

Acceptance date: 24/03/2025

PREVALENCE OF TEMPOROMANDIBULAR DISORDER (TMD) IN DENTAL STUDENTS AT THE CENTRO EDUCACIONAL INTEGRADO/CAMPUS: PARTIAL RESULTS

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Abstract: Temporomandibular disorder (TMD) is a clinical condition with varied symptoms that affects the stomatognathic structures and is prevalent in a significant portion of the population, mainly women aged between 20 and 40. Its etiology is multifactorial and is related to occlusal disorders, sleep disorders, bruxism, emotional and biopsychosocial alterations. Several epidemiological studies have been carried out to understand the behavior of TMD in different population groups: children, young adults and the elderly. The aim of this study was to assess the prevalence of TMD among students on the Integrated Group's dentistry course, using the anamnestic questionnaire from the American Academy of Orofacial Pain (AAOP). The AAOP questionnaire was made available through WhatsApp groups, and along with the questionnaire, the informed consent form (ICF) was made available for participants to sign digitally. This study was submitted to the CEP and approved under CAAE No. 81530624.2.0000.0092. To date, 38 students have completed the questionnaire. In the group of students (n=38) the most common complaint was noise in the jaw joint 42.1% (n=16). The average age was 21, with 14 males and 24 females. The most frequent complaint among women was jaw fatigue, affecting 54.16% (n=13) and among men jaw noise was the most frequent sign with 28.57% (n=4).

Keywords: TMD. Incidence. Academics. Dentistry.

INTRODUCTION

Temporomandibular disorder (TMD) refers to a set of disorders involving the masticatory muscles, the temporomandibular joint (TMJ) and associated structures.^{1,2} According to the American Academy of Orofacial Pain (AAOP), 40% to 75% of the population has some sign of TMD, 33% have some symptom and 5% to 7% seek treatment^{3,4}. Pain is

the most frequent symptom, especially pain located in the masticatory muscles and the pre-auricular region. Jaw pain, headaches, joint noise, difficulty opening and closing the mouth and difficulty chewing are common complaints of TMD patients¹. TMD symptoms can be associated with other clinical conditions, such as headaches, migraines, pain in the cervical segment and parafunctional habits, such as bruxism and its possible implications, as well as behavioral changes and psychosocial factors^{3,4,5}. As for age, TMD can occur at any age, but is most common in individuals between 13 and 35 years old, and is four times more prevalent in women.^{6,7} Its etiology is multifactorial and may be related to occlusal interferences, loss of posterior containment, postural alterations, parafunctional habits, extrinsic or intrinsic alterations of the joints, stress, emotional tension, anxiety, depression, cognitive disorders, which include aspects related to memory.^{3,7,8,9} Several studies^{4,5,8,9,10,11,12} have investigated the prevalence of temporomandibular dysfunction (TMD) among university students. While^{1,6,13} have demonstrated the relationship between emotional factors, parafunctional habits and the development of TMD. With regard to university students, the literature suggests that high levels of anxiety, which begin during undergraduate studies, have a potential negative impact on academic performance, increasing the risk of TMD and other diseases^{3,4,5,8,9,14}. Thus, the aim of this study was to assess the prevalence of TMD in dentistry students from the Integrado/Campo Mourão group, as well as to assess the most prevalent complaint and its relationship between the groups of students in relation to gender.

METHOD

A literature review was carried out in the SciELO, Pub Med and Google Scholar databases using the descriptors: “TMD”, “Epidemiology”, “University Students”. This study included articles from epidemiological studies involving TMD symptoms in population groups similar to of this study, published in the last 20 years, totaling 15 articles and one book. Thus, this study was submitted to the ethics committee of the Centro Educacional Integrado and registered CAAE: nº 81530624.2.0000.0092 and was based on the application of the AAOP TMD signs and symptoms questionnaire (figure 1), which was made available digitally in Whatsapp groups, to the target audience which was 160 dental students, who after receiving information about the project and signing the informed consent form and authorization to use their data for scientific dissemination, proceeded to respond. The data collected was submitted to the Shapiro-Wilk normality test, showing a non-normal distribution of the sample, considering $p < 0.05$. Intra-group statistical analyses were then carried out comparing the distribution of complaints between the sexes and the data was submitted to the Kruskal-Wallis test considering $p < 0.05$.

