ORIGINAL ARTICLE

Temporomandibular disorder prevalence and severity in university professors*

Prevalência e gravidade de disfunção temporomandibular em professores do ensino superior

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ABSTRACT

BACKGROUND AND OBJECTIVES: University professors are part of a category of professionals constantly submitted to stress, which may trigger a temporomandibular disorder (TMD). By recognizing this relationship, this study aimed at evaluating the prevalence and severity of TMD in university professors.
METHODS: A sample of 200 individuals of both genders, above 25 years of age, who were still not diagnosed with TMD, was divided in two groups: Group I, made up of university professors, and Group II made up of individuals of any other professional activity, different from teaching. Volunteers were asked to fill a historical questionnaire which allowed a classification of the presence and severity of TMD.
RESULTS: Participated in this study 95 males and 105 females. With regard to TMD severity in Group I, it was observed that 62.7% of evaluated individuals were classified as having mild TMD; 25.3% as having moderate TMD; and 12% as having severe TMD. In Group II, 73.9% had mild TMD; 24.6% had moderate TMD; and 1.4% had severe TMD.
CONCLUSION: The prevalence of TMD among professors was not different from the group of non professors. When professors had TMD, the level severity was higher as compared to non professors.

Keywords: Facial pain, Prevalence, Temporomandibular disorder, Temporomandibular joint.

RESUMO

JUSTIFICATIVA E OBJETIVOS: O professor de ensino superior faz parte de uma categoria de profissionais que é submetida constantemente a estresse, podendo desencadear uma disfunção temporomandibular (DTM). Ao reconhecer essa relação, este trabalho teve como objetivo avaliar a prevalência e grau de gravidade de DTM em professores de ensino superior.
MÉTODOS: Uma amostra de 200 indivíduos, de ambos os gêneros, maiores de 25 anos, que ainda não tinham diagnóstico de DTM, foi dividida em dois grupos: o Grupo I, formado por indivíduos que exerciam a profissão de professor de ensino superior e o Grupo II, formado por indivíduos que exerciam qualquer outra atividade profissional desvinculada da docência. Aos voluntários, foi solicitado o preenchimento de um questionário anamnésico que permitiu estabelecer uma classificação em relação à presença e ao grau de gravidade da DTM.
RESULTADOS: Foram avaliados 95 homens e 105 mulheres. Em relação ao grau de gravidade de DTM no Grupo I, detectou-se que 62,7% dos avaliados foram classificados como portadores de DTM leve; 25,3% como portadores de DTM moderada; e 12% como portadores de DTM grave. No Grupo II, constatou-se que 73,9% como portadores de DTM leve; 24,6% DTM como portadores de DTM moderada; e 1,4% como portadores de DTM grave.
CONCLUSÃO: A prevalência de DTM em professores não foi diferente da encontrada no grupo de não professores; quando professores foram acometidos por DTM, o grau de gravidade foi maior quando comparado com o grupo de não professores.

Descritores: Articulação temporomandibular, Disfunção temporomandibular, Prevalência, Dor facial.

INTRODUCTION

Temporomandibular disorders (TMD) are very important for modern dentistry due to the large number of patients with characteristic signs and symptoms, such as masticatory muscles or temporomandibular joint (TMJ) pain or sensitivity, noises during jaw movement, limitation or incoordination of movements and incorrect relationship between mandibular positions[1,2]. Its etiology is linked to functional, psychological, structural and environmental factors, being reported as multifactorial since all mentioned factors should be taken into consideration to reach the final diagnosis[1].

Stomatognathic system is a complex involving TMJ, maxillary and mandibular bones, teeth, muscles, nerves, blood vessels and periodontium, with functions of chewing, swallowing, breathing, speaking and posture maintenance[1]. A change in one of its components may determine imbalance of its functioning and result in TMD[1,3].

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Major TMD symptoms are TMJ region pain, facial pain, difficulty and pain at chewing, muscle, cervical and neck pain, tiredness, mouth opening limitation, clenching and grinding teeth, temporary or definitive locking, and joint noises[4].

