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Factors associated to self perceived need of dental care among Brazilian elderly

ABSTRACT

OBJECTIVE: To analyze factors associated with the self-perceived need for dental treatment among elderly people.

METHODS: A total of 5,326 individuals who were included in a sample of Brazilian elderly people aged 65-74 years in a home survey on oral health conducted by the Brazilian Ministry of Health in 2002/2003 were investigated. The analysis was based on the model of Gift, Atchison & Drury, and Poisson regression for analysis of surveys with complex samples was used.

RESULTS: Out of the whole sample, 2,928 (55%) of the elderly people said they needed dental treatment. This need was perceived less frequently among those aged 70 years or over (PR=0.94; 95% CI: 0.89;0.99), those who had not received information on how to avoid oral problems (PR=0.89; 95% CI: 0.83;0.95) and those who were edentate (PR=0.68; 95% CI: 0.62;0.74). The perceived need was greater among those who self;rated their oral health as regular (PR=1.31; 95% CI: 1.21;1.41) or poor/very poor (PR=1.29; 95% CI: 1.19;1.41), their appearance as regular (PR=1.23; 95% CI: 1.15;1.32) or poor/very poor (PR=1.28; 95% CI: 1.18;1.39) and their chewing as regular (PR=1.08; 95% CI: 1.01;1.15) or poor/very poor (PR=1.13; 95% CI: 1.05;1.21). It was also greater among those who reported pain in their teeth or gums over the six months prior to the survey (PR=1.27; 95% CI: 1.18;1.36) and among those who needed a prosthesis in one arch (PR=1.29; 95% CI: 1.19;1.39) or both (PR=1.27; 95% CI: 1.16;1.40).

CONCLUSIONS: Information, oral health conditions and subjective questions were associated with self-perceived need for dental treatment. The results reinforce the need to capacitate individuals to carry out oral self-examination and identify non-painful signs and symptoms of mucosal lesions, caries and periodontal disease at an early stage.

DESCRIPTORS: Aged. Health Knowledge, Attitudes, Practice. Dental Care for Aged. Dental Health Surveys. Health Education, Dental.

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INTRODUCTION

The oral health indicators for the elderly population of Brazil are critical.[12,15,21,22,a] According to the World Health Organization (WHO) target (WHO,[24] 1997), 50% of elderly people should present at least 20 teeth in their mouths. However, analysis of data from a national oral health survey concluded by the Brazilian Ministry of Health in 2003 showed that only 10% of elderly Brazilians presented 20 teeth in their mouths. Moreover, 6% had never used dental services in their whole lives and, among those who had, 77% had used dental services more than

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one year before the survey. One third of the elderly people presented a need for an upper jaw prosthesis and more than half needed a lower jaw prosthesis.[a] This situation is both the cause and the consequence of low use of dental services among elderly people. Cases of edentulism are the consequence of dental problems and cause lower use or access to services.[9]

One important component in the use of services is self-perceived need for treatment. In fact, several studies have shown that self-perception is influenced by service use, such that it is greater among those who use dental services.[1,3,4,9] Use influences perception, or vice versa. In Brazil, the use of dental services is very low among elderly people, but it is not known to what extent this is related to perception of the need to use dental services.

Self-perceived need for treatment partly reflects the impact that a disease has on individuals. It shows the degree of deficiencies and dysfunctions resulting from the health condition, along with individuals' perceptions and attitudes regarding this condition.[7,20] Gift et al[7] proposed a theoretical model for general comprehension of perceptions of oral health in 1998. This was based on sociological interaction models and on the behavioral health model of Andersen & Davidson (1997).[2] According to the model of Gift et al,[7] self-perceived need for dental treatment is the result from the individual's oral health condition: number of decayed, missing and filled teeth (DMFT index); periodontal condition; and normative treatment needs. The treatment needs are determined by demographic characteristics, resource availability and predisposition. The demographic characteristics (age, sex and ethnicity) are immutable. Resource availability can be altered directly or indirectly by means of public policies, through increased offer in the light of increased demand for free-of-charge public services. Predisposition is generally determined by educational level, self-perception of health condition and/or guidance given by the dental services.[9]

