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Evaluation of the use and need of dental prosthesis in a school clinic: a cross-study

Avaliação do uso e necessidade de prótese dentária numa clínica escola: um estudo transversal

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ABSTRACT

Objective: This paper aims to identify the use and need of prosthesis, age and gender of users of the dental service of the school clinic of a private university in Recife. **Methodology:** A descriptive cross-sectional study was performed through analysis of medical records. From 2,294 records of the semesters 2016.2 and 2017.1, 790 were analyzed that met the inclusion and exclusion criteria. The study was divided into three groups according to the age of the patients (35 - 44, 45 - 64 and 65 - 74 years old) and were analyzed according to gender, prosthesis use, need of prosthesis or use and need of prosthesis. Data were tabulated in Microsoft Excel © and submitted to statistics. **Results:** Females were the most expressive in the search of the service (66.1%); besides that, 86.8% of the patients did not wear prosthesis and 71.1% needed to use it. Total Prosthesis was the most used (50%) and the Removable Partial Prosthesis presented the greatest need of use (74%). **Conclusion:** It was concluded that women from 45 – 64 years old seek more the rehabilitation service, and the need is greater in one arcade, showing an evolution to access the dentist.

Keywords: Mouth Rehabilitation**;** Denture Identification Marking**;** Denture, Complete.

RESUMO

Objetivo: Este trabalho tem como objetivo identificar o uso e a necessidade de prótese, idade e sexo dos usuários do serviço odontológico da clínica escolar de uma universidade particular de Recife. **Metodologia:** Foi realizado um estudo descritivo transversal, através da análise de prontuários. Dos 2.294 registros dos semestres 2016.2 e 2017.1, foram analisados 790 que atendiam aos critérios de inclusão e exclusão. O estudo foi dividido em três grupos de acordo com a idade dos pacientes (35 - 44, 45 - 64 e 65 - 74 anos) e foram analisados segundo sexo, uso de prótese, necessidade de prótese ou uso e necessidade de prótese. Os dados foram tabulados no Microsoft Excel © e submetidos à estatística. **Resultados:** O sexo feminino foi o mais expressivo na busca pelo serviço (66,1%); além disso, 86,8% dos pacientes não usavam prótese e 71,1% precisavam usá-la. A prótese total

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foi a mais utilizada (50%) e a prótese parcial removível apresentou a maior necessidade de uso (74%). **Conclusão:** Concluiu-se que mulheres de 45 a 64 anos buscam mais o serviço de reabilitação, e a necessidade é maior em uma arcada, mostrando uma evolução no acesso ao dentista.

Palavras-chave: Reabilitação bucal; Marcação de identificação de dentaduras; Prótese Completa.

1 INTRODUCTION

Historically, traces of dental culture centered on curative and mutilating practices have impacted patients' quality of life[1]. Currently, adult and elderly patients carry the marks of past dental practices, presenting partial or total dental absences[2,3].

The absence of teeth directly interferes the broad concept of health and the functionality of the patients' stomatognathic system[4,5]. The impact of edentulism can be expressed by reduced chewing and phonation capacity, as well as nutritional, aesthetic and psychological damages, with reduced self-esteem and social integration[6].

In addition to the marks of the past, the difficulty of accessing the dentist and the socioeconomic debility of the senile population diminishes the interest of the population in oral health care[7]. This gap causes health problems, such as periodontal disease and cavities[8,9].

The SBBrasil 2010 points out that 68.8% of adults between 35 and 44 years old and 23.9% of the elderly need total prosthesis in at least one jaw[10]. This high incidence of edentulism in Brazil is due to the fact that the population understands tooth loss as a natural process associated with aging, and accepts it as a physiological process[3].

To understand the use of prosthesis by the population, the indicator "Use and Need of Prosthesis" is recommended by the World Health Organization (WHO) for oral health surveys[11], being "Use" a reference to patients with tooth loss and who has access to some oral rehabilitation services. While "Need" is defined as an indicator of a potential user who does not use dental prosthesis or who use poorly adapted prostheses[10].

According to SBBrasil 2010, the evaluation of the use and need of prosthesis helps to understand edentulism, while serving to estimate the severity of the problem by jointly analyzing the use and need data and to support oral health planning actions from the needs analysis[10]. Thus, the study of these indicators is relevant because it highlights the epidemiological profile of the population, as well as reorganizing actions aiming to improve public health[12,13].

