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Oromyofunctional aspects and factors associated with self-perception of sleep quality in individuals with snoring complaints

Aspectos oromiofuncionais e fatores associados à autopercepção sobre a qualidade do sono em indivíduos com queixa de ronco

Aspectos oromiofuncionales y factores asociados a la autopercepción de la calidad del sueño en individuos con quejas de ronquidos

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Abstract

Introduction: Sleep is a vital and essential function for human survival and aims to promote bodily and mental repair. **Objective:** To investigate factors associated with self-perception of sleep quality, as well as possible alterations in orofacial structures and stomatognathic functions in individuals with snoring complaints. **Material and Method:** Observational, analytical and cross-sectional study, conducted with 30 adult individuals complaining of snoring during sleep, with a mean age of 45 years and 5 months. For the evaluation of orofacial myofunctional motricity, the (AMIOFE) was used. Questionnaires were

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applied to investigate the snoring and sleep quality of the participants: Berlin Questionnaire, Epworth Sleepiness Scale and Pittsburg Sleep Quality Index Questionnaire. **Results:** The Pittsburgh questionnaire results indicated sleep quality dysfunction in 66.67% of participants. Daytime sleepiness was evidenced in 33.33%, using the Epworth Scale. 60% of the participants presented high risk for obstructive sleep apnea syndrome (OSA), through the scores obtained in the Berlin questionnaire. Individuals who do not practice physical exercise and with usual tongue position on the oral floor presented higher scores in the Berlin questionnaire. There was a statistically significant and moderate positive correlation between the variables Body Mass Index (BMI) and the Berlin questionnaire scores. **Conclusion:** Individuals complaining of snoring self-reported difficulties related to sleep quality. The sleep quality difficulties self-reported were related to data on orofacial motricity, eating habits, body composition and lifestyle habits.

Keywords: Sleep; Snoring; Self-assessment; Quality of Life; Sleep Quality.

Resumo

Introdução: O sono é uma função vital e essencial para a sobrevivência humana e tem por objetivo favorecer o reparo corporal e mental. **Objetivo**: Investigar os fatores associados à autopercepção sobre a qualidade do sono, bem como possíveis alterações das estruturas orofaciais e funções estomatognáticas em indivíduos com queixa de ronco. **Material e Método:** Trata-se de estudo observacional, analítico e transversal, realizado com 30 indivíduos adultos com queixa de ronco durante o sono, com idade média de 45 anos e 5 meses. Para a avaliação de motricidade oromiofuncional foi utilizado o protocolo AMIOFE. Foram aplicados questionários para investigação do ronco e qualidade de sono dos participantes: Questionário de *Berlin,* Escala de Sonolência de *Epworth* e Questionário de qualidade de sono de *Pittsburgh*. **Resultados:** Os resultados do questionário de *Pittsburgh* indicaram disfunção na qualidade do sono em 66,67% dos participantes. A sonolência diurna foi evidenciada em 33,33%, por meio da Escala de *Epworth*. 60% dos participantes apresentaram alto risco para AOS, por meio dos escores obtidos no instrumento de *Berlin*. Indivíduos que não praticam exercício físico e com posição habitual de língua no assoalho bucal apresentaram maiores escores no questionário de *Berlin.* Houve correlação positiva estatisticamente significante e moderada entre as variáveis Índice de massa corporal (IMC) e os escores do Questionário de *Berlin.* **Conclusão:** Indivíduos com queixa de ronco apresentam dificuldades relacionadas à qualidade do sono. A autopercepção negativa de qualidade do sono teve relação com dados de motricidade orofacial, hábitos alimentares, composição corporal e hábitos de estilo de vida.

Palavras-chave: Sono; Ronco; Autoavaliação; Qualidade de Vida; Qualidade do Sono.

