

## TEMPOROMANDIBULAR DISORDERS: IMPACT ON QUALITY OF LIFE AND SLEEP IN DENTISTRY STUDENTS

### DISFUNÇÃO TEMPOROMANDIBULAR: IMPACTO NA QUALIDADE DE VIDA E DO SONO EM ESTUDANTES DE ODONTOLOGIA

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**Abstract.** Temporomandibular disorder (TMD) has a significant impact on individuals' quality of life, leading to functional limitations and, consequently, psychosocial issues. In this context, self-perception of oral health-related quality of life (OHRQoL) becomes crucial in understanding the limitations and suffering of individuals affected by these conditions. This cross-sectional study, with both quantitative and qualitative approaches, evaluated how temporomandibular disorder negatively affects the OHRQoL and sleep quality of dentistry students at Faculdades de Enfermagem Nova Esperança (FACENE). The sample consisted of 66 students, assessed through three questionnaires: initially, the presence and severity of TMD were determined using Fonseca's Anamnestic Index (FAI); the abbreviated version of the OHIP-14 questionnaire was used to assess OHRQoL, and the Pittsburgh Sleep Quality Index (PSQI) was applied to analyze sleep quality. Data were processed using the SPSS software version 28 (Statistical Package for the Social Sciences) and analyzed through the chi-square test. It was identified that 65.1% of participants had at least some degree of TMD, with 34.8% (n=23) classified as mild, 25.8% (n=17) as moderate, and 4.5% (n=3) as severe, while 34.8% showed no symptoms of TMD. Results from the OHIP-14 questionnaire indicated the greatest impact on quality of life in the domains related to psychological discomfort (1.23), physical pain (1.14), and psychological disability (1.0). Regarding sleep quality, among students with moderate or severe TMD, 25% had good sleep quality, 42% had poor sleep quality, and 33% experienced sleep disturbances. These findings demonstrate that TMD has a negative impact on the quality of life and sleep of dentistry students.

**Keywords:** Quality of life; temporomandibular joint disorders; facial pain; sleep quality.

**Resumo.** A disfunção temporomandibular (DTM) causa grande impacto na qualidade de vida das pessoas, provocando limitações e, conseqüentemente, problemas psicossociais. Nesse contexto, a autopercepção da qualidade de vida relacionada à saúde bucal (QVRSB) torna-se de suma importância na busca por compreender as limitações e o sofrimento dos indivíduos com essas alterações. Este estudo, do tipo transversal, com abordagem quantitativa e qualitativa, avaliou como a disfunção temporomandibular reflete negativamente na QVRSB e na qualidade do sono dos alunos do curso de Odontologia das Faculdades de Enfermagem Nova Esperança (FACENE). A amostra foi constituída por 66 estudantes, avaliados a partir da aplicação de três questionários: inicialmente, para verificar a presença de DTM e o grau de severidade por meio do questionário anamnésico de Fonseca (FAI); a versão resumida do questionário OHIP-14, que avaliou a QVRSB; e o questionário de Pittsburgh, aplicado para analisar a qualidade do sono. Os dados foram processados com o auxílio do software estatístico SPSS versão 28 (Statistical Package for the Social Sciences) e analisados por meio do teste qui-quadrado. Foi identificado que 65,1% dos participantes apresentavam algum grau de DTM, sendo 34,8% (n=23) com DTM leve, 25,8% (n=17) moderada e 4,5% (n=3) severa, enquanto 34,8% não apresentaram nenhuma sintomatologia de DTM. Os resultados obtidos a partir do OHIP-14 apresentaram maior impacto na qualidade de vida nos domínios relacionados ao desconforto psicológico (1,23), à dor física (1,14) e à incapacidade psicológica (1,0). Quanto à avaliação da qualidade do sono, entre os estudantes com DTM moderada ou grave, 25% apresentaram boa qualidade de sono, 42% qualidade de sono ruim e 33% apresentaram distúrbios do sono. Os achados mostram que existe um impacto negativo da DTM na qualidade de vida e na qualidade do sono dos estudantes de Odontologia.

