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Is the negative evaluation of dental services among the Brazilian elderly population associated with the type of service?

A avaliação negativa dos serviços odontológicos entre idosos brasileiros está associada ao tipo de serviço utilizado?

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ABSTRACT: This study aimed at identifying the prevalence of the negative evaluation of dental services among elderly Brazilians and at investigating whether the prevalence was higher among those using public or philanthropic provider services than among those paying privately or using private health plans. Additionally, factors associated with this negative assessment were identified. Interview and survey data were collected in the residences of participants by trained and calibrated examiners as part of a national epidemiological survey of oral health conditions of the Brazilian population in 2002/2003. The dependent variable was obtained in response to questions regarding whether the participant had ever used dental services, the frequency of use, and the quality of this service. Potential responses to the questions regarding the quality of service were very poor or poor, fair, and good or very good. The main independent variable was the system of health care used with potential responses being health plan or private, public, and philanthropic services. We conducted univariate (linear tendency χ^2 test) and multiple descriptive analyses, and the partial proportional Odds model for ordinal logistic regression. Among the elderly, 196 (3.7%) evaluated the provided services negatively (very poor or poor). Participants with the following responses were more likely to evaluate the services negatively: those who had used public or philanthropic services, men, those with higher education, the ones who had not received information about preventing dental problems, those who perceived pain in their teeth and gums in the last six months, and those who self-reported their oral health and speech was poor. In conclusion, elderly Brazilian users of public and philanthropic services were more likely than users of private or insurance-based plans to evaluate their dental services negatively, regardless of the other investigated variables.

Keywords: Evaluation. Dental care. Elderly. Oral health. Users.

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RESUMO: Objetivou-se avaliar a prevalência de avaliação negativa dos serviços odontológicos e constatar se ela foi maior entre usuários de serviços públicos ou filantrópicos do que entre idosos brasileiros usuários de serviços particulares ou de planos de saúde. Além disso, foram identificados os fatores associados a tal avaliação negativa. Foram utilizados dados do levantamento epidemiológico das condições de saúde bucal da população brasileira de 2002/2003, obtidos por meio de entrevistas e exames conduzidos nos domicílios por examinadores treinados e calibrados. A variável dependente foi obtida a partir das respostas sequenciais às perguntas: "Já foi ao dentista alguma vez na vida?; Há quanto tempo? e Como avalia o atendimento?", categorizadas em péssimo/ruim; regular e bom/ótimo. A principal variável independente foi o "Sistema de atenção à saúde utilizado (plano de saúde/particular; público/filantrópico)". Foram conduzidas análises descritivas, univariadas (prova de tendência linear do χ^2) e múltiplas, utilizou-se a regressão logística ordinal de *Odds* proporcionais parciais. Dentre os idosos, 196 (3,7%) avaliaram negativamente (péssimo/ruim) os serviços odontológicos. A reação negativa foi superior entre aqueles que usaram serviços públicos/filantrópicos; homens; com maior escolaridade; que não receberam informações sobre como evitar problemas bucais; que autoperceberam dor nos dentes e gengivas nos últimos seis meses, a saúde bucal e a fala como ruim/péssima. Conclui-se que a avaliação negativa foi maior entre usuários de serviços públicos e filantrópicos independentemente das demais variáveis investigadas.

Palavras-chave: Avaliação. Assistência odontológica. Idosos. Saúde bucal. Usuários.

INTRODUCTION

The increased longevity of the Brazilian population and the reduced mortality and fecundity rates have changed the demographic profile of the country, which now has one of the fastest aging populations in the world[1]. It is estimated that in 2020, Brazil will have the sixth largest population of elderly people in the world[2]. The demands and needs of the elderly Brazilian population are increasing, especially in the health field[3], which leads to the need for more oral health attention among this population, and this does not always happen[4]. Therefore, knowing the needs, determining factors of the use of services and making the access to qualified health services viable for the elderly present as new challenges[5]. Besides, the evaluation of health services from the perspective of the users has been used in the attempt to organize and order resources, with the objective of meeting the health needs of the population properly; therefore, this would be an important tool for the development of management strategies for the sector[6].

