Bruxism among young adults (18-30 years) in Albania. A Case Study Analysis

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KEYWORDS

Bruxism, mastication muscles, relaxing splint

ABSTRACT

Introduction: Various pathologies impact the stomatognathic apparatus and are affected by various pathologies, which affect both the dental system and the mastication muscles. A pathology with a high incidence is clenching of the teeth and jaws. The manifestation of this phenomenon is known as "Bruxism", usually linked with the stressful life that humanity is going through. The diagnosis of bruxism is made based on a previously defined protocol that includes anamnesis of disease, extra-intra oral examination, polysomnography. The bruxism can be managed following several procedures: psychological treatment through a psychologist and autosuggestion, drug treatment, and prosthetic treatment through relaxing splints.

The aim of the study is to investigate the presence of Bruxism among young adults aged 18-30 years in Albania. Material and method This study adopts a cross-sectional approach, which encompasses obtaining specific information and advantages at a certain point in time regarding the presence of bruxism and dysfunctional disorders of the TMJ system. about a total of 762 subjects of the age group 18-30 years were interviewed and have completed the questionnaire, during the period October 2022-December 2023.

Result and conclusion Out of 762 examined patients (students), approximately 32.3% were identified with bruxism. The results of the study showed that the majority of cases involved in our study, approximately 74,4% were female. The results of the study showed a statistically significant relationship between age and the presence of muscle pain (prevalence ofp=0.008, and the presence of ATM pain for subjects involved in our study (prevalence of p=0.008), as well as between age and the presence of bruxism at the subjects study (prevalence ofp=0.006).

1. Introduction

The stomatognathic apparatus is affected by various pathologies, which affect both the dental system and the mastication muscles. A pathology with a high incidence is clenching of the teeth and jaws. The appearance of such a phenomenon is known as "*Bruxism*"[1,2], which is attributed to the stressful life that humanity is going through.

Bruxism is an early phenomenon, but its symptoms are evident as a consequence of the dynamic way of life. In these cases, patience is lost to face difficulties in a peaceful way and the psyche is allowed to express itself with anger or aggression. The biggest problem of this phenomenon appears at night, when consciousness is completely lost. During this period, violent and unconscious clenching or grinding of the teeth occurs [3,4,5]. The masticatory muscles (masseter and temporal) carry out this process involuntarily and without motive. Bruxism is widespread in all ages: children, teenagers and adults [6,7]. This pathology affects men and women. Individuals have the highest percentage of bruxism between the ages of 18-30 years, an age that coincides with high laboratory and sentimental expectations. Bruxism not treated at the right time causes consequences in the dental system that are accompanied by tooth abrasion, muscle hypertrophy chewing and TMJ system accompanied by strong pains.

The diagnosis of bruxism is made based on a previously defined protocol that includes anamnesis of disease, extra-intra oral examination, polysomnography [8,9].

Of course, the bruxism may to be managed following these procedures: psychological treatment through a psychologist and autosuggestion, using the drug treatment, as well as using the prosthetic treatment through relaxing splints [8].

The purpose of the study

This study aims to investigate the presence of Bruxism among young adults aged 18-30 years in Albania.

Objectives of the study

1. To analyse the distribution of participants according to gender and age groups.
2. To investigate the prevalence of bruxism among patients and its relationship with teeth abrasion (photo No.1).

To examine the distribution of patients by the appearance of dysfunctional TMJ symptoms (pain in the joint, chewing muscles, difficulties in opening of the mouth.

2. Methodology

This study adopts a cross-sectional approach, which consists of obtaining specific information and advantages at a certain point in time regarding the presence of bruxism and dysfunctional disorders of the TMJ system. We involved 762 participants/cases of the age group 18-30 years, with all of them being interviewed and who have completed the questionnaire (Anex 1) during the period October 2022-December 2023. There are two main hypotheses driving our investigation, as follows:
Hypothesis 1: *There is a difference between male and female regarding bruxism.*

Hypothesis 2: *The presence of abrasion is related to the duration of the teeth (jaws) cracking.*

The statistical processing and analysis were carried out according to the Statistical Prevalence Standard System.

3. Resulta and Discussion

In total, there were 762 cases interviewed for a period of 15 months, using the questionnaire for both students' groups, the Medical Dentistry Faculty and "ALDENT" universities in Tirana, accordingly. The participants belonged to the age group of 17-30 years.

Table 1 illustrates the distribution of the study subjects by gender. Based on the results of the study, approximately 74.4% of patients were female and 25,6% were male.

Table 1 Distribution of the study subjects by gender

Gender	Number of participants	Percentage (%)
Female	556	74.4
Male	195	25.6

A detailed presentation of the data is presented in Graph No. 1.

