Factors associated with agreement between self-perception and clinical evaluation of dental treatment needs in adults in Brazil and Minas Gerais

Fatores associados à concordância entre autopercepção e avaliação clínica da necessidade de tratamento dentário em adultos do Brasil e de Minas Gerais

Factores asociados a la concordancia entre autopercepción y evaluación clínica de la necesidad de tratamiento dental en adultos de Brasil y de Minas Gerais

Alex Rodrigues do Nascimento [1,2]
Fabíola Bof de Andrade [1]
Cibele Comini César [3]

Abstract

This study sought to describe the agreement between self-perception and clinical evaluation of dental treatment needs in adults and analyze associated factors. The sample comprised adult individuals who took part in SBBrazil 2010 and SBMinas Gerais 2012. The study's outcome was agreement between self-perception and clinical evaluation of dental treatment needs. We used multiple Poisson regression in order to determine the factors associated with the outcome. Agreement between self-perception and clinical evaluation was 78.8% in Brazil and 73.8% in Minas Gerais. Clinical and self-reported oral health conditions that affect function and quality of life were associated with a higher agreement, while a recent visit to the dentist was associated with a lower agreement. Identifying associated factors may enable the development of questionnaires that favor correct self-perception regarding treatment needs.

Diagnostic Self Evaluation; Dental Health Surveys; Oral Health

[1] *Centro de Pesquisas René Rachou, Fundação Oswaldo Cruz, Belo Horizonte, Brasil.*
[2] *Secretaria de Estado de Saúde de Minas Gerais, Belo Horizonte, Brasil.*
[3] *Instituto de Ciências Exatas, Universidade Federal de Minas Gerais, Belo Horizonte, Brasil.*

Correspondence
A. R. Nascimento
Rua Doresópolis 591, Bloco 3, apto. 402, Belo Horizonte, MG 30190-002, Brasil.
alexrnbr@gmail.com

Introduction

Self-perception of oral health conditions, collected either through questionnaires or interviews, is a simpler, more economical instrument than dental exams for use in large-scale epidemiological surveys [1,2,3,4,5].

Different studies have described the prevalence of self-perception of dental treatment needs and associated factors [6,7,8,9,10,11] and emphasize the importance of using these indicators to complement clinical indicators [8] in evaluating dental needs, as there are differences between the two [11,12,13]. However, lack of agreement between these measures makes self-reports less sensible when they are the only measure used in population surveys to identify demands, when clinical exams performed by trained professionals are not feasible. Thus, we need to know the percentage of agreement between self-perception and clinical assessment, estimating how close self-reports are to professional evaluations and studying factors associated with this agreement. This would be helpful in formulating more sensible questions and constructing strategies seeking to enhance individuals' self-perception of their clinical conditions, such as dental caries, for example, which, if untreated, may evolve to irreversible outcomes such as dental loss.

Agreement percentages may be higher than 70% [14,15,16] or lower than 50% [15,16,17,18] depending on the condition being studied, clinical criteria, target population and the question used in the survey.

Tervonen [14] found a 76% agreement for quality of total prostheses and 77% for partial prostheses. Costa et al. [16] found a similar percentage (76.9%) for the agreement between satisfactory quality according to professional evaluations and user satisfaction with total prostheses, however, agreement on unsatisfactory prostheses was 39%.

Tervonen & Knuuttila [15] found an 86% agreement between examiner and examinee on the existence of zero to two decayed teeth, and for three or more caries agreement was around 30%. The same authors also found a 40.7% agreement on the need to replace prostheses.

In a group of elderly individuals in England, 42% of individuals who had some dental treatment need, according to professional evaluation, agreed with the diagnosis [17]. Among German youth, adults, and elderly, there was a 13% agreement on the need for prosthesis treatment and an 18% agreement on the lack thereof [18].

The literature on factors associated with agreement is sparse and restricted to evaluations of dental prosthesis needs. Colussi et al. [19] found a 64% agreement regarding need for prosthesis use among elderly individuals and concluded that their underestimation when compared with professional evaluations – that is, when the individuals in the study failed to notice a need reported by the dentist – was associated with sociodemographic variables (male sex, living in a rural area and being over 70 years of age) and service use (not participating in elderly groups and not having sought dental services over much of their lives).

In an analysis of the SBBrazil 2010 survey data on the need for total prosthesis use or replacement in the sample of elderly individuals, Nascimento et al. [20] found a 69.2% agreement between self-perception and clinical evaluation by a dentist. Factors associated with higher odds of agreement were sociodemographic (between 70 and 74 years of age, living in the South, Southeast or Central regions of Brazil and having one to four or nine or more years of schooling) and oral health condition variables (last dentist appointment three or more years earlier and already having a total prosthesis).