Studies that evaluated health services stood out in literature, especially in the 1970s, in countries like the United States and England. The improvement of health services is

reached when one of the goals is user satisfaction. In Brazil, these studies were conducted from the 1990s on, especially with the strengthening social control in the scope of the Unified Health System (SUS), by means of the participation of the community in planning and evaluation processes[7].

The opinion of users as to the quality of care has been suggested with the objective of promoting subsidies for those who administer such services and for the staff that provides care, therefore allowing the detected limitations to be overcome[8]. It helps, since the participation of users in the assessment of services surpasses its mere passive use, and provides essential information to define quality standards in the provided services, since this perspective enables to complement the technical quality evaluations with a shared view of the perception of individuals who receive care[9].

The need to assess health services, besides improving the performance of service providers, gives favorable conditions to employees and users, improves working conditions and the quality of life of people, therefore providing more efficiency and effectivity to the system[10]. The quality of health services can be considered as a result of several factors, such as professional competence, accessibility, effectivity, efficiency and user satisfaction[11]. In this context, the dental health service should also be assessed. This was first developed in a representative sample of the elderly population in Brazil, in the epidemiological survey of oral health conditions of the Brazilian population (Project SB Brasil). It was a population-based study conducted by the Ministry of Health (MH) in 2002 and 2003. This study generated a descriptive report about oral health conditions of the Brazilian population, which also contemplated information about dental cavities, periodontal conditions, edentulism, dental and facial anomalies, fluorosis, socioeconomic characterization, access to dental services and oral health self-perception. In the mentioned report, it was observed that 3.9% of the elderly assessed oral services negatively (very poor/poor)[12].

No studies characterizing the Brazilian elderly population who assessed the services negatively were identified. Therefore, identifying if the prevalence of negative evaluation regarding dental services among the Brazilian elderly population was higher among users of public or philanthropic services, as well as factors associated with this analysis, can subsidize changes in public health and assistance policies in the field, with the implantation of rehabilitating, preventive and health promotion actions[13].

With the assessment of health systems, matters such as accessibility, coverage and equity were evaluated. Quality is frequently seen as a primordial factor to be considered for the assessment of health services[14,15]. Dobabedian[14] proposes that the best strategy to assess such services should involve a set of indicators representing the triad: structure-process-results. Structure refers to characteristics involving providers, instruments and resources, as well as physical and organization conditions of services; the process would correspond to the relationship established between professionals and patients during the performed activities; and the results would be the changes observed in health status, knowledge, behavior, and user satisfaction resulting from the provided care[16].

The most publicized theoretical model to analyze the associated factors regardless of dental services was the one by Andersen and Davidson[17]. Its expanded version was specifically developed to assess the use of dental services among adults and elders in the United States, in 1997. This version proposes that primary determinants of oral health (external and personal characteristics of the population and system of oral health care) influence behavior (use of dental services and personal oral hygiene practices). These on the other hand, influence oral health outcomes (oral health condition assessed by a professional or self-perceived by individuals and user satisfaction). In this sense, one of the oral health outcomes of the referred model is the assessment of health services from the perspective of the users.

Based on the exposed, this study aimed at identifying the prevalence of negative evaluation of dental services and analyzing if it was higher among users of public or philanthropic services in relation to those who use private or insurance-based plans. It also aimed at identifying the factors associated with the negative assessment of dental services among the Brazilian elderly population, using data from Project SB Brasil 2002/2003[12]. The previously described model[18] proposed by Andersen and Davidson in 1997[17] was used as theoretical reference and considered the triad proposed by Dobanedian[16].

METHODS

The project SB Brasil 2002/2003 involved 108,921 individuals living in 250 cities of the give Brazilian macroregions, selected by cluster probability sample by raffle. Interviews and examinations were conducted in the households and schools. Data collection was performed by dental surgeons who were trained and calibrated from the Kappa statistics calculation (≥ 0.61) and/or percentage concordance (variable % according to the assessed oral condition) This was made in order to allow examiners to go to field, however, the organizers of SB Brasil 2002/2003 did not publicize the concordance values obtained from calibration. Examinations were conducted under natural lighting, with the assistance of a mouth mirror, wooden spatulas and periodontal probe[12]. According to a proposal by the World Health Organization (WHO)[19], besides sociodemographic conditions, as well as those of evaluation and use of dental services, the survey investigated the self-perceived need for dental care and oral health, as well as health conditions (cavity, need for treatment, use need for prosthesis, changes in soft tissues) among the elderly[12].