**Palavras-chave:** Qualidade de vida; transtornos da articulação temporomandibular; dor facial; qualidade do sono.

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## INTRODUCTION

Temporomandibular disorders (TMD) comprise a group of conditions affecting the masticatory system, including the masticatory muscles, the temporomandibular joint (TMJ), and associated structures<sup>1</sup>. These disorders are characterized by a variety of clinical signs and symptoms, most commonly orofacial pain, headache, limited mandibular movement, tinnitus, and periauricular pain. Among these manifestations, pain is typically the predominant complaint and represents the primary reason patients seek clinical care<sup>2</sup>.

TMD is widely recognized as a multifactorial condition, involving a complex interaction of biological, behavioral, and psychosocial factors. Consequently, a comprehensive clinical assessment, including detailed patient history and examination, is essential for accurate diagnosis. Previous studies have demonstrated a significant association between TMD symptoms and psychosocial factors such as stress, anxiety, and depression, which may contribute to increased muscle activity and the development of parafunctional behaviors. These behaviors may, in turn, lead to muscular overload, microtrauma, and dysfunction of the temporomandibular joint<sup>3</sup>.

Currently, the diagnosis of TMD often involves a combination of clinical examination, patient-reported questionnaires, and imaging techniques, including radiography, computed tomography, and magnetic resonance imaging. Despite these resources, diagnostic interpretation may still rely on the clinician's judgment, which can introduce a degree of subjectivity in the diagnostic process<sup>4</sup>.

To improve diagnostic standardization, several instruments have been developed and widely adopted in dental research and clinical practice. The Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) was originally designed as a standardized diagnostic tool for both research and clinical settings. However, due to the need for a more practical and efficient diagnostic system, it was later revised and replaced by the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD), which is currently considered the gold standard for TMD diagnosis. Additionally, screening instruments such as the Fonseca Anamnestic Index (FAI) are frequently used to assess the severity of TMD based on reported signs and symptoms<sup>5</sup>.

In recent years, increasing attention has been given to the impact of oral conditions on oral health-related quality of life (OHRQoL). Since oral health plays a crucial role in overall well-being, several instruments have been developed to assess how oral disorders impact individuals' daily activities, emotional well-being, and social functioning<sup>1</sup>.

Among these instruments, the Oral Health Impact Profile (OHIP) is one of the most widely used tools. Its short-form version, the OHIP-14, validated for Portuguese, provides a comprehensive assessment of functional limitations and psychosocial impacts related to oral health conditions<sup>6,7</sup>.

The literature also reports a higher prevalence of TMD among women, suggesting possible biological and psychosocial influences. Studies conducted with female populations diagnosed with TMD have demonstrated a significant negative impact on quality of life when compared with individuals without the disorder. These patients often present greater cervical mobility limitations, increased sensitivity in masticatory muscles, and higher levels of stress and depression<sup>3</sup>.

In addition to quality of life, sleep quality has emerged as an important factor associated with TMD. Patients affected by these disorders frequently report sleep disturbances, which may exacerbate pain perception and functional impairment. Some studies even suggest that TMD may contribute to the development of sleep disorders<sup>1,7</sup>.

To assess sleep quality, standardized instruments such as the Pittsburgh Sleep Quality Index (PSQI) are commonly used. This questionnaire evaluates sleep quality and identifies potential sleep dysfunction patterns over a one-month period, providing both qualitative and quantitative information<sup>8</sup>.

University students represent a population particularly vulnerable to psychological stress, especially during demanding periods of academic training. Dental education is associated with high levels of academic pressure, clinical responsibility, and expectations related to professional performance. These factors may contribute to increased levels of anxiety, stress, and depression, which have been described as potential etiological contributors to TMD<sup>5</sup>.

Psychological stress can influence muscle function through neuroendocrine mechanisms. Emotional stress activates the hypothalamic–pituitary–adrenal (HPA) axis, which prepares the body to respond to stressful stimuli by increasing physiological activity, including muscular contraction. This process may lead to sustained muscle activity, increased muscle tension, and greater susceptibility to pain<sup>9</sup>.

