

Can more resilient elderly people be more satisfied with dental services?

Idosos com maior potencial de resiliência podem estar mais satisfeitos com os serviços odontológicos?

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Resumo

Introdução: No que diz respeito aos Serviços de Saúde Bucal, poucos estudos têm sido desenvolvidos na ambição de conhecer a satisfação deste grupo etário com tais serviços. **Objetivo:** Investigar a associação entre a resiliência e satisfação com serviços odontológicos entre os idosos, por meio de um modelo ajustado para fatores de confusão. **Material e método:** O lócus da pesquisa foi Lomba-Partenon, em Porto Alegre – RS, onde 771 idosos foram identificados em seus domicílios por meio de amostragem por conglomerado. Os indivíduos responderam a um questionário sócio-demográfico e de comportamentos em saúde, à Escala de Resiliência e a questões relativas ao Serviço Odontológico acessado e à satisfação com o mesmo; além disso, foi realizado um breve exame bucal para contagem do número de dentes e identificação do uso de prótese dentária. **Resultado:** Baseado em uma abordagem hierárquica realizada através de Regressão Logística Multivariada, as odds ratios estimadas das variáveis que ficaram significativamente associadas com o desfecho em estudo, satisfação com o Serviço Odontológico, após a análise totalmente ajustada, foram: 1) obtenção de consulta odontológica classificada como regular: OR= 1,85, 95% IC (1,10 a 3,12); 2) obtenção de consulta odontológica classificada como ruim: OR= 2,17, 95% IC (1,05 a 4,50) e 3) alto potencial de resiliência: OR= 0,60, 95% IC (0,37 a 0,97). **Conclusão:** Os resultados confirmam a hipótese de associação entre elevado potencial de resiliência e satisfação com os Serviços Odontológicos acessados por idosos.

Descritores: Avaliação de serviços de saúde; resiliência psicológica; assistência odontológica para idosos; saúde do idoso; satisfação do paciente.

Abstract

Introduction: With respect to dental health services, few studies have been developed to understand the satisfaction of this age group with these services. **Objective:** To investigate the association between resilience and satisfaction with dental services among elderly people, using a model adjusted for confounding factors. **Material and method:** The locus of the research was the Lomba-Parthenon district management, in Porto Alegre, Rio Grande do Sul, Brazil. 771 elderly people living in their homes were identified through cluster sampling. The subjects responded to a socio-demographic and health behaviors questionnaire, the Resilience Scale and to questions regarding their satisfaction with dental care accessed. Furthermore, a brief oral examination was conducted to count the number of teeth and to identify the use of dental prostheses. **Result:** Based on a hierarchical approach conducted using Multivariate Logistic Regression and after fully adjusted analysis, the estimated odds ratios of the variables that were significantly associated with the outcome of this study, satisfaction with dental care, were: 1) obtaining a dental appointment, classified as regular: OR= 1.85, 95% CI (1.10 to 3.12); 2) obtaining a dental appointment, classified as bad: OR= 2.17, 95% CI (1.05 to 4.50); and, 3) high potential for resilience: OR= 0.60, 95% CI (0.37 to 0.97). **Conclusion:** The results confirm the hypothesis of an association between high potential for resilience and satisfaction with the Dental Services accessed by elderly people.

Descriptors: Health services evaluation; psychological resilience; dental care for elderly people; health of elderly people; patient satisfaction.

INTRODUCTION

Low fertility rates and the ongoing decrease in mortality have triggered structural changes in the Brazilian population pyramid. Additionally, improvements in health conditions have favored population longevity¹. Consequently, the result of such demographic changes is an important growth in demand for social and health services².

Moreover, psychological factors, mainly resilience, may be involved both in the process of aging well and in the perception of satisfaction with dental services, since resilience has been associated with life satisfaction, handling of stress, low depression levels, better health and health-promoting behaviors³.

Given this particular demographic, epidemiological, and social scenario, there are elderly individuals with unattended dental health needs, impaired access to dental services and a heritage of excluding and crippling dental practices². Therefore, it is necessary not only to provide health awareness services but to guarantee access to dental care to this age group and, also, to learn the satisfaction of these individuals with dental services accessed.