Given this absence in the literature, this article seeks to describe the prevalence of, and analyze factors associated with, the agreement between self-perception and clinical evaluation of dental treatment needs in adults in Brazil and Minas Gerais.

Methods

This study used data from the *Brazilian National Oral Health Survey* (SBBrazil 2010) and the *Survey on Oral Health Conditions of the Minas Gerais Population* (SBMinas Gerais 2012). SBBrazil 2010 was the most recent national epidemiological survey on oral health. Its sample was planned to be representative of the country as a whole, each of the five regions, cities not located in the Metropolitan Regions, and the capitals and Federal District [21,22].

The SBMinas Gerais 2012 was carried out in 2012 in order to obtain representative data for Minas Gerais State. This survey is representative of the state as a whole and each of the two domains of cities not located in the Metropolitan Regions, defined according to the Allocation Factor, an indicator built based on the Health Needs Index and the Economic Size Index. The Allocation Factor classifies Minas Gerais cities in quartiles. Cities classified in Group 1 have lower relative need of financial resources and those of Group 4 have higher need. For the SBMinas Gerais 2012, cities not located in the Metropolitan Regions were grouped into two domains,

one formed by Groups 1 and 2 and the other, by Groups 3 and 4 [23].

This study used the SBBrazil 2010 sample of adults, comprising 9,564 individuals [21]. For the SBMinas Gerais 2012 analysis, the sample comprised all 1,182 adults who were examined [23].

Self-perception of dental treatment needs was assessed through the following question that was part of both surveys and asked of all participants: "do you believe that you currently need dental treatment?". There were three possible answers (no; yes; did not know/would not answer). We only included the first two in our analysis.

Clinical exams for determining oral conditions were carried out in accordance with criteria established by the World Health Organization [24]. Individuals were classified as having dental treatment needs by the clinical evaluation when at least one of the following conditions was present: crown or root caries, calcified dental plaque or periodontal pockets, need for dental prosthesis use or replacement.

The study's outcome was the agreement between self-perception and clinical evaluation of dental treatment needs. This variable took on the following values: (1) agreement: dentist and examinee both considered there was need for treatment, or both considered this need was absent; (2) disagreement: there was a clinical need, but the individual did not perceive it (underestimation), or there was no clinical need, but the individual declared needing treatment (overestimation). We chose to categorize the outcome in two categories due the low percentage of overestimation, which would harm analytical precision if the outcome were used as a multinomial variable.

Explanatory variables were: sex (female and male); age group (35 to 39 years and 40 to 44 years); schooling (0 to 4 years, 5 to 8 years, 9 years or more); last visit to an oral health service (not recent – those who reported never having been to a dentist or having done so over a year previously – and recent – those who reported having been to a dentist in the previous year); reason for last dentist appointment (prevention/check up; pain; extraction/treatment/other); number of remaining teeth (0 to 20 teeth and 21 or more); use of some dental prosthesis (no and yes); presence of caries (no and yes); presence of periodontal alteration (no and yes); need for prosthesis (no and yes); reporting dental pain in the previous six months (no and yes); and reporting impact on daily life due to oral conditions (no and yes for each of the *Oral Impact on Daily Profile* (OIDP) [25]: difficulty when eating or ingesting liquids, discomfort when brushing teeth, nervousness or irritation due to teeth, impediment to going out or having fun due to teeth, stopped practicing sport due to teeth, had difficulty speaking due to teeth, felt embarrassed speaking or smiling due to teeth, teeth get in the way of work tasks, stopped sleeping or slept badly due to teeth).

We used a bivariate analysis to verify possible associations between explanatory variables and the outcome, using a Pearson chi-square test with Rao-Scott correction [26].

In order to determine the factors associated with the outcome, we adjusted Poisson regression models, calculating the prevalence ratio (PR) and respective 95% confidence intervals (95%CI) [27]. Variables were included in the following order: sociodemographic, health service use, clinical oral health measures (number of remaining teeth, current use of a dental prosthesis, presence of caries, presence of periodontal alteration, need for prosthesis), and self-reported impacts resulting from oral conditions (reporting dental pain in the previous six months and dimensions from the OIDP).

Sociodemographic and service use variables were used in the final models to control for the other variables, so that we could identify the influence of clinical and self-reported oral health conditions on the outcome. We included clinical measures and self-reported conditions in the models one by one. Only those that were significant at the 5% level remained in the final models.

We used the software R version 3.0.0 (The R Foundation for Statistical Computing, Vienna, Austria; http://www.r-project.org) for the data analysis. Given the complex design of the SBBrazil 2010 and SBMinas Gerais surveys, we included the sampling parameters when calculating point estimations and respective confidence intervals, using the Survey package. This guaranteed a robust estimation of variance in the Poisson models.