Studies investigating anxiety levels among dental students have identified mild to moderate TMD symptoms in this population, particularly among students in the early semesters and those in the final stages of their academic training. These findings highlight the relevance of psychosocial factors in the development and maintenance of TMD<sup>10</sup>.

Furthermore, research examining the relationship between psychological factors and TMD has demonstrated that interventions targeting psychological components may be as effective as clinical interventions, with depression frequently cited as one of the most relevant psychological factors associated with the disorders<sup>6</sup>. Therefore, the present study aimed to analyze the impact of temporomandibular disorders on quality of life, using the Oral Health Impact Profile (OHIP-14), and to investigate patterns of sleep dysfunction using the Pittsburgh Sleep Quality Index (PSQI) among dental students at the Faculdade de Enfermagem Nova Esperança (FACENE). Additionally, the study sought to identify emotional profiles that may contribute to the development of TMD, with the objective of supporting the development of preventive and therapeutic strategies targeting potential etiological factors involved in this condition.

## MATERIALS AND METHODS

### *Study Design and Participants*

This cross-sectional study adopted a quantitative and qualitative approach and was conducted among dental students enrolled at Faculdade de Enfermagem Nova Esperança (FACENE), Brazil. Data were collected through electronically distributed questionnaires. A total of 66 students agreed to participate and provided written informed consent. Participants were initially screened using the Fonseca Anamnestic Index (FAI). Students classified as having no TMD or mild TMD according to the FAI were excluded from the study. After this screening process, 20 participants remained eligible; however, only 12 students completed all subsequent questionnaires and were included in the final sample (Appendix A).

The study followed the ethical standards established by Resolution No. 466/12 of the Brazilian National Health Council. The research protocol was reviewed and approved by the Research Ethics Committee of Faculdade de Enfermagem Nova Esperança under approval number CAAE 61253922.3.0000.5179.

### *Data Collection*

Data collection was performed in two stages using online questionnaires distributed to dental students at FACENE. Initially, the Fonseca Anamnestic Index (FAI) was administered as a screening tool for TMD.

Subsequently, only students classified as presenting moderate or severe TMD were invited to complete two additional questionnaires: the Pittsburgh Sleep Quality Index (PSQI) and the Oral Health Impact Profile (OHIP-14).

### *Assessment of Temporomandibular Disorders*

#### Fonseca Anamnestic Index (FAI)

The FAI comprises 10 questions addressing symptoms associated with temporomandibular disorders, including difficulties in mandibular movement, orofacial pain, temporomandibular joint clicking, parafunctional habits, perceived malocclusion, and emotional stress.

Each question has three response options: “yes” (10 points), “sometimes” (5 points), and “no” (0 points). The total score is calculated by summing the responses, and participants are classified into four categories: No TMD: 0–15 points, Mild TMD: 20–40 points, Moderate TMD: 45–65 points, Severe TMD: 70–100 points (Appendix A).

### *Assessment of Sleep Quality*

#### Pittsburgh Sleep Quality Index (PSQI)

Sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI), which assesses sleep patterns over a one-month period. The questionnaire includes 19 self-rated items and five additional items intended for completion by a bed partner or roommate; the latter are used only for clinical observation and are not included in the scoring.

The PSQI evaluates sleep quality across seven domains: Subjective sleep quality, Sleep latency, Sleep duration, Habitual sleep efficiency, Sleep disturbances, Use of sleep medication, Daytime dysfunction. The scores of these seven components are summed to generate a global score ranging from 0 to 21, with higher scores indicating poorer sleep quality (Appendix B).

### *Assessment of Oral Health–Related Quality of Life*

#### Oral Health Impact Profile (OHIP-14)

Oral health–related quality of life was assessed using the Oral Health Impact Profile – short form (OHIP-14). This instrument evaluates how oral health conditions affect individuals’ daily functioning and well-being. In the present study, the instrument was used to assess the impact of temporomandibular disorders on participants’ quality of life.