In the analysis, 5,349 elderly individuals were examined and interviewed (aged from 65 to 74 years old). This investigation used a piece of the data base, considering elderly people (65 to 74 years old) who used dental services at least once in life and who answered the question about the evaluation of dental services, accounting for 5,013 participants.

The triad proposed by Donabedian[16] involves a set of indicators that can be used to assess health services: structure-process-results. In this research, no variables concerning the structure indicator were found. Process was referred to as the question concerning access to information about how to avoid oral problems. The indicator 'results' was assessed from user satisfaction.

The studied dependent variable "Assessment of Dental Services" was obtained from sequential answers to the questions: "Have you ever been to the dentist? How long ago? (have never been to the dentist/less than one year/ from one to two years/ three years or more); How do you evaluate assistance?" (Very poor / Poor / Fair / Good / Very Good). This investigation excluded participants who have never been to the dentist, and therefore, did not evaluate dental services. The answers to the last question were separated into three categories, respectively: positive assessment – those who considered dental services to be good/very good; intermediate assessment – the ones who considered the service to be fair; and negative assessment – as poor/very poor.

The main independent variable was: used health care system (insurance health plan/ private; public/philanthropic). Besides, the variables described as independent proposed in the theoretical model by Andersen and Davidson[17] were the ones gathered in five groups: external environment, individual characteristics, health-related behavior, normative and subjective health conditions. External environment included: Brazilian macroregions (Southeast; South; Center-West; Northeast; North) and place of residency (urban; rural zones). The investigated individual characteristics were: age in years (65 to 69; 70 to 74 years old), sex (female; male), race/self-declared color (white and yellow/brown/black/ indigenous), schooling in years (five years or more; one to four years; zero) and access to information about how to avoid oral problems (yes; no).

The availability of resources was evaluated by *per capita* household income in reais in tertiles (R$ 201.00 or more; R$ 100.00 to 200.00; R$ 0.00 to 99.00). The variable referring to health-related behavior included the use of dental services (three years ago or less; more than three years ago). Normative health conditions referred to the presence of changes in soft tissues (no; yes), number of permanent teeth (10 or more; one to nine; zero), number of permanent teeth with cavity (zero; one to three; four or more), edentulism (no; yes) and use of prosthesis (no; yes). Subjective conditions related to oral health included self-perceived pain in teeth and gum in the past six months (no; yes), oral health (very good/good/fair; poor/very poor), appearance of gums (very good/ good/fair; poor/very poor), mastication (very good/good/fair; poor/very poor), speech as to teeth and gums (very good/good/fair; poor/very poor), relationship status due to oral health (does not affect it / affects it a little; affects it more or less/ affects it a lot) and the need for treatment (no; yes).

Statistical analyses were conducted with the statistical softwares Predictive Analytics Software (PASW®, version 17 for Windows) and *Stata* (StataCorp LP, version 12.0). Initially, the Brazilian elderly people were characterized according to the evaluation of dental services, external environment, individual characteristics, health-related behavior, and normative and subjective health conditions. Afterwards, univariate analyses were conducted to identify factors associated with the negative evaluation of dental services among the Brazilian elderly population, from the χ^2 tendency test (significance level ≤ 0.25). The score test was used for each independent variable in order to check if the proportional Odds assumption had been violated[20]. Violation was found for the schooling

(p = 0.00503), per capita income (p = 0.02914), self-perceived pain (p = 0.02464, oral health (p = 0.0005), need for dental treatment (p = 0.01075), relationship status (p = 0.00214) and speech (p = 0.00712) variables.

