

Availability of dental treatment is associated with satisfaction derived from Primary Health Care Services accessed by elderly

Tratamento odontológico disponível e sua associação com a satisfação com os serviços de atenção primária à saúde acessados por idosos

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Resumo

Objetivo: Esta pesquisa objetiva avaliar se a presença de equipes de saúde bucal nas unidades de atenção primária à saúde do SUS está associada a maior satisfação com o serviço acessado. **Material e método:** Neste estudo, de delineamento transversal, entrevistaram-se 401 idosos nos distritos Lomba do Pinheiro e Partenon em Porto Alegre, selecionados através de um processo amostral por conglomerados, a partir do sorteio de setores censitários. **Resultado:** A Regressão de Poisson demonstrou que as variáveis idade e oferta de tratamento odontológico se mantiveram associadas com o desfecho, já as variáveis idade, número de dentes e presença de tratamento odontológico estiveram associadas com maiores prevalências à satisfação com o serviço de saúde. **Conclusão:** Os resultados encontrados trazem novas contribuições para a qualificação do SUS, uma vez que o estudo demonstra a necessidade de valorizar e integrar as equipes de saúde bucal às equipes de APS, pois traz evidências da associação entre a presença da equipe de saúde bucal e a satisfação dos usuários idosos com o serviço de saúde acessado.

Descritores: Atenção Primária à Saúde; serviços de saúde para idosos; serviços de saúde bucal; satisfação do paciente.

Abstract

Objective: This research evaluated whether having dental treatment available in the primary health care centers of the Brazilian Unified Health System was associated with greater satisfaction with the services accessed. The offering of dental care within the health service that elders usually access may improve their satisfaction with the services as a whole. **Material and method:** In this cross-sectional study, 401 elders living in the districts of Lomba do Pinheiro and Partenon in Porto Alegre, Brazil were interviewed. Elders were selected using a cluster sampling design process from census tract drawings. **Result:** Poisson Regression revealed that age and dental treatment supply were associated with outcome, and age, number of teeth, and the presence of dental treatment were associated with a higher prevalence of satisfaction with health services. **Conclusion:** These results provide new contributions for health system qualification because this study demonstrated the importance of having dental treatment available to improve the satisfaction of older people with the Primary Health Care (PHC) services accessed.

Descriptors: Primary Health Care; health services for the aged; oral health services; patient satisfaction.

INTRODUCTION

The incorporation of Oral Health Teams (OHT) to the Family Health Strategy in Brazil began in 2000¹⁻⁴. Four years later the Department of Health introduced “*Brasil Sorridente*” (Smiling Brazil), a policy for oral health, which aimed to expand coverage and improve oral health conditions for Brazilians³. Epidemiological studies reported that user satisfaction with health services is rare in Brazil⁴. However, studies evaluating the association between dental services and user satisfaction with accessed services were not found.

The 2010 Census of the Brazilian Institute of Geography and Statistics listed the population of Porto Alegre as 1,409,939, and

211,986 people were age 60 years or older. This elderly proportion is similar to most large Brazilian cities⁵.

Given the peculiar demographic, epidemiological, and social scenario of Brasil, there is the elderly individual with unattended dental health needs with impaired access to dental services and heir of an excluding and crippling dental practice^{1,2}. Therefore, it is not only required to provide health awareness services but to guarantee the access of dental care to this age group, and also knowing the satisfaction of these individuals with primary health care services accessed. Thus, incorporating the user in the evaluation process

must be considered not only for constituting a sensible quality indicator of provided services but for including the individual aspects related to satisfaction in this process, which leads to better adequacy in service use and its social acceptance.

The offering of dental care in the health services that elders usually access may improve their satisfaction with the services as a whole. However, there is no evidence to support this hypothesis. This research evaluated whether having dental treatment available in the primary health care centers of the Brazilian Unified Health System was associated with greater satisfaction of the service accessed by elders who resided in two municipal districts in a large Brazilian city.