The Brazilian Portuguese validated version of the OHIP-14 consists of 14 questions distributed across seven conceptual domains: Functional limitation, Physical pain, Psychological discomfort, Physical disability, Psychological disability, Social disability, Handicap. Responses are recorded on a five-point Likert scale: Never = 0, Rarely = 1, Sometimes = 2, Often = 3, Always = 4. Participants were considered to present an impact on oral health–related quality of life if they responded “sometimes,” “often,” or “always” to at least one OHIP-14 item (Appendix C).

### *Statistical Analysis*

Data obtained from the PSQI and OHIP-14 questionnaires were organized and analyzed using IBM SPSS Statistics version 28 (Statistical Package for the Social Sciences). Descriptive statistics were used to characterize the sample. The items from the Fonseca Anamnestic Index were analyzed using the chi-square test, adopting a significance level of 5%. Data normality was assessed using the Shapiro–Wilk test. The results were presented through tables and graphical representations, and statistical significance was set at  $p < 0.05$ .

## **RESULTS AND DISCUSSION**

In the present study, 66 students were evaluated. Among the participants presenting symptoms of temporomandibular disorders, 75.7% were female, whereas 24.2% were male, with a mean age ranging from 20 to 25 years.

### **PREVALENCE OF TMD ACCORDING TO THE FONSECA ANAMNESTIC INDEX**

The initial screening using the Fonseca Anamnestic Index (FAI) demonstrated that 65.1% of the participants presented some degree of TMD (Table 1). Among these individuals, 34.8% ( $n = 23$ ) were classified as having mild TMD, 25.8% ( $n = 17$ ) as moderate TMD, and 4.5% ( $n = 3$ ) as severe TMD. Interestingly, the proportion of participants classified as without TMD (34.8%) was identical to the proportion classified with mild TMD (34.8%). Furthermore, TMD symptoms were less prevalent among male participants. Of the 16 male students included in the sample, 10 reported no symptoms related to TMD.

**TABLE 1.** Occurrence of temporomandibular disorder among the interviewed students, determined using the Fonseca Anamnestic Index (FAI).

	Frequency	Percentage(%)
<b>No DTM</b>	23	34,8
<b>Mild</b>	23	34,8
<b>Moderate</b>	17	25,8
<b>Severe</b>	3	4,5
	66	100

Table 2 presents the descriptive statistics of the first five items of the FAI questionnaire. The items related to difficulty opening the mouth and difficulty moving the mandible did not demonstrate statistically significant relevance when comparing individuals without TMD and those with TMD.

However, other symptoms were considerably more prevalent among individuals with TMD. In particular, muscle fatigue or pain during mastication, frequent headaches, and neck pain were commonly reported. These symptoms were observed in 39.3%, 57.5%, and 59% of participants with TMD, respectively, suggesting that these manifestations are strongly associated with the presence of the disorder.

**TABLE 2.** Relationship between the occurrence of temporomandibular disorder and the prevalence of symptoms according to the Fonseca Anamnestic Index (FAI).

Occurrence of TMD	Questionnaire response			p
	Sometimes	No	Yes	
	<b>Difficulty opening your mouth?</b>			<0,001
<b>No TMD N (%)</b>	0	23(34,8)	0	
<b>Mild N (%)</b>	1(1,5)	21(31,8)	1(1,5)	
<b>Moderate N (%)</b>	8(12,1)	8(12,1)	1(1,5)	
<b>Severe N (%)</b>	2(3,0)	0	1(1,5)	
	11(16,6)	52(78,7)	3(4,5)	
	<b>Do you have difficulty moving your jaw?</b>			<0,001
<b>No TMD N (%)</b>	0	23(34,8)	0	
<b>Mild N (%)</b>	0	23(34,8)	0	
<b>Moderate N (%)</b>	5(7,57)	12(18,18)	0	
<b>Severe N (%)</b>	0	1(1,5)	2(3,0)	
	5(7,57)	59(89,39)	2(3,0)	

