INFLUENCE OF SOCIODEMOGRAPHIC FACTORS ON USERS' PERCEPTION OF THE QUALITY OF PUBLIC ORAL HEALTH SERVICE: A CROSS-SECTIONAL STUDY

Davi da Silva **Barbirato**[1], Letícia de Castro Rajo **Cerdeira**[1], Lucianne Cople Maia **de Faria**[1], Maria Cynésia Medeiros de **Barros**[1]*

[1]Department of Dental Clinic, School of Dentistry, Universidade Federal do Rio de Janeiro - UFRJ, Rio de Janeiro, RJ, Brazil.
[2]Department of Pediatric Dentistry and Orthodontics, School of Dentistry, Universidade Federal do Rio de Janeiro - UFRJ, Rio de Janeiro, RJ, Brazil.

Palavras-chave: Programas Nacionais de Saúde. Saúde Pública. Odontologia em Saúde Pública. Política de Saúde. Qualidade da Assistência à Saúde.

RESUMO

Objetivo: avaliar a influência de fatores sociodemográficos na percepção individual de saúde bucal e na qualidade dos serviços de saúde bucal no município de Piraí, Estado do Rio de Janeiro, Brasil. **Materiais e Métodos**: este estudo transversal foi realizado de agosto a outubro de 2014 e incluiu 118 usuários do serviço de saúde bucal da ESF (*Estratégia de Saúde da Famí*lia) com idade igual ou superior a 18 anos, sem deficiência cognitiva. A avaliação autorreferida da qualidade dos serviços de saúde bucal nas Unidades de Saúde da Família seguiu o questionário QASSaB, utilizando a técnica de entrevista semiestruturada. **Resultados**: gênero, estado civil, renda familiar, escolaridade e autopercepção de saúde bucal estiveram estatisticamente associados às dimensões do questionário QASSaB. Os equipamentos odontológicos foram considerados modernos pelos usuários do SUS. As percepções dos pacientes sobre eficácia, efetividade e aceitabilidade foram negativas para qualidade do serviço, recursos gastos e complicações pós-operatórias. Além disso, a possibilidade de escolha do dia e/ou horário das consultas odontológicas, satisfação com a aparência dos dentes tratados e percepção de saúde bucal variaram significativamente com escolaridade e renda familiar. Em geral, os indivíduos com melhores índices socioeconômicos apresentaram autopercepção positiva das unidades e profissionais do SUS avaliados, em comparação com menor renda e menor escolaridade. **Conclusão**: as unidades do serviço de saúde bucal da ESF foram avaliadas positivamente, enquanto a autopercepção de saúde bucal, efetividade e aceitabilidade do serviço de saúde bucal requerem ajustes e investimentos. A autopercepção da eficácia e efetividade do atendimento odontológico pelos usuários da ESF variou com a renda familiar, e a escolaridade também influenciou na avaliação da efetividade.

Keywords: National Health Programs. Public Health. Public Health Dentistry. Health Policy. Quality of Health Care.

ABSTRACT

Objective: study to assess the influence of sociodemographic factors on the individual perception of oral health and quality of oral health services in the municipality of Piraí, Rio de Janeiro State, Brazil. **Materials and Methods**: this cross-sectional was conducted from August to October 2014 and included 118 users of the ESF (*Estratégia de Saúde da Famí*lia) oral health service aged 18 years or over, without cognitive disability. The self-reported assessment of the quality of oral health services in the Family Health Units followed the QASSaB questionnaire, using a semi-structured interview technique. **Results**: sex, marital status, family income, education and self-perception of oral health were statistically associated with the dimensions of the QASSaB questionnaire. Dental equipment was considered modern by SUS users. Patients' perceptions of efficacy, effectiveness and acceptability were negative for quality of service, resources spent and postoperative complications. In addition, the possibility of choosing the day and/or time of dental appointments, satisfaction with the appearance of treated teeth and perception of oral health varied significantly with schooling and family income. In general, individuals with better socioeconomic indices had a positive self-perception of the SUS units and professionals evaluated, compared with lower income and lower education. **Conclusion**: the ESF oral health service facilities were positively evaluated, while the self-perception of oral health, effectiveness and acceptability of the oral health service require adjustments and investments. The self-perception of the efficacy and effectiveness of dental care by ESF users varied with the family income, and the education level also influenced the assessment of effectiveness.