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Therefore, the present study aims to identify the use and need of prosthesis, age group and gender of users of the dental service of the school clinic of a private University of Recife – PE, thus enabling to understand the need of the target population, direct a quality care model for this group and allow the organization of a progressive oral health care network.

2 MATERIALS AND METHODS

A descriptive cross-sectional study was conducted with analysis of secondary data. The research was conducted in the database of the School Clinic of Dentistry of Uninassau, unit of Graças neighborhood, in the city of Recife - PE, by the analysis of medical records. The research project was submitted to the Human Research Ethics Committee of the Mauricio de Nassau University Center - UNINASSAU through the Brazil Platform (Opinion Number: 3.243.319), and it was executed after its approval.

Three evaluators analyzed the medical records of patients using the service of Uninassau School Clinic of Graças, Recife - PE, and observed the filling of the odontogram and the clinical evolution of the patient, which a survey of data from the attendance was performed during the study period. The analysis of the medical records took place after the inclusion and exclusion criteria were applied.

From 2,294 medical records of 2016.2 and 2017.1 semesters, 790 met the inclusion and exclusion criteria and were analyzed. Inclusion criteria were: patients aged 35 - 74 years old and medical records of patients attended at the Clinics of Elderly Care, Surgery and Periodontics. Exclusion criteria were: records with incomplete clinical examination; medical records with incomplete filling of clinical evolution; medical records of patients who were attended only at clinics that do not rehabilitate patients or children's clinics.

The medical records were divided according to the age ranges suggested by the SBBrasil 2010[10] Manual with the addition of the intermediate range, namely: 35 - 44, 45 - 64 and 65 - 74 years old.

Data were analyzed regarding: 1) **the use of prosthesis**, when it was registered in its dental examination or in the treatment evolution, the presence of prosthesis rehabilitation type total prosthesis (PT), removable partial prosthesis (RPP), fixed prosthesis (PF) or their combination in one or both arcades; 2) the **need for prosthesis** was considered when there was, in the odontogram or in the evolution of treatment, the presence of tooth loss, existing prosthetic spaces without rehabilitation, coronary fractures needing rehabilitation with

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endodontics and prosthetic crown, as well as the need for replacement of worn or damaged prostheses; 3) the same individual was included in the category **use and need for prosthesis**, simultaneously, when in one arch had prosthesis and in the other arcade the need for use or when used an unsatisfactory prosthesis.

In addition to data regarding the use and need of prosthesis and age, data were also extracted regarding gender, type of used prosthesis, indication of the need for dental prosthesis, which prosthesis was needed and the year of prosthetic treatment.

The information was kept confidential, ensuring the privacy and anonymity of the subjects. The data involved in the research is confidential and used only for the described research.

Tabulated variables were categorized into: **Sex** (1.female and 2.male), **Use of prosthesis** (1. Yes and 2. No), **Which prosthesis uses** (1. Removable partial prosthesis - PPR, 2. Total Prosthesis - PT and 3. Fixed Partial Prosthesis – PPF), **Need to Use Prosthesis** (1. Yes and 2. No) and **Which Prosthesis Need** (1. Removable partial prosthesis - PPR, 2. Total Prosthesis - PT and 3. Fixed Partial Prosthesis - PPF).

3 DATA ANALYSIS

Data were tabulated using Excel® 2016 (Microsoft. Redmond, Washington, USA) and were analyzed by descriptive statistics. The age variable was categorized and compared with the other independent variables (gender, need for prosthesis and use of prosthesis) as a percentage and absolute value (No.). For this comparison, the SPSS software version 16 and the Chi-square test were used.

4 RESULTS

The age group most seeking prosthetic treatment was from 45 to 64 years old, 66.5% of them being female and of these, 66.1% were from 35 to 44 years old (Table 1).

Among the medical records analyzed, 86.8% of the patients did not use prosthesis and 13.2% used some type of prosthesis (PPR, Total, PPF or some combination between them). Of the patients who already used some type of prosthesis, 42.6% were between 65 and 74 years old (Table 2).

