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Impact of oral conditions on the quality of life of elderly caregivers and oral health practices

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ABSTRACT

Introduction: Identifying factors related to the quality of life constitutes strategy for the actions supporting and monitoring the population health. **Objective:** To assess oral health practices in the elderly, the clinical conditions of oral health of the caregiver and the elderly and oral health-related quality of life of caregiver. **Methods:** Oral health was evaluated in 388 participants (194 caregivers and 194 elderly) by: the decayed, missing and filled teeth (DMFT) index, the use and need of prosthesis, the Oral Health Impact Profile (OHIP-14) scale and a semi-structured questionnaire. **Results:** Most caregivers (91.3%) acquired oral health knowledge in daily practice, 33% performed oral hygiene in the elderly and 28% reported difficulties with this activity. The average DMFT was 19.24 for caregivers and 28.70 for the elderly, both with predominance of missing teeth. Prostheses were used by 57.73% of caregivers and 63.40% of elderly. The need of protheses was high, mostly in the mandible, respectively 34.54% and 51.55%. The association between OHIP-14 and the need for total prosthesis showed an impact on the dimensions physical and psychological disabilities. The importance of religion affected the dimension psychological discomfort and physical and psychological disabilities. Caregivers over 60 years old had a 1.2 greater chance of oral health impact on quality of life compared to the 20 to 60-year-old group. **Conclusion:** The presence of low-value cultural contexts of self-care associated with a positive perception of oral health, even in precarious clinical conditions, minimized the impact on caregivers' quality of life.

Keywords: caregivers; quality of life; oral health.

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INTRODUCTION

Population ageing on developing countries has grown steeply, becoming a key challenge to contemporary public health. Chronological ageing comes with impairments, that can lead to functional disability, which is defined as difficulties or inabilities on the performance of daily activities[1,2].

Elderly who are totally or partially dependents need a caregiver, with professional formation or not, hired or even a family member. In both cases, the goal of the caregivers is to assist daily activities and provide the elderly a healthy life with good quality[3,4]. When the elderly loses the ability to feed itself, in most cases, it also cannot perform oral hygiene

cares. In these cases, the caregivers are the main providers, and the planning of the oral health care depends on the perception of these caregivers and their knowledge of oral health and hygiene[5,6].

Quality of life has been frequently associated to the clinical conditions of oral health, once the oral cavity diseases not only cause pain, but also can lead to social embarrassment[7-9]. In Brazil, the dental approach of household elderly caregivers remains incipient, and the way of how the quality of life is affected by oral health requires further investigation.

The cumulative effects of the oral diseases, associated to years of maiming dental practice, has turned the elderly oral health precarious. The edentulism (tooth loss), main sequel in this population, is a public health issue, once it leads to important functional inabilities, and the current services, however they contain the prevention and health promotion, still present difficulties in offering the minimal conditions of prosthetic rehabilitation to its users[10].

The World Health Organization (WHO) indicates that oral health is essential on the overall health promotion and on the quality of life, and characterizes it as "psychosocial wellbeing and being free of facial and oral pain; oral and throat cancer; oral wounds and infections; periodontal disease; dental caries; tooth loss and other diseases and conditions that limits the capacity of biting, chewing, smiling and talking". The WHO also recognizes the importance of reducing the impact of many oral diseases on the psychosocial development of the population[11].

The transformation of the medical standard, the curative assistant model, to one based on the social behavior, allows a development of ways to measure perceptions and feelings of the individuals, and give the appropriate importance to subjective experiences, such as physical, emotional and social well-being.

Aiming to connect biophysical, psychological and social dimensions to the health concept, oral epidemiology has aggregated perception measurements to the clinical indicators, considering the psychosocial aspects, to decide the individual's type of treatment, to which there are no determinant normative systems on these needs. However, the development of oral health indicators used to evaluate the psychological and social effects of diseases, has been performed hardly[7].

It is known that the oral hygiene care practices that the caregiver has with himself will be the same he will have with the elderly dependent. The restrict knowledge of the caregivers about oral health, associated with repulse on performing oral and prothesis hygiene on someone else, can compromise the quality of the sanitization of the elderly's oral cavity. Therefore, the comprehension caregivers have on the health-disease process, is linked to the way they develop these practices, and, for that reason, knowing the caregivers perceptions will contribute to the development of actions of oral health promotion and prevention[4,7].