Parafunctional habits predispose to the disruption of stomatognathic system harmony, leading to imbalance. These habits are frequent and harmful to TMD patients because muscles tend to work more and may go into fatigue, changing function, generating tension, muscle hyperactivity and increased forces, in addition to causing pain and discomfort[5].

Literature stresses that psychological aspects influence TMJ[4]. Tension may lead to teeth clenching and neuromuscular system disorders, conditions to which professors are submitted and which may affect the development of TMD. Stress and emotional distress are related to the development of TMDs[6].

Professors are part of a professional category living under continuous tension and stress because, in addition to their normal responsibilities, high competitiveness requires them to cope with new challenges and to be constantly learning. In addition, the excess of teaching activities, interpersonal conflicts, number of students and working environment, among other factors, may also lead professors to a state of tension and stress.

Literature evidences a positive relationship among muscle tension, stress and TMD[6]. It is also reported a correlation between voice alteration and TMD in professors[7,8]. So, aiming at contributing for a better understanding of the relationship between university professors and stress, this study aimed at estimating TMD prevalence and level of severity among university professors, in addition to evaluating whether the frequency of TMD among professors was different as compared to other professionals.

METHODS

This study was carried out in compliance with rules regulating research with human beings, resolution 196/1996 of the National Health Council, and with the declaration of Helsinki II (2000).

This is a quantitative cross-sectional field research carried out through an anamnesic questionnaire proposed by Fonseca et al.[9], where two questions were included about TMD symptoms in university professors to identify TMD prevalence and level of severity.

Participated in the study 200 volunteers of both genders, aged above 25 years, who were divided in two groups as follows: Group I – university professors; Group II – other professionals different from university professors.

Inclusion criteria were individuals with our without pain, who were still not diagnosed or were being treated for TMD and who voluntarily agreed to participate in the research.

Before applying the questionnaire, volunteers were informed about the objectives of the research and procedures to complete the questionnaire, which was answered by the volunteer himself at receipt, without interference of the examiner, so as not to influence the answers.

Volunteers were informed that the questionnaire had 12 questions, being 10 simple questions where possible answers would be: yes, no and sometimes; only one answer should be checked for each question. The last two questions were related to the presence of habits and lack of teeth.

Questionnaire was applied without time control for its completion for the volunteers not to answer in a hurry, however questionnaires were returned the same day.

APPLICATION OF ANAMNESIC QUESTIONNAIRE

Group I volunteers were asked to complete a card with personal information (name, age, gender, number of universities where they taught, number of weekly hours/lessons, whether they had other teaching function, whether they had other professional activity).

Group II volunteers were also asked to complete a card with personal information (name, age, gender, professional activity, working places, weekly workload).

The anamnesic questionnaire proposed by Fonseca et al.[9] and applied to both groups had the following questions:

1. Do you have difficulty to open your mouth?
2. Do you have difficulty in moving you jaw laterally?
3. Do you have discomfort or muscle pain when chewing?
4. Do you have frequent headaches?
5. Do you have neck and/or shoulders pain?
6. Do you have earache or pain close to the ear?
7. Do you notice any TMJ noise?
8. Do you use just one side to chew?
9. Do you have facial pain upon awakening?
10. Do you consider yourself a tense person?

Each answer indicating the presence of the symptom was scored 2 and absence of symptoms zero; the answer "sometimes" was scored 1. By adding the scores of each answer it was possible to classify volunteers in four categories: without TMD, mild TMD, moderate TMD and severe TMD (Table 1). For questions 6 and 7, if symptoms were bilateral, one more point was added to final score. In question 4, if pain, in addition to frequent was severe, 1 more point was added.

Table 1 – Classification of temporomandibular disorders according to the anamnesic questionnaire

Clinical Index	
Scores from 0 to 3	No TMD
Scores from 4 to 8	Mild TMD
Scores from 9 to 14	Moderate TMD
Scores from 15 to 23	Severe TMD

Statistical analysis

Chi-square test was used to examine the relationship between gender, being professor or not, and having TMD. Mann-Whitney test was used to evaluate whether there was difference in the workload of volunteers with and without TMD. Significance level was 5%.