Thus, incorporating the user into the evaluation process must be considered, not only to construct a sensible quality indicator of services provided but also to include the individual aspects related to satisfaction with this process. This leads to more appropriate use of the service and to its social acceptance⁴. Therefore, it is urgent to turn to psychological aspects such as resilience when interpreting user satisfaction so as to describe health services from the perspective of users. This is especially true concerning elderly people, who are the target audience for a series of reorientations that the Primary Health Care undergoes.

This study aims to investigate the association between resilience and satisfaction with dental services, using a model adjusted for confounders, among elderly people from the city of Porto Alegre, Rio Grande do Sul, Brazil.

MATERIAL AND METHOD

The study was conducted in Lomba do Pinheiro and Partenon. According to the 2010 Census of IBGE (Brazilian Institute of Geography and Statistics), the population of Porto Alegre is 1,409,939, with 211,986 people who are 60 or older. In the districts where this research was conducted, the estimated population aged 60 or older is 12,871⁵.

The study was developed following evaluation and approval by the Research Ethics Committee of the School of Dentistry of UFRGS according to Resolution 466/12 of the CNS (National Health Council), which demands that the Statement of Free and Informed Consent be obtained from subjects involved in the research.

This is a cross-sectional, population-based study. Cluster sampling was performed by the random selection of 61 out of 240 census tracts from the Lomba do Pinheiro and Partenon health districts. The number of census tracts was drawn in proportion to the size of population coverage area of each Health Unit in the districts, based on the criteria used in the IBGE census^{5,6}.

Initially, a pilot study was performed with 50 elderly people in order to estimate the sample size. From this pilot study, a prevalence of 57% of high resilience potential and satisfaction with dental health service was found. The prevalence ratio of satisfied elderly was 1.32. The sample size was estimated at 398 individuals considering a confidence interval of 95%, admitting a β error of 20%, and consequent statistical power of 80%. There was an additional 10% for possible losses or refusals, and 15% for control of confounding factors. Due to the lack of accurate estimates, to minimize the outlining effect which occurs in cluster sampling, the sample was increased 1.5x in order to perform the adjusted analysis. Then, from the pilot study, the sample was estimated at 755 subjects.

Cluster Sampling Process

Once the sample size was estimated, the fieldwork began, 804 elderly people were invited to join this cross-sectional study. Of those, 10 refused to participate and 794 consented to answer the Mini Mental State Exam – MMSE⁷. 23 individuals presented cognitive impairment and were excluded. The final sample totaled 771 elderly people.

The inclusion criteria for this research were: being 60 or older and living independently within the community.

Data collection was performed through individual interviews, carried out by trained interviewers from the Research Center in Social Dentistry of the School of Dentistry of UFRGS (CPOS/UFRGS), in the homes of the elderly people, according to the above mentioned inclusion criteria.

Measures

Mini mental state exam

The MMSE⁷ with 30 items was used to evaluate the presence or absence of cognitive impairments, setting the exclusion criterion adopted in this study. The MMSE uses cutoff points related to schooling for the generic diagnosis of “cognitive decline”. The cutoff points suggested in the literature^{7,8} and adopted as exclusion criteria in the present study were: 13 for illiterates, 18 for basic school (1 to 8 years of study) and 26 for high school (9 years of study or more).

Socio-demographic questionnaire

Socio-demographic data included in the individual questionnaire were: age, gender, skin color, schooling, family income, social support, and smoking habit.

Age was collected from the birth date provided by the individual at the time of the interview. A continuous variable was used for statistical analysis.

Skin color was collected from the self-declaration criterion proposed by IBGE⁵. The options (white, black, yellow, brown, and indigenous) were read to the individuals and the option declared by the elderly person was used. For statistical analysis, this variable was classified as “white” or “non-white”.

Schooling was collected by adding the years of study completed without failure. It was classified as “illiterate” (0 years of study), “1 to 8 years of study” or “more than 8 years of study”.

Family income was collected according to the answered value and the following categories were established *a posteriori*: “0 to 1000 Reais”, “1001 to 1500 Reais”, “1501 to 3000 Reais”, and “more than 3001 Reais”, based on the distribution of sampling data.

Smoking Habit was collected from the answer provided to the question: “*Do you currently smoke cigarettes?*” The subject could answer either positively or negatively.

Questionnaire on the search for dental care

This instrument included questions on the search for dental care, the type of oral health service accessed, and obtaining an appointment in the referred location.