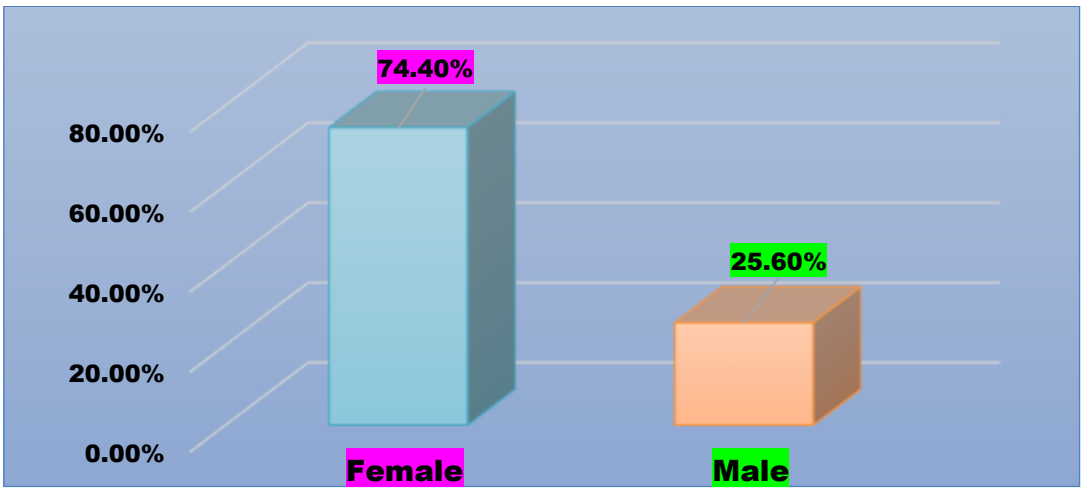


Table 2 shows the distribution of the participants involved in our study based on the presence of Bruxism. More specifically, we have identified approximately 32,3% of the participants with Bruxism, and the rest (67,7%) were not affected by bruxism.

Table 2 Distribution of the subjects involved in study based on the presence of Bruxism

Bruxism Presence	Number of participants	Percentage (%)
Yes	**246**	**32.3%**
No	**516**	**67.7%**

A detailed presentation of the data is presented in Graph No. 2.

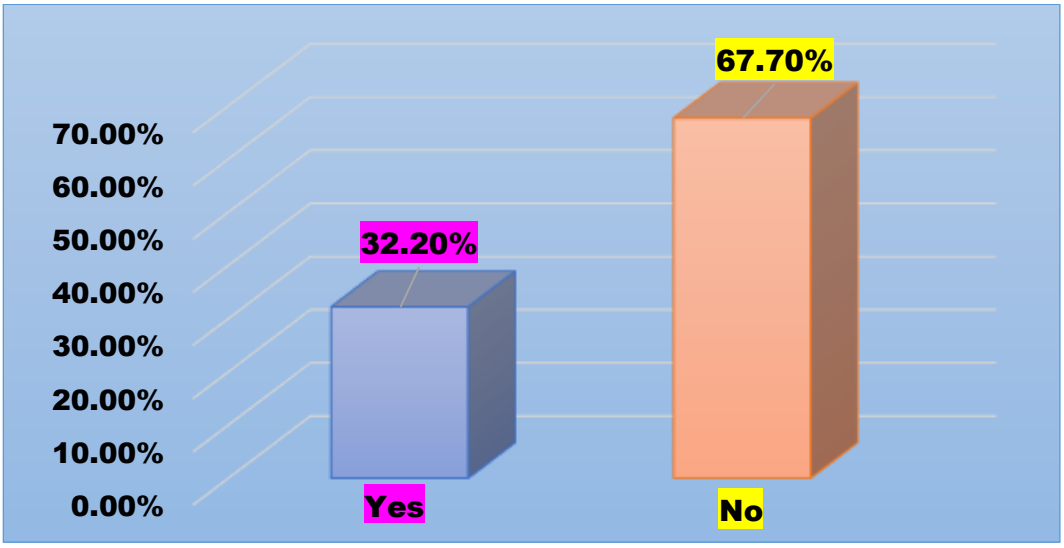


Table 3 shows the distribution of the subjects involved in study based on the presence of abrasion. More specifically, the results show that approximately 9.1% of patients were identified with teeth abrasion, whereas the rest (90.9%) were not identified, nor have declared the presence of teeth abrasion.

Table 3 Distribution of the subjects involved in our study based on the teeth abrasion

Abrasion	Number of subjects	Percentage (%)
Yes	69	9.1
No	693	90.9
No	516	67.7%

A detailed presentation of the data is presented in Graph No. 3.