Knowing how important the role of the caregiver is on orientating and preventing oral diseases, the purpose on this study was to evaluate the knowledge and practices on oral health performed by the caregivers on the elderly ones under their care, the oral clinical condition of both the caregiver and the elderly receiving his care, as well as the quality of life related to the oral health of these caregivers.

METHODS

It was performed a cross-sectional study, with caregivers and elderly people, with the search for subjects happening in two stages. On the first one, it was solicitated from the municipal health department, a relation of households that contained elderly people and their caregivers, and it was provided a list with 243 residences. It was considered as a household caregiver the existence of an individual responsible for the daily care provision to the elderly, with or without payment.

With the assistance of the Epi Info software 7.2, and considering the trust level of 95%, with a margin of errors at 5%, the size of the calculated sample was 147 out of 243 households, however the option, on the second stage, was to visit all households. A trained researcher led the interview with the caregiver and performed the oral exam on both caregiver and elderly, with a medium length of 30 minutes for each visit.

There was a loss of 20.16%, represented by the refuse on participating in the study, elderly's death, change of address, elderly living alone by the moment of the research and closed household, after three attempts, therefore, the final sample contained 194 visited households. On each household both a caregiver and an elderly person were examined, thus the total of subjects of research was 388, with 194 caregivers and 194 elderly care recipients.

A pilot study was performed for instrument adjustment, and was composed by a semi-structured questionnaire with questions about the caregiver profile and the activities performed as a caregiver, and also by the Oral Health Impact Profile (OHIP-14) and the oral exam file with the indexes the decayed, missing and filled teeth (DMFT) and the use and need for protheses. The participants of the pilot study were excluded from the final sample.

The following variables were investigated: age; gender; marital status; degree of kinship; education level; type and degree of religion importance; working time and previous actuation as a caregiver; remuneration; workload; activities performed on caring; faced difficulties and elderly's degree of dependency[12] classified on three levels: independent, moderately dependent and totally dependent.

The oral health clinical conditions were evaluated by the oral exam, performed on the household with the assistance of a tongue depressor and a flashlight, using the DMFT indexes and the use and necessity of protheses, which code was registered on oral clinical exams files for each participant.

About the activities on oral health, the procedures registered were teeth, tongue and protheses brushing, performed by the caregivers on the elderlies; if they offered mouthwash to the elderly;

the daily frequency of these activities; where the caregiver learned to perform the oral health procedures and what was the bigger difficulty they encountered.

The quality of life data related to oral health were obtained by the application of the OHIP-14 on the interview modality, considering possible difficulties on reading and writing faced by the subjects of research. The codified scale of the instrument (0=never; 1= rarely; 2=sometimes; 3=often; 4=always) allowed the obtention of a maximum value of 4 to each of the 14 questions and with the score varying from 0 to 8 to each dimension. It was considered with no impact a score inferior to 3 and with impact a score equal and higher than 3. In this way the higher scores represent worse quality of life related to oral health.

Some variables were dichotomized to perform the analysis. The age range was divided into two groups: caregivers with age from 20 to 60 years and with 60 years or more. The variable protheses need: caregivers with necessity and without necessity of prothesis.

About religiosity, the participants answered to which religion they belonged and the group was divided on religious (R), to caregivers that declared the religion, and, non-religious (NR), to those who said not to practice any religion. It was also evaluated the degree of importance that the caregiver gave to religion and the answers "very" "little" and "not" were gathered in: VI, the group formed by those who considered that religion was very important to their lives; and LI, the group formed by those who considered religion little or not important to their lives.

In that way, to measure the association, the chi-square tests or Fisher's exact test, according to the expected values on the contingency tables, were applied and to evaluate the strength of the association between event and exposure, the Odds-Ratio (OR) was calculated by the method of combined Mantel-Haenzsel. The data were processed on the Epi Info 7.2 program and analyzed on the BioEstat 5.3 program, with a confidence interval of 95%.

The study was performed with observance to the principals and guidelines appointed by the Brazilian Health Council and approved by the Institutional Ethic Board from Universidade Estadual Paulista (UNESP), process number 3.064.254. All the subjects signed the Consent Form.

RESULTS

Most caregivers were female; married; related to the elderly (1st degree – children); less than 60 years old and Catholics, as informed on Table 1.