Sociological interaction models conceptualize "need" along two lines: subjective and objective.[14] Subjective need expresses the self-perceived need for treatment and varies from one individual to another, according to the sociocultural and historical context applicable.[10] Objective need, also known as normative need, comes from the dentist's assessment, through identifying the signs of disease at an early stage, at a time when no symptoms of oral disease have yet been noticed.[8] Subjective needs are commonly not considered in assessing needs and in professionals' interventions. Even objective needs are not immune to subjective influences, since dentists are also guided by their own norms, values and beliefs.[10]

The discrepancy between self-perceived need and normative needs, even in situations in which access to services is assured, has instigated a search for what leads individuals to perceive a need for treatment.[8,18] Several studies have investigated the objective and subjective factors associated with self-perceived need for treatment, but none of these were grounded in a prior theoretical model.[4,6,8,11,16,23]

The present study had the aim of analyzing the factors associated with self-perceived need for dental treatment among elderly people.

METHODS

The database of the Brazilian oral health survey previously known as the SB 2000 project and now known as the SB Brazil project, which was carried out by the Ministry of Health in 2002/2003, was used. As proposed by WHO (1997),[24] in addition to sociodemographic conditions and the use of dental services, the survey investigated self-perceived need for dental treatment, self-perceived oral health and objective oral health conditions (caries, periodontal disease, treatment needs, use and need for prostheses and soft-tissue abnormalities),[19] among elderly people.

The survey was conducted among 108,921 individuals, representing 85% of the foreseen total sample (127,939 individuals), who were living in 250 municipalities. Thus, it was ensured that the survey would be representative for the whole of Brazil, for its five macroregions (North, Northeast, Center-West, Southeast and South), for two index ages (5 and 12 years) and for four age strata (18 to 36 months, 15 to 19 years, 35 to 44 years and 65 to 74 years). The sampling technique was probabilistic, in a three-stage cluster process, and the individuals were selected by means of a draw.[19] A total of 5,349 individuals aged 65 to 74 years (mean age of 68.8 years) were examined within the SB Brazil project.

Examinations and interviews were carried out in homes under natural lighting conditions. A periodontal probe (CPI), planar dental mirror and wooden spatulas were used to aid in viewing the field under examination. The examinations were conducted by dentists with specific training and calibration (kappa or percentage concordance). When the results from the kappa test or percentage concordance were unsatisfactory, the examiners had to undergo new training until the concordance levels reached the classification level.[a] Approximately 5% of the examinations were performed in duplicate, with the aim of measuring the intra-examiner concordance.

The SB Brazil project was conducted in accordance with the ethical principles of the Declaration of Helsinki,

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[a] Brasil, Ministério da Saúde, Coordenação Nacional de Saúde Bucal. Resultados principais do projeto SB Brasil 2003: Condições de saúde bucal da população brasileira 2002-2003. Brasília; 2004.

which have been included in Brazilian National Health Board Resolution No. 196/95 and approved by CONEP (Determination No. 581/2000). Further information regarding methodology is available in the final report on the SB Brazil project.[a]

The dependent variable studied was the self-perceived need for dental treatment. This was obtained by means of the following question in the interview: "Do you consider that you need treatment right now?" (yes/no).

The independent variables were gathered into four subgroups, as defined in the model put forward by Gift et al[7] (1998): demographic characteristics, resource availability, predisposition and oral health condition.

The demographic variables were: macroregion of Brazil in which the individual lived (Southeast, South, Center-West, North or Northeast); location of home (urban zone or rural zone); age (65-69 years or 70-74 years); sex (female or male); and ethnicity (white skin color or nonwhite, i.e. yellow, indigenous Indian, black and brown).