The following question was used to investigate the search for dental care: “*Which statement best describes your search for dental care?*” The possible answers were: “I never go to the dentist”, “I go to the dentist when I have a problem or when I know something needs to be fixed”, “I occasionally go to the dentist whether I have a problem or not” and “I regularly go to the dentist”. For analysis, the answers were reclassified as: “Never goes to the dentist”, “Visits prompted by problems” or “Occasional/Regular visits”.

For the variable type of oral health service accessed, the location of the last dental treatment was classified as: “public health service”, “health insurance” or “private health service”. This variable was investigated by the question: “*Is there a health service you usually use in case of disease or for health advise?*”

Lastly, obtaining a dental appointment in the referred health service was investigated by the question: “*How do you classify obtaining a dental appointment when you need one?*” The answers ranged from poor, regular, good, very good, and excellent. The answers were reclassified for analysis as: poor, regular and good/very good.

Questionnaire on oral health services evaluation

This questionnaire evaluated satisfaction with oral health services with the question: “*How satisfied were you with this treatment?*”, referring to the last dental treatment accessed by the elderly people. The possible answers were: 1. Very satisfied, 2. Satisfied, 3. Neither unsatisfied nor satisfied, 4. Unsatisfied and 5. Very unsatisfied. For statistical analysis, the answers were dichotomized as “Satisfied with Dental Service” or “Unsatisfied with Dental Service”.

Resilience Scale - RS

This scale was developed by Wagnild, Young⁹ in 1993 and was validated in Brazilian Portuguese by Pesce et al.¹⁰ in 2005. This scale includes 25 items positively described with 4-point *Likert*-type answers, ranging from “fully disagree” (1) to “fully agree” (4). The scores of the scale range from 25 to 175 points, with high values indicating elevated resilience potential.

The RS was used in this research in order to evaluate individual resilience potential, considering positive personality traits that identify the capacity for individual adaptation^{9,10}.

For statistical analysis, the resilience scores were dichotomized as: “low resilience potential”, which included scores in the range from 25 to 145 points; or, “high resilience scores”, which included scores in the range from 146 to 175 points¹¹.

Oral health conditions exam

This exam evaluated the number of teeth present, the presence of alteration in oral soft tissues and prosthetic condition. The exams were performed according to criteria indicated by the WHO¹².

The number of teeth was classified considering the reduced dental arch, made by at least 20 teeth that were functionally acceptable¹³. The categories used were: “edentulous”, “1 to 19 teeth” and “20 or more teeth”.

Regarding the alterations in oral soft tissues, the exam classified either “presence” or “absence” of alterations from normality.

Lastly, the prosthetic conditions of the upper and lower arches were classified in the following categories: “without prosthesis”, “fixed and/or removable prosthesis” or “total prosthesis”.

Outcome

The outcome was evaluated by the variable “*How satisfied were you with this treatment?*”. This refers to the question linked to the Health Service, to which possible answers were: 1. Very satisfied, 2. Satisfied, 3. Neither unsatisfied nor satisfied, 4. Unsatisfied and 5. Very unsatisfied. For statistical analysis, the answers were dichotomized as “Satisfied with Dental Service” which included the categories: 1. Very Satisfied and 2. Satisfied; or, “Unsatisfied with Dental Service” which included the categories: 3. Neither unsatisfied nor satisfied, 4. Unsatisfied and 5. Very unsatisfied.

Conceptual Theoretical Model of Oral Health

The hierarchical model created for this study is based on the conceptual structure proposed by Andersen, Davidson¹⁴ to explain Oral Health outcomes presents exogenous and distal variables to outcome, in the first block. The second block includes the primary determinants. In the third block, independent variables regarding oral health behaviors are found. Proximal variables to outcome, such as oral health conditions constitute the fourth block.

According to this hierarchical model, the outcome of satisfaction with dental services results from a complex process. The resilience effect, on multiple factors that may influence the satisfaction of elderly people with oral health services, is highlighted (Figure 1).

Statistical Analysis

Continuous and discrete variables were described by average and respective standard deviation. Chi-square tests and evaluation of the distribution of categorical variables regarding the study outcome were performed.

Multivariate logistic regression was used to obtain odds ratios. Association analyses were obtained individually in each block. Then, the variables associated with the outcomes at their hierarchical levels were adjusted to the previous levels.

The final model included only variables that maintained a statistically significant association ($p < 0.20$)¹⁵ in backward analysis. The magnitudes of the associations between dependent and independent variables in the fully adjusted model were estimated by odds ratios with a significance level of 5% and confidence intervals of 95% (Figure 1). All analyses were performed using the SPSS 18.0 (SPSS Inc., USA) software.