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***Correspondece to**:
Maria Cynésia Medeiros de Barros
Address: Rua Prof. Rodolpho Paulo Rocco, 325 - Cidade Universitária, Ilha do Fundão, Rio de Janeiro, RJ, Brazil. Zip code: 21941-617
Telephone number: +55 (21) 3938-2016
E-mail: cynesiabarros@odonto.ufrj.br or cynesiaster@gmail.com

INTRODUCTION

Despite technical-scientific advances and oral health promotion practices in the last decade, there are still significant challenges in the public service, represented by the Brazilian Unified National Health System (*Sistema Único de Saúde* [SUS], Brazil), based on the epidemiological profile and the relationship between demand and care.[1]

The creation of the SUS resulted in decentralization and democratization policies to guarantee the population's rights and access to health services. In relation to oral health, an important achievement was the National Oral Health Policy – "Smiling Brazil" (*Política Nacional de Saúde Bucal* [PNSB] – *"Brasil Sorridente"*), which since 2004 has offered new perspectives for oral health care in Brazil. After more than 15 years of its existence, it is necessary to evaluate the effectiveness of the actions carried out by this public policy.[2]

In Brazil, the population coverage of oral health teams increased by 378% between 2002 and 2017, from 9% to 43%, respectively. During this period, the Southeast Region expanded its coverage by 833% (from 3% to 28%).[3] However, recent changes in the National Policy on Primary Care[4] may impact the coverage of health services in Primary Care, making it exclusionary and promoting inequities due to the expectation of reduced resources, affecting the most vulnerable social groups.[5]

SUS serves most of the Brazilian population and is essential for the prevention and treatment of diseases, health promotion, controlling epidemics such as the COVID-19 pandemic and health crises.[6-9] Thus, the monitoring and data analysis of care, educational and research activities carried out in the SUS support the maintenance and expansion of its actions, as well as the change management, if necessary.

Assessing the quality of health services involves both the user and the provider, who occupy different positions in the process. These data reflect the individual's perception of the quality of services provided, guiding the necessary changes to achieve the best results.[10]

Donabedian[11] proposed a conceptual framework for understanding health quality based on seven attributes: efficacy, effectiveness, efficiency, optimization, acceptability, legitimacy and equity. Variations in personal satisfaction are directly affected by your needs. Therefore, evaluating the expectations of SUS users is a challenge, as it involves multiple factors and confounding factors.[11-14] The QASSaB (*Questionário de Avaliação da Qualidade dos Serviços de Saúde Bucal*)[15] is a validated tool that was developed based on the studies by Donabedian.

In this context, considering the insufficient scientific production on user satisfaction in Primary Health Care services, especially those related to the Family Health Strategy (*Estratégia de Saúde da Família* [ESF]) and oral health services, this study aimed to assess the influence of sociodemographic factors on the individual perception of oral health and quality of oral health services in the municipality of Piraí, Rio de Janeiro State, Brazil.

MATERIALS AND METHODS

Study design

This cross-sectional study of self-reported assessed the quality of oral health services in the Family Health Units (*Unidades de Saúde da Família* [USF]) in the municipality of Piraí, Rio de Janeiro State, Brazil, according to QASSaB questionnaire, using a semi-structured interview technique. The study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement.[16]

Sample description

Piraí is located between Rio de Janeiro and São Paulo, two big metropolises in Brazil. Its estimated population in 2014 was 27,579 inhabitants (*Instituto Brasileiro de Geografia e Estatistica* [IBGE, 2015]). Data collection was carried out between August and October 2014 in three USF in Piraí as part of the "PRO-PET-SAÚDE Program" (National Program for the Reorientation of Professional Training in Health and Education Program for Work in Health), in partnership with the Dentistry Faculty of the Federal University of Rio de Janeiro (UFRJ): Ponte das Laranjeiras, Piraí, and Casa Amarela. The municipal network in Piraí comprises 14 USFs, covering 100% of the ESF's target population.

