

Association between dental pain and absenteeism among public workers from Southeastern Brazil*

Associação entre dor de dente e absenteísmo em funcionários públicos do sudeste do Brasil

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ABSTRACT

BACKGROUND AND OBJECTIVES: Studies carried out worldwide have shown that the incidence of dental pain is one reason leading people to look for dental services and that it impairs quality of life. This study aimed at observing the prevalence of dental pain, pain-related absenteeism and possible associations with sociodemographic characteristics.

METHODS: This was an analytical, observational and transversal study using a randomized sample of 312 public servants obtained from a universe of 994 employees of the City Hall of Marataízes, ES. A structured script with 27 items was used for data collection, which was carried out between May and June 2009, by three qualified servants. Chi-square and Fisher Exact tests were used to compare dental pain percentages and absenteeism to sociodemographic factors.

RESULTS: The prevalence of dental pain among employees was 57.0%, with higher prevalence among those with socioeconomic condition C/D/E (OR= 1.560). From those reporting dental pain, 17.8% have missed work, with higher prevalence of those of socioeconomic condition C/D/E (OR= 3.816) and with incomplete high school (OR= 2.298).

CONCLUSION: High dental pain prevalence was observed and enough to produce absenteeism, with higher frequency among workers of less favored economic classes and with lower education level.

Keywords: Absenteeism, Dental pain, Worker's health.

RESUMO

JUSTIFICATIVA E OBJETIVOS: Pesquisas realizadas em todo o mundo demonstram que a ocorrência de dor de dente é uma das razões que levam as pessoas a procurar o serviço odontológico, comprometendo a qualidade de vida. O objetivo deste estudo foi verificar a prevalência da dor dentária, absenteísmo motivado pela dor e possíveis associações com características sociodemográficas.

MÉTODOS: Estudo analítico, observacional, transversal utilizou uma amostra aleatória de 312 servidores obtida de um universo de 994 funcionários da Prefeitura do município de Marataízes, ES. Foi utilizado um roteiro estruturado com 27 itens para a coleta de dados, realizada entre maio e junho de 2009, por três servidoras treinadas. Para comparação dos percentuais de dor dentária e absenteísmo com os fatores sociodemográficos foram utilizados os testes Qui-quadrado e Exato de Fisher.

RESULTADOS: A prevalência de dor dentária entre os funcionários foi de 57,0%, com maior prevalência naqueles com condição socioeconômica C/D/E (OR=1,560). Dos que sentiram dor dentária, 17,8% faltaram ao trabalho, com maior prevalência para os de condição socioeconômica C/D/E (OR=3,816) e com escolaridade até o ensino médio incompleto (OR= 2,298).

CONCLUSÃO: Alta prevalência de dor de dente foi observada e suficiente para produzir absenteísmo, com maior frequência em trabalhadores inseridos nas classes econômicas menos favorecidas e com menor escolaridade.

Descritores: Absenteísmo, Odontalgia, Saúde do trabalhador.

INTRODUCTION

Epidemiological studies show that pain is the primary reason for looking for health services and is one of the major causes of human suffering, impairing quality of life (QL) and psychosocial and economic status¹.

Dental pain is one of the most common pains affecting humankind. It is responsible for a large number of work losses. Absences from work due to health problems reflect incapacity to perform labor activities².

Absenteeism caused by oral problems is poorly studied in Brazil. There are no updated data on the number of lost working days due to dental pain, in national, state and municipal lev-

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els. There is also no information about the burden brought by such absences, such as the psychosocial impact for workers. There are two types of absenteeism: type 1 is characterized by absence from work; type 2 is characterized by physical presence with individuals working with pain³.

Dental problems may produce pain, discomfort and generate signs and symptoms, which go from decreased attention to work, to absence, in addition to social behaviors of isolation. This fact reaffirms the need for and the importance of dentists (D) participating in multidisciplinary teams³.

The compartmentalization which sees the mouth separated from the body is outdated. It is impossible to talk about integral workers' health attention without inserting Dentistry actions, which should be carried out within Occupational Health Medical Control Programs (OHMCP) by duly qualified Ds to deal with the specificity of oral health and work relationship⁵. The proposal of legislative bill 422/2007 is based on this understanding and tries to contribute to close the existing gap, promoting the expansion of the number of actions aimed at preventing and assisting occupational diseases, with incorporation of Labor Dentistry actions. This is the only way for companies to comply with their social duty of promoting integral health assistance to their workers⁶.