RESULT

Among the 771 elderly people included in the sample, the average number of years of schooling was 5.9 (± 3.8) after reaching the MMSE⁹ cutoff point. The average MMSE score was 25.7 (± 3.7).

Features of the sample were as follows: average sample age, 69.8 (± 7.3) years; 516 women (66.8%) and 256 men (33.2%). Regarding schooling, 63 individuals were illiterate (8.2%), 493 had studied from 1 to 8 years (64.6%), and 208 had studied for more than 9 years (27.2%). A great part of the sample was self-declared as having white skin (63.9%). Concerning income, 78 subjects (10.4%) reported family income up to one minimum wage. As for the type of dental service accessed, 13.7% of participants used public service, 60.9% had health insurance and 25.4% accessed private dental services. Most individuals participating in the study (58.3%) reported that the search for dental care was prompted by problems. Lastly, 420 participants (54.4%) had high resilience potential, since 146.5 (± 13.25) is the mean resilience score.

The Cronbach's α Coefficient, calculated to assess the reliability of the RS, was 0.75.

The frequencies of the study variables, regarding the outcome of satisfaction with dental services, are shown in Table 1. Obtaining a dental appointment and resilience were the statistically significant variables ($P < 0.05$) relating to the outcome of satisfaction with dental services.

Results of the hierarchical analysis:

1st Block (Table 2)

There was no statistically significant association between the outcome and the variables composing this block, such as: age, gender, and skin color.

2nd Block (Table 2)

There was a statistically significant association between the difficulty of obtaining a dental appointment and the outcome (regular, $p = 0.004$; poor, $p = 0.01$).

The high resilience potential category also presented a statistically significant association with the outcome variable. This association was stronger when adjusted within the block ($p = 0.005$), and was lost when the adjustment was performed between blocks blocks ($p = 0.06$ and 0.07).

3rd Block (Table 2)

The variable of search for dental care when "prompted by problems" was significantly associated with the outcome ($p = 0.04$).

On the other hand, the variable of smoking habit did not have a statistically significant association with the outcome in any of the adjustments.

4th Block (Table 2)

The variables of this block, number of teeth, presence of mucosal lesion and use of prosthesis did not present significant associations with the outcome.

Fully Adjusted Model (Table 3)

In the fully adjusted model (Table 3), the variable of obtaining a dental appointment in the categories "regular" ($OR = 1.85$, $CI (1.10$ to $3.12)$ and $p = 0.02$), "poor" ($OR = 2.17$, $CI (1.05$ to $4.50)$ and $p = 0.03$), and the variable of high resilience potential ($OR = 0.60$, $CI (0.37$ to $0.97)$ and $p = 0.03$) maintained their significant association with the outcome.