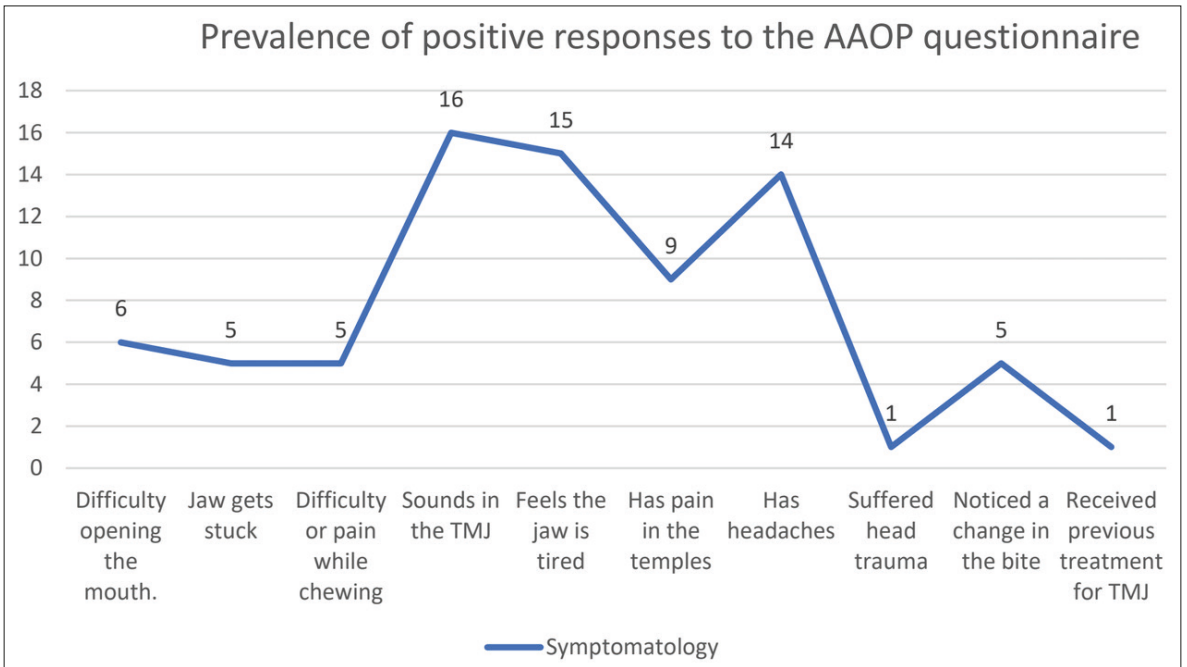
1 - Do you have difficulty, pain or both when opening your mouth, for example when yawning?
2- Is your jaw “locked”, “stuck” or “dropped”?
3- Do you have difficulty, pain or both when chewing, speaking or using your jaws?
4 - Do you notice any noise in the jaw joints?
5- Do you usually feel tired, stiff or tense in your jaw?
6- Do you have pain in your ears, temples or cheeks?
7- Do you often get headaches, neckaches or toothaches?
8 - Have you recently suffered any head, neck or jaw trauma?
9- Have you noticed any recent changes in your bite?
10 - Have you ever received previous treatment for unexplained facial pain or a jaw joint problem?

Figure 1: AAOP anamnetic questionnaire.

