QUALITY OF LIFE AND TOOTH LOSSES IN ADULTS WITH HYPERTENSION AND DIABETES

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ABSTRACT

Objective: to describe the perception of quality of life (QOL) and the tooth losses in adults and elderly people with hypertension or diabetes. Method: it is a descriptive and cross-sectional cutting study, with 560 patients, users of the public health service of the municipality of Recife, Pernambuco, Brazil. In order to evaluate the QOL, we made use of a WHOQOL-BREF questionnaire. For data analysis, we made use of descriptive and inferential statistics, through the application of the F test (ANOVA), with Tukey’s comparisons and the Pearson’s Chi-square test, with p < 0.05. Results: we have observed that 80.5% were female, 54.5% belonged to the age group of 60 years or over (average of 11.81 ± 60.43 years). It was unveiled a high rate of tooth losses in this population, as well as an impaired quality of life, especially in the physical and environmental domains. Conclusion: we have perceived a lower quality of life in relation to the physical domain among the individuals with greater loss of tooth elements. Descriptors: Quality of Life; Tooth Loss; Hypertension; Diabetes Mellitus.

RESUMEN

Objetivo: describir la percepción de la calidad de vida (CV) y las perdidas dentarias en adultos e idosos com hipertensión o diabetes. Método: estudio descritivo e de corte transversal, com 560 pacientes, usuarios do serviço público de saúde do Recife/PE/Brasil. Para avaliação da CV, foi utilizado o questionário WHOQOL-BREF. Para análise dos dados, foi utilizada a estatística descritiva e inferencial, aplicando-se os testes F (ANOVA), com comparações de Tukey e o Qui-quadrado de Pearson, com p<0,05. Resultados: observou-se que 80,5% eram do género feminino, 54,5% pertenciam à faixa etária de 60 anos ou mais (média de 60,43 anos ±11,81). Foi revelado um alto índice de perdas dentárias na população estudada, assim como uma qualidade de vida prejudicada, especialmente nos domínios meio ambiente e físico. Conclusión: se observó que 80,5% eran de género femenino, 54,5% pertenecían a la edad de 60 años o más (media de 60,43 años ±11,81). Fue revelado un alto índice de pérdidas dentarias en la población estudiada y una calidad de vida perjudicada, especialmente en los dominios medio ambiente y físico. Conclusion: fue percibida una menor calidad de vida en relación al dominio físico entre los individuos con mayor pérdida de elementos dentarios. Descriptores: Calidad de Vida; Perda de Dente; Hipertensão; Diabetes Mellitus.
INTRODUCTION

In Brazil, we have noted changes related to the incidence and prevalence of diseases. The high levels of morbidity caused by chronic diseases are results from the current stage of epidemiological and demographic transition that involves the Brazilian population. Such diseases have generated a high number of premature deaths, loss of quality of life, with a high degree of limitations in work activities and of leisure, in addition to economic impacts for families, communities and society at large, by exacerbating inequalities and by increasing poverty.1,2

As in other countries, in Brazil the non-communicable chronic diseases constitute the health problem of greater magnitude. They account for 72.0% of causes of death. Arterial hypertension and diabetes mellitus are the most common illnesses, whose treatment and control require changes in behavior in relation to diet, medication intake and lifestyle. These changes might impair the quality of life, if there is no proper guidance regarding the treatment or recognition of the importance of complications arising from such pathologies.3,4

Arterial hypertension (AH) is a multifactorial and non-communicable disease, associated to metabolic and hormonal alterations and trophic phenomena. It is characterized by increased blood pressure, considered as one of the main risk factors for cardiovascular and cerebrovascular diseases, as well as kidney complications. 5 The World Health Organization (WHO) defines diabetes mellitus (DM) as a syndrome of multiple etiologies, which is result from lack of insulin and/or inability of insulin to properly exercise their actions, characterized by hypoglycemia and chronic changes in the metabolism of carbohydrates, lipids and proteins.6

The WHO7 defines quality of life (QOL) as “the perception of the individual, its position in life, in the context of culture and value systems in which he/she lives and in relation to his/her objectives, expectations, standards and concerns”. The information about QOL have been used to evaluate the effectiveness of certain treatments of diseases, health-related hazards and the physical and psychosocial impact on the lives of individuals, being that they are measured through a variety of instruments, which provide a kind of result based on the perception of the individual about its general health status.8-10