Participants

The population used in this study were users of the ESF oral health service aged 18 years or over, without cognitive disability. Patients seen for the first time on the day of data collection were not included in the study. The sample size considered the number of users who started dental treatment per month at each USF in 2013. The monthly average of first-time patient care in these three health units was 95 patients, totaling 285 patients in three months. It was decided to randomly select a total of 118 users, which is equivalent to approximately 41% of the service potential verified.

Twelve students responsible for data collection underwent training and prior calibration in a pilot study with 10 users; data collection started with intra- and inter-examiner agreement e"80%. Semi-structured interviews were carried out in private rooms.

Service quality assessment

The self-reported assessment of the quality of oral health services in the Family Health Units followed the QASSaB questionnaire, using a semi-structured interview

technique. In total, 31 questions distributed in seven dimensions were applied: 1) human relations, covering the perception of the quality of the treatment carried out by the dentist and the team; 2) efficacy, referring to discomfort after treatment; 3) accessibility, including difficulties in obtaining a vacancy for assistance; 4) technical-scientific quality, referring to the quality of the dental equipment used; 5) physical environment/cleanliness, referring to the reception hall; 6) acceptability, covering the interaction between professional and user in explaining the treatment itself, its duration; and 7) effectiveness/resolvability, referring to satisfaction with the result of the treatment itself.

The variables of interest were: i) sociodemographic (sex and age); ii) socioeconomic (family income and education level); and iii) domains of the QASSaB questionnaire. The main results involved descriptive data and statistical differences in the QASSaB domains between sociodemographic and socioeconomic variables.

Data analysis

Data were presented as absolute and relative frequencies, dichotomized and analyzed using Pearson's chi-square test. The level of statistical significance was set at 5% (p<0.05). The databases and statistical analyzes were performed using the SPSS® 25.0 software (Statistical Package for the Social Sciences – SPSS®, IBM© Corporation, Armonk-NY, USA). Only statistically significant results were presented in text form and in tables in the Results section.

Ethical considerations

The publication of this study followed the Resolution Nº 466/2012 of the National Health Council of Brazil (*Conselho Nacional de Saúde* [CNS]) and was approved (CAAE: 31575114600005257) by the Research Ethics Committee of the Clementino Fraga Filho University Hospital (HUCFF/UFRJ).

Table 1: *Sociodemographic and socioeconomic profile of study participants*

Variables	*n*	%
Sex	118	100
Male	36	30.5
Female	82	69.5
Age (years)	104	100
≤ 39	42	35.6
≥ 40	62	52.5
Missing data	14	11.9
Marital status	118	100
Single	37	31.3
Married	81	68.7
Family income	117	100
Up to two minimum wages	74	62.8
More than two minimum wages	43	36.4
Missing data	1	0.8
Education level	117	100
None	0	0
"Elementary school"	65	55.1
"Middle school" and "Higher education"	52	44.1
Missing data	1	0.8

Note: Footnotes: n, absolute frequency; %, relative frequency; Missing data, data not informed or not applied; Education level, it was considered only if the level of education was completed.

RESULTS

Descriptive data

In total, 118 patients were included in the study. Most of the participants are female, married and e"40 years old. The average family income of most participants was more than two minimum wages (Table 1).

In general, the results of the users' self-perception were positive both for the quality of their own oral health and for the oral health services evaluated. 65.2% of participants recognized their oral health as good and very good and 55.9% reported no pain in the last six months; there were 19.5% of reports of severe pain in the same period.

Qualitative data from the QASSaB-based questionnaire

The quality of professional information to patients was rated as excellent or good by 87.1% of respondents. Professional attention during treatment and the degree of patient confidence were considered excellent or good by 97.4% and approximately 90% of participants, respectively. Most patients (85.3%) stated that the dentist always explains or most often explains treatment options. In addition, according to all patients, professionals wore clean clothes during care.