Resumen

Introducción: El sueño es uma función vital y essencial para la supervivência human, tien como objetivo promover la reparación corporal y mental. **Objetivo:** Investigar los factores asociados con la autopercepción de la calidad del sueño, así como posibles alteraciones en las estructuras orofaciales y funciones estomatognáticas en individuos con quejas de ronquidos. **Metodo**: Se trata de estudio observacional, analítico, transversal, realizado con 30 individuos adultos con queja de ronquidos durante el sueño y edad media de 45 años y 5 meses. Para la evaluación de la motricidad oromiofuncional se utilizó el protocolo (AMIOFE/OMES). Se aplicaron cuestionarios para investigar el ronquido y la calidad de sueño de los participantes: Cuestionario de Berlín; Escala de Somnolencia de Epworth; Cuestionario de Calidad del Sueño de Pittsburgh. **Resultados**: Los resultados del cuestionario de Pittsburgh indicaron disfunción en la calidad del sueño en 66,67%. La Escala de Epworth evidenció somnolencia diurna en 33,33%. El 60% presentaron alto riesgo de AOS, conforme las puntuaciones obtenidas en el instrumento de Berlín. Los que no practican ejercicio físico y que tienen la posición habitual de la lengua en el piso de la boca obtuvieron puntuaciones más altas en el cuestionario de Berlín. Hubo correlación positiva estadísticamente significativa y moderada entre las variables del IMC y las puntuaciones del Cuestionario de Berlín. **Conclusión**: Individuos con quejas de ronquidos refieren dificultades relacionadas con la calidad del sueño. Las dificultades estuvieron relacionadas con datos de motricidad orofacial, hábitos alimentarios, composición corporal y los hábitos de estilo de vida.

Palabras clave: Sueño; Ronquidos; Autoevaluación; Calidad de vida; Calidad de sueño.

Introduction

Sleep is essential for the maintenance of life and can be defined as the period in which the state of wakefulness is suspended, with a reduction in metabolic activities, muscle relaxation, and a decrease in sensory activities[1]. Furthermore, it has important biological functions in memory consolidation, thermoregulation and restoration of brain energy metabolism [2].

Sleep disorders can result in negative repercussions for humans, such as cognitive impairment, changes in metabolism, and psychological disorders. Poor sleep quality and insufficient sleep are factors associated with pathologies such as obesity, mental disorders, high blood pressure, and diabetes[3].

Studies on sleep-disordered breathing are essential, due to the high prevalence in the general population and the possible consequences, that can impair the individual's quality of sleep and life[4].

Obstructive sleep apnea (OSA) is a chronic and progressive disease characterized by pauses in breathing during sleep, which affects up to a third of the adult population, and with a higher prevalence in the elderly population[5]. OSA has been associated with several morbid conditions, including cardiovascular diseases, occupational problems, and automobile accidents. It is noteworthy that apnea results in a decrease in quality of life and increases morbidity and mortality [6].

Physiologically, the pharynx is a highly collapsible area along its entire length. The action of the pharyngeal dilator muscles, especially the genioglossus and tensor veli palatini muscles, counteract the tendency for the pharynx to collapse as a protective mechanism. Alterations in this mechanism are associated with the pathogenesis of obstructive sleep apnea[7].

One of the frequent symptoms of patients with OSA is snoring, which can occur at all stages of sleep, characterized as an audible noise produced by a narrowing of the oropharyngeal space, causing vibration of the soft tissues (palatine veil and uvula)[8].

The pathophysiology of snoring shows that respiratory noise during sleep can originate at any point in the airway that does not have a rigid framework. Some factors that can contribute to snoring, including hypotonia of the muscles of the palate, tongue, and pharynx, and the narrowing of the oropharyngeal space due to the presence of hypertrophied tonsils, compromise the passage of air through the airway[9].

Considering that the presence of neuromuscular alterations is part of the pathophysiology of OSA, the speech therapist is one of the professionals trained to treat obstructive sleep apnea and snoring, aiming to readjust the strength and functions of the stomatognathic system. Speech therapy in these cases consists of adapting the anatomy-morphological and anatomy-functional components of the stomatognathic system that present alterations. In addition, based on the evaluation performed, the speech therapist can recommend additional tests to provide a better quality of life for their patients[10].

Therefore, the present study aimed to investigate the factors associated with self-perception of sleep quality, as well as possible alterations in orofacial structures and stomatognathic functions in individuals complaining of snoring.

Methodology

This is an observational, analytical, and cross-sectional study. The standards established by Resolution 466/2012, of the National Health Council, regarding ethical aspects in research with human beings were respected, and the study was approved by the Ethics Committee, with opinion number 2,648,036 and CAAE: 88172618.2.0000.0106. All individuals received information regarding the content of the research and signed the Free and Informed Consent Form.