Among the factors that affect the quality of life of the population in general, and in particular hypertensive and diabetic people, there is the periodontal disease, with consequent tooth losses, which cause difficulties to chew, talk, behavioral changes, dissatisfaction with appearance, prejudice in relation to social acceptance, as well as the difficult to access the labor market, thereby causing a significant impact on the quality of life.11

One study has demonstrated the inadequate condition of oral health in users of antidiabetic and cardiovascular drugs. Furthermore, it has shown an increased risk of periodontal disease in hypertensive and diabetic patients. The DM is also recognized as a risk factor for severe periodontal disease, just as there is evidence that periodontal changes represent the first clinical manifestation of diabetes. A periodontal infection might impair the control of blood glucose levels and increase the incidence of DM complications.12

The Family Health Strategy (FHS), as national public policy, has been highlighted as a strategy to reorganize the primary care in relation to the logic of health surveillance, thus representing the concept of health focused in promoting the quality of life, through its main objectives, namely: prevention, promotion and restoration of health. Hence, the teamwork enables the knowledge of the reality, in addition to detecting problems and, consequently, might contribute to the achievement of an improved health and quality of life of people.13

The objective of this study was to describe the perception of quality of life (QOL) and tooth losses in adults and elderly with hypertension or diabetes.

METHOD

It is a descriptive and cohort study, with the sample of the population of hypertensive and diabetic patients enrolled in the Family Health Units of the Sanitary Districts II and III of the municipality of Recife, Pernambuco State, Brazilian Northeast, conducted in the period from October to December 2011.

The study population was comprised of adults and elderly with hypertension or diabetes, through the adoption of the following inclusion criteria: subjects of both genders; registered in the HIPERDIA Program; aged over 18 years, monitored by the health care staff. The exclusion criteria were: individuals in temporary monitoring or in transit; coming from other regions. The participants were all enrolled members who signed the FICF, with a total sample of 560 individuals.
We have applied three research instruments; the first to be used was an adapted sociodemographic questionnaire\textsuperscript{14} with the objective of characterizing the sample. To assess the quality of life, we applied the questionnaire World Health Organization Quality of Life (WHOQOL-BREF), instrument of the World Health Organization. This instrument was developed by the World Health Organization and has a validated and adapted version to our language and culture\textsuperscript{15}, with 26 questions, divided into four domains: physical, psychological, social relationships and environment. The domains are represented by various facets and their questions were formulated for a scale of responses from the Likert type, with intensity scale (none-extremely), capacity (none-complete), frequency (never-always) and evaluation (very dissatisfied-very satisfied; very bad-very good). The third instrument was the clinical and tooth care form, thereby aiming the registration of tooth losses in the sample under study.

Participants were contacted in the Family Health Units (USFs) and clarified on: the filling up of the questionnaire, the importance of signing the Free and Informed Consent Form, the confidentiality assurance, the anonymity of responses and also about eventual questions.

Data were collected with the support of the group from the Education Program through the Work for Health (known as PET-SAÚDE), under the supervision of preceptors and tutors. The PET-SAÚDE, established by the Interministerial Ordinance MS/MEC nº 1.802/08, is destined to foster groups of tutorial learning in the scope of the Family Health Strategy, by enabling improvement programs and specialization in the service of Health professionals, as well as initiation of work, traineeships and experiences addressed to students of the health area, through payment of scholarship compensations.

For data analysis, at first moment, we made use of descriptive analysis for characterizing the selected sample, by using frequency and statistical measures of average, standard deviation, median and coefficient of variation. In a second moment, in order to compare the obtained results of the quality of life perceived in each domain, the sociodemographic characteristics and the tooth losses between the groups or categories of variables, we made use of the inferential statistical tests F (ANOVA), with Tukey’s comparisons for performing the comparison among the averages of the domains, by using a significance level equal to 0,05.

In order to meet the Resolution nº 196/96 of the Brazilian Ministry of Health, which deals with researches involving human beings in Brazil\textsuperscript{16}, the project was submitted to the Ethics Committee of the University of Pernambuco, Case nº 234/11 and CAAE Registration nº 02.0.097.000-11.