However, among patients who did not use prosthesis, 71.1% needed to start using some type of prosthesis or use a new prosthesis. From the patients who needed to use, 76.6%

was in the 65-74 age group (Table 3). The greatest need presented was for PPR (74%), followed by PT (15%) and PF (3.8%) (Table 5).

Half of the patients who sought the service were already using some type of prosthesis. Being the Total Prosthesis the most used (50%) followed by the Removable Partial Prosthesis (22.1%) and the Fixed Prosthesis (22.1%) and finally the combined prostheses used in the same or separate arches: total prosthesis + removable partial prosthesis (3.9%), total prosthesis + fixed prosthesis (0.96%) and removable partial prosthesis + fixed prosthesis (0.96%) (Table 4).

5 DISCUSSION

The present epidemiological study opted for the division into gender (female and male), age groups (35-74 years old) and types of prostheses (Total Prosthesis, Removable Partial Prosthesis and Fixed Prosthesis and an association of both), in order to highlight the use and need of prosthesis at the School Clinic of Dentistry of a private university in Recife. Thus discussing, in percentages, in order to offer an individualized quality of the service.

In this study, the most prevalent age group seeking prosthesis rehabilitation was from 45 to 64 years old, and 66.5% of the patients in this age group were female. The most prevalent patients were between 35-44 years old, representing 66.1% (Table 1). This result differs from that of Colussi and Patel[14] when evaluated the use and need for dental prosthesis in Brazil. The authors showed that the northeast region of Brazil is in second place in the ranking of tooth loss, with a result of 8.92% in the age of 35-44 years old, and 25.18% for the 65-74 age group. The divergence occurred because the work presented by the authors shows that most patients represent a population in the age group of 45-64 years old.

The largest profile of users of the Uninassau service was female (66.1%) versus a male minority (33.9%) (Table 1). This result corroborates the finding by Agostinho et al. (2015), who noticed a majority of females in their study corresponding to 83.5% against 16.5% of males. The same was true for the study by Mallmann et al.[15], which identified a female majority of 57%. This paper associates the higher incidence among women probably due to the fact that they are more concerned about self-care and aesthetics.

Considering the Use of Prosthesis indicator, the present study found that 42.6% (Table 2) of users were between 65 - 74 years old, being the Total Prosthesis (50%) the most used, followed by the Removable Partial Prosthesis (22.1%), Fixed Partial Prosthesis

(22.1%), and the association of using these combined prostheses: Total and PPR (3.9%), PT + PPF (0.96%), PPR + PPF (0.96%) (Table 4). This result corroborates those of Mallmann et al15, who observed in their study that the profile of users of superior total prosthesis was (52%), followed by PPR (31.4%), and PPF or combined (16.6%), because their study evaluated this indicator by association. The same was observed by Lewandowski and Bós[16], in which the use of superior total prosthesis was (76, 3%) and the use of inferior total prosthesis was (39.6%); referring to the removable partial prosthesis, upper arcade was 7.9% and lower arcade was 18.4%; fixed prostheses were 2.6% in the lower arcade and 2.6% in the upper arcade. This must have been occurred because the authors reported a high average age at 89.1 years old and the multiple tooth losses over the course of life.

Mallmann et al.[15] found that the most prevalent age groups in the population were 50-59 years and 60-74 years old, and the salary range determined the amount of prostheses used by patients. Therefore, people who receive less than one minimum wage used only one prosthesis, being the total upper prosthesis the most frequent. And patients who receive a minimum wage or more, preferred to use upper and lower prostheses, being the total upper prosthesis and the lower PPR the most prevalent.

Among patients who did not use prosthesis, 71.1% needed to use some type of prosthesis for the first time or a new prosthesis. Among those who needed prosthesis, 76.6% were from 65 to 74 years old (Table 3). The greatest need presented was for PPR (74%), followed by PT (15%) and PF (3.8%) (Table 5). This was due to the decreasing number of the edentulous population and the prevalent age group that is from a generation of more conservative dentistry. Lewandowski and Bos[16] noted in their study upper PT (50%), lower PT (42.1%) upper PPR combinations (2.3%) and lower combinations, lower PPR combinations (5.3%) and Menoli et al. (2013) reported lower PPR (10.8%), upper PPR (4%), PPF (6.4%), upper PF (2.8%), Upper PT (1.2%), lower PT (0.4%).