MATERIAL AND METHOD

Population and Sample

This study was a cross-sectional study of a sample of independent elders who fulfilled the following inclusion criteria: over 60 years old, no present cognitive impairment that would compromise the data collected, resident of the health districts of Partenon or Lomba do Pinheiro in Porto Alegre, Brazil, and used the Primary Health Care services of SUS (Sistema Único de Saúde - Unified Health System). The estimated population of individuals who are 60-years or older in the referred districts is 12,871. This study is part of a larger investigation in which the sample calculation used the prevalence of parameters of good oral health perception, which indicated a sample size of 883 individuals. Therefore, 994 elderly residents were invited to participate. Eighty-three of these residents were not found after 3 attempts, 26 refused to participate, and 23 did not reach the cutoff point for cognitive evaluation. Therefore, 862 people participated in the main investigation. To assess the outcome of the study, 461 people who used other health services (private payers and insurance costumers) were excluded from the analysis, and 401 elders were included in this convenience sample for the use of PHC services.

The study was conducted after the College of Dentistry Research Ethics Committee approval under case number 15297, and informed consent was obtained from the research participants.

Data Collection

Data collection was performed in the households of the older individuals using the cluster sampling proposed by Barros, Victora⁶. Data were stored in Personal Digital Assistant (PDA) smartphone devices that were similar to handsets equipped with software that was specifically developed for this research.

Socio-demographic and Behavior Variables

Gender, age (dichotomized as ≤ 70 years old or ≥ 71 years old, based on the mean age), education level (number of years of formal education), and income were collected as quantitative variables. Marital status, group participation, smoking and drinking habits were collected as categorical variables.

Mini Mental State Exam (MMSE)

Possible cognitive impairments were assessed using the Mini Mental State Exam (MMSE)⁷ tracking test, which defined different cutoff points for inclusion criteria. The responses of the 30 items that comprise the MMSE were summed (1 point per right answer), and the minimum number of right answers for sample inclusion was 13 for illiterates, 18 for basic education (1 to 8 years of study), and 26 for high education (9 years or more of study)⁷.

Health-referred Conditions

The participants answered the following statement: "From the question I will ask you next, answer yes whether any doctor has already said you have or have had...". The following morbidities were listed: arterial hypertension, diabetes, ischemic heart disease, depression, arthrosis/arthritis, stroke, chronic bronchitis/emphysema, kidney disease, asthma, cancer, anxiety, HIV/AIDS, and heart failure. The number of self-declared morbidities was classified as: "Mostly one", "two", or "three or more" of the above-mentioned conditions.

Dental Exam

This exam evaluated the number of teeth and root fragments in the mouth, using the method proposed by the WHO⁸. The number of teeth was classified based on the reduced dental arch formed by at least 20 teeth, which was acceptable from the functional standpoint⁹. Therefore, the following categories were assigned: no teeth, 1 to 19 teeth, and 20 teeth or more. Root fragments were classified as follows: "0" corresponded to no teeth or "1".

Use of Services

The variable "type of health services accessed" was used based on the proposed standard for evaluations of user affiliation in PCATool Brazil¹⁰. User affiliation was first established using three questions: 1) what service the elderly is used to accessing, 2) what service knows you better as a person, and 3) what service is most responsible for your care. The service to which the elderly accustomed was established based on the greater number of equal answers and following other criteria that were proposed in cases when all of the answers were different.

Service classification was subsequently performed in BHC (Basic Health Centers), FHC (Family Health Centers), emergency care, hospital emergency room, hospital clinic, practice of a given doctor, health insurance clinic, health service at work or school and other types of service. This study only included elderly residents who were linked to PHC services, users of BHC or FHC.

Dental Treatment Availability

The presence of dental treatment integrated in primary health care service was evaluated by the following question: "Would the health service you usually access have the availability to perform dental treatment in case someone in your family needs it?". This question came from the *Primary Care Assessment Tool - PCATool*¹⁰. The answers for this question were Likert-type and ranged across 4 points from "certainly no" to "certainly yes". The answers were reclassified

into dichotomic variables for analysis purposes: “certainly yes” and “probably yes” were considered “yes”, and “certainly no” and “probably no” were considered “no”.

