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SOCIODEMOGRAPHIC CHARACTERIZATION OF USERS OF TOTAL TISSUE-SUPPORTED AND IMPLANT-SUPPORTED PROSTHESES IN THE MUNICIPALITY OF MACAPÁ, BRAZIL

***Éber Coelho Paraguassu and Anneli Mercedes Celis de Cardenas**

Health Sciences Department, Federal University of Amapá, Macapá, Amapá, Brazil

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ABSTRACT

Although the number of cases of total edentulism in Brazil is high, no study in Amapá has focused on it. Therefore, this study aimed to develop a sociodemographic characterization of implants-supported total prosthesis users and total prothesis tissue-suported. Two hundred and ninety-nine users of tissue-supported total dentures and 48 users of implant-supported total dentures were surveyed using a sociodemographic questionnaire approved by the Ethics Committee of the Federal University of Amapa. As descriptive measures, the mean and standard deviation were utilized to characterize the quantitative variables and absolute and relative frequencies were used to characterize both the qualitative and quantitative variables. The majority of the sample was female, with a mean age of 61 to 70 years and 69% declared themselves Caucasian. The implant-supported prosthesis users showed significantly better family income and higher schooling. To our best knowledge, this is the first such study conducted in Amapá. The study results are clinically relevant for accurately determining the sociodemographic dimensions of the two groups.

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INTRODUCTION

The number of edentulous people is growing in Brazil; edentulism is a physical deficiency that may cause many health problems, such as maxillo-mandibular bone resorption, nutritional deficiencies due to the inability to masticate solid foods, psychological problems, and interpersonal relationship issues (Goiato *et al*., 2015). According to the last census by the National Health Survey conducted by the Brazilian Institute of Geography and Statistics (IBGE) in partnership with the Ministry of Health in 2013 (IBGE, 2013), 11% of Brazil's population has total tooth loss, corresponding to 16 million people. The number is higher among individuals over 60 years, with 41.5% having lost all their teeth. In 23% of the Brazilian population, one of the archways presents with edentulism, and 33% use some dental prosthesis (Nico, 2016). For these reasons, it becomes important to conduct studies that allow a deeper understanding of the reality for the edentate population's oral health in order to determine their quality of life based on the dental prostheses they use. This article aimed to develop a sociodemographic characterization of total tissue-supported prostheses and total implant-supported prostheses in the municipality of Macapá in the state of Amapá, Brazil. We hypothesized that the users of implanted prostheses have a higher family income and a better educational level. We examined these hypotheses to meet the research objectives.

***Corresponding author:* Éber Coelho Paraguassu**
Health Sciences Department, Federal University of Amapá, Macapá, Amapá, Brazil

MATERIALS AND METHODS

Study population and data collection: A total of 1393 patients in private clinics and at the Centro de Especialidades Odontológicas do Governo do Estado do Amapá (Center for Dentistry Specialties of the Amapá State Government) were screened. Among them, 1330 were users of the total maxillo-mandibular tissue-supported prosthesis, and 63 were users of the total maxillo-mandibular implant-supported prosthesis. We included in the study, total edentulous users of total maxillo-mandibular prosthesis with up to 10 years of use of tissue-supported type and those with up to 10 years of use of the implant-supported type who live in the city of Macapá. Users with prostheses over 10 years of use, partial edentulous, edentulous total an single arcade, users of removable partial tissue-supported prosthesis, users with partial or removilble dentures on implants, edentulous users, maxilo-mandibular users who present in an arcade tissue-supported prosthesis and

in another arcade implant-supported prosthesis, and people who do not live in the urban area of Macapá or who appear mental deficient and who are physically debilitated were excluded from the research.

To identify the sample's ideal value, the sample size was calculated based on the following formula:

$$n = \frac{N.Z^2.p.(1-p)}{Z^2.p.(1-p) + e^2.(N-1)}$$

We determined the margin of error to be 5% and the confidence level to be 95%. Therefore, the samples necessary for the total tissue-supported and total implant-supported prosthesis users were 299 and 48 patients, respectively. For data collection, the patients were contacted over telephone, and those interested in participating in the study received a visit and were asked to answer three questionnaires, of which two were validated by the medical literature (Silva *et al.,* 2010; Slade and Spancer, 1994) and previously authorized by the research ethics committee. The study design was approved by the ethics committee of the Federal University of Amapá (approval number 2.451.731).