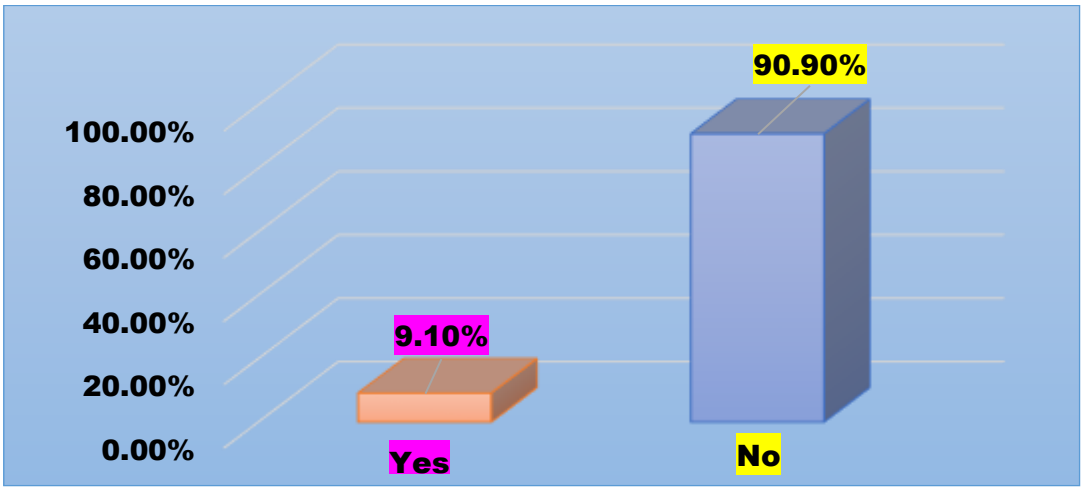


Table 4 presents the distribution of patients involved in study based on the TMJ pain presence. The results show that approximately 12.2% of patients were identified with TMJ pain presence, while87.4% of participants have not declared any TMJ pain presence, and the rest(0.4%) of the subjects have declared minor TMJ pain presence.

Table 4 Distribution of the subjects involved in our study according the TMJ pain presence

Pain in ATM	Number of participants	Percentage (%)
Yes	**93**	**12.2**

No	**666**	**87.4**
Less	**3**	**0.4**
No	516	67.7%

A detailed presentation of the data is presented in Graph No. 4.

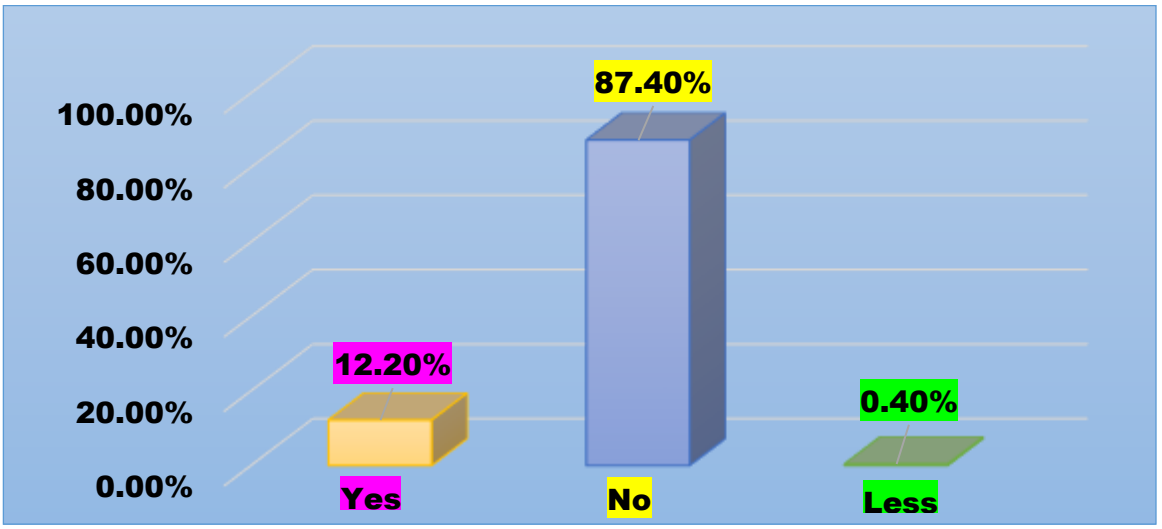


Table 5 presents the distribution of participants involved in study based on the presence of muscle pain. According to the results, approximately 10.9% of patients in the subjects reported muscle pain presence,88.8% of patients did not report any type of muscle pain, while about 0.3 % of the subjects have declared minor muscle pain presence.

Table 5 Distribution of the subjects involved in study based on the muscles pain presence

Pain in Muscles	Number of participants	Percentage (%)
Yes	**83**	**10.9**
No	**677**	**88.8**
Less	**2**	**0.3**
No	516	67.7%

A detailed presentation of the data is presented in Graph No. 5.