In addition, 91.5%, 91%, and 92.4% of participants reported no or minimal discomfort during tooth extraction, dental treatment and dental restorations, respectively. Also, 90.3% of users reported ≤1 dental restoration failure. About 75% and 87.1% users reported no pain in treated teeth and no postoperative complications, such as profuse bleeding, inflammation and tooth fragments after extraction.

About access to treatment, approximately 50% of respondents reported living near or very close to their respective USF, and 60.2% reported that the intervals between appointments were short or very short. The local waiting time to be assisted was negatively evaluated as long or very long by 36.7% of respondents. The opportunity for assistance was considered easy or very easy by 47.5% and difficult or very difficult by 31.3% of respondents. 70.7% of respondents reported that the dentist asked (most of the time or always) the best time or day to schedule appointments.

The updating and conservation of dental equipment was considered adequate by the participants, with 76.7% and 89.7% of users describing dental equipment at the USFs as modern or super-modern and in good or excellent condition. The structure and cleanliness of the USFs were positively evaluated by 90% of users, especially in dental offices (97.4%), followed by waiting rooms (93.2%) and bathrooms (89.9%). Moreover, 85.4% of participants reported feeling comfortable or very comfortable or totally comfortable in the USFs.

On the quality of dental treatments, 81% of users considered their problems solved: 79.5% satisfied, very or totally satisfied with the appearance of the treated teeth and 72.2% satisfied with the treatment of posterior teeth.

Quantitative analysis

Regarding the relationship of sociodemographic variables with each dimension of the QASSaB questionnaire, only sex, marital status, family income, education level and self-perception of oral health were statistically associated.

Dental equipment was considered modern, especially by female users (p=0.047; Table 2).

Most patients reported that the dentist did not explain the most suitable treatment option for the oral health problem (84.7%), as shown in Table 3 (p=0.006).

The efficacy, effectiveness and acceptability related to the quality of the service and resources spent (p=0.009), postoperative complications (p=0.034) and possibility for choosing days and/or time of dental appointments (p=0.06), respectively, were negatively evaluated by most patients, in relation to family income; family income differed between answers (Table 4). The level of education, on the other hand, was inversely related to this outcome when compared to family income. Postoperative complications were less reported among individuals with complete "Elementary school", "Middle school" or "Higher education" (p=0.001), as shown in Table 5.

Most patients were unsatisfied with the appearance of treated teeth (p=0.008) and the perception of oral health was also negative. In general, the dentist explained the most suitable treatment option for the patients' oral health problem (p=0.034) and made it possible to choose the days and/or time of dental care (p=0.02), in relation to oral health perception (Table 6).

Table 2: *Self-perception of the QASSaB domain "Technical-scientific quality of dental equipment".*

Question: How do you rate dental equipment in terms of technological update?							
Sex	**Super Modern/Modern**		**Out of Date/Obsolete**		**Missing data**		
	n	%	*n*	%	*n*	%	
Male	23	19.5	11	9,3	2	1.7	
Female	65	55.1	15	12.7	0	0	0.047
Missing data	0	0	0	0	2	1.7	
Total	88	74.6	26	22	4	3.4	

Note: n, absolute frequency; %, relative frequency; Missing data, data not informed or not applied.

Table 3: *Personal satisfaction with the quality of oral health services, based on professional instructions on the most suitable treatment options (QASSaB domain "Acceptability").*

Question: Has the dentist explained to you the most suitable treatment option for your oral health problem?							
Marital status	**Yes**		**No**		**Missing data**		
	n	%	*n*	%	*n*	%	
Single	10	8.5	25	21.2	0	0	
Married	6	5.1	75	63.5	2	1.7	*p*=0.006
Missing data	0	0	0	0	0	0	
Total	16	13.6	100	84.7	2	1.7	

Note: n, absolute frequency; %, relative frequency; Missing data, data not informed or not applied.