For the other independent variables, p values ranged from 0.1256 and 0.8409. Therefore, the partial proportional Odds model was chosen in the multiple analysis, which was conducted by using the gologit2 command in Stata[21,22]. This software tests the assumption of proportional Odds by means of the autofit option, and adjusts coefficients for the several categories in which this assumption is violated. The model enables independent variables to be modeled by obtaining coefficients for each compared category.

All of the variables that were associated with a 5% significance level remained in the models. Correction based on the design effect was made by using the svy command in Stata to analyze data coming from complex samples. This adjustment was necessary because the sample of the project SB Brasil was conducted by clusters, and estimates that do not consider the cluster organization of the sample tend to overestimate the loss of estimation precision. All of the people who were selected to be part of the study signed an informed consent form according to the ethical principles of the Declaration of Helsinki, which are present in the resolution by the National Health Council 196/96, approved by the National Commission of Research Ethics – CONEC (report 581/2000).

RESULTS

Out of the 5,349 elderly participants in the project SB Brasil, 5,013 (93.7%) used dental services and answered the question about the evaluation of dental services, therefore, they were included in this study. Out of the 5,013 elderly people, 196 (3.7%) assessed dental services negatively (poor/very poor), 496 (10.7%), intermediately, and 4,321 (85.6%), positively.

Most elderly participants were female, aged between 65 and 69 years old, who were self-declared as non-white, with one to four schooling years, who had no access to information about how to avoid oral problems, with declared per capita income of R$ 100.00 to 200.00, living in the South and Northeast macroregions of the country, mostly concentrated in the urban zone. From the participants, 31.8% used dental services three years ago or less, and 68.2% of the elderly used it more than three years ago. As to the used health care system, the private type was prevalent (Table 1).

In the univariate analyses, it was observed that several factors were associated with the negative evaluation of dental services with significance lower or equal to 0.25, among them, the adopted health care system (Table 2).

In the multiple analysis, the prevalence of the negative evaluation of dental services was higher among users of public or philanthropic services in relation to Brazilian elderly people who attended private services or insurance-based plans. Besides, six other variables remained associated with the negative assessment of dental services (Table 3).

Table 1. Characterization of the elderly, according to the evaluation of dental services, external environment, individual characteristics, health-related behaviors, health conditions normative, and subjective health conditions, SB Brazil, 2002/2003 (n = 5,013).

	n	%
Evaluation of dental services		
Negative (Fair/Poor/Very poor)	692	14.4
Positive (Very good/Good)	4,321	85.6
Evaluation of dental services		
Negative (Poor/Very poor)	196	3.7
Positive (Very good/Good/Fair)	4,817	96.3
External environment		
Macroregion		
Southeast	1,015	21.4
South	1,339	27.4
Center-West	696	14.3
Northeast	1,275	24.9
North	688	12.0
Place of residency[#]		
Urban zone	4,390	91.2
Rural zone	621	8.8
Used health care system[&]		
Insurance-based plan/Private	2,563	56.9
Public/Philanthropic	2,209	43.1
Individual characteristics		
Age in years		
65 to 69	3,019	61.5
70 to 74	1,994	38.5
Sex		
Female	3,095	62.1
Male	1,918	37.9
Race/self-declared color[§]		
White	2,470	50.8
Yellow/brown/black/indigenous	2,528	49.2
Years of schooling		
5 or more	1,014	23.6
1 to 4 years	2,287	46.6
0	1,712	29.8

Tabela 1. Continuation.

	n	%
Access to information about how to avoid oral problems[†]		
Yes	2,083	40.4
No	2,928	59.6
Per capita income[‡]		
R$ 201.00 or more	1,502	35.1
R$ 100.00 to 200.00	1,990	36.4
R$ 0.00 to 99.00	1,492	28.5
Health-related behaviors		
Use of dental services[##]		
3 years ago or less	1,513	31.8
More than 3 years ago	3,485	68.2
Normative health conditions		
Changes in the soft tissue[&&]		
No	4,179	85.0
Yes	795	15.0
Number of permanent teeth		
10 or more	1,157	24.1
1 to 9	1,057	20.6
0	2,799	55.3
Number of permanent teeth with cavity		
0	3,623	73.2
1 to 3	829	16.8
4 or more	561	10.0
Edentulism		
No	2,214	44.7
Yes	2,799	55.3
Use of prosthesis[§§]		
No	1,534	28.0
Yes	3,470	72.0
Subjective conditions related to health		
Self-perceived toothache or gum in the past six months[††]		
No	3,872	78.9
Yes	1,136	21.1