<b>Do you feel muscle fatigue or pain when chewing?</b>				
<b>No TMD N (%)</b>	2(3,0)	21(31,8)	0	
<b>Mild N (%)</b>	10(15,1)	13(19,6)	0	
<b>Moderate N (%)</b>	10(15,1)	5(7,5)	2(3,0)	<0,001
<b>Severe N (%)</b>	0	1(1,5)	2(3,0)	
	22(33,3)	40(60,6)	4(6,0)	
<b>Do you have frequent headaches?</b>				
<b>No TMD N (%)</b>	3(4,5)	19(28,7)	1(1,5)	
<b>Mild N (%)</b>	9(13,6)	9(13,6)	5(7,5)	
<b>Moderate N (%)</b>	7(10,6)	0	10(15,1)	<0,001
<b>Severe N (%)</b>	1(1,5)	0	2(3,03)	
	20(30,3)	28(42,4)	18(27,2)	
<b>Do you have pain in the back of your neck or a stiff neck?</b>				
<b>No TMD</b>	3(4,5)	19(28,7)	1(1,5)	
<b>Mild</b>	10(15,1)	7(10,6)	6(9,0)	
<b>Moderate</b>	12(18,1)	1(1,5)	4(6,0)	
<b>Severe</b>	2(3,0)	0	1(1,5)	
	27(40,9)	27(40,9)	12(18,1)	

Chi-square test. \* Fisher's Exact Test. Statistically significant at  $p < 0.05$ .

Table 3 presents the analysis of the remaining five FAI items. A notable finding was the considerable frequency of temporomandibular joint noises, even among individuals classified as not presenting TMD. Additionally, a substantial prevalence of parafunctional habits was observed, affecting 57.5% of the participants. Psychological factors were also highly prevalent in the sample. The item related to nervousness or emotional tension presented the highest frequency among all questionnaire items, affecting 81.7% of participants, of whom 63.4% were classified as having TMD.

**TABLE 3.** Relationship between the occurrence of temporomandibular disorders and the prevalence of symptoms according to the Fonseca Anamnestic Index (FAI).

<b>Occurrence of TMD</b>	<b>Questionnaire response</b>			<b>p</b>
	<b>Sometimes</b>	<b>No</b>	<b>Yes</b>	
<b>Do you have ear pain or pain in the temporomandibular joints?</b>				
<b>No TMD N (%)</b>	1(1,5)	22(33,3)	0	
<b>Mild N (%)</b>	4(6,0)	19(28,7)	0	
<b>Moderate N (%)</b>	8(12,1)	5(7,57)	4(6,0)	<0,001
<b>Severe N (%)</b>	1(1,5)	0	2(3,03)	
	14(21,2)	46(69,6)	6(9,1)	
<b>Do you notice joint noises in the temporomandibular joints when chewing or opening your mouth?</b>				
<b>No DTM N (%)</b>	6(9,1)	16(24,2)	1(1,5)	
<b>Mild N (%)</b>	6(9,1)	12(18,1)	5(7,5)	
<b>Moderate N (%)</b>	8(12,1)	1(1,5)	8(12,1)	<0,001
<b>Severe N (%)</b>	0	0	3(4,5)	
	20(30,3)	29(43,9)	17(25,7)	

<b>Do you clench or grind your teeth?</b>				
<b>No TMD N (%)</b>	6(9,1)	15(22,7)	2(3,0)	
<b>Mild N (%)</b>	9(13,6)	9(13,6)	5(7,5)	
<b>Moderate N (%)</b>	3(4,54)	4(6,0)	10(15,1)	<0,001
<b>Severe N (%)</b>	0	0	3(4,5)	
	18(27,2)	28(42,4)	20(30,3)	
<b>Do you feel that your teeth do not occlude properly?</b>				
<b>No TMD N (%)</b>	2(3,0)	21(31,8)	0	
<b>Mild N (%)</b>	4(6,0)	19(28,7)	0	
<b>Moderate N (%)</b>	0	13(19,6)	41(62,1)	0,008
<b>Severe N (%)</b>	1(1,5)	1(1,5)	1(1,5)	
	7(10,6)	54(81,8)	5(7,5)	
<b>Do you consider yourself a tense or nervous person?</b>				
<b>No TMD N (%)</b>	10(15,1)	11(16,6)	2(3,0)	
<b>Mild N (%)</b>	16(24,2)	1(1,5)	6(9,1)	
<b>Moderate N (%)</b>	4(6,0)	0	13(19,6)	<0,001
<b>Severe N (%)</b>	1(1,5)	0	2(3,0)	
	31(46,9)	12(18,1)	23(34,8)	

Chi-square test. \* Fisher's Exact Test. Statistically significant at  $p < 0.05$ .