The resource availability variables were: type of dental service used (public and philanthropic; or health plan and private); ownership of a car (yes or no); and per capita household income in reais, in the form of terciles (≥ R$ 201.00; R$117.00 to R$ 200.00; or ≤ R$ 116.00). The income categories were set low, given that most of the population reported very low income, of close to one minimum monthly salary of that time (R$ 200.00 = US$ 85.10 in 2002; and R$ 240.00 = US$ 78.17 in 2003).

The predisposition variables were: schooling in years attended (≥ 9 years; 5 to 8 years; or ≤ 4 years); access to information on how to avoid oral problems (yes or no); use of dental services (used less than one years earlier; used more than one year earlier; or never used dental services); reason for dental consultation (routine; oral problems; or presence of at least one of the following oral problems: pain, gum bleeding, tooth cavities, injuries, or lumps or stains in the mouth); self-perceived oral health (excellent/good, regular or poor/very poor); self-perception of tooth and gum appearance (excellent/good, regular or poor/very poor); self-perception of chewing capability (excellent/good, regular or poor/very poor); self-perception of speech in relation to teeth and gums (excellent/good, regular or poor/very poor); self-perception of relationships as a function of oral health (unaffected; somewhat/moderately affected; or greatly affected); and complaints of tooth or gum pain over last six months (yes or no).

The oral health condition variables (clinical conditions and normative needs) were: edentulism, calculated from the variable of number of permanent teeth present (no = at least one tooth in the mouth; or yes = no teeth in the mouth); DMFT index (numbers of decayed, missing and filled teeth), distributed into three categories,

considering that most of the elderly people presented a high DMFT (0-19, 20-26, or 27-32); use of a prosthesis (not used; used in one arch; or used in both arches); periodontal condition (healthy or diseased), such that individuals were defined as presenting periodontal disease if they had at least one tooth site with a periodontal pocket ≥ 4 mm on examination using the community periodontal index (CPI) and/or at least one tooth site with an attachment loss index (PIP) ≥ 4 mm;[17] presence of soft-tissue abnormalities (yes or no); need for caries treatment, estimated from the codes "healthy", "restored and without caries", "with sealant applied", "with point and crown support", "caries present" and "restored and caries again present" (no, yes); and need for prosthesis (not needed; needed in one dental arch; or needed in both arches).

The elderly people who perceived a need for dental treatment were compared with the others in relation to each variable of interest in the groups defined by the model. Each subgroup defined by the model of Gift et al[7] was analyzed separately. The magnitudes of the associations between the dependent variable and the factors of interest were estimated using prevalence ratios, with a significance level of 5% and the respective 95% confidence intervals (95% CI). The prevalence ratios were obtained by means of Poisson regression with robust variance estimation. Following this, a single model was constructed from factors that had been retained in intermediate models. Variables that were not significantly associated with the model and did not contribute to it were eliminated. In the final model, only the factors that continued to be associated at the level of $p \leq 0.05$ were used.

The Stata 9.0 software was used. A correction for the design effect was made using the *svy* command of Stata, to analyze data coming from complex samples. This adjustment was needed because the sample for the SB Brazil project was obtained by means of clusters, and estimates that do not take into consideration the cluster organization of the sample tend to be overestimates and to lose their precision.[13]

RESULTS

Out of the 5,349 individuals examined, 23 (0.4%) did not answer the question regarding self-perceived need for treatment. Among the 5,326 who answered this question, 2,928 (55%) declared that they needed treatment.

Table 1 presents the distribution of the participants according to the characteristics investigated, with grouping according to the model of Gift et al[7] (1998). The majority of the elderly people lived in the southern macroregion; lived in urban zones; were female; did not have a car; had attended school for less than four years; had not received any information about how to avoid oral problems; had last used dental services

Table 1. Description of the elderly people according to demographic variables, predisposition, resource availability and oral health condition. Brazil, 2002/2003.