The SBBrasil 2010 survey was submitted to the Health Ministry's Ethical Review Board and was approved and registered with the National Committee for Ethics in Research of the National Health Council under the number 15,498, on January 7, 2010 [21].

The SBMinas Gerais survey was submitted to the Ethical Review Board of the Pontifical Catholic University of Minas Gerais and was approved on March 28, 2012, and registered under the number 9,173.

Results

Of the total of adults examined in the SBBrazil 2010, 9,358 had valid data for self-perception of

dental treatment needs. In SBMinas Gerais, there were 1,162 individuals.

Most of the adults in both surveys were female, aged between 35 and 39 years, had nine or more years of schooling, had their last dentist appointment over one year previously, did not report dental pain in the six preceding months, had 21 or more teeth and did not use dental prostheses. The description of the study population's characteristics can be found in Table 1.

In the SBBrazil 2010, 91% (95%CI: 89.6-92.4) of adults needed dental treatment according to clinical evaluations and 77.7% (95%CI: 75.2-80.2) needed treatment according to self-perception. Among SBMinas Gerais 2012 participants, these proportions were 85.4% (95%CI: 82.7-88.2) and 69.9% (95%CI: 65.2-74.6), respectively.

We present the percentages of agreement, underestimation and overestimation between self-perception and clinical evaluation in Table 2. Results were similar for SBBrazil 2010 and SBMinas Gerais 2012, with high agreement and higher underestimation than overestimation.

The bivariate analyses of the outcome and explanatory variables are presented in Table 3 (SBBrazil 2010) and Table 4 (SBMinas Gerais 2012). Of the sociodemographic variables, only schooling was associated with the outcome in both bivariate analyses. Time elapsed since the last dentist appointment and reason for last dentist appointment were also associated with the outcome in both surveys, as did the presence of clinical and self-reported conditions.

Table 5 presents the final models of the Poisson Regressions, for SBBrazil 2010 and SBMinas Gerais 2012 separately, with respective Prevalence Ratios, 95%CI and p-values. There was a negative association with a recent dentist appointment in both samples. On the other hand, there was a positive association with the reason for the last appointment only for SBBrazil. In both surveys, clinical conditions and self-reported discomfort were positively associated with agreement between self-perception and clinical evaluation of treatment needs.

Discussion

Agreement between self-perception and clinical evaluation of dental treatment needs was higher than 70% in both surveys. Other studies have described agreement on quality of dental prostheses (76% for total prostheses [14] and 77% for partial prostheses [14], 76.9% for satisfactory total prostheses [16] and 39% for unsatisfactory total prostheses [16]), on the need for treatment among elderly individuals (42%) [17] or on the need for prostheses among elderly individuals (64% [19] and 69.2% [20]). However, considering the current literature, this is the first study to analyze agreement on dental treatment needs in adults as the outcome, identifying associated factors.

Underestimation was higher than overestimation in both samples, reaching around 20% of individuals. Underestimation of treatment needs may lead individuals not to seek dental care, since self-perception is one of the factors that influence use of oral health service [8,28].

Sociodemographic variables were not associated with agreement in the final model. Only schooling was significantly associated in the bivariate analysis and in the initial regression models. Individuals with nine or more years of schooling agreed less with the clinical evaluation. However, this association was not present in the final model, losing significance with the inclusion of oral health condition variables. These findings indicate that sociodemographic differences among individuals in this study do not directly influence their capacity to perceive the presence or absence of oral problems in agreement with clinical evaluations. Therefore, educational strategies seeking to increase this agreement may be directed at heterogeneous groups of adults in a population. Studies on agreement regarding prosthesis needs among the elderly have found an association with demographic characteristics, revealing a difference in the factors that influence agreement depending on the condition being studied and the target population.

Individuals who had a recent visit to the dentist agreed less with the clinical evaluation, however, the reasons supporting this result are not clear. A study with young adults found that those who had been to the dentist less than one year previously had lower odds of reporting a need for treatment [6]. A possible hypothesis is that those individuals considered they no longer needed treatment, despite having unresolved clinical needs. This hypothesis is reinforced by the manner in which the question was asked, because it did not specify the number of appointments or procedures, or the effectiveness of treatments or resolution of all needs present at the time of the appointment.

These results show the importance of informing individuals who have recently been to the dentist about the need for continued care until all treatment demands are met.