The study was conducted with adult individuals who complained of snoring during sleep. The sample was selected by convenience from the researchers' contact network, and by individuals complaining of snoring who were on the waiting list at the institution's Speech Therapy School Clinic for speech therapy care.

Adult individuals, aged 18 years or older, of both sexes, complaining of snoring were included. Adults who had health problems that could influence the results of the present study, such as neurological alterations, chronic obstructive pulmonary disease (COPD), and asthma, were excluded.

The present study included 30 individuals with complaints of snoring, 15 men and 15 women, with a mean age of 45 years and 5 months. Initially, the participants responded to a questionnaire prepared by the researchers to analyze their standard of liv-

ing containing information on body mass index, symptoms of excessive tiredness, irritability, morning headache, daytime sleepiness, and health data to investigate possible cardiovascular changes. They were also asked about the type of diet during the night, alcohol intake, physical exercise, and medication use.

Subsequently, the following questionnaires were applied to investigate the participants' snoring and sleep quality: the Berlin Questionnaire; the Epworth Sleepiness Scale, and the Pittsburgh Sleep Quality Questionnaire.

The Berlin questionnaire is one of the well-known and widely used tools for OSA screening. The questionnaire consists of a series of self-administered questions, divided into three categories: Category 1 refers to the presence of snoring, in which the partner evaluates the intensity of the snoring and its frequency; Category 2 consists of questions answered by the patient, regarding episodes of daytime sleepiness and falling asleep during daily activities; in Category 3, the presence of Systemic Arterial Hypertension (SAH) is asked, and the Body Mass Index (BMI) is calculated. The interpretation of the questionnaire recommends that the categories should be scored separately, adding one point to each positive answer in which the symptoms are frequent. Categories 1 and 2 are considered positive when they obtain a total score greater than or equal to 2. Category 3 is considered positive if the patient has hypertension or obesity (BMI greater than or equal to 30 kg/m2). All those who have two or more positive categories are classified as "high risk" for OSA[11].

The Epworth Sleepiness Scale is designed to assess a person's degree of daytime sleepiness. It is simple, self-administered, composed of 8 everyday situations in which the individual scores from 0 to 3 for their chance of dozing in different routine situations, where: 0 denoting no chance of dozing; grade 1 refers to a small chance; a grade 2 corresponds to a moderate chance; and grade 3 consists of a high probability of dozing off. It can therefore vary from 0 to 24 points, with a score above 10 suggesting the occurrence of excessive daytime sleepiness[12].

The Pittsburgh Sleep Quality Questionnaire assesses sleep quality and disturbances during the past month. It is a standardized questionnaire, simple and well-accepted by individuals. The instrument consists of 19 self-report questions and five questions directed to the spouse or room companion. The 19 questions are categorized into seven components, graded into scores from zero (no difficulty) to three (severe difficulty). The components of the questionnaire are: C1 subjective sleep quality, C2 sleep latency, C3 sleep duration, C4 habitual sleep efficiency, C5 sleep changes, C6 use of sleeping medications, and C7 daytime sleep dysfunction. The sum of the values assigned to the seven components ranges from zero to 21 in the total score of the questionnaire, indicating that the higher the number, the worse the quality of sleep. A total score greater than five indicates that the individual is experiencing major dysfunction in at least two components, or moderate dysfunction in at least three components[13].

For the evaluation of orofacial motricity, the Orofacial Myofunctional Evaluation with Scores protocol (OMES) was used[14]. This assessment was carried out through observation of habitual posture; and symmetry; the morphology, mobility, and tone of orofacial structures (tongue, lips, cheeks, teeth, hard palate, and soft palate) and the functions of the stomatognathic system of breathing, swallowing and chewing.

To analyze the Mallampati classification, the individual was asked to swallow and open their mouth, keeping their tongue relaxed. At this point, the oral cavity and what was possible to visualize the upper airway were observed, determining the classification. Visualization of the posterior pharyngeal wall, palatine tonsils, and palatine arches of the uvula (Class I); complete/partial visibility of the uvula and partial visibility of tonsils and arches (Class II); minimal visibility of the soft palate and no visualization of tonsils and pillars covered by the base of the tongue (Class III); visibility of hard palate only (Class IV)[8].