Oral problems may directly impact professional performance. Because labor health promotion programs have a limited number of specific actions for oral health, there is the need to implement an oral health promotion protocol within companies. The implementation of such program would avoid absenteeism and decrease in productivity. Workers' oral health teams should orient their actions to promote health⁷.

This study aimed at measuring the frequency of dental pain in the last six months, and the possible occurrence of absenteeism caused by toothache and associations with sociodemographic variables of employees of the local government of Marataízes, ES.

METHODS

This is a transversal study with representative sample of local government workers of a resort to the South of the State, 200 km far from the capital. Parameters used for sample calculation were: expected prevalence of 35% - results found in studies carried out in the region - confidence level of 95%, error of 5% and n=994. Calculation has resulted in a sample of 260 employees plus 52 more individuals, considering a possible loss of up to 20%. The study has used a randomized sample of 312 employees. Those in maternal or medical leave were excluded from the study.

Data were collected by means of a validated questionnaire with 27 items regarding sociodemographic characteristics, need for total or partial prosthesis, dentition status (presence or total absence of teeth), dental pain, absenteeism, and type of service used for treatment.

Scripts were used as standardized interviews and were applied by three trained interviewers, non-participant public servants, assuring cultural, economic and social equivalence

with respondents, between May and June 2009.

Chi-square and Fisher Exact tests were used to check possible associations. Significance level was 5%. Odds Ratio (OR) and respective Confidence Intervals were calculated to check association power. Research was carried out according to ethical principles and was approved by the Research Ethics Committee, Federal University of Espírito Santo in March 24, 2009, protocol 023/09. All participants have signed the Free and Informed Consent Term.

RESULTS

Final sample was made up of 286 employees, above the original calculation (n=252). There has been predominance of females (64%), young individuals, 65% below 40 years of age, and 61.2% were married. With regard to education level, most (74.1%) have reported complete high school or above; income has not followed education level; 46.1% have reported family income of up to two minimum wages and 60.8% have reported belonging to socioeconomic condition C (Table 1).

Table 1. Sociodemographic data of civil servants. Marataízes/ES

Characteristics	n	%
Gender		
Male	103	36.0
Female	183	64.0
Age group (years)		
18 – 30	63	22.0
31 – 40	123	43.0
41 – 50	80	28.0
51 or above	20	7.0
Marital status		
Single	59	20.6
Married	175	61.2
Cohabiting	32	11.2
Divorced	20	7.0
Education level		
Incomplete elementary school	39	13.6
Complete elementary school	21	7.4
Incomplete high school	14	4.9
Complete high school	95	33.2
Incomplete college	41	14.3
Complete college	76	26.6
Family income		
Less than 1 minimum wage	7	2.4
1 to 2 minimum wages	125	43.7
3 to 5 minimum wages	127	44.4
6 to 10 minimum wages	21	7.3
Above 10 minimum wages	6	2.2
Socioeconomic condition		
A	10	3.5
B	79	27.6
C	174	60.8
D	18	6.3
E	5	1.8
Total	286	100.0

With regard to dentition, 84 (29.4%) have reported no tooth loss, 201 (70.3%) have reported at least one tooth loss and one employee (0.3%) has reported being edentulous.

From participants reporting tooth loss, 119 (58.9%) had lost posterior teeth, 14 (6.9%) anterior teeth and 69 (34.2%) posterior and anterior teeth. As to the reported need for removable partial prosthesis (RPP), 191 participants (66.8%) have answered they did not need, 84 (29.4%) have reported need and 11 (3.8%) have refused to answer.

With regard to reported need for total prosthesis, 253 (88.5%) have answered they did not need, 25 (8.7%) have perceived the need and 8 (2.8%) have refused to answer (Table 2).

Prevalence of toothache was 57%, considered high and enough to lead to the use of dental services in 39.9% of these employees. The use of public dental services (47.7%) was very close to that recorded for private services (44.6%). The number of employees (6.2%) looking for a fake professional was surprising (Table 2).

The prevalence of reported absenteeism caused by toothache was 17.8%, generating loss of up to one working day for 93.2%. With regard to productivity, 27% of employees with toothache have reported that it has interfered with labor activities (Table 3).

With regard to variables gender, age group, socioeconomic condition (SEC), family income and education level, results have shown no statistically significant association with the

prevalence of toothache. When testing variable SEC, p value (0.054) was very close to nominal limit, showing potentially significant result (Table 4).