The reason for the last dental appointment was also associated with agreement, though only in the Brazilian sample. Individuals who sought an oral health service due to oral problems agreed more with clinical evaluations than those who sought preventive care. Likewise, clinical oral

Table 1

Description of adults according to sociodemographic characteristics, service use, clinical and self-reported oral health conditions. SBBrazil 2010 and SBMinas Gerais 2012.

Characteristics	SBBrazil 2010 (%) [N = 9,358]	SBMinas Gerais 2012 (%) [N = 1,162]
Sex		
Female	63.4	65.4
Male	36.6	34.6
Age (years)		
35-39	52.2	51.9
40-44	47.8	48.1
Schooling (years)		
0-4	20.7	18.8
5-8	20.7	26.1
9 or more	50.5	55.1
Last dentist appointment		
Over 1 year ago	53.9	54.0
Less than 1 year ago	46.1	46.0
Reason for last appointment		
Prevention/Check up	21.4	22.0
Pain	16.0	17.7
Extraction/Treatment/Other	62.6	60.3
Number of remaining teeth		
0-20	22.4	13.6
21 or more	77.6	86.4
Current use of prostheses		
No	66.8	77.9
Yes	33.2	22.1
Presence of caries		
No	43.7	51.7
Yes	56.3	48.3
Periodontal alterations		
No	30.4	41.5
Yes	69.6	58.5
Need for prostheses		
No	32.0	42.7
Yes	68.0	57.3
Pain over the past 6 months		
No	72.1	78.6
Yes	27.9	21.4
Difficulty when eating or ingesting liquids		
No	66.5	74.7
Yes	33.5	25.3
Discomfort when brushing teeth		
No	73.4	76.4
Yes	26.6	23.6
Nervousness or irritation due to teeth		
No	74.2	82.1
Yes	25.8	17.9
Impediment to going out or having fun due to teeth		
No	84.6	89.7
Yes	15.4	10.3

(continues)

Table 1 (continued)

Characteristics	SBBrazil 2010 (%) [N = 9,358]	SBMinas Gerais 2012 (%) [N = 1,162]
Stopped practicing sport due to teeth		
No	93.7	95.1
Yes	6.3	4.9
Had difficulty speaking due to teeth		
No	85.5	91.6
Yes	14.5	8.4
Felt embarrassed speaking or smiling due to teeth		
No	72.7	80.2
Yes	27.3	19.8
Teeth get in the way of work tasks		
No	88.6	92.7
Yes	11.4	7.3
Stopped sleeping or slept badly due to teeth		
No	81.3	87.4
Yes	18.7	12.6

Table 2

Percentages of agreement, underestimation and overestimation between self-perception and clinical evaluation. SBBrazil 2010 and SBMinas Gerais 2012.

	Agreement (95%CI)	Disagreement (95%CI)	
		Underestimation	Overestimation
SBBrazil 2010	78.8 (76.5-81.2)	17.2 (15.2-19.2)	3.9 (3.0-4.9)
SBMinas Gerais 2012	73.8 (70.0-77.5)	20.9 (17.1-24.7)	5.3 (3.9-6.7)

95%CI: 95% confidence interval.

health conditions were associated with agreement. The existence of carious lesions and the need for prostheses remained in the final models for both samples. Periodontal disease had an association in the SBBrazil. Studies addressing self-perception of treatment needs show that the presence of oral problems is associated with self-reporting of those needs [6,29].

The presence of 21 or more teeth was associated with agreement in the Brazilian sample. Underestimation by adults with fewer than 20 teeth may lead to an aggravation of morbidities, which, if left untreated, tend to worsen, possibly leading to dental loss.

Reports of pain and impact on daily activities were associated with agreement between self-perception and clinical evaluation. Feeling ashamed when smiling or speaking remained in the final models for both surveys, indicating that aesthetic concerns are an important factor to be considered. Other OIDP components were associated with the outcome. Discomfort when brushing teeth and difficulty when eating or pain when ingesting liquids remained in the final SB-Brazil model. On the other hand, in the SBMinas Gerais survey, there was an association with nervousness or irritation due to teeth. Despite this difference between the two samples, in both, variables remaining in the final models were the ones that affect individuals' quality of life.

The literature on self-perception of treatment needs points in a similar direction. Oral conditions that are apparent to individuals are associated with self-reporting treatment need [12,30]. Bedos et al. [31] found that pain predisposes individuals to perceiving the need for treatment; other authors found a similar association [6,7,9,10,29]. Reporting some types of impact on daily activities is also associated with the self-perception of treatment needs [7,10,11].

The fact that we used two large oral health surveys carried out recently enables us to compare

Table 3

Bivariate analysis of the agreement between self-perception and clinical evaluation of need for dental treatment in adults. SBBrazil 2010.