The data were tabulated and statistically analyzed. A descriptive analysis of continuous/ordinal categorical variables and an analysis of the distribution of occurrence (n and %) for nominal categorical variables were performed. The Shapiro-Wilk test was used to analyze the normality of the data. The Student's T or Mann-Whitney tests were used for the inferential analysis of the comparison between two continuous or categorical ordinal variables, depending on the normality/non-normality result of the data. In addition, Spearman's correlation test was performed to analyze the variability/dispersion of two continuous variables.

A significance level of 5% ($p<0.05$) was adopted for all analyses.

Results

Table 1 shows the characterization of the sample of individuals complaining of snoring about gender, education, medications, diabetes, hypertension, and thyroid dysfunction, among others.

Graph 1 describes the results of the evaluation of the participants' orofacial structures. Regarding the alterations, there was a predominance of the usual position of the tongue on the oral floor and an elevated dorsum of the tongue.

Table 1. Descriptive analysis of nominal qualitative variables for sample characterization in individuals with snoring complaints

Variable and categories	N	%
Sex		
Masculine	15	50.00
Feminine	15	50.00
Education		
Elementary/Middle	7	23.33
High School	9	30.00
Higher	14	46.66
Comorbidities		
No	24	80.00
Yes	6	20.00
Medications		
No	19	63.33
Yes	11	36.66
Smokes		
No	24	80.00
Yes	6	20.00
Thyroid dysfunction		
No	25	83.33
Yes	5	16.66
Systemic Arterial Hypertension		
No	22	73.33
Yes	8	26.66
Diabetes Mellitus		
No	26	86.66
Yes	4	13.33
Systemic Arterial Hypertension		
No	16	53.33
Yes	14	46.66
Most common type of feeding at night		
Snack	18	60.00
Full meal	12	40.00
Drinking alcoholic beverages before bed		
No	29	96.66
Yes	1	3.33
Sleeping position		
Lateral decubitus	23	76.66
Prone position	3	10.00
Dorsal decubitus	4	13.33
Cell phone use before bedtime		
No	8	26.66
Yes	22	73.33

Descriptive analysis.
Table of symbols: n=absolute frequency; %=percentage relative frequency

Graph 1. Descriptive analysis of nominal qualitative variables of outcomes of individuals with snoring complaints

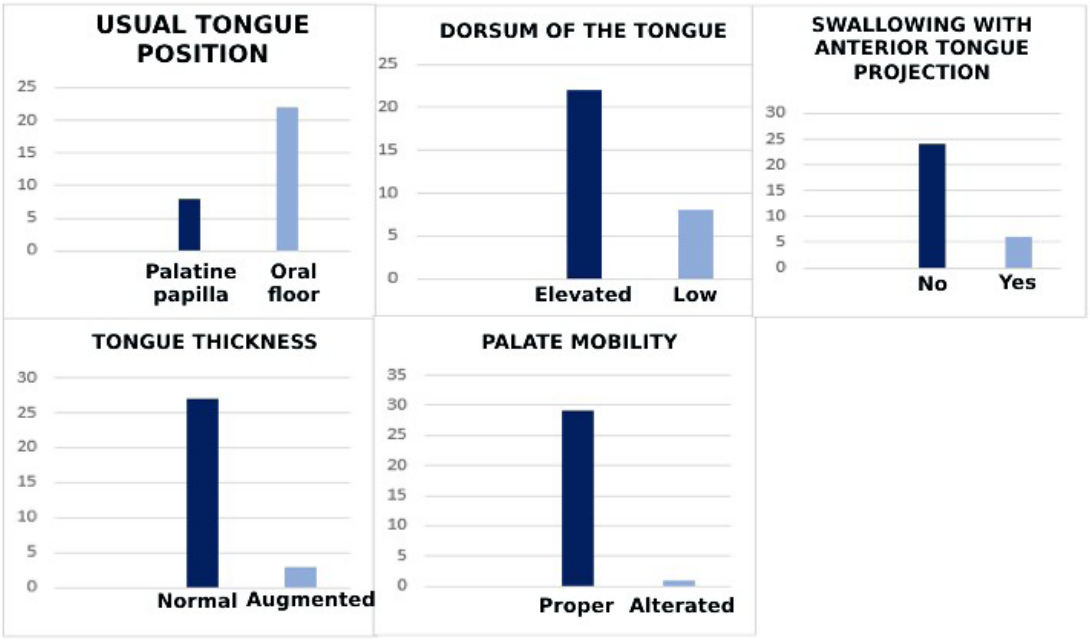

Table 2 shows the descriptive analysis of the results of the instruments used to investigate snoring and the quality of life.