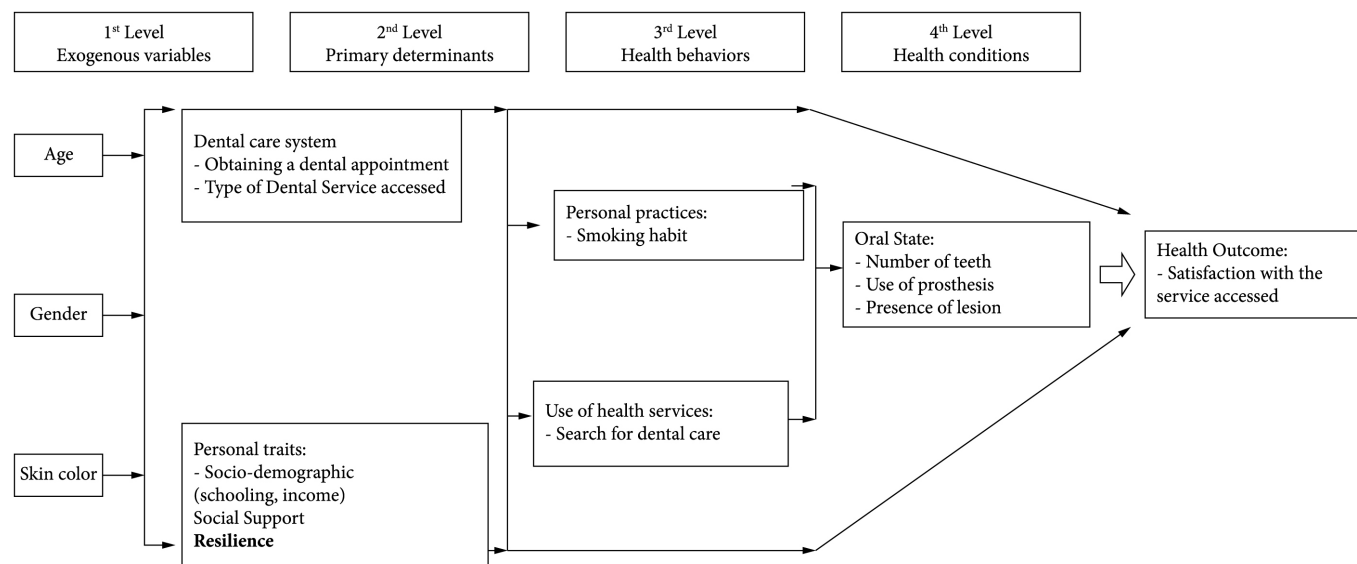


Figure 1. Hierarchical Conceptual Theoretical Model.

Table 1. Frequency distribution of predicting variables regarding satisfaction with Dental Service

| N (%) / mean (\pm sd) | Satisfied with Dental Service | | Unsatisfied with Dental Service | P value |
|---------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|--------------|
| | N (%) / mean (\pm sd) | | | |
| AGE | | 69.52 (\pm7.24) | 70.69 (\pm7.25) | 0.15 |
| GENDER | 1. Male | 222 (32.7%) | 28 (32.2%) | 0.91 |
| | 2. Female | 456 (67.3%) | 59 (67.8%) | |
| SKIN COLOR | 1. White | 435 (64.7%) | 55 (64.7%) | 0.37 |
| | 2. Black | 99 (14.7%) | 10 (11.8%) | |
| | 3. Brown | 104 (15.5%) | 18 (21.2%) | |
| | 4. Other | 34 (5.1%) | 2 (2.4%) | |
| OBTAINING AN APPOINTMENT | 1. Good | 327 (49.8%) | 26 (31.3%) | 0.005 |
| | 2. Regular | 263 (40.1%) | 44 (53.0%) | |
| | 3. Poor | 66 (10.1%) | 13 (15.7%) | |
| TYPE OF SERVICE | 1. Public Service | 78 (13.4%) | 10 (12.8%) | 0.95 |
| | 2. Health Insurance | 356 (61.3%) | 47 (60.3%) | |
| | 3. Private Service | 147 (25.3%) | 21 (26.9%) | |
| SCHOOLING | 0. Illiterate | 46 (6.8%) | 11 (12.6%) | 0.14 |
| | 1. 1 to 8 years | 429 (63.3%) | 52 (59.8%) | |
| | 2. > 8 years | 203 (29.9%) | 24 (27.6%) | |
| FAMILY INCOME | 0. 0 to 1000 | 214 (31.6%) | 28 (32.2%) | 0.71 |
| | 1. 1001 to 1500 | 143 (21.1%) | 14 (16.1%) | |
| | 2. 1501 to 3000 | 194 (28.6%) | 26 (29.9%) | |
| | 3. > 3001 | 127 (18.7%) | 19 (21.8%) | |
| SOCIAL SUPPORT | 0. Yes | 73 (10.8%) | 8 (9.2%) | 0.65 |
| | 1. No | 605 (89.2%) | 79 (90.8%) | |
| RESILIENCE | 0. 0-145 | 297 (43.8%) | 52 (59.8%) | 0.005 |
| | 1. 146-175 | 381 (56.2%) | 35 (40.2%) | |
| SMOKING HABIT | 1. Yes | 119 (17.7%) | 14 (16.1%) | 0.71 |
| | 2. No | 555 (82.3%) | 73 (83.9%) | |
| SEARCH FOR CARE | 1. Never | 113 (16.7%) | 18 (20.7%) | 0.11 |
| | 2. Prompted by Problems | 397 (58.6%) | 56 (64.4%) | |
| | 3. Regular Visits | 168 (24.8%) | 13 (14.9%) | |
| NUMBER OF TEETH | 0. Edentulous | 197 (30.9%) | 29 (35.4%) | 0.64 |
| | 1. 1 to 19 teeth | 346 (54.2%) | 43 (52.4%) | |
| | 2. 20 or more teeth | 95 (14.9%) | 10 (12.2%) | |
| PRESENCE OF LESION | 0. Absent | 560 (89.9%) | 70 (86.4%) | 0.33 |
| | 1. Present | 62 (10.1%) | 11 (13.6%) | |
| UPPER PROSTHESIS | 0. No Prosthesis | 112 (17.6%) | 11 (13.4%) | 0.60 |
| | 1. Fixed and Removable Prosthesis | 166 (26.0%) | 21 (25.6%) | |
| | 2. Total Prosthesis | 360 (56.4%) | 50 (61.0%) | |
| LOWER PROSTHESIS | 0. No Prosthesis | 317 (49.7%) | 37 (45.1%) | 0.51 |
| | 1. Fixed and Removable Prosthesis | 171 (26.8%) | 21 (25.6%) | |
| | 2. Total Prosthesis | 150 (23.5%) | 24 (29.3%) | |