Outcome – Satisfaction with Health Services

Elderly satisfaction with the usually accessed health service was evaluated by the following question: “Would you recommend the “name of place/doctor/nurse” to a friend or relative?”. This question is considered a satisfaction and cultural competence proxy, and it was initially included in the *Primary Care Assessment Tool – PCATool*¹¹. The answers to this question were Likert-type and ranged on a 4-point scale from “certainly no” to “certainly yes”.

Conceptual Theoretical Model

The hierarchical analysis used in this study were based on the Andersen’s behavioral model on access to medical care, which is a theoretical and analytical scheme to improve understanding of the relationship between the use and satisfaction with health services and its determinants¹¹.

The model adapted for this study was created using variables that were distributed into the following five blocks: 1st Predisposing Features, 2nd Resources, 3rd Needs, 4th Behaviors, and 5th Health Services (Figure 1).

Statistical Analysis

Chi-square tests were performed to evaluate the distribution of dichotomic and categorical variables for the outcome of the study. The reliability of the MMSE scale was examined using Cronbach’s Alpha Coefficient.

Prevalence ratios were obtained using Poisson regression with robust variance estimation. Association analyses were performed individually in each block and later adjusted to hierarchically preceding blocks. The final model of hierarchical analysis included only those factors that remained with statistically significant values (p<0.10) in the analysis, even after adjustment for other variables that created each of the blocks and the variables that constituted the preceding blocks. The amplitude of association between the

dependent variable and independent variables in the fully adjusted model was estimated by prevalence ratios with a significance level of 5% and respective confidence intervals of 95%.

RESULT

The study sample was 401 elderly residents, including 122 (30.4%) men. The mean age of the participants was 69 years (±6.8), and average education was 5 years (±3.4). Average family income was R\$ 1433 (±1048), and only 30% of the elderly declared that their income was sufficient to supply the family’s needs. General health conditions of the elderly exhibited a high prevalence of morbidities, only 16% did not declare any illness, and 43% declared suffering from 3 morbidities or more. A total of 312 (77.8%) participants used BHC and 89 (22.2%) participants used FHC. A total of 69.3% of the elderly said that their health service offered dental treatment. Most respondents were satisfied, and they would recommend the health service (78%). Age and dental treatment supply in the health service revealed statistically significant differences (p<0.05) in outcome using the chi-square test (Table 1). Cronbach’s α coefficient, which assessed the reliability of the MMSE scale, was 0.75.

Hierarchical analysis results:

- 1st Block (Table 2): Age remained associated to satisfaction with services throughout the analysis.
- 2nd Block: Group participation by the elderly was directly associated to satisfaction when adjusted to the variables of the block and the variables that were associated in the 1st block.
- 3rd Block: The number of teeth was statistically associated with satisfaction in the edentulous category when adjusted to the variables of the block and the variables that were associated in previous blocks.
- 4th Block: There was no association between outcome and predicting variables.
- 5th Block: In the FHC category, the type of service remained significantly associated to satisfaction with services when adjusted to the block, but it lost the association when adjusted to the variables of the block and previous blocks. The dental treatment supply in PHC remained significant throughout the entire statistical analysis for the outcome of satisfaction with health services.