The present study identified a higher prevalence of TMD among female participants (75.7%), which is consistent with findings reported in the literature. Previous studies have demonstrated that TMD is more frequent among women, particularly during their reproductive years, suggesting a possible association with hormonal influences<sup>3, 12</sup>.

The FAI was used as a screening tool in this study due to its simplicity, low cost, and efficiency in epidemiological assessments. This instrument has been widely employed for identifying the presence and severity of TMD in population-based studies. It should be noted that the classification of TMD severity in this instrument is based on self-reported symptoms provided by the participants<sup>5, 13</sup>.

The results of the present investigation demonstrated significant associations between TMD and several clinical manifestations, including temporomandibular joint noises, parafunctional habits, headaches, neck pain, and emotional tension. These findings suggest that such symptoms may represent potential risk indicators for the development or progression of TMD.

#### ORAL HEALTH-RELATED QUALITY OF LIFE

The assessment of oral health-related quality of life was performed using the Oral Health Impact Profile – 14 (OHIP-14) questionnaire. All participants who completed this instrument had previously been classified as presenting moderate or severe TMD. Consequently, all respondents reported experiencing impacts on at least one OHIP-14 item, selecting the response options “sometimes,” “often,” or “always.” These responses indicate that a considerable portion of the sample perceived a negative impact of TMD on their quality of life.

The OHIP-14 questionnaire evaluates seven conceptual domains. Statistical analysis revealed higher scores in three domains: physical pain, psychological discomfort and psychological disability.

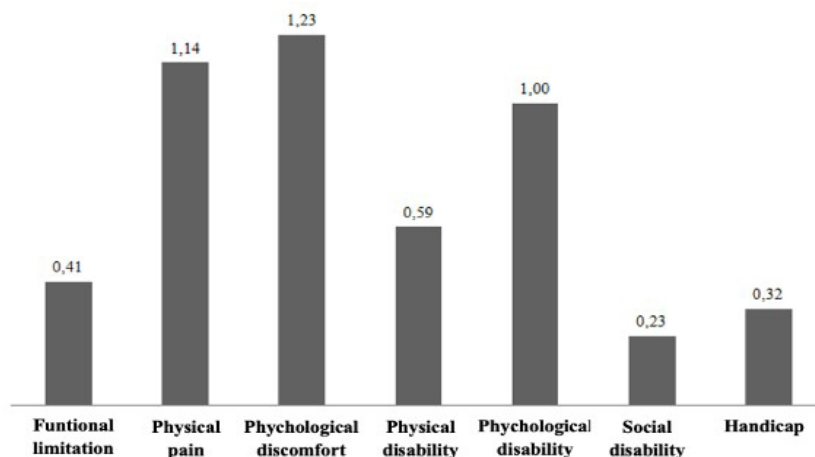
In contrast, the domains social handicap, social disability, and functional limitation presented comparatively lower scores, suggesting a less pronounced impact on these aspects of oral health-related quality of life (Figure 1).

Numerous studies have demonstrated a significant association between psychological conditions, such as anxiety and depression, and the presence of TMD symptoms<sup>3, 5, 6, 11</sup>. In the present study, the domains presenting the highest scores were related to psychological discomfort (1.23) and psychological disability (1.0), which corroborates previous findings.

Consistent with these results, the FAI item associated with emotional tension and nervousness showed a prevalence of 81.7%, reinforcing the potential role of psychological stress as a contributing factor in the development and progression of TMD.

Psychological factors may also influence the onset of parafunctional habits, such as teeth clenching or grinding, which can lead to increased muscular activity and overload of the temporomandibular joint. Over time, this process may contribute to structural and functional alterations in the temporomandibular system<sup>3, 5</sup>.