Table 2. Association between variables and the outcome of Satisfaction with Dental Services

| Variable | Values | Full OR (CI 95%) | P value | Adjusted ^a OR (CI 95%) | P value | Adjusted ^b OR (CI 95%) | P value |
|-----------------------------|-----------------------------------|---------------------|--------------|--------------------------------------|------------|--------------------------------------|--------------|
| 1st BLOCK | | | | | | | |
| AGE | | 1.02 (0.99-1.05) | 0.15 | 1.02 (0.99-1.05) | 0.19 | | |
| GENDER | 1. Male | 1 | | 1 | | | |
| | 2. Female | 1.02 (0.63-1.65) | 0.91 | 0.98 (0.60-1.59) | 0.94 | | |
| SKIN COLOR | 1. White | 1 | | 1 | | | |
| | 2. Black | 0.79 (0.39-1.62) | 0.53 | 0.82 (0.40-1.68) | 0.60 | | |
| | 3. Brown | 1.36 (0.77-2.42) | 0.28 | 1.43 (0.80-2.55) | 0.22 | | |
| | 4. Other | 0.46 (0.10-1.99) | 0.30 | 0.44 (0.10-1.91) | 0.27 | | |
| 2nd BLOCK | | | | | | | |
| OBTAINING AN APPOINTMENT | 1. Good | 1 | | 1 | | 1 | |
| | 2. Regular | 2.10 (1.26-3.50) | 0.004 | 2.12 (1.22-3.71) | 0.008 | 2.19 (1.25-3.83) | 0.006 |
| | 3. Poor | 2.47 (1.21-5.07) | 0.01 | 3.10 (1.37-7.00) | 0.006 | 3.08 (1.36-6.97) | 0.007 |
| TYPE OF SERVICE | 1. Public | 1 | | 1 | | 1 | |
| | 2. Health Insurance | 1.03 (0.49-2.12) | 0.93 | 1.44 (0.62-3.32) | 0.39 | 1.38 (0.59-3.21) | 0.49 |
| | 3. Private | 1.11 (0.50-2.48) | 0.79 | 1.46 (0.60-3.54) | 0.40 | 1.42 (0.58-3.47) | 0.43 |
| SCHOOLING | 0. Illiterate | 1 | | 1 | | 1 | |
| | 1. 1 to 8 years | 2.02 (0.92-4.42) | 0.07 | 2.04 (0.76-5.45) | 0.15 | 1.69 (0.61-4.67) | 0.30 |
| | 2. > 8 years | 1.02 (0.61-1.71) | 0.92 | 1.21 (0.65-2.23) | 0.54 | 1.05 (0.55-1.99) | 0.87 |
| FAMILY INCOME | 0. 0 to 1000 | 1 | | 1 | | 1 | |
| | 1. 1001 to 1500 | 0.87 (0.46-1.63) | 0.67 | 0.65 (0.29-1.43) | 0.28 | 0.68 (0.38-1.51) | 0.34 |
| | 2. 1501 to 3000 | 0.65 (0.31-1.35) | 0.25 | 0.56 (0.23-1.36) | 0.20 | 0.59 (0.24-1.43) | 0.24 |
| | 3. > 3001 | 0.89 (0.47-1.68) | 0.73 | 0.81 (0.38-1.73) | 0.59 | 0.86 (0.40-1.84) | 0.70 |
| SOCIAL SUPPORT | 0. Yes | 1 | | 1 | | 1 | |
| | 1. No | 1.19 (0.55-2.56) | 0.65 | 0.89 (0.40-1.98) | 0.7 | 0.92 (0.41-2.05) | 0.84 |
| RESILIENCE | 0. 0-145 | 1 | | 1 | | 1 | |
| | 1. 146 - 175 | 0.52 (0.33-0.82) | 0.005 | 0.62 (0.37-1.03) | 0.06 | 0.62 (0.37-1.04) | 0.07 |
| 3rd BLOCK | | | | | | | |
| SEARCH FOR CARE | 1. Never | 1 | | 1 | | 1 | |
| | 2. Prompted by Problems | 2.05 (0.97-4.36) | 0.06 | 2.14 (1.00-4.56) | 0.05 | 1.58 (0.72-3.5) | 0.25 |
| | 3. Regular Visits | 1.82 (0.97-3.42) | 0.06 | 1.85 (0.98-3.48) | 0.06 | 1.47 (0.77-2.82) | 0.24 |
| SMOKING HABIT | 1. Yes | 1 | | 1 | | 1 | |
| | 2. No | 1.11 (0.61-2.04) | 0.71 | 1.18 (0.64-2.18) | 0.58 | 1.05 (0.55-2.03) | 0.87 |
| 4th BLOCK | | | | | | | |
| NUMBER OF TEETH | 0. Edentulous | 1 | | 1 | | 1 | |
| | 1. 1 to 19 teeth | 0.84 (0.51-1.39) | 0.50 | 1.08 (0.46-2.51) | 0.85 | 1.14 (0.48-2.72) | 0.75 |
| | 2. 20 or more teeth | 0.71 (0.33-1.52) | 0.38 | 1.01 (0.32-3.15) | 0.97 | 1.18 (0.56-3.79) | 0.77 |
| PRESENCE OF LESION | 0. Absent | 1 | | 1 | | 1 | |
| | 1. Present | 1.39 (0.70-2.77) | 0.34 | 1.40 (0.70-2.80) | 0.33 | 1.18 (0.56-2.47) | 0.65 |
| UPPER PROSTHESIS | 0. No Prosthesis | 1 | | 1 | | 1 | |
| | 1. Fixed and Removable Prosthesis | 1.28 (0.59-2.77) | 0.51 | 0.81 (0.35-1.88) | 0.62 | 0.88 (0.38-2.05) | 0.77 |
| | 2. Total Prosthesis | 1.41 (0.72-2.80) | 0.32 | 1.01 (0.53-1.94) | 0.95 | 1.20 (0.61-2.38) | 0.58 |
| LOWER PROSTHESIS | 0. No Prosthesis | 1 | | 1 | | 1 | |
| | 1. Fixed and Removable Prosthesis | 1.05 (0.59-1.85) | 0.86 | 0.73 (0.31-1.73) | 0.47 | 0.68 (0.28-1.63) | 0.39 |
| | 2. Total Prosthesis | 1.37 (0.79-2.37) | 0.26 | 0.75 (0.28-2.02) | 0.57 | 0.75 (0.27-2.05) | 0.57 |