Prevalence of absenteeism was higher among employees of socioeconomic classes C/D/E (OR= 3.816, CI 95% = 1.094;13.333), that is, the chance of classes C/D/E individuals missing work due to toothache was 3.816 times higher as compared to that of classes A and B.

Workers with education level up to incomplete high school had 2.298 times more chance of missing work due to toothache (OR= 2.298, CI 95% = 1.005;5.255), as compared to those with higher level education (Table 5).

Table 2. Data on dental pain of civil servants. Marataízes/ES

Characteristics	n	%
Pain		
Yes	163	57.0
No	123	43.0
Looked for dental assistance		
Yes	65	39.9
No	98	60.1
Type of service		
Health unit	31	47.7
Fake professional	4	6.2
Private	29	44.6
Other	1	1.5
Number of visits to dental service		
Once	30	46.2
Twice	18	27.6
Three times or more	17	26.2
Reason for not using the serviced		
Fear	3	3.1
Felt no need	46	46.9
Was not allowed	9	9.2
Lack of money	12	12.2
Could not schedule visit	3	3.1
Other reason	1	1.0
Has not justified	24	24.5

Table 3. Absenteeism data of civil servants. Marataízes/ES

Characteristics	n	%
Absence from work due to pain		
Yes	29	17.8
No	134	82.2
Absence from work		
One shift	16	55.3
One day	11	37.9
Two to three days	2	6.8
Productivity at work with toothache		
Paid no attention to tasks	9	6.7
Postponed tasks to next Day	8	6.0
Failed to carry out tasks	10	7.5
Has not justified	107	79.9

Table 4. Data on dental pain and sociodemographic characteristics of civil servants. Marataízes/ES

Characteristics	Pain		No pain		p-value	Odds Ratio
	n	%	n	%		
Gender						
Male	58	56.3	45	43.7	0.479	1.044 0.641-1.700
Female	105	57.4	78	42.6		
Age group (years)						
Up to 40	112	60.2	74	39.8	0.085	1.454 0.891-2.373
41 or above	51	51.0	49	49.0		
Socioeconomic class						
A/B	44	49.4	45	50.6	0.054	1.560 0.942-2.583
C/D/E	119	60.4	78	39.6		
Family income						
Up to 2 minimum wages	76	57.6	56	42.4	0.474	1.045 0.653-1.672
Above 2 minimum wages	87	56.5	67	43.5		
Education level						
Incomplete high school	48	64.9	26	35.1	0.073	1.557 0.900-2.695
Complete high school or above	115	54.2	97	45.8		

Table 5. Data on absenteeism due to toothache of employees of the local government of Marataizes/ES, 2009

Characteristics	Absence from work		No absence		p-value	Odds Ratio
	n	%	n	%		
Gender						
Male	10	17.2	48	82.8	0.536	1.060 0.456-2.463
Female	19	18.1	86	81.9		
Age group (years)						
Up to 40	23	20.5	89	79.5	0.126	1.938 0.737-5.099
41 or above	6	11.8	45	88.2		
Socioeconomic class						
A/B	3	6.8	41	93.2	0.018	3.816 1.094-13.33
C/D/E	26	21.8	93	78.2		
Family income						
Up to 2 minimum wages	17	22.4	59	77.6	0.111	1.801 0.798-4.064
Above 2 minimum wages	12	13.8	75	86.2		
Education level						
Incomplete high school	13	27.1	35	72.9	0.040	2.298 1.005-5.255
High school or above	16	13.9	99	86.1		
Type of dental service						
Health unit	10	32.3	21	67.7	0.405	1.323 0.453-3.861
Private/others	9	26.5	25	73.5		
Visits to dental service						
Once	6	20.0	24	80.0	0.107	2.364 0.765-7.299
More than once	13	37.1	22	62.9		

DISCUSSION

Dental pain prevalence among participants of this study was 57.0% and was considered high; however, it was similar to other results found in Espírito Santo, of 43% among employees of the local government of Venda Nova do Imigrante⁸ and of 46.7% among employees of a food company in Linhares⁹. International studies have also found similar results¹⁰, of 51.9% among Australian employees¹¹, and of 43.6% among employees of two Malaysian industries. Some Brazilian studies have shown lower prevalence: 33.7% among students aged from 12 to 13 years in Florianópolis-SC¹²; 28% among metallurgical and mechanical employees in Xanxerê-SC¹³; 20.7% among employees of the Municipal Urban Cleaning Department of Porto Alegre-RS¹⁴.