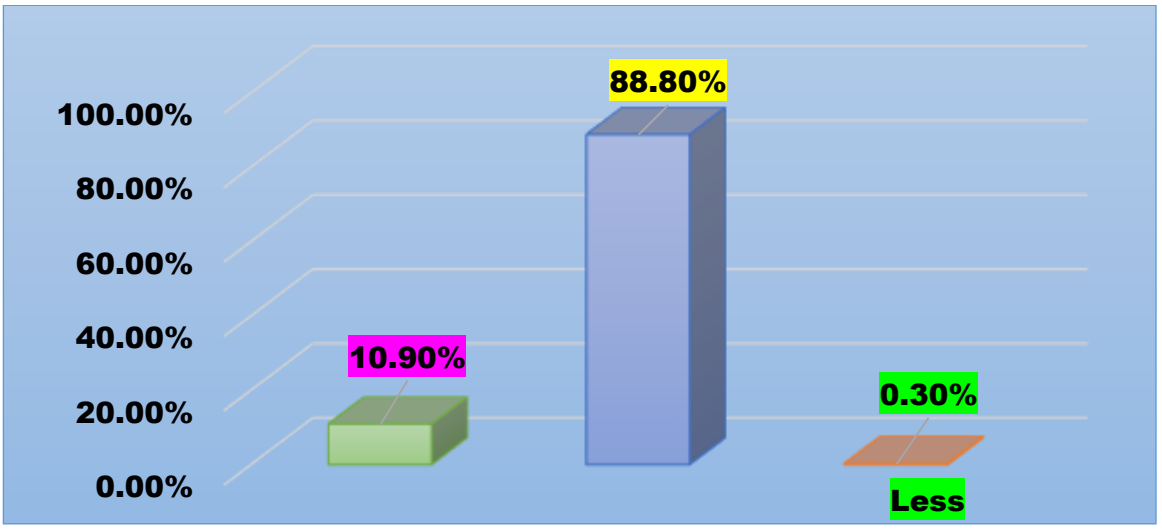


Table 6 shows the distribution of the subjects involved in study based on the difficulties in the mouth opening process. According to the study results, approximately 8.4 % of participants have reported difficulties in the mouth opening process, while the rest (91.6 %) of participants have not reported the difficulties in the opening of the mouth process.

Table 6 Distribution of the subjects involved in our study based on the difficulties in the opening of the mouth process

Difficulties in the opening of mouth	Number of participants	Percentage (%)
Yes	64	8.4
No	698	91.6
No	516	67.7%

A detailed presentation of the data is presented in Graph No. 6.

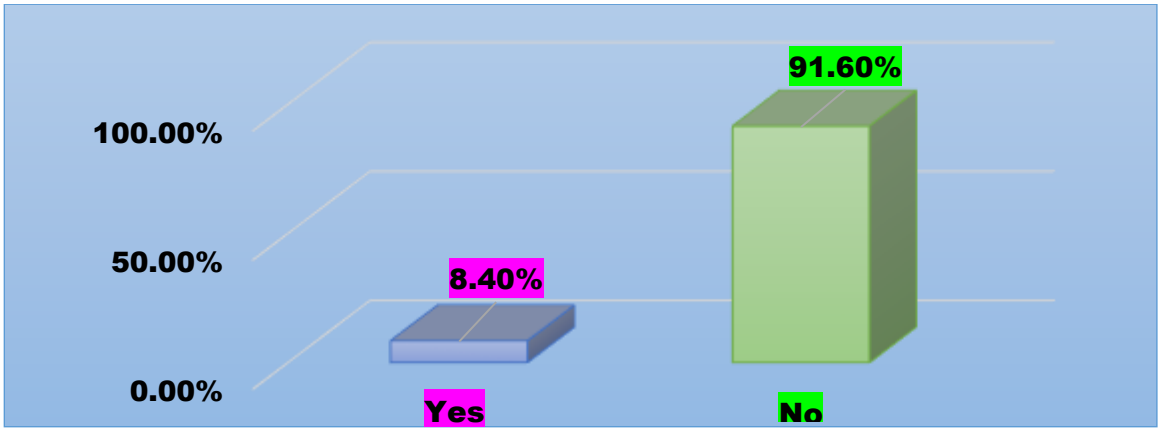


Table 7 shows the distribution of the subjects involved in study by the age-group. According to study results, approximately 96.9 % of participants belong to the 17-24 years age-group, and about 1.2 % to 25-38 years age-group, whereas 2% have not answered

Table 7 Distribution of the subjects involved in study based on the age-group

Age-Group	Number of subjects	Percentage (%)
17-24 year	738	96.9
25-38 year	9	1.2
Refusing	15	2.0
No	516	67.7%

A detailed presentation of the data is presented in Graph No. 7.