Variable	N	%
Demographics		
Brazilian macroregion		
Southeast	1,052	20
South	1,374	26
Center-West	731	13
North	746	14
Northeast	1,446	27
Location of home		
Urban zone	4,666	87
Rural zone	681	13
Age		
65-69	3,212	60
70-74	2,137	40
Sex		
Female	3,275	61
Male	2,074	39
Ethnicity		
White	2,575	48
Nonwhite	2,757	52
Resource availability		
Dental service		
Public and philanthropic	2,216	46
Private and health plans	2,565	54
Ownership of car		
Yes	891	17
No	4,436	83
Per capita income in reais		
≥ R$ 201.00	1,552	29
R$ 100.00 to R$ 200.00	2,063	39
R$ 0.00 to R$ 99.99	1,689	32
Predisposition		
Schooling (years)		
≥ 9	412	8
5-8	700	13
≤ 4	4,237	79
Information on how to avoid oral problems		
Yes	2,088	39
No	3,244	61
Use of dental services		
Used less than one year ago	895	17
Used more than one year ago	4,114	77
Never used	310	6
Routine checkup	914	22
Oral problems	3,277	78

To be continued

Continuation Table 1

Variable	N	%
Predisposition		
Self-perceived oral health		
Excellent/good	2,679	54
Regular	1,465	29
Poor/very poor	870	17
Self-perception of oral appearance		
Excellent/good	2,410	50
Regular	1,431	30
Poor/very poor	998	20
Self-perception of chewing capabilities		
Excellent/good	2,578	50
Regular	1,256	25
Poor/very poor	1,290	25
Self-perception of speech		
Excellent/good	3,131	63
Regular	1,129	21
Poor/very poor	737	15
Self-perception of relationships		
Unaffected	3,334	72
Somewhat/moderately affected	1,002	22
Greatly affected	294	6
Reports of tooth and gum pain over last six months		
No	4,134	78
Yes	1,196	22
Oral health conditions		
Edentulism		
Dentate	2,418	45
Edentate	2,931	55
DMFT index		
0-19	659	12
20-26	902	17
27-32	3,788	71
Use of prosthesis		
Not used	1,763	33
Used in one arch	1,793	34
Used in both arches	1,783	33
Periodontal condition		
Healthy	896	43
Diseased	1,183	57
Presence of soft-tissue abnormalities		
No	4,445	84
Yes	836	16
Need for caries treatment		
No	2,932	55
Yes	2,417	45
Need for prostheses		
Not needed	2,282	43
Needed in one arch	1,385	26
Needed in both arches	1,667	31

more than one year earlier; had not felt any tooth or gum pain over the preceding six months; presented a DMFT index of between 27 and 32; did not present any need for treatment for periodontal disease; and did not present any need for treatment of soft-tissue abnormalities. With regard to self-perception variables, most of the individuals considered that their oral health, oral appearance, chewing capabilities and speech as a function of oral condition were excellent, good or regular; and that their relationships had not been affected by their oral condition.

The results from univariate analysis are presented in Tables 2 and 3. They show that most of the variables were statistically associated with self-perceived need

for dental treatment. Only the location of the home (urban/rural), schooling level and receipt of information on how to avoid oral problems were not associated at the level of p≤0.05.

Multivariate analysis on the factors independently associated with self-perceived need for dental treatment (Table 4) showed that this self-perception was less frequent among the more elderly, those who had not received information on how to avoid oral problems and those who were edentate. The greatest prevalence of self-perceived need for dental treatment was recorded among individuals who perceived that their oral health, oral appearance and chewing capabilities were regular or poor/very poor. Self-perceived need for treatment

Table 2. Univariate analysis on the factors associated with self-perceived need for dental treatment among elderly people, according to demographic variables and resource availability. Brazil, 2002/2003.