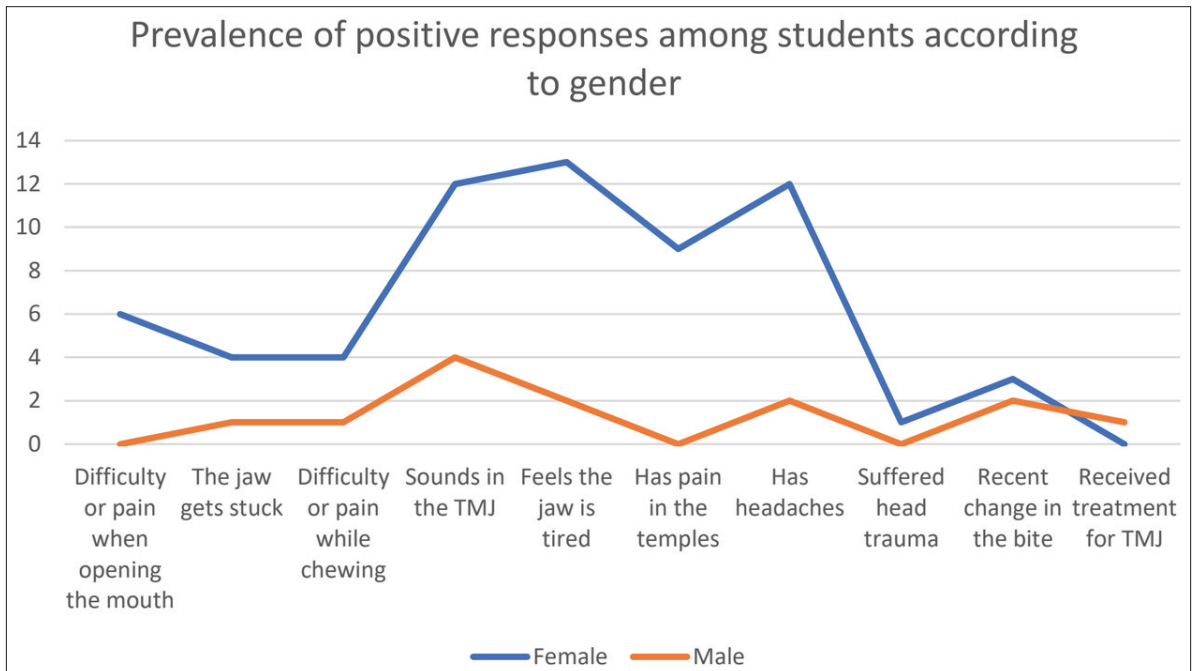
RESULTS AND DISCUSSION

Of the 160 individuals linked to the WhatsApp groups, only 38 (23.7%) answered the questionnaire, of whom 24 (63%) were female while 14 (37%) were male (Chart 1). The average age was 21 years. The Shapiro-Wilk normality test was carried out considering $p < 0.05$ obtaining $p = 0.1302$ demonstrating a non-normal distribution of responses. The intra-group analysis revealed that the prevalence of complaints between men and women was statistically the same when the Kruskal-Wallis test was carried out ($p < 0.05$), obtaining a value of $p = 0.00115$. In general, the most prevalent complaints among the students ($n = 38$) were: Jaw noise with 42.1% ($n = 16$), Jaw fatigue with 39.47% ($n = 15$), Head and neck pain with 36.8% ($n = 14$) and Pain in the region of the ears and temples with 23.68% ($n = 9$), pain when opening the mouth with 15,78% ($n = 6$), locked jaw, pain when chewing and recent change in bite with 13.15% ($n = 5$), while trauma to the head or jaw and treatment for TMJ pain had a frequency of 2.63% ($n = 1$). (Table 1 and Graph 1)

When evaluating the answers to the AAOP questionnaire according to gender, the following results were observed: Among the women, $n = 4$ (16.66%) had no TMD symptoms, while ($n = 20$) 83.34% answered positively to the questions on the questionnaire. Among the men, 5 (35.71%) had no complaints, while 64.29% ($n = 9$) responded positively to the questions on the questionnaire. As for the most frequent answers, the following results were found: In the female group ($n = 24$): tired or stiff jaw 54.16% ($n = 13$), TMJ noises and headaches or neck pain 50% ($n = 12$), pain in the ear or temporal region 37.5% ($n = 9$), pain when opening the mouth 25% ($n = 6$), locked jaw and pain when chewing 16.66% ($n = 4$), recent change in bite 12.5% ($n = 3$), treatment for TMJ pain 0%. Among the men ($n = 14$): TMJ noises occurred in 28.57% ($n = 4$), tired or sti-



Graph 1: Prevalence of positive responses to the AAOP questionnaire in the n=38 sample.



Graph 2: The graph shows the prevalence of responses according to gender: women n=24, men n=14.