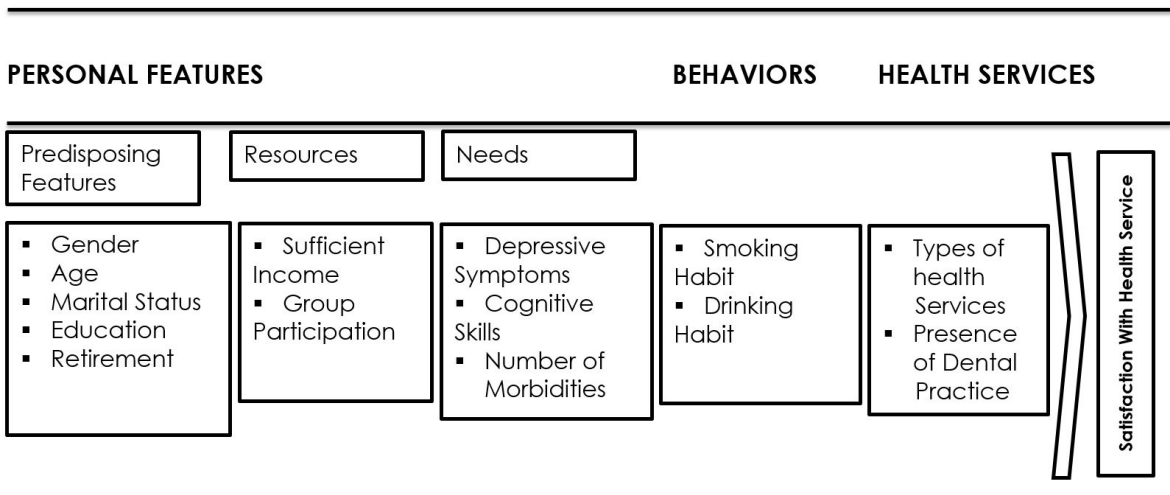


Figure 1. Conceptual Theoretical Model based on Andersen’s behavioral model on access to medical care¹¹.

Table 1. Frequencies distribution of predicting variables regarding satisfaction with primary health services accessed according to elderly individuals from Porto Alegre, Brazil

Variables	Categories	Satisfaction with service (N Total=401)		P-Value
		No (Would not recommend the service)N(%)	Yes (Would recommend the service) N(%)	
Gender	Male	27(30.7)	95(30.4)	.953
	Female	61(69.3)	218(69.9)	
Age	≤70 years old	46(52.3)	200(63.9)	.048
	≥71 years old	42(47.7)	113(36.1)	
Marital Status	Married	41(46.6)	139(44.4)	.771
	Widow/Single/Divorced	47(53.4)	174(55.6)	
Education	≤5 years	61(69.3)	227(72.5)	.555
	≥6 years	27(30.7)	86(27.5)	
Retired	Yes	74(84.1)	247(78.9)	.283
	No	14(15.9)	66(21.1)	
Sufficient income	Yes	22(25.0)	101(32.3)	.191
	No	66(75.0)	212(67.7)	
Participation in elderly groups	Yes	7(8)	41(13.1)	.189
	No	81(92)	272(86.9)	
Smoking habit	Smoker	20(22.7)	67(21.4)	.790
	Non-smoker	68(77.3)	246(78.6)	
Drinking habit	Never drinks	58(65.9)	221(70.6)	.421
	Rarely drinks (max 1x/month)	15(17.0)	44(14.1)	
	Occasionally drinks (2 to 4x/month)	7(8.0)	32(10.2)	
	Often	8(9.1)	16(5.1)	
	≥ 3	40(45.5)	132(42.2)	
Number of referred morbidities	2	21(23.9)	61(19.5)	.384
	≤1	27(30.7)	120(38.3)	
	0	28(31.8)	116(37.1)	
Number of teeth	1-20	45(51.1)	166(53.0)	.163
	≥21	15(17)	31(9.9)	
Number of root fragments	0	73(83.0)	263(84.0)	.810
	1 or more	15(17.0)	50(16.0)	
Type of health service accessed	Family Health Center	15(17.0)	74(23.6)	.188
	Basic Health Center	73(83.0)	239(76.4)	
Having dental treatment available in the PHC services	No	41(46.6)	82(26.2)	.001
	Yes	47(53.4)	231(73.8)	

The fully adjusted model (Table 3) verified that age, number of teeth, and presence of dental treatment in the PHC service were associated with a higher prevalence of satisfaction with the services accessed.