This study was approved by the Committee of Ethics and Research with human beings, University Ceuma, under protocol 00327/2010.

RESULTS

Participated in the study 95 males and 105 females. With regard to the level of TMD severity in Group I it was detected that 62.7% of respondents were classified as having mild TMD; 25.3% as having moderate TMD; and 12% as having severe TMD. In Group II, 73.9% had mild TMD; 24.6% had moderate TMD; and 1.4% had severe TMD (Figure 1).

Chi-square test has shown no relationship between gender and TMD ($\alpha^2 = 1.925$; $p > 0.05$), that is, the prevalence of TMD did not depend on gender (Table 2).

It was also observed that the frequency of TMD among professors was not different from non professors ($\alpha^2 = 1.925$; $p = 0.165$) (Table 3); however, when professors had TMD, the level of severity was higher as compared to non professors ($\alpha^2 = 6.436$; $p < 0.05$). There has been no statistically significant difference ($p > 0.05$) between workload of individuals with and without TMD (Table 4).

Among 200 evaluated patients, 84% (168) have reported having at least one habit. Table 5 shows more frequent habits for both groups. Constant use of computers and teeth clenching were the most frequent habits among professors.

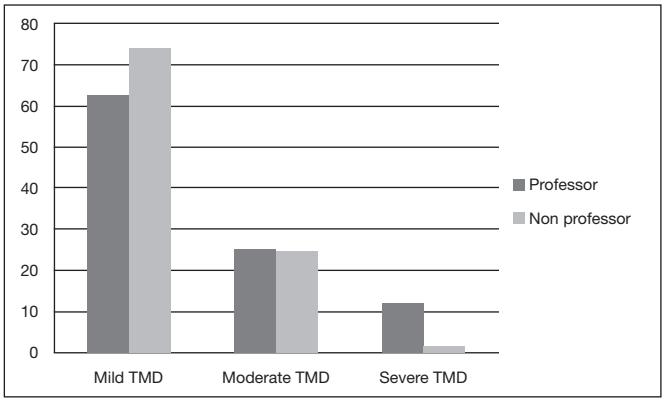

Figure 1 – Histogram of the relative frequency of several levels of TMD severity between professors and non professors.

Table 2 – Frequency of temporomandibular disorders with regard to gender

Yes		TMD		Total	α^2	p
		No				
Gender	Female	80 (23.8%)	25 (76.2%)	105 (100.0%)	1.925	> 0,05
	Male	64 (32.6%)	31 (67.4%)	95 (100.0%)		
Total		144 (28,0%)	56 (72.0%)	200 (100.0%)		

Table 3 – Frequency of temporomandibular disorders with regard to being or not professor

No		TMD		Total	α^2	p
		Yes				
Professor	Yes	25 (25.0%)	75 (75.0%)	100 (100.0%)	0.893	p = 0,344
	No	31 (31.0%)	69 (69.0%)	100 (100.0%)		
Total		56 (28,0%)	144 (72.0%)	200 (100.0%)		

Table 4 – Frequency of different levels of temporomandibular disorder severity with regard to being or not professor with respective Chi-square test result.

Mild		TMD level			Total	α^2	p
		Moderate	Severe				
P Professor?	Yes	47 (62.7%)	19 (25.3%)	9 (12.0%)	75 (100.0%)	6.436	< 0,05
	No	51 (73.9%)	17 (24.6%)	1 (1.4%)	69 (100.0%)		

Table 5 – Relationship between frequency of habits and teaching.

Habits	Professor		Total
	Yes	No	
Use of computer	48 (28.6%)	37 (22.0%)	85 (50.6%)
Use of telephone	25 (14.9%)	46 (27.4%)	71 (42.3%)
Teeth clenching	33 (19.6%)	29 (17.3%)	62 (36.9%)
Chewing gum	18 (10.7%)	31 (18.5%)	49 (29.2%)
Bite nails	22 (13.1%)	25 (14.9%)	47 (28.0%)
Bite objects	7 (4.2%)	19 (11.3%)	26 (15.5%)
Teeth grinding	10 (6.0%)	15 (8.9%)	25 (14.9%)
Other	6 (3.6%)	3 (1.8%)	9 (5.4%)
Total	81 (48,2%)	87 (51.8%)	168 (100.0%)

Tabela 6 – Frequência de portadores de disfunção temporomandibular em pacientes com perda dentária entre professores e outros profissionais.