^aAssociations adjusted to current conditions of oral health (Conditions of OH). ^bAssociations adjusted to exogenous variables, primary determinants, oral health behaviors, and oral state.

Table 3. Fully adjusted model

| Variable | Values | Adjusted ^b OR - (CI 95%) | P value |
|--------------------------|-------------------------|-------------------------------------|---------|
| OBTAINING AN APPOINTMENT | 1. Good | 1 | |
| | 2. Regular | 1.85 (1.10-3.12) | 0.02 |
| | 3. Poor | 2.17 (1.05-4.49) | 0.03 |
| RESILIENCE | 0. 0-145 | 1 | |
| | 1. 146-175 | 0.60 (0.37-0.97) | 0.03 |
| SEARCH FOR CARE | 1. Never | 1 | |
| | 2. Prompted by Problems | 1.69 (0.77-3.71) | 0.18 |
| | 3. Regular Visits | 1.53 (0.80-2.91) | 0.19 |

DISCUSSION

User satisfaction is an important element in the evaluation of health services. The results of this study suggest that satisfaction with dental services is influenced by some of the variables investigated. For example, the hypothesis was confirmed that psychological factors, namely resilience, are associated with satisfaction with dental services used by the elderly, even when other variables are considered. Hence, resilience is understood to enhance the adaptive capacity of elderly people to dental services accessed¹⁶.