**RESULTS**

Concerning the sociodemographic factors, of the 560 patients involved in the study, 451 (80,5%) are female and 109 (19,5%) are male, with an average age of 60,43 years (± 11,81). As to the age group, 305 (54,5%) were 60 years or older; it was also observed that 269 (48,0%) had not completed the elementary school, 355 (63,4%) reported to be working and 287 (51,3%) had the income of one minimum wage per month (Table 1).
Quality of life and tooth losses...

Regarding the disease, this sample has demonstrated a higher prevalence of hypertensive people (400 = 71.4%) in relation to the diabetic people (160 = 28.6%), where 450 (80.1%) reported that they do not believe in the relationship between their diseases and the tooth losses, being that we have found 314 (56.1%) cases in which there were relationships with caries. With respect to the amount of tooth losses, the lack of 21 or more teeth was observed in 330 (58.9%) occurrences (Table 2).

Table 1. Distribution of patients according to socioeconomic and demographic data.

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>560</td>
<td>100.0</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 49</td>
<td>100</td>
<td>17.9</td>
</tr>
<tr>
<td>From 50 to 59</td>
<td>155</td>
<td>27.7</td>
</tr>
<tr>
<td>60 or over</td>
<td>305</td>
<td>54.5</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>109</td>
<td>19.5</td>
</tr>
<tr>
<td>Female</td>
<td>451</td>
<td>80.5</td>
</tr>
<tr>
<td>Schooling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>87</td>
<td>15.5</td>
</tr>
<tr>
<td>Incomplete Elementary School</td>
<td>269</td>
<td>48.0</td>
</tr>
<tr>
<td>Complete Elementary School</td>
<td>145</td>
<td>25.9</td>
</tr>
<tr>
<td>Complete high school or college</td>
<td>59</td>
<td>10.5</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>355</td>
<td>63.4</td>
</tr>
<tr>
<td>No</td>
<td>65</td>
<td>11.6</td>
</tr>
<tr>
<td>Retired</td>
<td>140</td>
<td>25.0</td>
</tr>
<tr>
<td>Income (minimum wages)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower than one</td>
<td>65</td>
<td>11.6</td>
</tr>
<tr>
<td>One</td>
<td>287</td>
<td>51.3</td>
</tr>
<tr>
<td>Two</td>
<td>133</td>
<td>23.8</td>
</tr>
<tr>
<td>Three or over</td>
<td>57</td>
<td>10.2</td>
</tr>
<tr>
<td>Unanswered</td>
<td>18</td>
<td>3.2</td>
</tr>
<tr>
<td>District</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>252</td>
<td>45.0</td>
</tr>
<tr>
<td>II</td>
<td>308</td>
<td>55.0</td>
</tr>
</tbody>
</table>

Regarding the results in the different domains of the questionnaire World Health Organization Quality of Life (WHOQOL-BREF), it was found that the social domain showed the highest score (67.16 ± 17.42), and the environmental domain reached the lowest score with (53.45 ± 13.26). The psychological domain was the one that achieved the second highest score (63.06 ± 15.29), followed by the physical domain (57.33 ± 16.60) (Table 3).

Table 2. Distribution of patients according to pathology and tooth losses.

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>560</td>
<td>100.0</td>
</tr>
<tr>
<td>Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAH</td>
<td>4</td>
<td>71.4</td>
</tr>
<tr>
<td>DM</td>
<td>1</td>
<td>28.6</td>
</tr>
<tr>
<td>Number of tooth loss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 10</td>
<td>9</td>
<td>17.1</td>
</tr>
<tr>
<td>From 11 to 20</td>
<td>1</td>
<td>23.9</td>
</tr>
<tr>
<td>21 or over</td>
<td>3</td>
<td>58.9</td>
</tr>
<tr>
<td>Relationship between tooth loss and disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>10.4</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>80.4</td>
</tr>
<tr>
<td>Do not know</td>
<td>5</td>
<td>9.3</td>
</tr>
<tr>
<td>Cause of loss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carie</td>
<td>3</td>
<td>56.1</td>
</tr>
<tr>
<td>Trauma</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>Lack of access to dentists</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>29.8</td>
</tr>
</tbody>
</table>

As for the relationship towards the number of tooth losses and quality of life, it was observed that the environmental domain reached the lowest score among all groups, with 51.86 for patients with up to 10 tooth losses, 51.98 between 11 and 20 losses and 54.5
for patients with 21 or more tooth losses, being that there was no significant differences between them. The highest scores were also obtained between the three groups in the social domain, with values of 67.10, 67.91 and 66.87, respectively, being that there was no significant differences between them. In the physical domain, the highest score was obtained in the group with up to 10 tooth losses, which showed significant differences when compared with the groups of 11 to 20 and 21 or more tooth losses (p = 0.027) (Table 4).