Characteristics	SBBrazil 2010		
	Agrees (%)	Disagrees (%)	p-value
Sex			
Female	78.2	21.8	0.30
Male	80.0	20.0	
Age (years)			
35-39	80.3	19.7	0.15
40-44	77.2	22.8	
Schooling (years)			
0-4	83.7	16.3	< 0.01
5-8	82.7	17.3	
9 or more	74.7	25.3	
Last dentist appointment			
Over 1 year ago	82.4	17.6	< 0.01
Less than 1 year ago	74.6	25.4	
Reason for last appointment			
Prevention/Check up	63.9	36.1	< 0.01
Pain	90.5	9.5	
Extraction/Treatment/Other	81.2	18.8	
Number of remaining teeth			
0-20	76.9	23.1	0.33
21 or more	79.4	20.6	
Current use of prostheses			
No	79.3	20.7	0.57
Yes	78.3	21.7	
Presence of caries			
No	65.2	34.8	< 0.01
Yes	89.4	10.6	
Periodontal alterations			
No	67.6	32.4	< 0.01
Yes	83.8	16.2	
Need for prostheses			
No	67.4	32.6	< 0.01
Yes	84.1	15.9	
Pain over the past 6 months			
No	74.0	26.0	< 0.01
Yes	91.5	8.5	
Difficulty when eating or ingesting liquids			
No	73.1	26.9	< 0.01
Yes	90.2	9.8	
Discomfort when brushing teeth			
No	73.6	26.4	< 0.01
Yes	93.0	7.0	
Nervousness or irritation due to teeth			
No	74.8	25.2	< 0.01
Yes	90.1	9.9	

(continues)

Table 3 (continued)

Characteristics	SBBrazil 2010		
	Agrees (%)	Disagrees (%)	p-value
Impediment to going out or having fun due to teeth			
No	76.5	23.5	< 0.01
Yes	90.9	9.1	
Stopped practicing sport due to teeth			
No	78.0	22.0	< 0.01
Yes	90.9	9.1	
Had difficulty speaking due to teeth			
No	76.5	23.5	< 0.01
Yes	92.2	7.8	
Felt embarrassed speaking or smiling due to teeth			
No	73.4	26.6	< 0.01
Yes	93.2	6.8	
Teeth get in the way of work tasks			
No	76.6	23.4	< 0.01
Yes	96.0	4.0	
Stopped sleeping or slept badly due to teeth			
No	75.6	24.4	< 0.01
Yes	93.0	7.0	

results in two different contexts. In the final models, similar significant associations were verified in SBBrazil 2010 and SBMinas Gerais 2012, showing the stability of the outcome in the national and state samples. However, answers obtained through questionnaires always have some degree of imprecision, both because of the way respondents understand questions and because of how questions are phrased. The question used in the two surveys does not specify whether "dental treatment" refers exclusively to carious lesions or to any type of dental intervention. Thus, we cannot determine which types of treatments respondents considered when formulating their answers. For this reason, we chose to compare self-perception with any clinical need present at the time of the exam.

This article shows that agreement between self-perception and clinical evaluation of dental treatment needs was high in both surveys we analyzed. Clinical and self-reported oral health conditions that affect function and quality of life were associated with a higher agreement, which may enable the development of instruments that reinforce individuals' correct evaluation of their treatment needs, since questionnaires that combine several questions or answer options tend to have high values of validity [32,33].

The results we found also draw attention to the need for developing educational strategies to enlighten the population on the need for continuing dental treatments, as well as on the chronic and asymptomatic nature of some oral health harms, which may be treated in order to avoid future aggravation, if they are underestimated by the individual.

Table 4

Bivariate analysis of the agreement between self-perception and clinical evaluation of need for dental treatment in adults. SBMinas Gerais 2012.

Characteristics	SBMinas Gerais 2012		
	Agrees (%)	Disagrees (%)	p-value
Sex			
Female	72.4	27.6	0.23
Male	76.4	23.6	
Age (years)			
35-39	75.2	24.8	0.36
40-44	72.3	27.7	
Schooling (years)			
0-4	81.1	18.9	< 0.01
5-8	82.3	17.7	
9 or more	67.2	32.8	
Last dentist appointment			
Over 1 year ago	78.9	21.1	< 0.01
Less than 1 year ago	68.5	31.5	
Reason for last appointment			
Prevention/Check up	64.9	35.1	< 0.01
Pain	85.8	14.2	
Extraction/Treatment/Other	74.3	25.7	
Number of remaining teeth			0.06
0-20	80.4	19.6	
21 or more	72.8	27.2	
Current use of prostheses			0,03
No	72.0	28.0	
Yes	80.6	19.4	
Presence of caries			< 0.01
No	63.3	36.7	
Yes	84.8	15.2	
Periodontal alterations			< 0.01
No	67.2	32.8	
Yes	78.4	21.6	
Need for prostheses			< 0.01
No	62.5	37.5	
Yes	82.2	17.8	
Pain over the past 6 months			< 0.01
No	68.2	31.8	
Yes	94.2	5.8	
Difficulty when eating or ingesting liquids			< 0.01
No	67.5	32.5	
Yes	92.2	7.8	
Discomfort when brushing teeth			< 0.01
No	68.5	31.5	
Yes	90.9	9.1	
Nervousness or irritation due to teeth			< 0.01
No	69.6	30.4	
Yes	92.7	7.3	