By showing the association among getting a dental appointment, resilience and satisfaction with dental services accessed, the original purpose of this study is reinforced, because there are no studies found in several publications on user satisfaction with health services that investigate psychological attributes to explain the satisfaction reported by individuals.

An important point to be stressed, among the findings of this study, is the high resilience potential found in the sample. Fortes et al.¹⁶ found an increased resilience potential in elderly people which allows successful aging.

Resilience assumes the dynamic interaction of several factors¹⁶. This concept strengthens the hypothesis confirmed by this study considering that, during the analysis, high resilience potential presented a statistically significant association in different strengths when considering other variables. This finding agrees with the observations by Martins et al.¹⁷, who found an increasing statistical association as a greater number of variables were included in an analytical model. Hence, it is possible that resilience is one of the factors capable of explaining the paradox that the elderly are satisfied with dental services, even when facing limitations in accessing dental treatment and having poor oral health conditions.

In fact, empirical data show a peculiar fact about the universality of access to dental care by elderly people. Studies show that older people have difficulty accessing Primary Health Care, and such access falls dramatically when it comes to oral health¹⁸. It is also necessary to discuss the guarantee of comprehensive care for elderly people, given the fact that many of them access medical care through private health insurance, but face barriers in access to oral health in the public service.

This study found independent associations between satisfaction with dental services and those variables distributed in the primary determinants block (obtaining a dental appointment and resilience potential) and in the health behaviors block (search for dental care), although the latter was not statistically associated with the outcome. The remaining variables were incorporated into the final model analysis. Such associations demonstrate that those variables more distal to the outcome are possibly more relevant to satisfaction with dental services than the dental clinical variables¹⁹.

The associations mentioned above differ from a previous study, which shows associations between the dental clinical variables of need for dental care and user satisfaction²⁰. Although disagreeing with previous literature, this study includes variables more distal to the outcome, such as resilience. This develops the previous scientific evidence and suggests that other variables are important in building user satisfaction with dental service accessed.

Regarding obtaining a dental appointment, it is important to stress that the respondents who classified it as either "regular" or "poor" were more often unsatisfied with dental services accessed. This finding demonstrates the importance of the access to dental services on their perception of satisfaction^{20,21}.

Tuominen, Tuominen²² observed that dentate elderly people were significantly more satisfied than edentulous ones. For both dentate and edentulous elderly people, the accessibility to and availability of services were more influential on their satisfaction with dental services. Contrary to this finding, there was no association between the number of teeth and satisfaction. However, we also verified an association between availability of services and obtaining an appointment with satisfaction.

Therefore, the approach and findings of this study agree with with a review of studies on user satisfaction with dental services which shows that access to services must be considered among the features of health care provision²¹ in the evaluation of user satisfaction. Accordingly, a recent cohort study that also dealt with descriptions and dimensions of satisfaction with dental treatment concluded that satisfaction with dental services was, overall, high as related to the most recent dental appointment. The authors state that availability and accessibility of dental care are crucial factors in regard to satisfaction²³.

Some studies are complementary, considering that, in the case of accessibility to good dental care, the behavior of usage and the standards of dental care would be related to satisfaction. Regular users of dental services are known to be more satisfied, given that one of the reasons for not being a regular user may be dissatisfaction with the care provided^{21,23}.

Since the regular use of dental services is associated with satisfaction with it, the results indicated by this research allow expansion of the discussion, as it is clear that maintaining a regular pattern of dental services use only occurs by successfully obtaining a dental appointment. This consideration finds theoretical support in Andersen, Davidson¹⁴, who stress that access is one of the essential elements related to the organization of health services, given that it concerns the entry to health service and continuity of care.

This study presents both strengths and limitations. Among its strengths are sample features and the considerable external validity of findings, which allows it to guide future studies of variables that may help to build explanatory models of user satisfaction with dental services; thus, to better instruct services in the search for qualifications to meet the peculiarities of elderly people. Within the limitations of the study is the lack of a commonly accepted theoretical model of user satisfaction with dental services.

In conclusion, this study analyzed factors that influence the satisfaction of elderly people with dental services, clarifying the relation between obtaining a dental appointment and the psychological attribute of resilience, suggesting that psychological resources, not only dental clinical and service organization features, may play an important role in perceiving satisfaction.

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CONFLICTS OF INTERESTS

The authors declare no conflicts of interest.

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Received: December 2, 2014

Accepted: May 15, 2015