Professor?			TMD		Total	α2	p
			Yes	No			
Yes	Tooth loss	Yes	36 (69.2%)	16 (30.8%)	52 (100.0%)	1.335	0.248
		No	39 (81.2%)	9 (18.8%)	48 (100.0%)		
No	Tooth loss	Yes	50 (79.4%)	13 (20.6%)	63 (100.0%)	7.293	0.007
		No	19 (51.4%)	18 (48.6%)	37 (100.0%)		

Tooth loss was not a determining factor for the prevalence of TMD among professors ($\alpha^2 = 1.335$; $p > 0.05$); however it was a determining factor among non professors ($\alpha^2 = 7.293$; $p < 0.05$) (Table 6).

Tension (75%), neck and shoulders pain (72.5%) and headaches (76.4%) were the most frequent answers of TMD patients in both groups (Table 7).

Table 7 – Frequency of answers for questions regarding tension and pain of the anamnesic questionnaire of professors and non professors with TMD.

Questions	Yes or sometimes
Do you consider yourself a tense person?	108 (75%)
Do you have neck and/or shoulders pain?	103 (72.5%)
Do you have frequent headaches?	110 (76.4%)
Do you have discomfort or muscle pain at chewing?	58 (39.9%)
Do you have earache or pain close to the ear?	43 (29.9%)
Do you have facial pain upon awakening?	25 (17.3%)

DISCUSSION

TMDs are frequent in different population segments[10-12]. These disorders have negative impact on quality of life of individuals[12-14]. This study to evaluate the presence of TMD among professors has not found statistically significant differences between professors and individuals with other professions. However, when professors were affected by TMD, the level of severity was higher. Although there are few studies identifying the level of TMD among university professors, the literature shows positive relationship between TMD and voice alterations[7,8,15], aspect to which professors are constantly submitted. The higher the TMD severity, the higher the speech-language disorders[8]. This is important to interpret our study results, since higher TMD severity was found among professors.

It has also been observed that 67% of professors had neck and/or shoulders pain; 49% have reported noticing some TMJ noise; 40% had frequent headaches. These findings are confirmed by the literature which classifies pain as the most common symptom among TMD patients[16]. Data also show the negative impact of pain on such individuals impairing their quality of life.

No relationship was found between gender and TMD. This is not in line with the literature which reports that TMD is more frequent among females, as determined by epidemiologic prevalence studies[17-19]. This might be explained by the fact that the sample used was specific (professionals), where individuals are more aware of physical and functional disorders and look for treatment more frequently.

Teeth clenching and grinding, biting objects, chewing gum, constant use of telephone and computers were habits described by respondents. According to the literature[19,20], these habits when present may induce pain and decrease coordination of affected muscles. In Group I (professors), when participants had moderate or severe TMD (97% and 99% of individuals, respectively), they have reported the presence of habits with prevalence of the constant use of computers. Tooth loss was not a determining factor for the prevalence of TMD among professors, which is confirmed by the literature, which does not consider occlusion as TMD etiologic factor[2]; however in Group II there has been a positive relationship between TMD and tooth loss.

When asked whether they considered themselves as tense individuals, 75% of TMD patients have answered positively. The emotional aspect described by these individuals is in line with the literature[4,21] which classifies the emotional factor as an aggravating factor for TMD. This relationship between emotional aspect and TMD in Group I, together with the high incidence of parafunctional habits, may justify the higher level of TMD severity in this group.

Pain was the most reported aspect by TMD individuals. Neck and shoulders pain, headache, muscle pain at chewing, earache and facial pain upon awakening were frequent among such individuals and are in line with the literature which shows the prevalence of pain among TMD individuals[2,21].

CONCLUSION

Our results have shown that the frequency of TMD among professors was not different from the frequency found in other professionals; when professors were affected by TMD, the level of severity was higher as compared to non professors.

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