(continues)

Table 4 (continued)

Characteristics	SBMinas Gerais 2012		
	Agrees (%)	Disagrees (%)	p-value
Impediment to going out or having fun due to teeth			< 0.01
No	71.1	28.9	
Yes	94.6	5.4	
Stopped practicing sport due to teeth			0.01
No	72.7	27.3	
Yes	91.6	8.4	
Had difficulty speaking due to teeth			< 0.01
No	71.7	28.3	
Yes	95.9	4.1	
Felt embarrassed speaking or smiling due to teeth			< 0.01
No	69.1	30.9	
Yes	92.7	7.3	
Teeth get in the way of work tasks			< 0.01
No	72.2	27.8	
Yes	92.6	7.4	
Stopped sleeping or slept badly due to teeth			< 0.01
No	70.6	29.4	< 0,01
Yes	94.8	5.2	

Table 5

Prevalence ratio (PR) and 95% confidence intervals (95%CI) for the agreement between self-perception and clinical evaluation of treatment needs in adults.

Characteristics	SBBrazil 2010		SBMinas Gerais 2012	
	PR (95%CI)	p-value	PR (95%CI)	p-value
Sex				
Female	1.00		1.00	
Male	1.03 (0.99-1.08)	0.18	1.03 (0.96-1.12)	0.40
Age (years)				
35-39	1.00		1.00	
40-44	0.97 (0.93-1.02)	0.21	0.96 (0.89-1.04)	0.33
Schooling (years)				
0-4	1.00		1.00	
5-8	1.01 (0.94-1.09)	0.70	1.02 (0.92-1.14)	0.67
9 or more	1.00 (0.95-1.06)	0.88	0.94 (0.85-1.05)	0.28
Last dentist appointment				
Over 1 year ago	1.00		1.00	
Less than 1 year ago	0.95 (0.90-0.99)	0.02	0.90 (0.82-0.99)	0.03
Reason for last appointment				
Prevention/Check up	1.00		1.00	
Pain	1.16 (1.06-1.26)	< 0.01	1.03 (0.87-1.23)	0.71
Extraction/Treatment/Other	1.13 (1.03-1.23)	0.01	1.00 (0.86-1.15)	0.97

(continues)

Table 5 (continued)

Characteristics	SBBrazil 2010		SBMinas Gerais 2012	
	PR (95%CI)	p-value	PR (95%CI)	p-value
Number of remaining teeth				
0-20	1.00		-	
21 or more	1.06 (1.01-1.12)	0.02	-	
Presence of caries				
No	1.00		1.00	
Yes	1.22 (1.13-1.32)	< 0.01	1.20 (1.07-1.36)	< 0.01
Periodontal alterations				
No	1.00		-	
Yes	1.11 (1.03-1.18)	< 0.01	-	
Need for prostheses				
No	1.00		1.00	
Yes	1.11 (1.03-1.21)	< 0.01	1.15 (1.05-1.27)	< 0.01
Pain over the past 6 months				
No	1.00		1.00	
Yes	1.06 (1.01-1.11)	0.01	1.17 (1.09-1.25)	< 0.01
Difficulty when eating or ingesting liquids				
No	1.00		-	
Yes	1.08 (1.03-1.12)	< 0.01	-	
Discomfort when brushing teeth				
No	1.00		-	
Yes	1.08 (1.02-1.14)	0.01	-	
Nervousness or irritation due to teeth				
No	-		1.00	
Yes	-		1.11 (1.04-1.19)	< 0.01
Felt embarrassed speaking or smiling due to teeth				
No	1.00		1.00	
Yes	1.09 (1.04-1.13)	< 0.01	1.08 (1.01-1.15)	0.02

Contributors

A. R. Nascimento, F. B. Andrade and C. C. César contributed to the study elaboration, data analysis and interpretation, writing and revision of the text, and final approval of the article.

Acknowledgments

We thank the National Coordination of Oral Health/ Health Ministry for granting us access to the SBBrazil 2010 database and the Department of Oral Health/ Minas Gerais State Health Secretary for granting us access to the SBMinas Gerais 2012 database. We also thank CNPq for granting C. C. César a productivity grant.

