the oral health of older people; however, only 48.1% believed in the correlation between the consistency of food and oral health.

**Table 1.** Personal characteristics of caregivers of institutionalized elders.

Variables	N <sup>o</sup>	%
<b>Gender</b>		
Female	17	63.0
Male	10	37.0
<b>Educational level</b>		
Elementary school	5	18.5
High school	13	48.1
Nursing technical course	8	29.6
Bachelor's degree	1	3.7
<b>How do you consider your own oral health status?</b>		
Poor	2	7.4
Reasonable	3	11.1
Good	17	63.0
Excellent	5	18.5

**Table 2.** Characteristics of professional training and work of caregivers of institutionalized elders.

Variables	N <sup>o</sup>	%
<b>Work shift</b>		
Day time	21	77.8
Overnight	6	22.2
<b>Specific training in elders care</b>		
Yes	22	81.5
No	5	18.5
<b>Oral health sources of information*</b>		
Dentist	7	25.9
Family	7	25.9
Reading	7	25.9
Media communication	12	44.4
<b>Training regarding the relationship of oral hygiene and quality of life</b>		
Yes	26	96.3
No	1	3.7
<b>Interest to participate of an oral hygiene orientation</b>		
Yes	25	92.6
No	02	7.4

\* Caregivers could choose more than one option

Regarding periodontal disease, a high percentage declared they knew that this disease caused tooth loss (96.3%); and for elders who lose their teeth and are denture users, the majority of caregivers declared that they did not know about the main oral diseases that could affected the elderly (70.4%).

Regarding prevention, 88.9% of caregivers considered it important to perform tooth brushing at least three times a day; 33.3% recommended the use of dental floss; 22.2%, visited their dentist regularly as a way to prevent cavities.

On the prevention of periodontal disease, 88.9% said that they brushed their teeth at least three times a day; 29.6%, declared they visited their dentists; 18.5% affirmed the use of flossing (Table 3).

For the independent elders, 92.6% of caregivers said that they performed oral hygiene of interns in their daily tasks; and 88.9% of caregivers gave them instructions on how performed oral and denture hygiene. For dependent elders, 88.9% of caregivers were observed to have the habit of routinely examining the oral cavity of these elders every day; and 96.3% said they performed oral hygiene and denture cleaning for them, with the

most mentioned frequency being 44.5%. A total of 40.7% declared that the oral hygiene protocol was non-existent or unknown to them (Table 4).

**Table 3.** Characteristics in oral health knowledge of caregivers of institutionalized elders.

Variables	N <sup>o</sup>	%
<b>Believe in a correlation between the presence of oral diseases and general health frailty</b>		
Yes	23	85.2
No	3	11.1
<b>Main causes for the dental cavity*</b>		
Poor oral hygiene	23	85.2
Don't go to the dentist	17	63.0
Antibiotics	13	48.1
Consume great amount of sugar	11	40.7
Bacteria	8	29.6
Aging	5	18.5
<b>Influence of type of food in the oral health</b>		
Yes	16	59.3
No	11	40.7
<b>Influence of food consistency in oral health</b>		
Yes	13	48.1
No	14	51.9
<b>Could periodontal disease cause tooth loss?</b>		
Yes	26	96.3
No	1	3.7
<b>Do you have the knowledge regarding how oral diseases could affect elders who use dentures?</b>		
Yes	8	29.6
No	19	70.4
<b>What is necessary to prevent dental caries?*</b>		
Tooth brushing, at least, three times a day	24	88.9
Flossing	9	33.3
Regular dentist visits	6	22.2
Consume less sugar	5	18.5
Good eating habits	5	18.5
Mouthwash	3	11.1
Fluoride application	1	3.7
Other	1	3.7
<b>What is necessary to prevent periodontal disease?*</b>		
Tooth brushing, at least, three times a day	24	88.9
Regular dentist visits	8	29.6
Flossing	5	18.5
Good eating habits	2	7.2
Mouthwash	1	3.7
Fluoride application	1	3.7
Other	3	11.1
Don't know	2	7.2

\* Caregivers could choose more than one option.

**Table 4.** Characteristics in oral health practice of caregivers of institutionalized elders

Variables	N <sup>o</sup>	%
<b>INDEPENDENT ELDERS</b>		
<b>Practice of oral hygiene in daily routine</b>		
Yes	25	92.6
No	2	7.4
<b>Instructions of oral hygiene and dentures cleaning</b>		
Yes	24	88.9
No	3	11.1
<b>DEPENDENT ELDERS</b>		
<b>Habit to examine the oral cavity</b>		
Yes	24	88.9
No	3	11.1
<b>Practice of oral hygiene and denture hygiene</b>		
Yes	26	96.3
No	1	3.7
<b>Brushing frequency</b>		
Three times a day	7	25.9
Twice a day	8	29.6
Once a day	12	44.5
<b>Product use for dentures hygiene</b>		
Tooth paste	19	86.4
Antiseptic	15	68.2
Chlorine	1	4.5
None; only water	1	4.5
Don't know	5	18.5
<b>Existence of oral hygiene protocol at the institution</b>		
Yes	16	59.3
No	11	40.7

Caregivers could choose more than one option.