Statistical Analysis

The study's variables were characterized using descriptive statistical measures. As descriptive measures, the mean and standard deviation were used to characterize the quantitative variables and absolute and relative frequencies to characterize both the qualitative and quantitative variables, so as to determine the sociodemographic and clinical variables of total edentulous users of total tissue-supported and implant-supported prostheses with their prosthetic devices and their quality of life. To examine the data, a Spreadsheet was created in MS Excel 2010 to chart the data and the data were then transferred to SPSS, version 22.0 for Windows (IBM. SPSS STATISTICS 22), for statistical assessment. The data's normality was analyzed through the nonparametric Kolmogorov-Smirnov (K-S) test, indicated for continuous distribution of variables, which also investigates if the variables have normal distribution. All the sociodemographic and clinical variables for total implant-supported prostheses demonstrated a skewed distribution of data with $p>0.05$. On the other hand, variables for total tissue-supported prostheses showed normal distribution with $p<0.05$. Thus, the statistical analyses were executed through nonparametric tests. The Mann-Whitney U Test was adopted because it is a nonparametric test recommended not only when there is no normal distribution in the sample, but also for comparing measurements in qualitative data.

RESULTS

Of the entire pool of 347 patients who used total prostheses, 299 used tissue-supported prostheses, and 48 used implant-supported prostheses. The prevalent age range was 61 to 70 years (57%; n=27), with a mean age of 63.91 (±6.53) for patients who used implant-supported prostheses. Similar data were found for the population that used tissue-supported prostheses, with an age range of 61 to 70 (60%; n=180) and a mean age of 63.50 (±5.02) (Table 2). With regard to sex, women and men respectively represented 50% (n=24) of patients who used implant-supported prostheses. As for the 299 people who used tissue-supported prostheses, women were predominant, representing 56% (n=166). When asked about their skin color, 69% (n=33) of the patients who used implant-supported prostheses declared themselves to be white; 44% (n=21) had completed higher education; and 65% (n=31) had a family income of seven to ten minimum wages, as illustrated in Table 2. Among tissue-supported prosthesis users, 69% (n=207) reported being white; the majority had completed primary education (62%; n=184); and 69% (n=208) generated a family income of one to two minimum wages.

Table 1. Sociodemographic Characteristics of Patients Using Total Prostheses, Macapá, AP, Brazil, 2018

Variable		Implant-supported Prosthesis		Tissue-supported Prosthesis	
		N	%	N	%
Sex	Female	24	50	166	56
	Male	24	50	133	44
Age (years)	50 to 60	14	30	96	32
(Mean =	61 to 70	27	57	180	60
63.91±6.53)	71 to 80	5	11	23	8
	81 to 90	1	2	0	0
Skin Color	White	33	69	207	69
	Brown	12	25	21	7
	Black	3	6	71	24
Completed	Primary	8	17	184	62
education level	Secondary	19	39	99	33
	Higher	21	44	12	4
	Semiliterate	0	0	4	1
	1 to 2	0	0	206	69
Family income	3 to 4	0	0	84	28
(minimum	4 to 6	2	4	9	3
wages)	7 to 10	31	65	0	0
	> 10	15	31	0	0

*Data analyzed in SPSS Statistics 22.0 for Windows (IBM. Corp., Armonk, NY)

DISCUSSION

This study has relevant implications for the quality of life of the people of the Brazilian Amazon region, mainly in the state of Amapá, as it is the only research that deals with the relationship of quality of life and total edentulism associated with the use of dental prostheses in this region and for the first time this problem could be measured. There is no report in global literature on this subject in the Brazilian Amazon and this is a cause for concern as the Amazon region occupies about 40% of the Brazilian territory (3.5 million km²) and has a population of approximately 25 million people according to the latest census by the Brazilian Institute of Geography and Statistics (IBGE, 2010). This study was conducted in the Brazilian Amazon region and the state of Amapá is representative of this region; as no similar study exists on this topic in this region, this study can provide a basis for studies in the future about the quality of life of the inhabitants of this region and thus contribute to the international literature. It is important to note that edentulism in Brazil presents dramatic numbers, with more than 16 million totally edentulous people (Nico, 2016). According to official data, 41.5% of all people had lost all teeth; the number is more worrying when it was found that 23% of the Brazilian population does not present any teeth in one of the two arches and 33% use some type of dental prostheses. Knowing how these people deal with this physical disability and their perception about health due this problem is fundamental to the proposal of public policies on oral health. Based on the results obtained, a high prevalence of total prosthesis use was observed in patients aged between 61 and 70 years, with 57% using implant-supported prostheses and 60% using tissue-supported prostheses. This result corroborates previous Brazilian studies of national