Table 2. Descriptive analysis of continuous variables regarding the protocols applied in the research

Variable	Mean	Median	Minimum	Maximum	Standard Deviation
Mallampati	1.00	1.00	0.00	3.00	0.61
Pittsburg	6.00	6.00	1.00	14.00	3.15
Berlin	5.00	5.00	3.00	9.00	1.57
Epworth	9.00	9.00	0.00	17.00	4.11
BMI	27.95	27.95	19.90	39.60	4.85

The data from the instruments applied were categorized according to the form of analysis recommended by the authors. It was observed that most participants presented results compatible with dysfunction in sleep quality and high risk for OSAS.

Table 3. Results regarding sleep according to instruments classification

Variables	Categories	n	%
Sleep Quality (*Pittsburgh*)	Dysfunction (yes)	20	66.67
	Dysfunction (no)	10	33.33
Sleepiness Scale (*Epworth*)	Daytime sleepiness (yes)	10	33.33
	Daytime sleepiness (no)	20	66.67
OSA Risk (*Berlin*)	High risk (yes)	18	60
	High risk (no)	12	40

Table 4 shows the results obtained in the Self-Assessment and Mallampati classification protocols, comparing the variables gender, sports practice, diet, and alcohol intake.

Table 4. Comparison of the scores obtained from the instruments in relation to the variables of sex, physical exercise, diet and alcoholic intake, considering the total sample

Instruments	Sex	(SD) Mean	p	Physical exercise	(SD) Mean	p	Diet	(SD) Mean	p	Alcohol intake	(SD) Mean	p
*Pittsburgh***	Fem	(3.67) 7.26	0.2	Yes	(1.86) 5.57	0.12	Snack	(2.89) 7.66	0.01*	Yes	(0.00) 7.00	0.88
	Male	(2.45) 5.80		No	(3.82) 7.37		Full meal	(2.85) 4.83		No	(3.21) 6.51	
*Berlin****	Fem	(1.19) 5.00	0.86	Yes	(1.16) 4.50	0.02*	Snack	(1.35) 5.22	0.08	Yes	(0.00) 9.00	0.01*
	Male	(1.91) 5.33		No	(1.69) 5.75		Full meal	(1.88) 5.08		No	(1.42) 5.03	
*Epworth***	Fem	(4.41) 8.93	0.82	Yes	(4.22) 8.14	0.44	Snack	(4.04) 8.61	0.08	Yes	(0.00) 15.00	0.12
	Male	(3.94) 8.60		No	(4.07) 9.31		Full meal	(4.39) 9.00		No	(4.01) 8.55	

Student's T Test ** and The Mann-Whitney Test***. p<0.05*. Table of symbols: SD=standard-deviation

It is observed that individuals, considering the total sample, who reported not practicing physical exercise had higher scores on the Berlin questionnaire. In the same instrument, individuals, considering the total sample, who reported drinking alcohol, obtained higher scores. It was also possible to observe that individuals, considering the total sample, who reported having a snack at night obtained higher scores on the Pittsburgh questionnaire than individuals who reported having a full meal. Correlation data were also obtained between the values of Body Mass Index (BMI) and the scores obtained in the self-assessment protocols.

Table 5. Correlation between bmi and the scores obtained from the instruments

Instrument	BMI	
	Coefficient corr (r)	P
Mallampati	-0.18	0.32
Pittsburgh	0.02	0.9
Berlin	0.55	0.00*
Epworth	0.18	0.32

Teste de Correlação de Spearmann *p<0,05

The mean weight presented was 84.50 kg (SD: 16.14) and the mean height was 1.87 meters (SD: 14.92). There was a significant positive correlation between the variables BMI and the Berlin Questionnaire, indicating that the higher the BMI, the higher the score obtained on the instrument.