Table 4*: Relationship between family income and personal satisfaction with the quality of oral health services, based on the QASSaB domain "Efficacy, Efficacy and Acceptability".*

Efficacy:Considering the quality of the service and the resources spent, was it worth it?							
Family income	**Yes**		**No**		**Missing data**		
	n	**%**	***n***	**%**	***n***	**%**	
Up to two minimum wages	8	6.8	61	51.7	5	4.2	
More than two minimum wages	1	0.9	39	33	3	2.5	*p*=0.009
Missing data	1	0.9	0	0	0	0	
Total	10	8.6	100	84.7	8	6.7	
Effectiveness:After tooth extraction, was there profuse bleeding, inflammation/infection, or was there any piece of tooth left?							
Family income	**Yes**		**No**		**Missing data**		
	n	**%**	***n***	**%**	***n***	**%**	
Up to two minimum wages	51	43.2	9	7.6	14	11.9	
More than two minimum wages	23	19.5	2	1.7	18	15.2	*p*=0.034
Missing data	0	0	0	0	1	0.9	
Total	74	62.7	11	9.3	33	28	
Acceptability:Does the dentist usually ask for your opinion on the best time or day of the week to make appointments?							
Family income	**Yes**		**No**		**Missing data**		
	n	**%**	***n***	**%**	***n***	**%**	
Up to two minimum wages	28	23.7	44	37.2	1	0.9	
More than two minimum wages	5	4.2	38	32.2	0	0	*p*=0.06
Missing data	1	0.9	1	0.9	0	0	
Total	34	28.8	83	70.3	1	0.9	

Note: n, absolute frequency; %, relative frequency; Missing data, data not informed or not applied.

Table 5: *Relationship between education level and personal satisfaction with the quality of oral health services, based on the QASSaB domain "Effectiveness".*

Question: After tooth extraction, was there profuse bleeding (hemorrhage), inflammation/infection or was there any piece of tooth left?							
Education level	**Yes**		**No**		**Missing data**		
	n	%	*n*	%	*n*	%	
"Elementary school"	7	5.9	47	39.8	11	9.3	p=0.001
"Middle school" and "Higher education"	3	2.5	27	22.9	22	18.7	
Missing data	1	0.9	0	0	0	0	
Total	11	9.3	74	62.7	33	28	

Note: n, absolute frequency; %, relative frequency; Missing data, data not informed or not applied; Education level, it was considered only if the level of education was completed

Table 6: *Personal satisfaction with the appearance of the treated teeth and acceptability related to the professional's communication.*

Effectiveness: How satisfied are you with the appearance of your treated teeth?							
Oral health perception	**Yes**		**No**		**Missing data**		
	n	%	*n*	%	*n*	%	
Good	39	52	36	48	0	0	*p*=0.008
Bad	7	17.9	31	79.5	1	2.6	
Missing data	2	50	2	50	0	0	
Total	48	40.7	69	58.5	1	0.8	
Acceptability: Has the dentist explained to you the most suitable treatment option for your oral health problem?							
Oral health perception	**Yes**		**No**		**Missing data**		
	n	**%**	***n***	**%**	***n***	**%**	*p*=0.034
Good	68	90.6	7	9.4	0	0	
Bad	29	74.4	9	23.1	1	2.5	
Missing data	3	75	0	0	1	15	
Total	100	84.8	16	13.5	2	1.7	
Acceptability: Does the dentist usually ask for your opinion on the best time or day of the week to make appointments?							
Oral health perception	**Yes**		**No**		**Missing data**		
	n	**%**	***n***	**%**	***n***	**%**	*p*=0.02
Good	57	76	18	24	0	0	
Bad	23	60.5	15	39.5	0	0	
Missing data	1	50	0	0	1	50	
Total	83	70.9	33	28.2	1	0.9	

Note: n, absolute frequency; %, relative frequency; Missing data, data not informed or not applied; Education level, it was considered only if the level of education was completed.

DISCUSSION

The perception of users of the oral health service (ESF/SUS) was positive in relation to accessibility, professionals and the quality of facilities in the three units considered. However, the perception of value or satisfaction with the treatments was negatively evaluated by the participants. These results were corroborated by other authors.[17-23]

Most participants were female, as was the prevalence reported in previous publications. According to the authors, a possible behavioral difference between men and women in relation to health care could influence their inclusion in research and also the results observed.[12-15,17-25] In our study, socioeconomic variables were considered in the analysis of the results of oral health perception and user satisfaction based on the QASSaB questionnaire.