References

1. Gilbert AD, Nuttall NM. Self-reporting of periodontal health status. Br Dent J 1999; 186:241-4.
2. Joshipura KJ, Pitiphat W, Douglass CW. Validation of self-reported periodontal measures among health professionals. J Public Health Dent 2002; 62:115-21.
3. Eke PI, Dye B. Assessment of self-report measures for predicting population prevalence of periodontitis. J Periodontol 2009; 80:1371-9.
4. Liu H, Maida CA, Spolsky VW, Shen J, Li H, Zhou X, et al. Calibration of self-reported oral health to clinically determined standards. Community Dent Oral Epidemiol 2010; 38:527-39.
5. Passos ADC, Ruffino-Neto A. Características dos instrumentos de medida. In: Franco LJ, Passos ADC, organizadores. Fundamentos de epidemiologia. 2ª Ed. Barueri: Edições Manole; 2011. p. 149-65.
6. Chisick MC, Poindexter FR, York AK. Factors influencing perceived need for dental care by United States military recruits. Clin Oral Invest 1998; 2:47-51.
7. Heft MW, Gilbert GH, Shelton BJ, Duncan RP. Relationship of dental status, sociodemographic status, and oral symptoms to perceived need for dental care. Community Dent Oral Epidemiol 2003; 31:351-60.
8. Ekanayake L, Perera I. Perceived need for dental care among dentate older individuals in Sri Lanka. Spec Care Dentist 2005; 25:199-205.
9. Martins AMEBL, Barreto SM, Pordeus IA. Fatores relacionados à autopercepção da necessidade de tratamento odontológico entre idosos. Rev Saúde Pública 2008; 42:487-96.
10. Moreira RS, Nico LS, Souza MLR. Fatores associados à necessidade subjetiva de tratamento odontológico em idosos brasileiros. Cad Saúde Pública 2009; 25:2661-71.
11. Seremedi K, Koletsi-Kounari H, Kandilorou H. Self-reported and clinically-diagnosed dental needs: determining the factors that affect subjective assessment. Oral Health Prev Dent 2009; 7:183-90.
12. Gilbert GH, Heft MW, Duncan RP, Ringelberg ML. Perceived need for dental care in dentate older adults. Int Dent J 1994; 44:145-52.
13. Vered Y, Sgan-Cohen HD. Self-perceived and clinically diagnosed dental and periodontal health status among young adults and their implications for epidemiological surveys. BMC Oral Health 2003; 3:3.
14. Tervonen T. Condition of prosthetic constructions and subjective needs for replacing missing teeth in a Finnish adult population. J Oral Rehabil 1988; 15:505-13.
15. Tervonen T, Knnuttila M. Awareness of dental disorders and discrepancy between “objective” and “subjective” dental treatment needs. Community Dent Oral Epidemiol 1988; 16:345-8.
16. Costa APS, Machado FCA, Pereira ALBP, Carreiro AFP, Ferreira MAF. Qualidade técnica e satisfação relacionadas às próteses totais. Ciênc Saúde Coletiva 2013; 18:453-60.
17. Smith JM, Sheiham A. Dental treatment needs and demands of an elderly population in England. Community Dent Oral Epidemiol 1980; 8:360-4.
18. Walter MH, Wolf BH, Rieger C,Boening KW. Prosthetic treatment need in a representative German sample. J Oral Rehabil 2001; 28:708-16.
19. Colussi CF, De Freitas SF, Calvo MC. The prosthetic need WHO index: a comparison between self-perception and professional assessment in an elderly population. Gerodontology 2009; 26:187-92.
20. Nascimento AR, César CC, Andrade FB. Fatores associados à concordância entre necessidade normativa e subjetiva de próteses totais em idosos brasileiros. In: Anais do 2º Congresso Brasileiro de Política, Planejamento e Gestão em Saúde; 2013. http://www.politicaemsaude.com.br/anais/orais/024.pdf (accessed on 22/Oct/2014).
21. Ministério da Saúde. SB Brasil 2010: Pesquisa Nacional de Saúde Bucal: resultados principais. Brasília: Ministério da Saúde; 2012.
22. Roncalli AG, Silva NN, Nascimentio AC, Freitas CHSM, Casotti E, Peres KG, et al. Aspectos metodológicos do Projeto SB Brasil 2010 de interesse para inquéritos nacionais de saúde. Cad Saúde Pública 2012; 28 Suppl:S40-57.
23. Diretoria de Saúde Bucal, Superintendência de Redes de Atenção à Saúde, Subsecretaria de Políticas e Ações de Saúde, Secretaria de Estado de Saúde de Minas Gerais. SB Minas Gerais: pesquisa das condições de saúde bucal da população mineira: resultados principais. Belo Horizonte: Secretaria de Estado de Saúde de Minas Gerais; 2013.
24. World Health Organization. Oral health surveys: basic methods. 4th Ed. Geneva: World Health Organziation; 1997.
25. Adulyanon S, Vourapukjaru J, Sheiham A. Oral impacts affecting daily performance in a low dental disease Thai population. Community Dent Oral Epidemiol 1996; 24:385-9.
26. Rao JNK, Scott AJ. On Chi-squared tests for multiway contingency tables with cell proportions estimated from survey data. Ann Stat 1984; 12:46-60.
27. Barros AJD, Hirakata VN. Alternatives for logistic regression in cross-sectional studies: an empirical comparison of models that directly estimate the prevalence ratio. BMC Med Res Methodol 2003; 3:21.
28. Araújo CS, Lima RC, Peres MA, Barros AJD. Utilização de serviços odontológicos e fatores associados: um estudo de base populacional no Sul do Brasil. Cad Saúde Pública 2009; 25:1063-72.
29. Lundegren N, Axtelius B, Hakansson J, Akerman S. Dental treatment need among 20 to 25-year-old Swedes: discrepancy between subjective and objective need. Acta Odontol Scand 2004; 62:91-6.
30. Cascaes AM, Leão AT, Locker D. Impacto das condições de saúde bucal na qualidade de vida. In: Antunes JLF, Peres MA, organizadores. Epidemiologia da saúde bucal. 2ª Ed. São Paulo: Editora Santos; 2013. p. 437-58.