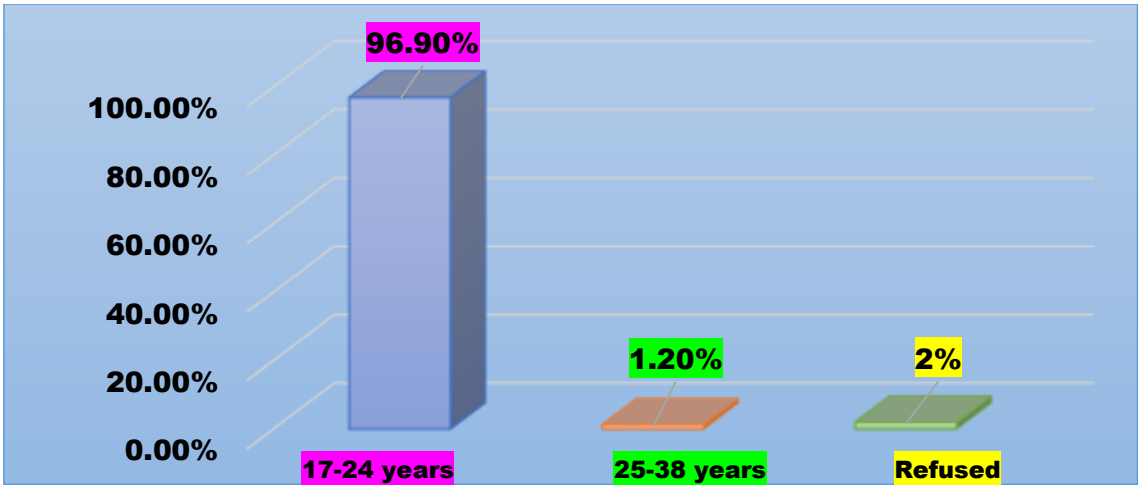


Table 8 shows the distribution of the subjects involved in study according to the teeth creaking time. By our study results, about 5.5% of the subjects involved in study (according the questionnaire - Anex 1) have declared, they have about 1-11 months creaking the teeth, about 7.7% of the subjects declared they have about 1-3 years creaking the teeth, and about 3.4% of the subjects declared they have about 3.1-6 years, as well about 2.9% of the study subjects have declared more as 6 years creaking the teeth, finally about 80.4% of the study subjects have refused to be responded.

Table 8 Distribution of the subjects involved in study based on the duration of teeth creaking

Duration of teeth creaking	Number of the subjects	Percentage (%)
1-11 months	42	5.5

1-3 years	59	7.7
3.1-6 years	26	3.4
more as 6 years	22	2.9
Refused	613	80.4
No	516	67.7%

A detailed presentation of the data is presented in Graph No. 8.

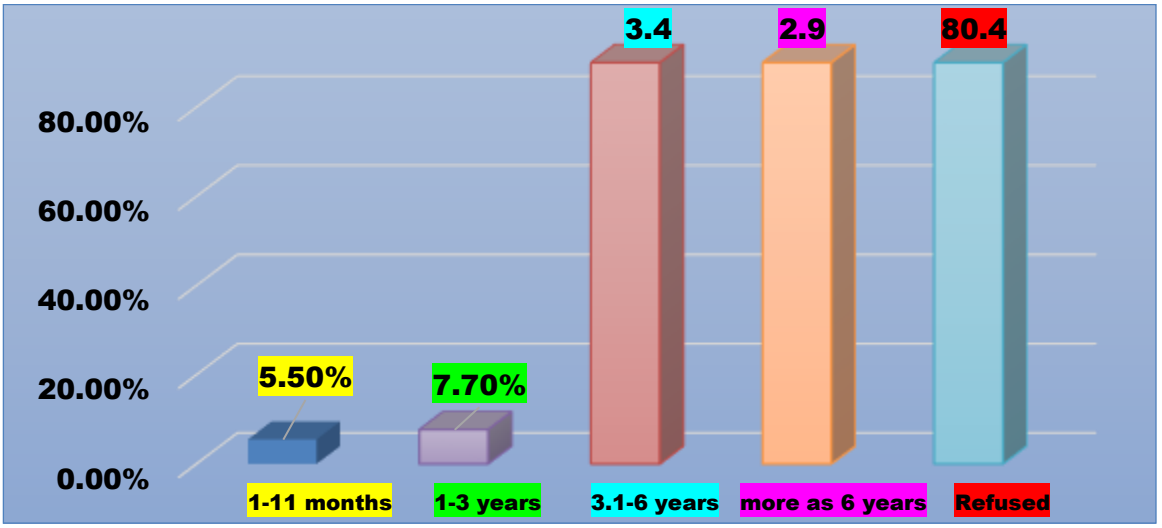


Table 9 shows the correlation between gender and the Bruxism presence of the study subjects. According to the study results, there exists an important statistical correlation because the prevalence is P = 0.590.

Table. 9. Correlation between the gender and bruxism presence in the study subjects

Variables	**Yes**	**No**	**Value of P**
Female	**186 (75.6%)**	**380 (73.8%)**	
Male	**60 (24.4%)**	**135 (26.2%)**	**P=0.590**
No	**516**	**67.7%**	

A detailed presentation of the data is presented in Graph No. 9.