Additionally, pain-related symptoms were particularly relevant in this sample. The domains physical pain (1.14) and physical disability (0.59) demonstrated notable scores, indicating a significant impact on participants' quality of life. Previous studies investigating pain sensitivity in TMD patients have reported increased tenderness in masticatory and cervical muscles, including the sternocleidomastoid muscle. Furthermore, individuals with chronic TMD pain may exhibit heightened sensitivity in other craniofacial regions and even in remote peripheral areas, which may be related to central sensitization mechanisms<sup>14</sup>.



**FIGURE 1.** Distribution of the items that compose the Oral Health Impact Profile-14 among cases of moderate to severe Temporomandibular Disorders explored in the study (N = 12).

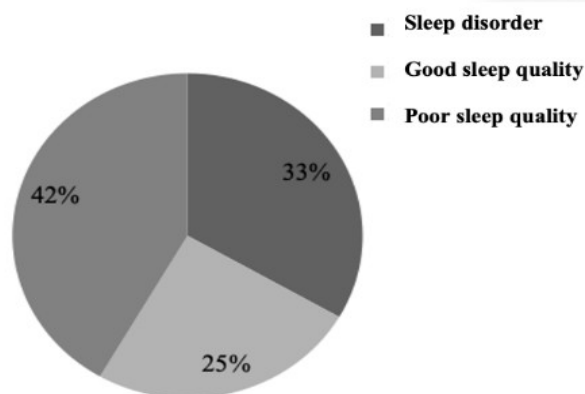
Physical and mental health are fundamental determinants of overall quality of life. Therefore, understanding oral health and disease conditions is essential for healthcare professionals, as disorders affecting the oral and maxillofacial region may have a significant negative impact on quality of life<sup>5,14</sup>.

#### THE PITTSBURGH SLEEP QUALITY INDEX (PSQI).

Based on the PSQI global score, sleep quality can be classified as good, poor, or indicative of sleep disturbance. It is important to note that the definitive diagnosis of sleep disorders requires complementary examinations, such as polysomnography, which provides an objective evaluation of sleep patterns and is typically performed under the supervision of sleep medicine specialists<sup>15, 16</sup>.

Among the 12 participants with moderate or severe TMD, the distribution of sleep quality profiles was as follows: 25% presented good sleep quality, 42% presented poor sleep quality, and 33% presented sleep disturbances (Figure 2).

These findings suggest a strong association between TMD and impaired sleep quality, which is consistent with previous studies reported in the literature. Research conducted in populations with TMD has demonstrated that individuals frequently report disturbed sleep patterns and psychological distress, which may contribute to both the development and exacerbation of TMD symptoms<sup>5</sup>.



**FIGURE 2.** Percentages of sleep quality profiles observed in the study, determined from the global score of the Pittsburgh Sleep Quality Index (N = 12).

Further analysis of the PSQI domains revealed higher scores in four specific components, indicating that poorer subjective sleep quality may contribute to daytime dysfunction, ultimately affecting overall quality of life (Figure 3). Additionally, difficulties in initiating sleep were reflected in elevated sleep latency scores. Conversely, the domain related to habitual sleep efficiency presented lower scores, suggesting that the duration of sleep after sleep onset was not considered substantially impaired in this sample.

The high proportion of students classified as presenting poor sleep quality may also lead to increased use of sleep medication, which showed scores comparable to those related to sleep duration. These results reinforce the potential relationship between TMD symptoms and disturbances in sleep patterns among university students.

## CONCLUSION

The findings of the present study indicate a high prevalence of temporomandibular disorders among dental students at Faculdade de Enfermagem Nova Esperança. The results also suggest that TMD negatively impacts on oral health-related quality of life, particularly in domains associated with physical pain and psychological discomfort. Furthermore, individuals with TMD demonstrated poorer sleep quality, which may further contribute to reduced quality of life through the interaction of pain symptoms, psychological factors, and sleep disturbances. Nevertheless, studies with larger sample sizes and clinical diagnostic confirmation of TMD are necessary to strengthen these findings. Future investigations may contribute to the development of more effective preventive and therapeutic strategies, ultimately improving both quality of life and sleep quality among individuals affected by TMD.