Tabela 1. Continuation.

	n	%
Self-perceived oral health‡‡		
Very good/Good	2,605	54.7
Fair	1,421	29.9
Poor/Very poor	781	15.4
Self-perceived look###		
Very good/Good	2,353	50.3
Fair	1,384	30.2
Poor/Very poor	906	19.5
Self-perceived mastication&&&		
Very good/Good	2,504	51.2
Fair	1,211	24.1
Poor/Very poor	1,188	24.7
Self-perceived speech§§§		
Very good/Good	3,023	62.9
Fair	1,082	22.8
Poor/Very poor	678	14.3
Self-perceived relationship status†††		
Does not affect it	3,221	71.7
Affects it a little	638	14.5
Affects it more or less/affects it a lot	587	13.8
Self-perceived need for treatment‡‡‡		
No	2,311	47.1
Yes	2,696	52.9

Number of participants who did not answer the questions: #2, &241, §15, †2, ‡29, ##15, &&39, §§9, ††5, ‡‡206, ###370, &&&110, §§§230, †††567, ‡‡‡6. Two prevalences of evaluation of the odontologic services were presented, considering the regular in the negative evaluation as well as in the positive one.

DISCUSSION

The velocity of the demographic and epidemiological transition process brings a series of crucial matters for administrators and researchers of the health system, with repercussions for the society as a whole, especially in a context of severe social inequity, poverty and fragile institutions[23]. Identifying the prevalence of the negative evaluation of

Table 2. Univariate analysis to identify the factors associated with negative evaluation (bad or poor) of dental services among the elderly, SB Brazil, 2002/2003.

Variables	Positive		Fair		Negative		p-value*
External environment	n	%	n	%	n	%	
Used health care system							
Insurance-based plan/Private	2.312	90.2	182	7.3	69	2.5	< 0.001
Public/philanthropic	1.825	80.7	278	14.8	106	4.5	
Macroregion							
Southeast	880	87.5	89	8.1	46	4.4	0.0639
South	1.192	89.9	104	7.3	43	2.8	
Center-West	592	84.0	73	11.4	31	4.6	
Northeast	1.094	83.4	138	13.1	43	3.5	
North	563	85.6	92	10.7	33	3.6	
Place of residency							
Urban Zone	3.775	85.4	440	10.8	175	3.8	0.2338
Rural Zone	545	88.9	55	9.1	21	2.0	
Individual characteristics							
Age in years							
65 to 69	2.616	86.5	286	9.8	117	3.7	0.1385
70 to 74	1.705	84.3	210	12.2	79	3.5	
Sex							
Female	2.709	87.0	282	10.3	104	2.7	< 0.001
Male	1.612	83.3	214	11.4	92	5.3	
Race/self-declared color							
White	2.148	87.8	220	8.9	102	3.3	0.092
Yellow/brown/ black/indigenous	2.159	83.5	275	12.5	94	4.0	
Years of schooling							
5 years or more	855	86.1	101	10.8	58	3.1	0.174
0/1 to 4 years	3.466	84.3	395	10.2	138	5.5	

Tabela 2. Continuation.

Variables	Positive		Fair		Negative		p-value*
External environment	n	%	n	%	n	%	
Access to information about how to avoid oral problems							
Yes	1.865	89.2	170	8.9	48	1.9	< 0.001
No	2.454	83.2	326	11.9	148	5.9	
Per capita income							
R$ 201.00 or more	1.334	88.7	112	7.9	56	3.4	0.006
R$ 100.00 to 200.00	1.706	85.7	210	11.1	74	3.2	
R$ 0.00 to 99.00	1.255	81.8	172	13.6	65	4.6	
Health-related behaviors							
Use of dental services							
3 years ago or less	1.313	86.8	135	9.4	65	3.8	0.594
More than 3 years ago	2.998	85.2	359	11.2	128	3.6	
Normative health conditions							
Changes in the soft tissue							
No	3.590	85.1	417	11.0	172	3.9	0.202
Yes	689	88.6	73	8.6	24	2.8	
Number of permanent teeth							
10 or more	1.005	86.0	112	10.1	40	3.9	0.764
1 to 9	918	86.5	93	9.6	46	3.9	
0	2.398	85.2	291	11.3	110	3.5	
Number of permanent teeth with cavity							
0	3.313	85.8	354	10.9	136	3.3	0.189
1 to 3	707	84.5	91	11.8	31	3.7	
4 or more	481	86.5	51	7.6	29	5.9	
Edentulism							
No	1.923	86.3	205	9.9	86	3.8	0.368
Yes	2.398	85.2	291	11.3	110	3.5	