## DISCUSSION

The profile of caregivers from the institution had a high prevalence of females, corroborating findings in the literature<sup>12-15</sup>. The predominance of female caregivers could be attributed to the cultural fact that caring is usually a characteristic attributed to women<sup>11,16</sup>.

Regarding educational level, most

caregivers completed high school or had higher education, while studies carried out in other Brazilian states had a higher number of caregivers who had concluded elementary school only<sup>12,14,17</sup>. This positive aspect related to caregivers is very important because a higher level of education influences the quality of service provided, favoring the development of activities such as handling medications, following diets and prescriptions<sup>16,18</sup>.

According to the professional training and work characteristics of caregivers, 81.5% had specific training related to elders. The vast majority reported being interested in participating in oral hygiene educational training. The main alternative source of access to oral health information reported was media communication: television, radio, and lectures. In the studies of Cornejo-Ovalle<sup>11</sup>, among 196 caregivers, 92.8% were trained to tend elders and affirmed that the oral care quality depended on the training received. The educational ways suggested by caregivers to improve the access to and knowledge about oral health care were predominantly lectures and folders<sup>12</sup>. When asked about the training they had received with reference to the consequences that poor hygiene could have on the elderly people's quality of life, only one caregiver affirmed had no training. This level of training was closely related to the level of knowledge of health professionals and the training they had previously received<sup>13</sup>.

In the present study, in general it was verified that most caregivers demonstrated that they had knowledge about oral health, in agreement with the studies of Catteau<sup>13</sup>, Cornejo-Ovalle<sup>11</sup>, Lolli<sup>19</sup> and Forsell<sup>20</sup>; however, the findings in the studies of Furtado<sup>17</sup>, Alves<sup>10</sup>, Vieira<sup>12</sup> and Almeida<sup>20</sup> indicated low knowledge of professionals regarding specific oral health questions.

In oral health knowledge, a large number of caregivers evaluated in this study believed that there was a relationship between weakened general health and presence of oral diseases, corroborating the findings in the studies of Forsell<sup>19</sup>, Thomson<sup>21</sup>, Sjögren<sup>22</sup> and Reed<sup>23</sup>. The scientific community recognizes oral health as an inseparable component of overall health, capable of contributing to the good physical and psychosocial well-being of the elderly population<sup>8</sup>. Oral health care requires knowledge, as the oral mucosal condition is related to following factors: age, general health status, use of medication, oral health status, use of dentures and how long the denture has been in use by the patient. Among the age-related, risk factors are pathological changes, influence

of chronic habits and prevalence of oral mucosal conditions<sup>24</sup>.

Other data analyzed with regard to knowledge showed that the majority of caregivers said they had no knowledge of the main oral alterations that could affect elders who wore dentures. This result is important for the development of a specific training course with the purpose of teaching caregivers about denture hygiene and prevention of oral mucosal lesions in the elderly population.

In the study conducted by Murabak<sup>25</sup> with 210 elderly patients, 20.5% of them presented lesions resulting from the use of removable dentures; and in the study of Dundar & Kal<sup>24</sup> with 700 elderly patients, 36.4% presented the same type of lesion. Elderly persons should be given correct instructions regarding the use and the cleaning of dentures, and prevention of colonization of the oral mucosa and denture surfaces by *Candida albicans*<sup>2,26</sup>. Daily oral hygiene is the best method to prevent and control these lesions promoted by the poor denture hygiene that leads to oral infections.

Denture hygiene is important to maintain good health. In the present study, toothpaste was pointed out as being the product most used by caregivers to perform denture hygiene for the elders, corroborating the findings of Vieira<sup>12</sup>.

In the studies of Cakan<sup>27</sup> and Peracini<sup>28</sup> with elderly patients who used removable dentures, they observed that most participants also used toothpaste for denture hygiene. Among the denture disinfection methods, both physical (toothbrush, abrasive pastes and soaps) and chemical (alkaline peroxide and hypochlorite) agents are used. The physical method alone is known to be insufficient for completely removing biofilm, therefore, an additional chemical method is recommended for use, as it breaks the *Candida albicans* cell walls and causes less damage to the denture resin and metal<sup>29</sup>; only one caregiver mentioned having used this method. Instruction and explanation regarding denture hygiene contributes to the early diagnosis of oral pathologies such as candidiasis and other oral manifestations<sup>2</sup>.

As regards the etiology dental cavities, the vast majority of caregivers showed that they had adequate knowledge about this topic and pointed out poor oral hygiene as being the main cause. Relative to prevention, 88.9% of the responders reported that it was important to perform tooth brushing at least three times a day; 33.3% recommended flossing; 22.2% recommended regular visits to the dentist as a way to prevent dental cavities. For periodontal

disease, most caregivers declared that they knew it could lead to tooth loss. The responses related to prevention were: 88.9% recommended tooth brushing, at least, three times a day; 29.6% regular visits to the dentist; however; only 18.5% mentioned flossing as prevention.