Variable	No		Yes		PR	95% CI
	N	%	N	(%)		
Demographics						
Brazilian macroregion						
Southeast	527	22	525	18	1.00	
South	702	29	671	23	0.98	0.81;1.19
Center-West	313	13	415	14	1.14	0.96;1.36
North *	264	11	482	16	1.29	1.09;1.53
Northeast	592	25	835	29	1.17	0.98;1.41
Location of home						
Urban zone	2,093	87	2,556	87	1.00	
Rural zone	305	13	370	13	0.99	0.88;1.11
Age						
65-69	1,340	56	1,858	64	1.00	
70-74*	1,058	44	1,070	36	0.87	0.82;0.91
Sex						
Female	1,571	66	1,691	58	1.00	
Male*	827	34	1,237	42	1.15	1.09;1.21
Ethnicity						
Whites	1,240	52	1,331	46	1.00	
Nonwhites*	1,148	48	1,591	54	1.12	1.04;1.21
Resource availability						
Dental service						
Public and philanthropic	941	43	1,270	49	1.00	
Private and health plan*	1,265	57	1,298	51	0.88	0.82;0.94
Ownership of car						
Yes	442	18	449	15	1.00	
No*	1,951	82	2,975	85	1.10	1.01;1.22
Per capita income in reais						
≥ R$ 201.00	780	33	770	27	1.00	
R$ 100.00 to R$ 200.00	949	40	1,109	38	1.08	0.99;1.18
R$ 0.00 to R$ 99.99*	655	27	1,030	35	1.23	1.11;1.36

* p ≤ 0.05
PR: Prevalence ratio

Table 3. Univariate analysis on factors associated with self-perceived need for dental treatment among elderly people, according to the variables of predisposition and oral health conditions. Brazil, 2002/2003.

Variable	No		Yes		PR	95% CI
	N	%	N	%		
Predisposition						
Schooling (years)						
≥ 9	173	7	226	8	1.00	
5-8	265	11	435	15	1.09	0.92;1.31
≤ 4	1,960	82	2,267	77	0.95	0.84;1.07
Information on how to avoid oral problems						
Yes	878	37	1,206	41	1.00	
No	1,520	63	1,720	59	0.92	0.84;1.00
Use of dental services						
Used less than one year ago	323	14	571	19	1.00	
Used more than one year ago *	1,987	83	2,121	73	0.81	0.75;0.87
Never used	81	3	227	8	1.15	0.98;1.36
Reason for consultation						
Routine checkup	454	25	460	20	1.00	
Other*	1,392	75	1,879	80	1.14	1.02;1.27
Self-perception of oral health						
Excellent/ good	1,639	72	1,036	38	1.00	
Regular*	475	21	986	36	1.74	1.62;1.87
Poor/very poor*	169	7	700	26	2.98	1.92;2.25
Self-perception of tooth and gum appearance						
Excellent/ good	1,462	68	943	35	1.00	
Regular*	489	23	938	35	1.68	1.56;1.79
Poor/very poor*	210	9	788	30	2.01	1.87;2.17
Self-perception of chewing capabilities						
Excellent/ good	1,467	63	1,107	40	1.00	
Regular*	488	21	767	27	1.42	1.32;1.53
Poor/very poor*	375	16	911	33	1.65	1.53;1.77
Self-perception of speech with regard to teeth and gums						
Excellent/ good	1,632	72	1,502	55	1.00	
Regular*	432	19	696	26	1.28	1.18;1.39
Poor/very poor*	205	9	531	19	1.50	1.39;1.62
Self-perception of relationships						
Unaffected	1,728	82	1,602	64	1.00	
Somewhat/ moderately affected*	288	14	712	28	1.48	1.38;1.58
Greatly affected*	93	4	200	8	1.42	1.28;1.57
Reports of tooth and gum pain over the last six months						
No	2,137	89	1,989	68	1.00	
Yes*	260	11	935	32	1.62	1.51;1.74