About the oral health practices performed by the caregivers, 67% of the did not performed the oral hygiene on the elderly, claiming that this activity was executed by the elderly himself. Among those who performed the oral hygiene on the elderly (33%), the frequency of two times a day (47%) was more common and the hygiene of the prothesis was the bigger concern of the caregivers. All caregivers related to know how to perform the oral hygiene on the elderly, but when asked if they found it easy to execute, 28% said "no" and 65% of these presented personal issues as the main reason. The results also showed that 88% of the interviewed caregivers did not perform the oral examination on the elderly, claiming that, if there were any problems, the elderly would report it.

The knowledge of most of them (91.3%) was acquired on life experience practice and only 8.7% of the interviewed acquired it on a preparatory course. 20.1% of the interviewed demonstrated interest on participating a preparatory course to elderly caregiver, and the rest, justified that the advanced age, the impaired health and the lack of interest on the area would prevent them to undertake such capacitation.

Among the studied groups (caregiver and elderly care recipient) there were statistically significant differences ($p<0.0001$) to the descriptors variables of the clinical conditions of oral health, healthy, missing and filled teeth. There was only equality on the distribution of the component "decayed" ($p=0.1051$).

Table 1: Sociodemographic features of elderly's caregivers. Brazil, 2019 (n=194).

Characteristics	n	%
Age		
20 to 60 years	112	57.73
60 years or more	82	42.27
Gender		
Female	157	80.93
Male	37	19.07
Marital Status		
Single	46	23.71
Married	115	59.28
Divorced	23	11.86
Widow	10	5.15
Degree of kinship		
Spouse	56	28.87
Child	88	45.36
Grandchild	9	4.64
Other	20	10.31
Hired	21	10.82
Degree of instruction		
Illiterate	8	4.12
Incomplete elementary school	70	36.08
Complete elementary school	22	11.34
High school	66	34.02
Incomplete higher education	5	2.58
Complete higher education	23	11.86
Religion		
None	14	7.22
Catholic	101	52.06
Christian	61	31.44
Spiritism	4	2.06
Other	14	7.22
Religion importance		
Very important	170	87.63
Little important	19	9.79
Not important	5	2.58

The medium DMFT to the sample of the caregivers was 19.24±9.05 and of the elderly under care was 28.70±5.86, both with predominance of the "missing" component 13.07±11.26 and 27.37±8.03, respectively.

Still related to the clinical status, it was verified total absence of the teeth on 15.46% of caregivers and 67.53% of the elderly care recipient. Related to the presence of more than 20 teeth on the mouth, this feature was observed on 58.76% of the caregivers and only on 7.69% of the elderly.

Among the examined caregivers, 57.73% used some type of prothesis, with the partial prothesis being the most common in 29.38% of these. On the elderly's examination, it was revealed that 63.40% used prothesis and the total was predominant in 56.70% of them. Still, the need for prothesis remained high and the need for inferior prothesis represented the higher demand, for caregivers (34.54%), and for the elderly (51.55%). These results are on Table 2.

There was no statistical significance between the age groups and the dimensions of the OHIP-14. However, on the Mantel-Haenszel combined analysis, it was observed that the caregivers of the group 60 years or more, had a 1.2 higher chance of presenting impact on the OHIP dimensions, when compared to the caregivers of the group 20 to 60 years old (OR=0.837, 95%CI 0.532-1.318), according to Table 3.

The results presented on Table 4, was stated for the need for total prothesis variable, statistical significance on the physical impairment (p=0.038) and psychological impairment (p=0,009) variables. However, there was no significant statistic association between the OHIP-14 dimensions and the need for partial prothesis variable.

The analysis of the groups of Religious (R) and non- religious (NR) caregivers with the OHIP-14 dimensions, the results did not presented association, yet, when analyzing the degree of importance given to religion by the caregiver, the results were statistically significant on the dimensions psychological discomfort

Table 3: Relation between the age groups of elderly caregivers and the dimensions of the OHIP-14 scale. Brazil, 2019 (n=194)

Dimension	20 to 60 years		60 years or more		p*
	n	%	n	%	
Functional Limitation					
No impact	109	56.19	79	40.72	0.503
With impact	3	1.55	3	1.55	
Physical pain					
No impact	94	48.45	75	38.66	0.122
With impact	18	9.28	7	3.61	
Psychological discomfort					
No impact	98	50.52	74	38.14	0.552
With impact	14	7.22	8	4.12	
Physical Impairment					
No impact	102	52.58	76	39.18	0.687
With impact	10	5.15	6	3.09	
Psychological impairment					
No impact	108	55.67	76	39.18	0.201
With impact	4	2.06	6	3.09	
Social impairment					
No impact	109	56.19	80	41.24	0.644
With impact	3	1.55	2	1.03	
Deficiency					
No impact	111	57.22	81	41.75	0.668
With impact	1	0.52	1	0.52	
Combined Mantel-Haenszel					0.515