Tabela 2. Continuation.

Variables	Positive		Fair		Negative		p-value*
External environment	n	%	n	%	n	%	
Use of prosthesis							
No	1.323	85.0	140	11.0	71	4.0	0.839
Yes	2.990	85.9	356	10.6	124	3.5	
Subjective conditions related to health							
Self-perceived toothache or gum in the past six months							
No	3.418	87.5	340	9.9	114	2.6	< 0.001
Yes	898	78.6	156	13.5	82	7.9	
Self-perceived oral health							
Very good/Good/Fair	3.536	87.7	379	9.7	111	2.6	< 0.001
Poor/Very poor	620	77.3	85	13.4	76	9.3	
Self-perceived look							
Very good/Good/Fair	3.295	88.1	144	9.5	55	2.4	< 0.001
Poor/Very poor	716	77.7	105	13.0	85	9.4	
Self-perceived mastication							
Very good/Good/Fair	3.276	87.8	345	9.7	94	2.5	< 0.001
Poor/Very poor	966	80.6	124	11.9	98	7.5	
Self-perceived speech							
Very good/Good/Fair	3.605	87.6	382	9.6	118	2.8	< 0.001
Poor/Very poor	535	77.5	80	14.2	63	8.3	
Self-perceived relationship status							
Does not affect it	2.876	88.3	238	8.3	107	3.4	< 0.001
Affets it a little	513	79.6	94	14.8	31	5.6	
Affects it more or less/a lot	486	82.6	76	14.0	25	3.4	
Self-perceived need for treatment							
No	2.029	87.4	202	9.4	80	3.2	< 0.001
Yes	2.286	84.1	294	11.9	116	4.0	

*tendency χ^2 test.

Table 3. Multiple analysis of factors associated with negative evaluation of dental services among the elderly, SB Brazil, 2002/2003.

Variables	Model 1 (Very good/Good versus Fair/Poor/Very poor)		Model 2 (Very good/Good/Fair versus Poor/Very poor)	
	OR (95%CI)	p-value	OR (95%CI)	p-value
Main independent variable				
Used health care system				
Insurance-based plan/Private	1		1	
Public/Philanthropic	2.27 (1.74 – 2.94)	< 0.001	2.26 (1.74 – 2.94)	< 0.001
Individual characteristics				
Sex				
Female	1		1	
Male	1.44 (1.17 – 1.78)	0.001	1.44 (1.16 – 1.78)	0.001
Years of schooling				
0/1 to 4 years	1		1	
5 years or more	1.59 (1.12 – 2.25)	0.009	2.77 (1.34 – 5.74)	0.006
Access to information about how to avoid oral problems				
Yes	1		1	
No	1.77 (1.40 – 2.24)	< 0.001	1.77 (1.40 – 2.23)	< 0.001
Subjective health-related conditions				
Self-perceived toothache or gum in the past six months				
No	1		1	
Yes	1.70 (1.22 – 2.39)	0.002	1.70 (1.21 – 2.39)	0.002
Self-perceived oral health				
Very good/Good/Fair	1		1	
Poor/Very poor	1.16 (0.98 – 1.37)	0.087	1.65 (1.24 – 2.20)	0.001
Self-perceived speech				
Very good/Good/Fair	1		1	
Poor/Very poor	1.21 (1.03 – 1.42)	0.023	1.21 (1.03 – 1.42)	0.023

dental services, observing if it is higher among users of public or philanthropic services in comparison to the elderly individuals who use private services or insurance-based plans, as well as identifying the factors associated with the negative evaluation of these services from the perspective of the user are important for the attempt to overcome the limitations of the biomedical service. Since the disease is considered to be a biological process in this model, sociocultural and community questions and the perception of people about their health conditions are not taken into account in the evaluation of the health-disease process[24].