It was observed that individuals who presented a low tongue position in the oromyofunctional assessment had higher scores in the Berlin questionnaire than individuals with a habitual tongue position on the palatine papilla. Similarly, the findings of the oromyofunctional swallowing evaluation, when compared with the results of the questionnaire, also obtained statistically significant results. Subjects who presented lingual projection in the oromyofunctional evaluation obtained higher scores in the aforementioned instrument when compared to normal swallowing.

Table 6. Comparison of Mallampati classification variables, Pittsburgh questionnaire, Berlin questionnaire, Epworth scale in relation to usual tongue position

	Usual tongue position			Dorsum of the tongue			Swallowing with lingual projection		
		(Sd)Mean	P		(Sd)Mean	p Value		(Sd)Mean	P
Mallampati	Palatine papilla	(0.92)1.00	0.86	High	(0.53)1.00	0.63	No	(0.51)1.00	0.56
	Oral floor	(0.48)1.04		Low	(0.83)1.12		Yes	(0.98)1.16	
Piittsburgh	Palatine papilla	(2.13)7.37	0.38	High	(3.11)6.27	0.46	No	(3.11)6.37	0.59
	Oral floor	(3.44)6.22		Low	(3.37)7.25		Yes	(3.54)7.16	
Berlin	Palatine papilla	(0.99)4.12	0.02*	High	(1.19)4.77	0.02*	No	(1.23)4.83	0.01*
	Oral floor	(1.59)5.54		Low	(2.05)6.25		Yes	(2.16)6.50	
Epworth	Palatine papilla	(4.49)9.75	0.43	High	(4.15)8.77	0.98	No	(4.38)8.45	0.42
	Oral floor	(4.01)8.40		Low	(4.30)8.75		Yes	(2.75)10.0	

Student's T Test. p<0.05*. Table of symbols: SD=standard-deviation

Discussion

Snoring is one of the symptoms present in sleep-disordered breathing, characterized by an intense audible noise caused by a decrease in upper airway (UA) space during sleep. The narrowing of this space creates greater resistance to the passage of airflow, reducing pressure and causing vibration of the soft tissues of the pharyngeal and oral cavity[8].

Most of the participants in the study had a habitual tongue position on the oral floor. This aspect is observed in patients with OSA and complaints of snoring and may result in narrowing of the upper airway. The hypotonia of the tongue muscles, which prevents proper habitual positioning, as well as the space occupied by the tongue, when it is improperly positioned, compromises the passage of air through the airway[9].

The back, width, and height of the tongue were evaluated through perceptual analysis, using the

OMES protocol. These parameters were altered in 50% of the sample, which demonstrates that there may be a relationship between changes in orofacial structures and snoring complaints. A study[15] shows that the position of the tongue can result in obstructive sleep disorders such as apnea and snoring.

The self-perception of sleep quality, snoring symptoms, and daytime sleepiness, through questionnaires, helps to monitor aspects that may interfere with sleep and the quality of life of individuals who complain of snoring. The median values obtained using the 9-point Epworth Sleepiness Scale indicated that the participants did not self-report daytime sleepiness, since the cut-off value of the instrument is 10 points[16]. These results are confirmed when the data are categorized according to the instrument parameters, in which the majority of the sample did not demonstrate daytime sleepiness. However, it cannot be ignored that 33.33% of the patients demonstrated daytime sleepiness, a characteristic that can greatly influence the quality of life and the performance of daily activities.

Studies conducted with other populations obtained similar results regarding the relative frequency of daytime sleepiness as evidenced by the Epworth sleepiness scale. In one of them, carried out with obese patients, it was evidenced that 24.27% had daytime sleepiness[17]. In another research, developed with technical nursing students, it was shown that the prevalence of excessive daytime sleepiness was 34.7%, associating it with variables such as emotional exhaustion and depersonalization[18].

The Epworth sleepiness scale has great relevance in speech therapy clinical practice[19]. The application of this scale in practice is also useful to provide data on the clinical evolution of patients complaining of snoring during speech therapy intervention[20].