*Statistically significant (p<0.05)

Table 2: Use and necessity of prothesis by caregivers and elderly under care. Brazil, 2019 (n=388)

	Caregiver n (%)	Elderly n (%)	p
Use			
Do not use superior prothesis	82 (42.27)	71 (36.60)	<0.0001
Use superior partial prothesis	57 (29.38)	13 (6.70)	<0.0001
Use superior total prothesis	55 (28.35)	110 (56.70)	<0.0001
Do not use inferior prothesis	144 (74.23)	111 (57.22)	<0.0001
Use inferior partial prothesis	28 (14.43)	13 (6.70)	0.0132
Use inferior total prothesis	22 (11.34)	70 (36.08)	<0.0001
Superior prothesis	112 (57.73)	123 (63.40)	<0.0001*
Inferior prothesis	50 (25.77)	83 (42.78)	
Necessity			
Do not need superior prothesis	158 (81.44)	128 (65.98)	<0.0001
Need partial prothesis superior	32 (16.49)	25 (12.89)	0.3155
Need total prothesis superior	4 (2.06)	41 (21.13)	<0.0001
Do not need inferior prothesis	126 (65.28)	94 (48.45)	<0.0001
Need partial prothesis inferior	60 (30.93)	41 (21.13)	0.0279
Need total prothesis inferior	7 (3.63)	59 (30.41)	<0.0001
Superior prothesis	36 (18.56)	66 (34.02)	<0.0001*
Inferior prothesis	67 (34.54)	1.55)	

*Chi-square test of McNemar measured to a relation of dependency between use/necessity of superior x inferior prothesis, demonstrating: 1) more use of superior prothesis than inferior; 2) more necessity of inferior prothesis than superior.

Table 4: Relation between need for partial prothesis and total prothesis of the elderly caregivers and the dimensions of the OHIP-14 scale. Brazil, 2019 (n=194)

Dimension	Need for partial prothesis			Need for total prothesis		
	Yes	No	p	Yes	No	p
	(n)	(n)		(n)	(n)	
Functional Limitation						
No impact	65	123	0.334	9	179	0.273
With impact	1	5		1	5	
Physical pain						
No impact	55	114	0.259	8	161	0.373
With impact	11	14		2	23	
Psychological discomfort						
No impact	58	114	0.805	7	165	0.089
With impact	8	14		3	19	
Physical impairment						
No impact	59	119	0.391	7	171	0.038*
With impact	7	9		3	13	
Psychological impairment						
No impact	62	122	0.459	7	177	0.009*
With impact	4	6		3	7	
Social impairment						
No impact	64	125	0.550	9	180	0.233
With impact	2	3		1	4	
Deficiency						
No impact	65	127	0.566	9	183	0.100
With impact	1	1		1	1	

* Statistically significant (p<0.05)

Table 5: Relation between religiosity of the elderly caregivers and the dimensions of the OHIP-14 scale, Brazil, (n=194)

Dimension	Religiosity			Degree of religious importance		
	Religious	Non-religious	p	Very important	Little important	p
	(n)	(n)		(n)	(n)	
Functional Limitation						
No impact	174	14	0.634	165	23	0.526
With impact	6	0		5	1	
Physical pain						
No impact	159	10	0.087	149	20	0.373
With impact	21	4		21	4	
Psychological discomfort						
No impact	161	11	0.201	155	17	0.009*
With impact	19	3		15	7	
Physical impairment						
No impact	165	13	0.676	159	19	0.032*
With impact	15	1		11	5	
Psychological impairment						
No impact	172	12	0.155	164	20	0.023*
With impact	8	2		6	4	
Social impairment						
No impact	175	14	0.684	166	23	0.473
With impact	5	0		4	1	
Deficiency						
No impact	178	14	0.860	169	23	0.232
With impact	2	0		1	1	

*Statistically significant (p<0.05)

(p=0.009), physical impairment (p=0.032) and psychological impairment (p=0.023), as shown in Table 5.