Patient	sex	age	dab	mtp	dmf	ratm	mcr	dot	dcp	tcp	arm	tda
1	F	17						X	X			
2	F	18										
3	F	18					X	X	X			
4	F	19				X						
5	F	19					X					
6	F	19	X	X		X						
7	F	20					X	X	X			
8	F	20										
9	F	20	X	X	X	X	X	X	X			
10	F	20										
11	F	20			X	X	X	X	X		X	
12	F	20	X				X					
13	F	20	X	X	X	X	X	X	X			
14	F	20			X	X	X	X	X		X	
15	F	21							X			
16	F	21				X	X					
17	F	22				X	X				X	
18	F	22				X			X			
19	F	22										
20	F	22	X									
21	F	23	X	X		X	X		X			
22	F	23				X						
23	F	25					X	X	X	X		
24	F	34				X	X	X	X			
		average 21a	6	4	4	12	13	9	12	1	3	0
1	M	18									X	
2	M	18										
3	M	18		X								
4	M	19				X			X			
5	M	20										
6	M	20										
7	M	21					X					
8	M	22										
9	M	22				X						
10	M	23				X						X
11	M	24					X				X	
12	M	24							X			
13	M	25										
14	M	33				X						
		average 20,6 a	0	1	1	4	2	0	2	0	2	1

Table 1: Responses to the AAOP anamnestic questionnaire from dental students, allowing an assessment of the most frequent complaints and comparing their distribution according to gender: dab(pain when opening mouth), mtp (jaw locked or stuck), dmf (pain when chewing or speaking), ratm (TMJ noises), mcr (tired or stiff jaw), dot (ear and temporal pain), dcp (head or neck pain), tcp (head or jaw trauma), arm (recent change in bite), tda (treatment for TMJ pain).

ff jaw, headache or neck pain, recent change in bite 14.28% (n=2), locked jaw, pain when chewing and treatment for TMJ pain 7.14% (n=1) while pain when opening the mouth, pain in the ear or temple region and trauma to the head or jaw region were not recorded 0%, (Table 1 and graph 2).

In the literature review, all the studies point to a high prevalence of TMD, ranging from 21.72% to 67.5%, with female patients being the most affected group. Emotional factors such as anxiety and stress are related to the etiology of TMD, its development or worsening^{(2),13} which justifies the higher prevalence of TMD symptoms among academics. Another etiological factor is the association between TMD and parafunctional habits or dental conditions, such as bruxism and malocclusion.^{4,11}

Some studies^{3,15} have focused on TMD in dental students, while other studies have addressed different university courses^{2,13}.

In terms of assessment instruments, clinical examinations³ and anamnestic questionnaires^{2,15} with or without an association with the State-Trait Anxiety Inventory (IDATE) were used. In the present study, the AAOP questionnaire was used. This methodological variation may explain the differences in prevalence rates observed.

The severity of symptoms also varies between studies^(8,15), with a higher prevalence of mild TMD⁸ (42.2%) being reported, with a distinction being made between painful and non-painful TMD¹⁵.

As for the occurrence of TMD in dental students, those with malocclusion had a higher prevalence⁴. This study assessed the frequency of symptoms without relating their occurrence to possible etiological agents. However, the literature^{2,5,9,10,11} associates the emotional burden derived from academic commitments as a stress factor potentially capable of triggering symptoms.

FINAL CONSIDERATIONS

The multifactorial origin of TMD is well established in the literature, being related to emotional stress, malocclusion and parafunctional habits. While its prevalence varies between 40% and 75% in the population.

Among the students, the prevalence of TMD among men was 1.82% and among women 15.36%. The complaint most frequently reported by women was that their jaws were stiff, tight or tired on a regular basis. In men, the most frequent complaint was the presence of noise in the jaw joint. The relationship between the prevalence of TMD and gender was not statistically significant, but it is necessary to increase the sample number to confirm this hypothesis. However, the age variable proved to be statistically significant, with a higher prevalence of symptoms among the younger population; nevertheless, it is also necessary to expand the sample in order to provide greater statistical support for the study.

ACKNOWLEDGMENTS

My immense thanks go to my advisor, Professor Manuel da Fonseca Rodrigues, for all his support, dedication and guidance throughout the development of this work. His contributions were essential to the success of this research, and his patience and availability were fundamental at every stage of the process. I would also like to thank the Centro Universitário Integrado for giving us the valuable opportunity to take part in Simpar, an enriching experience that broadened our academic and professional horizons, making a significant contribution to our training.

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