DISCUSSION

The results confirmed the use of the proposed model when there are significant associations between satisfaction with the

Table 2. Prevalence and crude prevalence ratio (PR) for satisfaction with primary health services according to elderly individuals from Porto Alegre, Brazil

VARIABLES		Prevalence Ratio Crude (CI 95%)	<i>p</i>	Adjusted PRa (CI 95%)	<i>p</i>	Adjusted PRb (CI 95%)	<i>P</i>
<i>1st Block – Predisposing Features</i>							
Gender	Female	1	0.69	1			
	Male	0.97 (0.86-1.10)		0.96 (0.86-1.09)	0.59		
Age	≤70 years old	1	0.05	1			
	71 years old or more	0.89 (0.79-1.00)		0.88 (0.78-0.99)	0.03		
Marital Status	Married	1	0.42	1			
	Widow/Single/Divorced	1.04 (0.93-1.16)		1.04 (0.93-1.16)	0.45		
Education	≤6 years	1	0.31	1			
	≥7 years	0.94 (0.83-1.06)		0.94 (0.83-1.06)	0.34		
Retired	Yes	1	0.42	1			
	No	1.05 (0.92-1.19)		1.06 (0.93-1.20)	0.34		
<i>2nd Block – Resources</i>							
Sufficient income	Yes	1		1		1	
	No	0.92 (0.83-1.03)	0.16	0.93 (0.83-1.03)	0.17	0.93 (0.83-1.03)	0.17
Participation in elderly groups	Yes	1		1		1	
	No	0.90 (0.79-1.02)	0.12	0.90 (0.79-1.03)	0.13	0.88 (0.77-1.00)	0.06
<i>3rd Block – Needs</i>							
Number of referred morbidities	≥ 3	1		1		1	
	2	0.96 (0.83-1.12)	0.68	0.96 (0.83-1.12)	0.63	0.95 (0.82-1.11)	0.56
	≤1	1.06 (0.95-1.19)	0.28	1.06 (0.95-1.19)	0.28	1.07 (0.95-1.19)	0.23
Number of teeth	≥20	1		1		1	
	1-19	1.16 (0.94-1.44)	1.16	1.16 (0.94-1.44)	0.15	1.17 (0.95-1.45)	0.12
	0	1.19 (0.96-1.48)	0.10	1.20 (0.96-1.49)	0.10	1.22 (0.98-1.52)	0.06
Number of root fragments	0	1		1			
	≥1	0.98 (0.85-1.13)	0.81	1.00 (0.85-1.16)	0.99	1.01 (0.87-1.17)	0.89
<i>4th Block – Behaviors</i>							
Smoking habit	Smoker	1		1		1	
	Non-smoker	1.01 (0.89-1.15)	0.79	0.99 (0.87-1.13)	0.94	1.01 (0.88-1.15)	0.85
Drinking habit	Never	1		1		1	
	Often	0.84 (0.63-1.12)	0.24	0.84 (0.62-1.13)	0.24	0.85 (0.63-1.14)	0.27
	Occasionally	1.03 (0.88-1.21)	0.66	1.03 (0.88-1.21)	0.67	1.08 (0.92-1.27)	0.34
	Rarely	0.94 (0.80-1.10)	0.46	0.94 (0.80-1.10)	0.46	0.94 (0.80-1.10)	0.46
<i>5th Block – Health Service</i>							
Type of service accessed	Family Health Center	1		1		1	
	Basic Health Center	0.92 (0.82-1.03)	0.15	0.89 (0.80-1.00)	0.06	0.91 (0.81-1.02)	0.12
Having dental treatment available in the PHC services	No	1		1		1	
	Yes	1.24 (1.01-1.52)	0.03	1.25 (1.09-1.44)	0.01	1.26 (1.09-1.44)	0.01

Adjusted PRa- Adjusted Prevalence Ratio of variables of the same block; Adjusted PRb, Adjusted Prevalence Ratio of variables of the previous blocks.