<table>
<thead>
<tr>
<th>Domain</th>
<th>Statistics</th>
<th>Up to 10 (n = 96)</th>
<th>11 to 20 (n = 134)</th>
<th>21 or over (n = 330)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Average</td>
<td>61.35(6)</td>
<td>55.70(6)</td>
<td>56.83(6)</td>
<td>p=0.027*</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>60.71</td>
<td>57.14</td>
<td>57.14</td>
<td></td>
</tr>
<tr>
<td>Psychological</td>
<td>Standard deviation</td>
<td>14.96</td>
<td>16.41</td>
<td>17.00</td>
<td>p=0.376</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>64.50</td>
<td>63.84</td>
<td>62.32</td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>Standard deviation</td>
<td>14.41</td>
<td>14.05</td>
<td>16.00</td>
<td>p=0.843</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>67.10</td>
<td>67.91</td>
<td>66.87</td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td>Standard deviation</td>
<td>16.99</td>
<td>18.07</td>
<td>17.32</td>
<td>p=0.077</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>51.86</td>
<td>51.98</td>
<td>54.51</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>50.0</td>
<td>53.13</td>
<td>56.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard deviation</td>
<td>14.3</td>
<td>12.87</td>
<td>13.02</td>
<td></td>
</tr>
</tbody>
</table>

(*) : Significant difference to the level of 5.0%. (1) : Through the F test (ANOVA). Note: whether all the letters in parentheses are distinct, it proves a significant difference between the corresponding categories by means of the Tukey's paired comparisons.

**DISCUSSION**

It should be highlighted the predominance of women in this study, which is a feature that is consistent with the Brazilian reality, since, according to IBGE (2010), there are 3.9 million more women than men in Brazil. Another factor that might explain the higher proportion of affected women is that they more often seek health services. In this study, the elderly age group has prevailed, which might be explained by the demographic and epidemiological transition that the country is undergoing, thus favoring the scenario with a high number of elderly and consequent increase in chronic diseases rates. The increasing prevalence of chronic diseases reported by respondents might be a reflection of the expansion of access to health services, the population aging, as well as changes in lifestyles.

Hypertension was more prevalent than diabetes, which is a result that was also found in other national studies. SAH is a disease with multiple determinants, such as quality of life of people, leisure, housing, besides the access to education and health. It was found that the highest prevalence of respondents had incomplete elementary school and family income of one minimum wage. This directly reflects on the health status, since, with low schooling, people do not have sufficient information and knowledge about the disease that they possess and, due to the low income, often do not have access to health services.

Most individuals with some tooth loss had lost 21 or more teeth, which exceeds the number of losses observed in another study, where the observed median of losses was of 11 teeth. This result might be explained by the age of the surveyed individuals, who experienced a period when the concept of a good oral health was generally based on the extraction of oral elements (teeth).

The application of questionnaires on quality of life has been increasingly used in studies, by enabling access to crucial information for health care and consequent intervention for achieving improvements. In the present study, it was found that the social domain showed the highest score, which is composed by the facets: personal relationships, social support (assistance) and sexual activity, which corroborates with other studies. It should be emphasized that most of the interviewed patients are part of the HIPERDIA Group, which is in line with other studies that highlight that such participation enhances the social score. The psychological domain reached the second best score, by showing that these aspects are positively perceived by most of the respondents and positively contribute to get a good QOL, with respect to the psychological context.

The physical domain reached the third position among the studied scores. It is possible that a lower score for the physical domain is related to the continuing need for treatment and monitoring of chronic diseases, as well as the fact that there is a large...
The findings of this study showed lower quality of life between the environmental and physical domains. The group with greater number of tooth losses has demonstrated lower quality of life related to the physical domain, in a sample of hypertensive and diabetic people. This information is important for adequate guidance in the multidisciplinary education in health, as well as improvements in structural public policies, which are factors that are highly interlinked to the quality of life, prevention and health promotion of the population.

CONCLUSION

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