The precariousness of the oral health condition of the elderly and the fact that most of them need some sort of treatment[12] may be responsible for the negative evaluation of dental services. On the other hand, edentulism that affects more than half of the elderly[12] seems to have been accepted as a natural phenomenon. Despite the precarious health conditions and the fact of being toothless[12], most of these elders self-evaluated their oral health positively[25]. However, it is important to emphasize that these people come from a time when losing teeth was normal, and oral health conditions reflected the model of health care adopted in the country, with little accessibility, lack of equity, inefficient basic care and mutilating treatments[26]. Therefore, the low prevalence of negative evaluations observed in this investigation may be based on the acceptance of these precarious oral health conditions, which is based on a cultural matter.

A few studies approached the assessment of dental services. When the accessibility dimension was considered, as well as some aspects involving the physical environment of dental services, most users were not satisfied[27]. In this investigation, questions referring to accessibility and the physical environment were not assessed. When general health services were compared to dental services, most users were mostly dissatisfied with dental services[28]. In spite of that, regardless of the several forms of conceiving and measuring user satisfaction, such as in this investigation, most studies had low dissatisfaction prevalence[27,29,30]. This fact is known as the "elevation" effect of satisfaction rates, and is reported even when expectations about the services are negative. It could be expected that users in developing countries, like Brazil, where access to qualified health care is still precarious, would mostly be dissatisfied with services that are provided by SUS or by philanthropic organizations[28]. On the other hand, the results found in this article can be a consequence of good and resolutive provided dental services offered by health insurances or private entities.

The multiple analysis showed that, from the five groups proposed by Andersen and Davidson[17], only health-related behaviors and normative health conditions were not associated with the negative evaluation of dental services. Also among the questions related to the structure-process-results triad, which would be important measures to evaluate these services[16], no variable concerning structure was found. With regard to process, the investigation of access to information about how to avoid oral problems

was assessed according to the proposal by Donabedian[16]. It is believed that the lack of statistical significance (and associations) between the dependent variables and those proposed in the theoretical model is due to the absence of variables collected in the project SB Brasil[12] that could represent all of the theoretical dimensions of the proposed model[16]. Therefore, it was not possible to evaluate the questions concerning structure. In the data base of the project SB Brasil, only one question could be assessed to identify the association between the negative evaluation of dental services and the "process" (access to information about how to avoid oral problems)[12]. However, it is known that the assessment of the relationship between professionals and users would require the analysis of other questions, such as respect, waiting time, freedom to ask questions, among others[16].

The evaluation of the quality of health care is an important tool for the planning and management of health services and systems[31]. From that perspective, the idea of good quality in a service is considered when the problem is solved, as well as in situations in which the care provided to the user leads to satisfaction both concerning physical structure and the relationship between professionals and users[16]. Some studies were conducted with the objective of assessing the level of user satisfaction with the health services[6,8,32,33]. Approaching this situation means to evaluate the characteristics of the services, therefore, their quality. Thus, the perspective of users provides important information to improve the quality of services[34]. No associations were found between the negative assessment of services and normative conditions of oral health. According to the proposal by Donabedian[16], such services could be considered as non-satisfactory, once the results, that is, the oral health of the elderly, were negative. It is important to mention that these conditions are consequences of services provided throughout the lives of the elderly, and that they probably analyzed the services used more recently, since the evaluation of dental services was based on the questions: "Have you ever been to the dentist?"; "How long ago?"; and "How do you evaluate care?". However, statistically significant associations were observed with subjective questions, which can also be considered as health conditions, that is, results. According to the Health Department of the United Kingdom, oral health involves a set of attributes that guarantees mastication, speech and the socialization of individuals, besides the non-existence of disease or discomfort, aiming at the general well-being[32]. Therefore, the consideration of subjective questions is also a type of health measure. In this context, when the proposal is to evaluate oral health services, it is necessary to understand the oral health conditions of the users[26], as well as their perception about these conditions.