scope(Ministério da Saúde (BR), 2012; Soares *et al*., 2010; Roncalli *et al*. 2012), as well as international studies (Starr and Hall, 2010; Marcenes *et al*., 2013; Ramsay *et al*., 2015; Misumi *et al*, 2015). These studies demonstrate a trend of tooth loss throughout life, which can be mainly attributed to caries, periodontal disease, and traumas in general, culminating in total edentulism in some patients with advanced age (Teixeira *et al*. 2016). An equal number of men and women used total implant-supported prostheses, and more women than men used total tissue-supported prostheses (56%). In Brazil, the prevalence of edentulous cases and use of total prosthesis is also higher in women than men (Colussi *et al.,* 2004; Agostinho *et al.,* 2015). However, the international literature involves heterogeneous results, with some studies showing that more men than women use total prosthesis (Gomes, 2014; Hewlett, *et al.,* 2015) while others show the opposite (Peltzer *et al.,* 2014; de Almeida Jr. *et al,* 2017). These results indicate that both men and women are subject to edentulism and that both seek prosthetic rehabilitation. Most of the patients with implant-supported and total tissue-supported prostheses that were interviewed were white, accounting for 69% in both groups. Even with 52% of the Brazilian population declaring themselves as black or brown (IBGE, 2011) and most of the edentulous people being part of this group (Nico, 2016), the results were not consistent with this reality. Only 6% of the users of implant-supported prosthesis declared themselves black, and 25% declared themselves brown, while 24% of the users of tissue-supported prosthesis declared themselves black and 7% declared themselves brown. This may be explained by the fact that black and brown people have a lower income than white people (IBGE, 2006), thus having difficulties performing prosthetic rehabilitation.

The difference in educational level between the two groups was highly significant. Of the implant-supported prosthesis users, 44% completed higher education, and 17% completed only primary education, while 62% of the users of tissue-supported prosthesis completed only primary education, 4% completed higher education, and 1% was semi-illiterate. This result directly relates to family income as, in Brazil, income is directly associated with educational level [24]. We can observe this relationship in the results obtained in the family income question, where 69% of the users of total tissue-supported prosthesis had an income of 1 to 2 minimum wages, and no respondent reported having an income above 6 minimum wages. On the other hand, 65% of the users of implant-supported prosthesis generated an income of 7 to 10 minimum wages, 34% had an income of more than 10 minimum wages, and none had an income less than 4 minimum wages.

Conclusions

Most of the interviewees were white, women, and had a mean age of 63.91 years. Users of implant-supported prostheses had a significantly higher educational level, higher family income, better quality of life, and satisfaction with their prostheses than users of total tissue-supported prostheses

REFERENCES

Agostinho ACMG, Campos ML, Silveira JL. 2015. Edentulismo, uso de prótese e autopercepção de Saúdebucal entre idosos. *Rev Odontol UNESP.,* 44(2):74-9.

Brazilian Institute of Geography and Statistics (IBGE) in partnership with the Ministry of Health in 2013. National Health Survey (PNS) Available from ftp://ftp.ibge.gov.br/PNS/2013/pns2013.pdf

Colussi CF, Freitas SF, Calvo MC. 2004. Perfilepidemiologico da cárie e do uso e necessidade de prótesena Populaçãoidosa de Biguaçu, Santa Catarina. *Revista Brasileira de Epidemiologia.* 7:88-97.

de Almeida Jr. AP, Grden CR, Lopes BG, Bordin D, de Oliveira Borges PK. Edentulismo e fatores associados à necessidade de uso de prótese superior e inferior entre idosos. Espaço para a Saúde-Revista de Saúde Pública do Paraná. 18(2):105-113.