DISCUSSION

The profile of the caregiver obtained on this study was similar to the one found on literature[4,6]. They are informal caregivers, mostly women, with age range from 30 to 80 years old, with kinship to the elderly, as daughter or spouse, and with a low degree of scholarship.

It was observed the lack of orientation to perform essential actions on the oral health care, such as the examination and the oral hygiene of the elderly, requiring planning and assistance by a multidisciplinary team, including a dentist, in order to provide capacitation to the caregiver on the adequate care on the elderly.

A negative vision related to the elderly's oral health was associated to the perception of the caregivers on the need to totally extract the elderly's teeth, justified by aspects such as personal issues with sanitation; practicality on the preparing of pasty foods and mobility impairment of the elderly, this last one demonstrates the lack of instruction about the oral sanitation techniques in bed with facilitating instruments[4,10].

The clinical conditions results demonstrated a poor oral health condition context to the elderly's, with an elevated DMFT index, with prevalence of the "missing" component, resulting a high rate of edentulism, as found in other researches about elderly's oral health [2,7,9,13-15].

The participants considered teeth loss as something natural, as a consequence of age and liable of reposition with dental prothesis. This naturalization process of teeth loss is similar in all regions of Brazil, revealing the historic lack of public politics on oral health to the elderly and adult population[16].

The effect of dental maiming did not corresponded to a negative self-perception of oral health, even with reports about difficulties on chewing by lack of teeth, once the use of dental prothesis seemed to minimize the effects of mutilation and contribute to a positive self-perception[17]. The portrait of the poor oral health condition, in adults and elderly, reveal the heritage of a healing assistant model, marked by the progressive loss of teeth and by the dental treatments that did not stop the progression of the oral diseases, but only could repair their sequels[18].

Oral issues, generally, did not affect the wellbeing and quality of life of the caregivers, they were represented by treatable acute episodes and minimized by the presence of more severe chronic conditions.

The prothesis and dental absence pairing had important impact on the physical, psychological, and social dimensions of life quality related to oral health. In contrast, dental prothesis do not meet, totally, the chewing needs, negatively impacting on life quality.

It is necessary to emphasize that, in the case of the evaluated elderly, the use of superior prothesis was higher than the inferior ones, and it did not necessarily correspond to a higher jaw edentulism. This fact reflects the historic failure on the adaptation of the inferior prothesis, which leads to discontinuation of the use, resulting in dietary, functional, psychological, and aesthetic injury[9].

The World Health Organization have been referring to the presence of at least twenty functional teeth as a goal to the oral health be considered satisfactory. The results observed in this article demonstrated how much the studied elderly population is far from this threshold, likewise to the data found in a national level[15]. The high values of DMFT on elderly, highlighted a situation close to edentulism[19], that can be observed by the predominance of the "Missing" component on the studied population.

The impact of the oral health on caregiver's life quality, caused by the need for prothesis, was little, demonstrating low perception of the participants about the precarity of their oral clinical condition, and it is because of the lack of a selfcare valorization culture[9]. The low impact on life quality related to oral health, was also found in other studies that used the OHIP-14, in which the instrument was considered reliable, coherent and representative[7,20-22].

About the need of prothesis, it was verified that the need for total prothesis impacted caregiver's life quality on the physical and psychological impairment areas, indicating that this oral condition, aside from reflecting decades of exclusion to the rehabilitation dental services, also demonstrates that the effective dental treatment is an important reducer of the impact on life quality[21].

The quality of life related to oral health was also associated with religiosity of household elderly caregivers. If by one side the type of religion declared did not impact on life quality of these caregivers, by the other, the degree of importance given to religion, as an act of faith, influenced life quality related to oral health on physical and psychological aspects.

The results of the present study are in conformity with recent investigations that pointed out that caregivers with most religiosity presented with less depressive symptoms[23]. Other study reveals that elevated levels of religious involvement would be related to indicators of psychological wellbeing, such as life satisfaction, joy of living and affectivity, because religiosity was also related with the construction of meaning and ordination of life of the individual, positively and directly influencing health[24].

It can be concluded in the present study that oral health is in fact an important indicator of wellbeing and life quality of people, and the reduced levels of impact on quality of life related to oral health on the studied population, were justified by the presence of cultural context with little value of selfcare associated to the positive perception of oral health, even on poor clinical conditions, emphasizing the need for planning of actions related to oral health promotion to household elderly caregivers.

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