31. Bedos C, Brodeur JM, Levine A, Richard L, Boucheron L, Mereus W. Perception of dental ilness among persons receiving public assistance in Montreal. Am J Public Health 2005; 95:1340-4.
32. Pinelli C, Loffredo LCM. Reproducibility and validity of self-perceived oral health conditions. Clin Oral Invest 2007; 11:431-7.
33. Silva AER, Menezes AMB, Assunção MCF, Gonçalves H, Demarco FF, Vargas-Ferreira F, et al. Validation of self-reported information on dental caries in a birth cohort at 18 years of age. PLoS One 2014; 9:e106382.

Resumo

O objetivo deste trabalho foi descrever a concordância entre a autopercepção e a avaliação clínica das necessidades de tratamento dentário em adultos e analisar os fatores associados. A amostra foi composta por indivíduos adultos que participaram do SBBrasil 2010 e do SBMinas Gerais 2012. A variável resposta do estudo corresponde à concordância entre a autopercepção e a avaliação clínica da necessidade de tratamento dentário. Regressão de Poisson múltipla foi utilizada para determinar os fatores associados ao desfecho. A concordância entre a autopercepção e a avaliação clínica foi de 78,8% no Brasil e 73,8% em Minas Gerais. Condições clínicas e autorrelatadas de saúde bucal que afetam a função e a qualidade de vida estiveram associadas à maior concordância, enquanto a visita recente ao dentista esteve associada à menor concordância. A identificação dos fatores associados pode propiciar o desenvolvimento de questionários que favoreçam a avaliação correta dos indivíduos sobre as suas necessidades de tratamento.

Autoavaliação Diagnóstica; Inquéritos de Saúde Bucal; Saúde Bucal

Resumen

El objetivo de este trabajo fue describir la concordancia entre la autopercepción y la evaluación clínica de las necesidades de tratamiento dental en adultos y analizar los factores asociados. La muestra estuvo compuesta por individuos adultos que participaron en el SBBrasil 2010 y en el SBMinas Gerais 2012. La variable respuesta del estudio corresponde a la concordancia entre la autopercepción y la evaluación clínica de la necesidad de tratamiento dental. Se utilizó la regresión de Poisson múltiple para determinar los factores asociados al desenlace. La concordancia entre la autopercepción y la evaluación clínica fue de un 78,8% en Brasil y un 73,8% en Minas Gerais. Condiciones clínicas y autorrelatadas de salud bucal que afectan la función y la calidad de vida estuvieron asociadas a una mayor concordancia, mientras que la visita reciente al dentista estuvo asociada a una menor concordancia. La identificación de los factores asociados puede propiciar el desarrollo de cuestionarios que favorezcan la evaluación correcta de los individuos sobre sus necesidades de tratamiento.

Autoevaluación Diagnóstica; Encuestas de Salud Bucal; Salud Bucal

Submitted on 13/Mar/2015
Final version resubmitted on 05/Sep/2015
Approved on 14/Oct/2015