## REFERÊNCIAS BIBLIOGRÁFICAS

1. Freitas GA. Impacto da disfunção temporomandibular na qualidade de vida relacionada à saúde bucal de adolescentes. Dissertação [Mestrado em Odontologia]. Minas Gerais. Universidade Federal de Minas Gerais; 2020.
2. Foger D, Mamani MP, Santos PS. Impact of temporomandibular disorders on quality of life. *Fisioterapia em Movimento*. 2020; 33.
3. Paulino MR, Moreira VG, Lemos GA, Silva PL, Bonan PR, Batista AU. Prevalência de sinais e sintomas de disfunção temporomandibular em estudantes pré-vestibulandos: associação de fatores emocionais, hábitos para-funcionais e impacto na qualidade de vida. *Ciência & Saúde Coletiva*. 2018; 23 (1):173-186.
4. Cunha DV. Classificação das desordens temporomandibulares com o uso do algoritmo k-nearestneighbors aplicado à dinâmica mandibular. Tese de Doutorado [Pós-Graduação em Engenharia Elétrica] - Universidade Federal de Uberlândia; 2019.
5. Natu VP, Ansari A, Yap AU, Su MH, Ali NM. Temporomandibular disorder symptoms and their association with quality of life, emotional states and sleep quality in South-East Asian youths. *Journal of oral rehabilitation*. 2018; 45: 756–763.
6. Marin R, Rolim GS, Granner KM, Moraes AB. Disfunções temporomandibulares e fatores psicológicos: uma revisão de literatura. *Psicologia em estudo*. 2022; 27.
7. Moreno BGD, Maluf SA, Marques AP, Crivello-Júnior O. Avaliação clínica e da qualidade de vida de indivíduos com disfunção temporomandibular. *Revista Brasileira de Fisioterapia*. 2009; 13 (3): 210-214.
8. Bertolazi AN, Fagondes SC, Hoff LS, Dartora EG, Miozzo IC, Barba ME et al. Validation of the brazilian-portuguese version of the pittsburgh sleep quality index. *Revista Hospital das Clínicas de Porto Alegre*. 2011; 12: 70 – 75.
9. Okeson JP. Tratamento dos Distúrbios temporomandibulares e oclusão. 8ª ed Rio de Janeiro: Guanabara Koogan Ltda; 2020.
10. Fernandes AU, Garcia AR, Zuim PR, Cunha LD, Marchiori AV. Temporomandibular joint dysfunction and anxiety in graduate dentistry. *CiencOdontol Bras*. 2007; 10 (1): 70-77.
11. Júnior GJ, Cruz JN, Ditos L, Candido LN, Caldas LF. Associação entre os sintomas da disfunção temporomandibular e sua relação com fatores psicológicos em comunidades de Cuiabá-MT. *Revista de Odontologia da universidade de São Paulo*. 2016; 29 (1): 32 – 41.
12. Guimarães IY. Índice Anamnésico de Fonseca e Avaliação da Disfunção Temporomandibular (AADOF) em pacientes atendidos no Núcleo de Diagnóstico e Tratamento das DTMs da FOA/UNESP. Trabalho de Conclusão de Curso [Graduação em Odontologia] – Araçatuba-SP. Universidade Estadual Paulista; 2016.
13. Verri FR, Garcia AR, Zuim PR, Almeida EO, Falcón-antenucc RM, et al. Avaliação da Qualidade do Sono em Grupos com Diferentes Níveis. Três Lagoas/MS. *Sistema de Informação Científica*. 2008; 8 (2): 165-169.
14. Trize DM, Calabria MP, Franzolin SO, Cunha CO, Marta SN. A disfunção temporomandibular afeta a qualidade de vida?. *Einstein*. 2018; 16 (4): 1- 6.

15. Drabovicz PV, Salles V, Drabovicz PE, Fontes MJ. Assessment of sleep quality in adolescents with temporomandibular disorders. *J Pediatr (Rio J)*. 2012;88(2):169-72.
16. Martins R.J. Relação da classe econômica e qualidade do sono na ocorrência da disfunção temporomandibular. *Revista de Odontologia da Universidade Cidade de São Paulo*. 2008; 20(2): 147-153.