The median result obtained on the Pittsburgh Sleep Quality Questionnaire was 6 points, indicative of difficulties related to sleep quality. Scores above 5 indicate dysfunctions [21]. Regarding the global score of the Pittsburg Sleep Quality Index, in the present study, 66.7% of the participants obtained a score greater than 5, indicating impairment in subjective sleep quality. Such data corroborate the findings of another study that included participants with sleep disorders who were candidates for bariatric surgery, in which 60.7% had sleep classified as poor, according to the Pittsburgh Sleep Quality Questionnaire[22].

Finally, the results of the Berlin Questionnaire indicated that 60% of the research participants were at high risk for OSA, as they scored positively in more than two categories[11]. Similar results were obtained by a previous study, whose objective was to translate the Berlin Questionnaire into Portuguese. On that occasion, people who were referred for sleep respiratory pathology consultation due to suspected OSA participated. The authors concluded, using the Berlin questionnaire, that 68.4% of patients were at high risk for OSA[23].

In the present study, it was observed that there was no statistically significant difference in the scores obtained in the self-perception of sleep instruments concerning the variables sex, diet, and alcohol intake. Likewise, there were no differences for the variables about habitual tongue position, tongue dorsum, and swallowing with tongue projection. However, it was observed that the higher the BMI index, the higher the Berlin protocol score, corroborating the results of previous research, which showed that complaints related to snoring can be exacerbated due to weight gain[24]. Obese patients with an increased cervical circumference or those with a high body mass index (BMI > 25) who sleep in a supine position are potential candidates for OSA [25].

Regarding the practice of physical exercise, the results indicated that individuals, considering the total sample, who did not practice physical exercise obtained higher results in the Berlin protocol, which means that these patients are at risk for sleep apnea. Physical exercise presents itself as a therapeutic resource for patients with OSA, as it is a simple, low-cost alternative with systemic benefits. The main physiological adaptations suggested to explain the benefits of exercise in the treatment of OSA are the increase in the tone of the muscles responsible for maintaining airway patency, the reduction of fluid retention in the cervical region, the increase in sleep time in the slow waves (stage 3 of NREM) and reduction in body weight and systemic inflammatory response. In addition to the systemic clinical benefits provided by physical exercise, OSA patients undergoing a regular exercise program experience a reduction in the severity of the disease (reduction in AHI) and daytime sleepiness, as well as an increase in sleep efficiency[26].

Measures to change lifestyle habits such as weight loss, suspension or reduction of alcohol consumption, smoking cessation, and regular physical exercise should always be encouraged in the treatment of OSA[27].

The data obtained in the present study also indicated that people who eat a snack or ingest alcoholic beverages before bedtime had higher results in the Pittsburg and Berlin protocols. This result indicates that these patients have impaired sleep quality and are at risk for obstructive sleep apnea. The present results corroborate the findings of previous research that showed that the etiological factors of snoring and OSA can be aggravated by habits such as sleeping in the supine position, the ingestion of copious meals at night, associated with the ingestion of alcoholic beverages and/or the use of sedative medications[28]. The results regarding the practice of physical exercise obtained in this study reinforce the importance of adopting important behavioral measures that consist of healthy practices aimed at promoting continuous and efficient sleep.

It is noteworthy that the participants in the present study did not undergo the polysomnography test that allows the diagnosis of OSA. It is admitted, therefore, that this could be a limitation of the study. However, in public speech therapy services, in many circumstances, patients have great difficulties accessing the aforementioned test. Therefore, this limitation is inherent to the socioeconomic reality of the country and is in line with the clinical and research possibilities that most places and teams have.

It is suggested that further research be carried out on the theme of the present study, involving a larger number of participants and, in addition, investigating the importance of speech therapy in the area. In this way, Speech Therapy will continue to advance in knowledge regarding assessment and rehabilitation in cases of OSA and patients with snoring complaints.

Conclusion

Individuals complaining of snoring self-report difficulties related to sleep quality. Negative self-perception regarding sleep quality seems to be more frequent in subjects who do not practice physical exercise, who eat snacks at night, and who have a higher BMI.

Concerning orofacial structures and stomatognathic functions, most of the research participants presented a habitual tongue position on the oral floor and an elevated tongue dorsum.

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