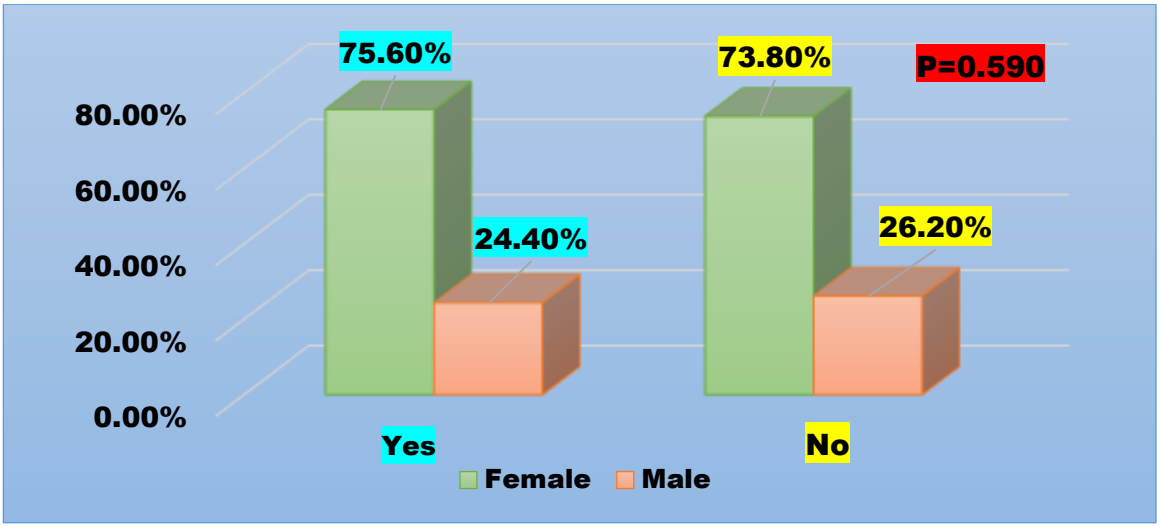


Table 10 shows the correlation between gender and abrasion presence. resultsAccording to the study results, a significant statistical correlation is indicated with a prevalence of P= 0.627.

Table 10 The correlation between the gender and the abrasion presence

Variables	**Yes**	**No**	**Value of P**

Female	53 (76.8%)	513 (74.1%)	
Male	16 (23.2%)	179 (25.9%)	P=0.627
No	516	67.7%	No

A detailed presentation of the data is presented in Graph No. 10.

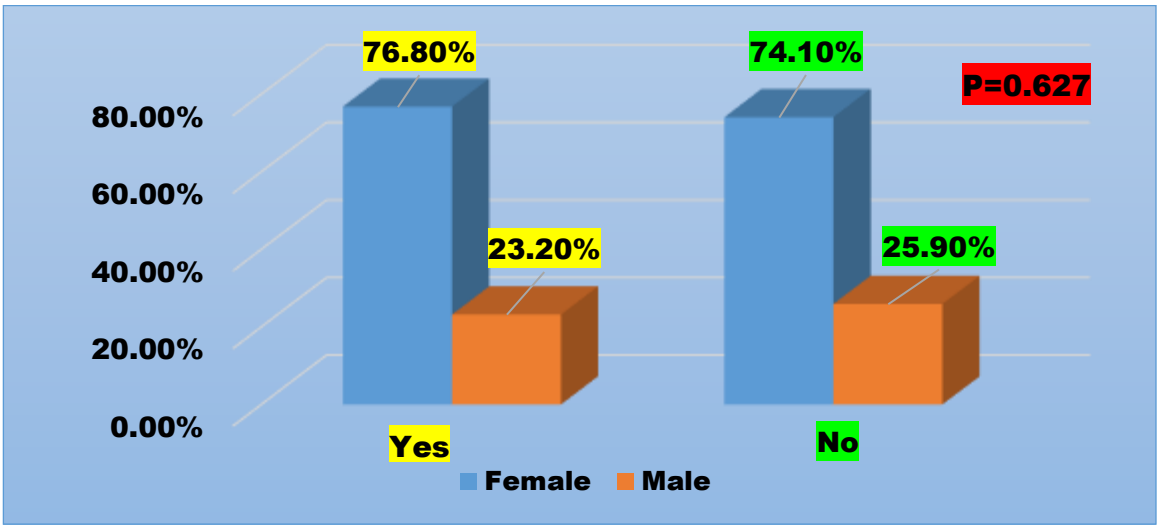


Table 11 shows the correlation between abrasion and duration of teeth creaking. According to the study results, a significant statistical correlation is indicated with a prevalence of P=0.410.

Table 11 The correlation between abrasion and duration of the teeth creaking

Variables	1-11 months	1-3 years	3.1-6 years	More than 6 years	Value of P
Yes	9 (21.4%)*	21 (35.6%)	8 (30.8%)	5 (22.7%)	
No	33 (78.6%)	38 (64.4%)	18 (69.2%)	17 (77.3%)	P=0.410£
No	516	67.7%	No	516	67.7%

absolute value and in brackets is percentage (%); **£ =** P value according the hi-square test.