To be continued

Continuation Table 3

Variable	No		Yes		PR	95% CI
	N	%	N	%		
Oral Health Condition						
Edentulism						
Dentate	604	25	1,805	62	1.00	
Edentate*	1,794	75	1,123	38	0.51	0.47;0.56
DMFT index						
0-19	171	7	481	16	1,00	
20-26	237	10	663	23	0.99	0.94;1.06
27-32	1,990	83	1,784	61	0.64	0.60;0.69
Use of prosthesis						
Not used	538	22	1,215	42	1.00	
Used in one arch*	692	29	1,096	37	0.88	0.83;0.94
Used in both arches	1,165	49	610	21	0.49	0.44;0.55
Periodontal condition **						
Healthy	278	52	618	40		
Diseased*	257	48	919	60	1.61	1.52;1.72
Soft-tissue abnormalities						
No	2,036	86	2,388	82	1.00	
Yes*	341	14	520	18	1.11	1.04;1.20
Need for caries treatment**						
No	1,794	75	1,124	38	1,00	
Yes*	604	25	1,804	62	1.94	1.79;2.11
Need for prostheses						
Not needed	1,389	58	885	30	1.00	
Need in one arch*	506	21	874	30	1,63	1,50;1,76
Needed in both arches*	500	21	1,157	40	1.79	1.63;1.98

* p ≤ 0.05
** Not evaluated among edentate individuals

was also greater among those who reported that they had had tooth or gum pain over the preceding six months and among those who presented a need for prostheses in one or both arches.

DISCUSSION

The present study found that objective and subjective factors are associated with self-perceived need for dental treatment among elderly Brazilians.

Questions relating to self-perception are subjective indicators of oral health conditions that have the aim of picking up social and psychological aspects of oral diseases, in order to overcome the limitations of approaches based only on the biomedical model, in which health is the absence of disease. Nonetheless, the quantification of subjective questions relating to functional, social and psychological wellbeing that make up a multidimensional approach is a complex matter.[14]

Table 4. Multivariate analysis on factors associated with self-perceived need for dental treatment among the elderly population. Brazil, 2002/2003.

Variable	Self-perceived need for dental treatment			
	No %	Yes %	PR	95% CI
Demographics				
Age				
65-69	56	64		
70-74*	44	36	**0.94**	**0.89;0.99**
Information on how to avoid oral problems				
Yes	37	41	1.00	
No*	63	59	**0.89**	**0.83;0.95**
Predisposition				
Self-perception of oral health				
Excellent/good	72	38	1.00	
Regular*	21	36	**1.31**	**1.21;1.41**
Poor/very poor*	7	26	**1.29**	**1.19;1.41**
Self-perception of oral appearance				
Excellent/good	68	35	1.00	
Regular*	23	35	**1.23**	**1.15;1.32**
Poor/very poor*	9	30	**1.28**	**1.18;1.39**
Self-perception of chewing capabilities				
Excellent/good	63	40	1.00	
Regular*	21	27	**1.08**	**1.01;1.15**
Poor/very poor*	16	33	**1.13**	**1.05;1.21**
Tooth and gum pain over last six months				
No	89	68	1.00	
Yes*	11	32	**1.27**	**1.18;1.36**
Oral health condition				
Edentulism				
Dentate	25	62	1.00	
Edentate*	75	38	**0.68**	**0.62;0.74**
Need for prostheses				
Not needed	58	30	1.00	
Needed in one arch*	21	30	**1.29**	**1.19;1.39**
Needed in both arches*	21	40	**1.27**	**1.16;1.40**

* p ≤ 0.05
Values in bold show significant associations

Studies designed with the aim of comprehending self-perceived need for treatment have been conducted in various ways. Some authors[4,6] have asked direct questions, i.e. asking whether the interviewees did or did not have a need for dental treatment. Other authors[16,23] have asked about the existence of any dental problems or have constructed variables that combined the need for treatment with the existence of signs and symptoms of diseases. In an investigation conducted among elderly people in Florida (United States),[11] the variable was constructed from the following questions: "Do you think you need any dental care today or over the next 14 days? Why?" These questions generated four combinations of responses. The responses "yes, for a routine checkup" and "no, because my oral cavity is healthy" generated the option "does not perceive that he/she needs treatment", while the responses "yes, because of a dental problem" and "no, because the dental problem can wait" generated the option "yes" regarding self-perceived need for treatment.[11] In the present study, the evaluation of self-perceived need for treatment was done dichotomously, which makes it difficult to understand the relationship between dental problems and self-perceived need for treatment.