Table 3. Adjusted prevalence ratio for satisfaction with primary health services according to elderly individuals from Porto Alegre, Brazil

VARIABLES		Prevalence Ratio	p Value
Age	≤70 years old	1	
	71 years old or more	0.88 (0.79-0.99)	0.03
Participation in elderly groups	Yes	1	
	No	0.90 (0.79-1.03)	0.13
Number of teeth	≥20	1	
	1-19	1.20 (0.98-1.47)	0.07
	0	1.24 (1.01-1.53)	0.03
Having dental treatment available in the PHC services	No	1	
	Yes	1.25 (1.09-1.43)	0.00

health services accessed, the variables that make the blocks of predisposing features, resources, needs, and health service features. The hypothesis that the presence of dental treatment integrated to PHC service may be associated to elderly satisfaction with the health service that they usually access was confirmed, which suggests that the offering of oral health services may improve the performance of services. Therefore, it is likely that the presence of Oral Health Teams plays an important role in the search for integral care and elderly satisfaction with the services offered. The proposed analysis allowed the identification of other factors that are associated to satisfaction with service, such as age and number of teeth.

Elderly people of advanced age were more unsatisfied with the service. The limitations caused by the aging process related to physical and emotional conditions may lead the elderly to have difficulties in using the service and to consequently become unsatisfied with the service. The public policy - Towards Age-friendly Primary Health Care - suggests adaptations to PHC services to properly assist elderly people, such as adequacy of physical environment, to create a more accessible area for people with some type of physical limitation¹².

Another aspect that may be relevant for elderly satisfaction with services is group participation because there is evidence that groups are important provisions for the formation of a social support network, improvement in quality of life, and the integration between community and health services^{13,14}. However, the results of this study demonstrated that participation in elderly groups lost its association with the outcome in the fully adjusted model, which suggests that new studies may clarify the issue.

The clinical health situation of the elderly may also be related to their satisfaction with the service⁴. The elderly will naturally identify distinct barriers that may lead to dissatisfaction because they have many requirements for morbidities treatment and follow-up. However, this theory was not confirmed in this study because there was no significant association between satisfaction with service and the number of morbidities. It is possible that this association was not found because the majority of participants presented at least one type of morbidity.

Oral health must be integrally included in health care for the elderly^{15,16}. No evidence was found for the role of oral health care for elderly satisfaction with PHC service, and policies towards the elderly

do not include the oral health in their guidelines^{17,18}. The results of this study indicate that the elderly value the presence of OHT in health services because the elderly that declared the availability of dental treatment in the health center that they usually access had a higher prevalence of satisfaction with the service. This finding may be a consequence of the fact that the service will be offered when it is required, which represents safety to the elderly.

Furthermore, Neves et al.¹⁹ 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.

This study provided relevant and unprecedented evidence, but it is important to observe that it has some limitations that must be reported. The use of single-item indicators to analyze satisfaction with services may be a limitation, but its use may also be a brief way to summarize satisfaction. Therefore, it is considered a valid measure to evaluate outcomes related to satisfaction²⁰. Furthermore, memory bias, usual in elderly people, may also be a limitation because the elderly do not always accurately remember what is available in their health services. The elderly participants in this study had access and remained engaged to a Primary Health Care service, but the study assessed what factors create satisfaction with such services, specifically the availability of dental treatment. This study was also a cross-sectional study that does not allow inferences of casual relationships^{20,21}.

CONCLUSION

According to the National Health Policy for the Elderly, the health care provided to this population must be integral, integrated, and constantly qualified. Evaluations of the effectiveness of these guidelines entail evaluations of service quality and the consequent evaluation of the satisfaction of elderly users. Therefore, the results bring new contributions to health system qualification because the study demonstrated that the availability of dental treatment in PHC services was associated with a higher prevalence of satisfaction with the services accessed by the elders who lived in two municipal districts in a large Brazilian city.

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CONFLICTS OF INTERESTS

The authors declare no conflicts of interest.

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