Goiato MC, Torcato LB, dos Santos DM, Moreno A, Antenucci RM, de Carvalho Dekon SF. 2015. Quality of life and satisfaction of patients wearing implant supported fixed partial denture: A cross sectional survey of patients from Araçatuba city, Brazil. *Clin Oral Implants Res.,* 26(6):701-708.

Gomes JF. 2014. Indicadoressociais contextuais e individua is associadosao edentulismo Emidososbrasileiros: análise multinível.

Hewlett SA, Yawson AE, Calys–Tagoe BN, Naidoo N, Martey P, Chatterji S, *et al*. Edentulism and quality of life among older Ghanaian adults. *BMC Oral Health*. 2015; 15(1):48.

IBGE, I. 2010. Censodemografico 2010. IBGE: Insituto Brasileiro de Geografia e Estatistica. https://www.ibge.gov.br/estatisticas-novoportal/sociais/populacao/9662-censo-demografico-2010.html?=&t=o-que-e

IBGE. Pesquisa Nacional Poramostras de Domicílios. Rio de Janeiro. 2006; 27:1-125.

Instituto Brasileiro de Geografia e Estatística (IBGE). Censo Demográfico, 2010. Rio de Janeiro: IBGE; 2011.

Marcenes W, Kassebaum NJ, Bernabé E, Flaxman A, Naghavi M, Lopez A, *et al*. Global burden of oral conditions in 1990-2010: A systematic analysis. *J Dent Res*. 2013; 92:592–7.

Ministério da Saúde (BR). Secretaria de Vigilanciaemsaude. SB Brasil 2010: Pesquisa Nacional de Saúde Bucal: Resultadosprincipais. Brasília, DF: SVS; 2012.

Misumi S, Nakamoto T, Kondo Y, Mukaibo T, Masaki C, Hosokawa R. A prospective study of changes in oral health□related quality of life during immediate function implant procedures for edentulous individuals. *Clin Oral Implants Res.*, 2015;26(6):696-700.

Nico LS. Saúde bucal autorreferida da Populaçãoadultabrasileira: resultados da Pesquisa Nacional de Saúde 2013. Ciênc. Saúde Coletiva. 2016; 21(2).

Peltzer K, Hewlett S, Yawson A, Moynihan P, Preet R, Wu F, *et al*. Prevalence of loss of all teeth (edentulism) and associated factors in older adults in China, Ghana, India, Mexico, Russia and South Africa. *Int J Environ Res Public Health.* 2014; 11(11):11308-11324.

Ramsay SE, Whincup PH, Watt RG, Tsakos G, Papacosta AO, Lennon LT, *et al*. Burden of poor oral health in older age: Findings from a population-based study of older British men. *BMJ Open.* 2015;5(12):e009476.

Roncalli AG, Silva NN, Nascimento AC, Freitas CHSM, Casotti E, Peres KG, *et al*. Aspectosepidemiologicos do ProjetoSBBrasil 2010 de interesse para inquéritosnacionais de saúde. Cad SaudePublica. 2012; 28:40-57.

Silva ME, Villaça ÊL, Magalhães CS, Ferreira EF. Impacto da Perdadentarianaqualidade de vida. Ciencia e saudecoletiva. 2010; 15:841-50.

Slade GD, Spencer AJ. Development and evaluation of the Oral Health Impact Profile. Community Dent Health. 1994;11(1):3-11.

Soares FF, Freire MCM, Reis SCGB. The 2010 Brazilian Oral Health Survey (SBBrasil 2010 Project): What do the coordinators propose for future surveys? Interface (Botucatu). 2018; 22(64):981-9.

Starr JM, Hall R. Predictors and correlates of edentulism in healthy older people. *Curr Opin Clin Nutr Metab Care.* 2010; 13:19–23.

Teixeira DS, Frazão P, Alencar GP, Baquero OS, Narvai PC, Lebrão ML, *et al*. Estudo prospectivo da Perdadentariaem um corte de Idososdentados. Cadernos de Saudepublica. 2016 Aug 8; 32:e00017215.

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