In the study of Catteau<sup>13</sup> about caregiver's knowledge about oral health care in dependent elders living in France, 97.9% of the professionals pointed out the amount of sugar consumed daily as the main cause of cavities, followed by the presence of biofilm (95.8%), relative to periodontal disease, 61.8% pointed out the presence of bacterial biofilm as the main cause; and as prevention, they recommended seeking nutritional advice and biofilm control.

Health professionals should be able to understand the link between nutrition and oral health in the elderly, as the nutritional state influences the development and progression of oral diseases such as cavities, periodontal disease and tooth loss, compromising the overall oral condition. Nevertheless, 40.7% of caregivers believed that the type of food did not influence the oral health of elderly people and 51.9% did not believe that there was any correlation between the consistency of food and oral health<sup>30</sup>.

The limitation of caregivers was related to the frequency of tooth brushing performed for dependent elders. They reported brushing the oral cavity and dentures, but almost half of them reported that they did this only once a day. Spending time on oral hygiene is necessary at all ages, and in spite of this, the caregivers reported that this was not possible due to their work routine.

These results are in agreement with the study of Cornejo-Ovalle<sup>7</sup>, in which most caregivers performed oral health care procedures in elderly patients only once a day. This frequency is associated with the characteristics of caregivers and their training; the importance attributed to oral health in elderly; institutional aspects, such as the number of hours they work, workload, presence or absence of protocols regarding oral health.

Further to the low frequency of performing oral hygiene procedures in dependent elders, Forsell<sup>19</sup> and other authors observed that among 87 members of the nursing staff interviewed, the majority considered oral tasks unpleasant, indicating the main reasons as being: lack of cooperation from elders and fear to cause denture and tooth damage. Another study by Junges<sup>31</sup> observed that apart from the lack of cooperation from elders, the lack of time

was also a contributory obstacle. In Janssens<sup>13</sup> study with nurses and technical nurses, they reported that their knowledge had improved with an oral health protocol for institutionalized elders, but that this improved knowledge did not mean a significant change in attitude.

According to the study of Forsell<sup>19</sup>, allowing for a gap between knowledge and behavior, influenced by attitudes and perceptions of caregivers towards oral health among nursing staff, introduced serious problems for elders and should not be considered correct.

As regards self-perception of their own oral health, 63% of caregivers affirmed that they had good oral health practices. Perceptions and attitudes by caregivers related to their own oral health influenced the care they provide to elders. If caregivers fail in this task of caring for their own oral hygiene, there would be a tendency to transfer the same attitudes to the person who is under their care<sup>32</sup>.

As a limitation of the present study, it was carried out in one institution, thus it is important to highlight that the reality of one institution does not reflect the reality of all institutions. Furthermore, caregivers were interviewed in their own work place, and they may have been reluctant to express opinions freely in view of confidentiality agreements, non-disclosure commitments that may have been agreed to between the worker and the institution upon hiring. Evidence of this fact was the heterogeneity of information, when more than half of responders declared the absence of any oral hygiene protocol in this institution, when it was known there was no protocol. According to Putten et al.<sup>33</sup>, the existence of protocols allows adequate instructions to be given and contributes to improvement of oral health in elders.

The performance of oral hygiene depends on guidelines proposed by the institution and time to enable caregivers to offer to perform this task<sup>34</sup>. There should be some awareness from the management of institutions regarding the significant follow up through oral health educational programs, in order to maintain an adequate level of oral hygiene offered to elders<sup>22,35</sup>.

Another important factor is the development of an oral hygiene routine, which is possible with a specific protocol for the reality of institutionalized elders.

In this study, all caregivers declared that they warned their head nurse when oral issues were noticed. Therefore, caregivers informed this head nurse, who tried to solve the problem

first, and only in cases of extreme need was it referred to a dentist; and there were no routine visits by dentists. However, the interchange of experience between nurses and dentists is important in order to perform better oral health practices in care of the elderly<sup>10</sup>.

The introduction of oral hygiene measures into the daily routine of institutions requires a multidisciplinary approach that includes caregivers and the development of training programs by dentists, resulting in adequate dental care for the elders - a priority when preventing oral health diseases and resolving needs associated with a better quality of life<sup>11</sup>.

### CONCLUSION

It may be concluded that caregivers did know the importance of oral health maintenance of elderly patients, and they did have some knowledge regarding the prevention of dental cavities and periodontal diseases; however, they were not aware that oral diseases could affect elders. Although they presented high levels of education and training to take care of elderly people, they did not perform oral hygiene with the recommended frequency and did not know how to clean dentures properly. Therefore, a desire to improve their practice was identified, as most of them were interested in participating in oral hygiene education and training.

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#### CONFLICTS OF INTERESTS

The authors declare no conflicts of interests.

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