Socioeconomic variables included income, education and occupation. Education seems to be more important than family income for understanding the results of this study.[26-29] Although low income compromises access to education, the opposite does not guarantee the level and quality of an individual's education. In this context, the inconsistency in the self-perception of postoperative complications between the categories of family income and education could be explained by the greater ability to understand and perform postoperative care and to recognize these clinical findings as expected events in the first days after surgery. Questions about the dentist's explanation on the most appropriate treatment option for the patient's oral health problem and about the possibility of choosing the days and/or times of dental appointments also seem to have been influenced by these factors.

Low income is associated with vulnerability and represents a confounding factor in interviews and questionnaires, as participants tend to omit criticism. The fear of losing the opportunity for dental treatment interferes with the participants' self-perception and self-reported data.[30-32] This is a common characteristic among SUS users, especially in low-income regions. However, socioeconomic homogeneity and lower local social inequality reduced the impact of this variable on the study findings.[17-23] Still, the efficacy, effectiveness and acceptability in relation to the quality of the service and resources spent and postoperative complications were criticized.

Satisfaction with health services is associated with trust, accessibility and horizontal equity, reflecting the capacity for planning and management and the efficiency of public health.[17-23,31-33] In this context, it is important to consider the impacts of the COVID-19 pandemic on the number of dental care and procedures provided by the SUS in almost all Brazilian states. The interruption of treatment and regular maintenance and the consequent deterioration of people's health[34] should lead to a significant increase in the demand, complexity and urgency of dental care in the SUS.[35-43]

The negative evaluation of efficacy, effectiveness and acceptability suggests the need to improve the professional approach and the quality of the clinical procedures performed. Brief appointments and limitations for highly complex treatments may explain these results. Therefore, the authors emphasize the importance of expanding the ESF and oral health services in Piraí, increasing the capacity to perform complex treatments. In addition, lengthy dental appointments would allow more procedures to be performed in a single appointment, impacting less on the patient's routine and increasing their satisfaction with the oral health service.

However, recent changes in the National Primary Care Policy[4] will impact the coverage of health services in Primary Care. From 2014 to 2022, there were significant changes in the quality of the SUS, especially due to continued underfunding since 2016. In addition, the COVID-19 pandemic in Brazil has proved to be not only a health crisis, but also an economic and social one. The high social inequality and the significant disparity in access to health services became even more explicit with the pandemic, given its more lethal effects on the poorest, compared to the richest. Despite SUS problems, the impact of the COVID-19 pandemic would be much worse without SUS.[44]

However, the post-pandemic challenge can be even greater. Due to social distancing and the significant reduction in SUS care during the pandemic, many patients were left undiagnosed and untreated, including cases of high-prevalence chronic noncommunicable diseases and other conditions associated with the pathogenesis of COVID-19, and increased morbidity and mortality. The increase in the number of more complex cases and the demand for care after the pandemic is expected. The social and economic impact after the COVID-19 pandemic cannot be estimated, however, an even darker scenario is expected for the coming years, if the investments in SUS, necessary to better serve the population, are not applied. As we know, the cut of resources and an inefficient management of the SUS will lead to exclusions and inequities, compromising the quality of life and life expectancy, mainly affecting the most vulnerable social groups.[5]

Thus, as an additional contribution of this study, we recommend the improvement of investments and public health policies to ensure access and quality of oral health services in Piraí in terms of efficacy, effectiveness and acceptability. New research based on this study will allow us

to assess the impacts of the National Primary Care Policy,[4] new public policies, changes in socioeconomic levels and the COVID-19 pandemic on the population studied.

CONCLUSION

Despite the quality of the ESF oral health service facilities evaluated in Piraí, the perception of oral health and satisfaction of SUS users on the effectiveness and acceptability in relation to the quality of service and resources spent and postoperative complications presented limitations that require adjustments and investments. The self-perception of the efficacy and effectiveness of dental care by ESF users' varied with the family income, and the education level also influenced the assessment of effectiveness.

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