Thus, it was noticed, in the papers, different ways of evaluating the same indicators. The present study established the survey by observation of secondary data, while the mentioned articles surveyed primary data with the same sociodemographic indicators. In addition, knowing the indicator "need for prosthesis" is important for the possibility of acting on the impact of edentulism in the studied region.

6 CONCLUSION

By the above, older patients have the highest prevalence of edentulism, being the age group 65-74 years old the most prevalent in the use and need of prosthesis. The users chose to use only 1 type of prosthesis in one arcade, being the total prosthesis the most used. Besides that, the prosthesis that showed higher need of use was the removable partial prosthesis, partially showing the pattern of tooth loss.

CONFLICT OF INTEREST:

The authors declare no conflict of interest.

TABLE

Table 1. Distribution of the gender variable (number / percentage) according to the age groups studied.

Age Group	Gender		Total
	Feminine	Masculine	Nº / %
35 – 44 years	211 / 66,1%	108 / 33,9%	319 / 100%
45 – 64 years	282 / 66,5%	142 / 33,5%	424 / 100%
65 – 74 years	29 / 61,7%	18 / 38,3%	46 / 100%
Total	522 / 66,1%	268 / 33,9%	790 / 100%

Table 2. Distribution of the prosthesis use variable (number / percentage) according to the age groups studied.

Age Group	Prosthesis Use		Total
	Yes	No	Nº / %
35 – 44 years	14 / 4,4%	305 / 95,6%	319 / 100%
45 – 64 years	70 / 16,5%	154 / 83,5%	424 / 100%
65 – 74 years	20 / 42,6%	27 / 57,4%	47 / 100%
Total	104 / 13,2%	686 / 86,8%	790 / 100%

Table 3. Distribution of the variable need for prosthesis (number / percentage) according to the age groups studied.

Age Group	Prosthesis Need		Total
	Yes	No	Nº / %
35 – 44 years	204 / 63,9%	115 / 36,1%	319 / 100%
45 – 64 years	322 / 75,9%	102 / 24,1%	424 / 100%
65 – 74 years	36 / 76,6%	11 / 23,4%	47 / 100%
Total	562 / 71,1%	228 / 28,9%	790 / 100%

Table 4. Distribution of the type of prosthesis used by the individuals (number / percentage) according to the age groups studied.

Age Group	Prosthesis Use						Total
	PT	PPR	PF	PT+PPR	PT+PF	PPR+PF	Nº / %*
35 – 44 years	10 / 71,4%	4 / 28,6%	0 / 0%	0 / 0%	0 / 0%	0 / 0%	14 / 100%
45 – 64 years	32 / 45,6%	15 / 21,4%	18 / 25,5%	3 / 4,7%	1 / 1,4%	1 / 1,4%	70 / 100%
65 – 74 years	10 / 50%	4 / 20%	5 / 25%	1 / 5%	0 / 0%	0 / 0%	20 / 100%
Total	52 / 50%	23 / 22,1%	23 / 22,1%	4 / 3,9%	1 / 0,96%	1 / 0,96%	104 / 100%

* Percentages based on total value of users using some type of prosthesis (n=104).

Table 5. Distribution of the type of prosthesis that individuals had need to use (number / percentage) according to the age groups studied.

Age Group	Prosthesis Need						Total
	PT	PPR	PF	PT+PPR	PT+PF	PPR+PF	Nº / %*
35 – 44 years	50 / 24,2%	145 / 70,4%	3 / 1,4%	7 / 3,5%	0 / 0%	1 / 0,5%	206 / 100%
45 – 64 years	33 / 10,5%	252 / 78,6%	9 / 2,8%	5 / 1,5%	1 / 0,3%	20 / 6,3%	320 /100 %
65 – 74 years	2 / 5,5%	22 / 61%	9 / 25,2%	0 / 0%	0 / 0%	3 / 8,3%	36 / 100%
Total	85 / 15%	419 / 74%	21 / 3,8%	12 /2,13%	1 / 0,17%	24 / 4,9%	562 / 100%

* Percentages based on the total value of users who presented need for some type of prosthesis (n=562).

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