Such comparisons are impaired by variations among age groups, observation intervals (last two weeks, six months or even 12 months), and different regions within Brazil and worldwide. It is important to stress that methodological aspects of future epidemiological studies on the subject should be standardized to provide more reliable comparisons¹⁵.

In our study, toothache was not associated to gender, being in agreement with other studies^{16,17}. There are reports showing

that males have higher chance of having dental pain^{18,19}.

Classes C/D/E workers had 56% more chance of experiencing toothache as compared to those of more privileged classes. Extensive literature has shown a higher prevalence of tooth decay and its consequences in more destituted classes. Worst indices worldwide are found in regions of social deprivation. Social status is the fundamental cause of the disease, because it mediates the access to society resources and this determines the access to all points of the causal chain of the health/disease process²⁰. Most studies on oral health social determinants associate social class, socioeconomic class, income and education level to oral health conditions²¹.

Our study has not found statistically significant difference in family income and the prevalence of dental pain, being in disagreement with studies showing that low income families were more susceptible to dental pain^{12,17,18,22,23}. A possible explanation to this finding is that, in our study, Brazilian salary inequality was not reproduced, having salary proximity at the cutoff point for the analysis of the variable.

Absenteeism due to dental pain in our study was 17.8%, very close to results found in Espírito Santo and Brazil^{15,19}. This study has shown that 20.0% of employees with toothache have reported loss of productivity during their labor activities due to poor attention or mistakes when carrying out tasks. This is important not only due to decreased productivity, but also to the increased risk of labor accidents. Gemeli²⁴ has investigated labor accidents and has found that in 11.0% of cases, respondents have reported dental pain on the day of the accident suggesting possible interference of dental pain on workers' attention and concentration.

Brazil is a champion in labor accident statistics. It is always important to remind that such statistics reflect accidents recorded by Social Security. It estimated that in Brazil there is still a high rate of underreporting of accidents²⁵.

Our study has observed that 39.9% of participants with dental pain have looked for dental services. Most widely used type of service was public service (47.7%), followed by private service (40%). Since sample is made up of municipal employees, this could, in a way, have motivated the use of public oral health services. But even with large part (46%) reporting family income of up to two minimum wages, a large percentage has used the private system. Studies are needed to understand oral health values and beliefs and the existence of barriers which may affect the use of public services. Studies are also needed to understand the fact that 6.2% of workers have looked for a fake professional, although being employees of a local government of the Southeastern Region where dental services are available and which, according to the Brazilian Constitution²⁶, should assure access to all citizens, especially in urgent cases²⁷.

The use of oral health services is determined by several variables with different prediction power²⁸. Several studies have shown perception of need as the characteristic with highest explanation power for the search for dental assistance. Dental pain is not always enough to motivate a visit to the dental service²⁹.

From workers reporting toothache in the last six months and not having looked for oral health services, 46.9% have not perceived the need and 12.0% failed to do it due to lack of money, which may suggest a lack of third shift dental assistance in the public service or not having been waived for treatment. The high prevalence of pain and absenteeism found in this study justifies the implementation of actions, going from the creation of health public service third shift to the insertion of Ds in the company⁸.

One cannot discard the possibility of self-medication, very popular and concerning procedure in Brazil for being inadequately and abusively done and, most of the times, with drugs subject to medical prescription³⁰. Self-medication is also very popular in other countries. With poorly-structured health system, going to the pharmacy is the first option to solve a health-related problem. Simpler and more commonly used drugs, such as analgesics, are available in pharmacies and even in supermarkets, may be purchased without medical prescription and are the most widely used as self-medication^{31,32}.

Our study has found that employees with socioeconomic condition C/D/E had almost four times more chance of missing work due to dental pain, as compared to classes A/B. Mentioned Brazilian studies have not considered this variable; international studies use a different tool to classify subjects according to social status, thus making comparisons difficult. Our results have shown that employees with lower education level had 2.3 times more chance of missing work due to toothache. These results are similar and comparable to other studies^{8,18,33}.

CONCLUSION

Our study has observed high prevalence of toothache generating absenteeism, with higher frequency among workers from less privileged economic classes and with lower education levels.

Strategies directed to health promotion and to better access to dental services certainly will be able to decrease observed frequencies.

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