Individuals may answer "yes" because they have a dental problem or because they are motivated to visit their dentists regularly for preventive checkups. These who answer "no" may not perceive their present oral problems or they may perceive them but not present any desire to treat them.[11]

In addition to the limitations relating to the way the dependent variable was constructed in the present study, the process that correlates self-perceived need for dental treatment and the variables investigated is dynamic. Therefore, causes and effects certainly vary over the course of life and, since this was a cross-sectional study, it was not possible to establish a temporal relationship between the associations observed.

The results from the present study indicate that just over half of the elderly people perceived a need for dental treatment. This was a greater proportion than was recently found in the United States (46%)[23] and Sri Lanka (43%).[6] This difference may reflect a real need for treatment among elderly Brazilians, since this country has high prevalence of edentulism, and some edentate individuals do not have full prostheses. The analysis showed that the characteristics that influenced self-perceived need for dental treatment were demographics, predisposition and oral health condition, according to the model of Gift et al[7] (1998).

The perception of a need for treatment was lower among individuals who had not been given information on how to avoid oral problems. This suggests that access to health education may influence self-perceptions of health conditions. The model proposed by Gift et al[7] (1998) suggests that self-perception is hypothetically determined by guidance received from health services. The results from the present investigation strengthen this hypothesis and it is perhaps the only study so far that has tested the association between access to information and self-perceived need for treatment. Several studies have shown that self-perceived need for treatment varies according to dental service use, but the results have been inconsistent. One study showed that self-perception was greater among those who had not used dental services,[4] while others showed it was greater among those who had.[3,9,16] In the present investigation, an association was found in univariate analysis that did not persist in multivariate analysis.

No association between self-perceived need for treatment and income was found in the present study. It is possible that this was due to the small income variations among elderly people in this country and to the fact that the vast majority of them had very low income. Associations of this nature have been found in other studies[8,11] that were conducted in the United States and which all had populations with greater heterogeneity regarding income distribution.

Individuals usually give greater importance to the symptoms and the functional and psychological impact of oral diseases than to the visible signs of the disease.[5] This was also found in the present study, since perceived need for dental treatment was associated with worse perception of oral health condition and oral appearance, and to worse perception of chewing capabilities. Similar results have been found in other studies in other countries.[6,11] Self-perception was also greater among individuals who had felt pain over the six months prior to the survey. A positive association between pain and self-perceived need for treatment is a frequent finding in the literature.[6,8,11]

Previous studies have reported a discrepancy between self-perceived need for treatment and the normative needs,[8,9,18] thus differing from the results obtained in the present investigation. The edentate elderly people presented lower frequency of self-perceived need for dental treatment, possibly reflecting a certain accommodation with their edentate situation. On the other hand, the elderly people who needed prostheses presented a greater frequency of such perceptions, which was consistent with what was seen among individuals with broken prostheses.[11] The lack of association with the presence of caries or periodontal disease differed from other studies.[4,6,8,11,23] The lack of association between self-perceived need for treatment and the presence of soft-tissue abnormalities is particularly worrying, given that recognizing such abnormalities and seeking dental services are important steps towards early diagnosis of oral cancer.

In conclusion, the present study has shown that self-perceived need for dental treatment among elderly people is preponderantly influenced by negative self-perceptions of different aspects of oral health. The associations with normative questions were less evident that what was found in the literature. The lack of association with the presence of dental caries, periodontal disease and mucosal abnormalities, and the positive association with preventive information and self-perceived need for dental treatment suggest that health education should be stimulated. In this way, it would be possible to improve individuals' capacity to carry out oral self-examination and to identify non-painful signs and symptoms of oral diseases at an earlier stage, and to correlate these with the need for dental treatment.

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