A detailed presentation of the data is presented in Graph No. 11

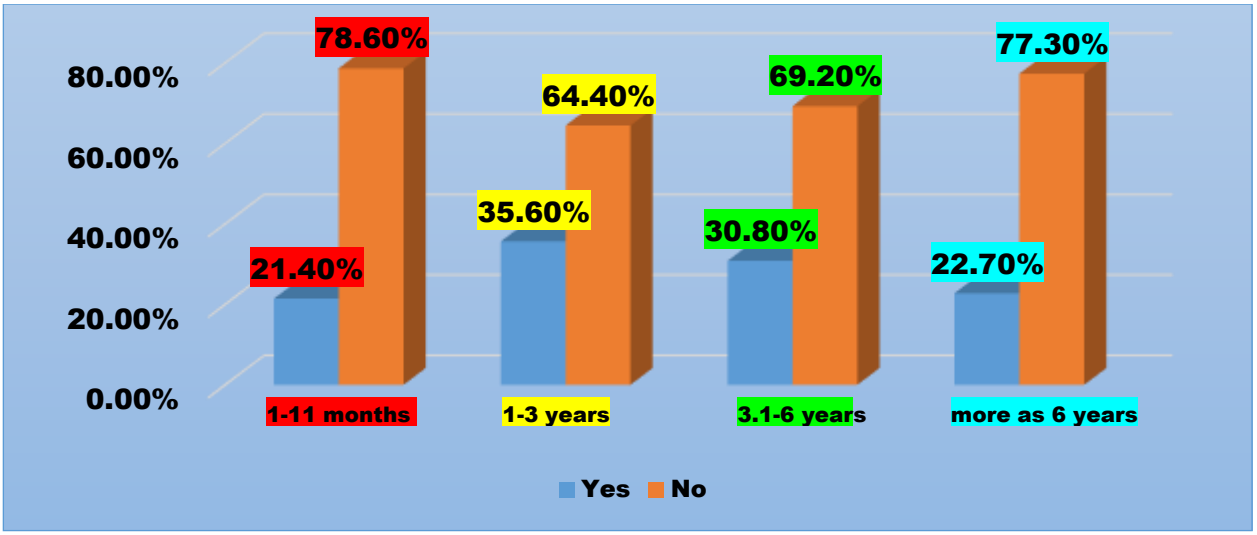


Table 12 presents the correlation between age and muscles pain presence. According to the study results, a significant statistical correlation is indicated with a prevalence of p=0.008.

Table 12 The correlation between the age of the study subjects and the muscles pain presence

Correlations

			Interviews age	Muscles Pain
Spearman's rho	Interviews age	Correlation Coefficient	1.000	-.098**
		Sig. (2-tailed)	.	.008
		N	747	747
	Muscles Pain	Correlation Coefficient	-.098**	1.000
		Sig. (2-tailed)	.008	.
		N	747	762
** Correlation is significant at the 0.01 level (2-tailed).				

The correlation between age of the participants and muscle pain is illustrated in Figure No.12, as well as presented in detail in the scatterplot below.

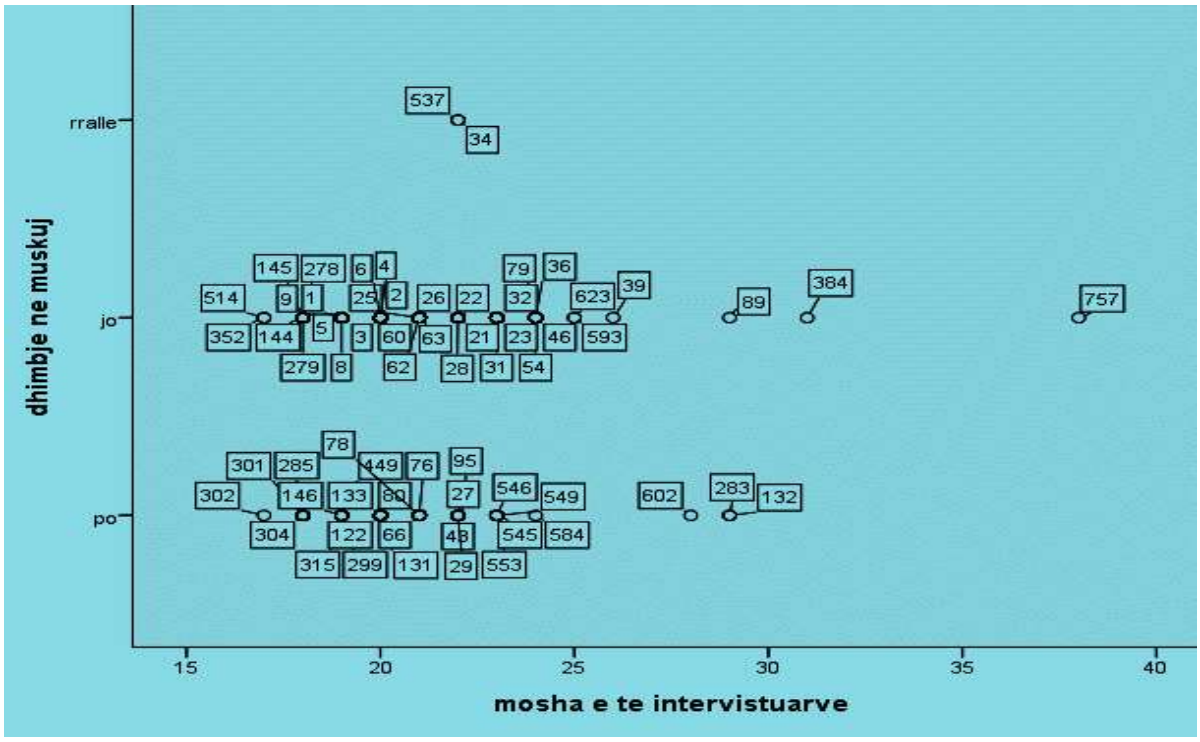


Table 13 presents the correlation between age and difficulties in the mouth opening process.