The prevalence of a negative assessment was higher among the elderly who used public and/or philanthropic services. Studies that approached user satisfaction with public health services point out to the need for improvement in relation to assistance, humanization,

reception and the acquisition of physical and material resources[28]. In this investigation, questions concerning humanization, reception and the acquisition of physical and material resources were not evaluated, which may have compromised the presented results. The restructure of public health services is important to meet the requirements of these patients, who are extremely in need of care[37].

The negative assessment of dental services was higher among men, since this perception can be influenced by gender[28]. The male participant points out to oral health problems as limiting factors in the performance of activities more than women[38], even though women use these services more frequently[37-40]. The fact that men use the services and care less for their health can be connected to sociocultural issues, to the difficulty to access assistance networks during working hours and to recognize their health needs. Besides, services and communication strategies are mostly addressed to women[41]. It is suggested that the higher prevalence of negative assessment of dental services among men can be a result of the presented oral health conditions and the restrictions they generate, as well as of the difficulty to access these services in this stratum during lifetime, once the elderies were investigated[39]. It is known that most public or philanthropic services are provided at times when men are at work, therefore, public health policies addressed to men are recommended to ensure the access to such services during the night, which could change this scenario.

Schooling can be reflected on socioeconomic conditions. In this sense, it is believed that income interferes in the evaluation of health services. In this investigation, the higher prevalence of negative evaluation among those with higher schooling may have been found due to the homogeneity of the population as to income[42]. It is suggested that the higher prevalence of negative assessment among those with higher schooling, regardless of the type of used service, is due to the fact that the elderly people with more schooling years are more demanding concerning the provided services. Besides, the health-related education can influence the evaluation of services[16]. The elders who were informed about how to avoid oral problems reported being more dissatisfied with the provided services[43,44]. Health-related education contributes with the awareness of individuals for the valorization of oral health, which would facilitate the practice of healthy habits and behaviors[45]. In this investigation, the negative evaluation was more common among those who were not informed about how to avoid oral problems, regardless of the type of used service. Therefore, the recommendation is that in order for the low percentage of elderly people who negatively assessed dental services (3.7%) to change their perspective, one of the changes to be considered is the improvement of information provided about how to avoid oral problems, especially in public and philanthropic services.

The subjective conditions related to health may interfere in the outcome of the evaluation of health services[16]. Among the seven investigated conditions in this

study, three of them were associated with the negative evaluation of dental services. No previous studies were found that identified such associations. However, it is known that self-perception among the elderly is influenced by the perception of several oral health aspects[46-48]. The positive perception of oral health, even among elderly people with precarious oral health conditions, suggests that normative conditions are poor self-perception predictors[48-51]. This probably occurs because most oral diseases are asymptomatic and unknown by the patients, who only consider being sick in face of the acute manifestation of oral diseases[50], or even because normative conditions measure only the disease, while subjective questions assess human health experiences[52].

The limitations in this study refer to the dependent variable that considers the evaluation of dental services from a single question; and the dynamic process of association between the assessment of dental services and the investigated variables, once causes and effects certainly vary throughout life. Since this is a sectional study, it is not possible to establish a temporal relationship between the observed associations. Besides, it is important to mention that in studies with complex samples it is recommended to perform correction based on the design effect, in statistical analyses[53]. Such corrections lead to the lower impact in inferential statistics, which is objective of this investigation, in relation to descriptive ones[54], so part of it was made by the svy command of Stata to analyze data from complex samples. Weighing was not performed since the necessary data to estimate the different probabilities of sample composition were not made available.

CONCLUSIONS

The knowledge about the evaluation of dental services from the perspective of the users should be considered in health policies, in health-promotion, preventive and rehabilitating actions, which try to improve the quality of life of the population. The prevalence of negative evaluation was low, and higher among users of public and philanthropic users, regardless of the other investigated variables. Associations with variables of three from the five subgroups proposed in the theoretical model were found.

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