Correlations				
			Interviewers Age	Difficulties in the mouth opening
Spearman's rho	Interviewers Age	Correlation Coefficient	1.000	-.071
		Sig. (2-tailed)	.	.054
		N	747	747
	Difficulties in the mouth opening	Correlation Coefficient	-.071	1.000
		Sig. (2-tailed)	.054	.
		N	747	762

According to the study results, a significant statistical correlation is indicated with a prevalence of p=0.054.

Table 13 The correlation between age of patients and difficulties for mouth opening process

The correlation between age of the participants and difficulties in the mouth opening process is illustrated in Figure No.13, as well as presented in detail in the scatterplot below.

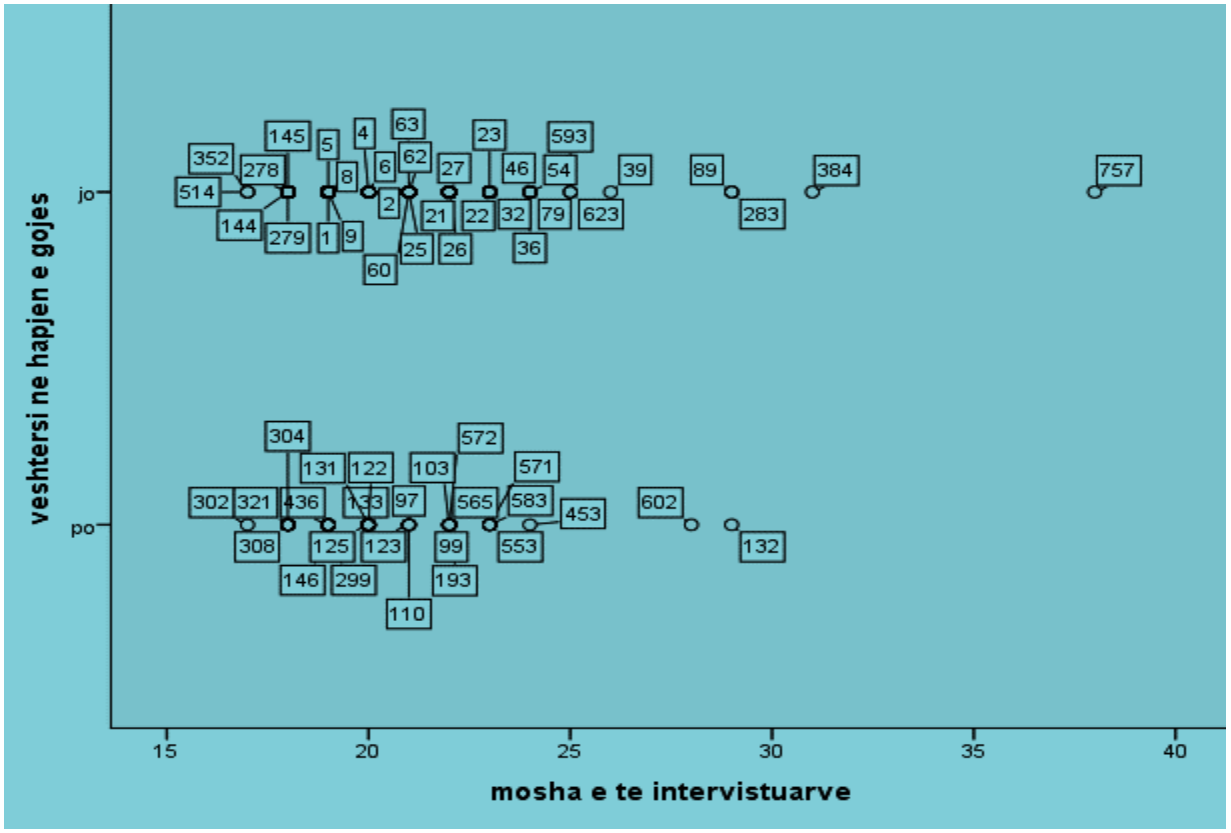


Table 14 presents the correlation between age and TMJ pain presence. According to the study results a significant statistical correlation is indicated with a prevalence of p=0.008.

Table 14 The correlation between age of patients and TMJ pain presence

Correlations				
			Interviews Age	ATM Pain
Spearman's rho	Interviewers Age	Correlation Coefficient	1.000	-.097**
		Sig. (2-tailed)	.	.008
		N	747	747
	ATM pain	Correlation Coefficient	-.097**	1.000
		Sig. (2-tailed)	.008	.
		N	747	762
** Correlation is significant at the 0.01 level (2-tailed).				

The correlation between age of the participants and ATM pain presence is illustrated in Figure No.14, as well as presented in detail in the scatterplot below.

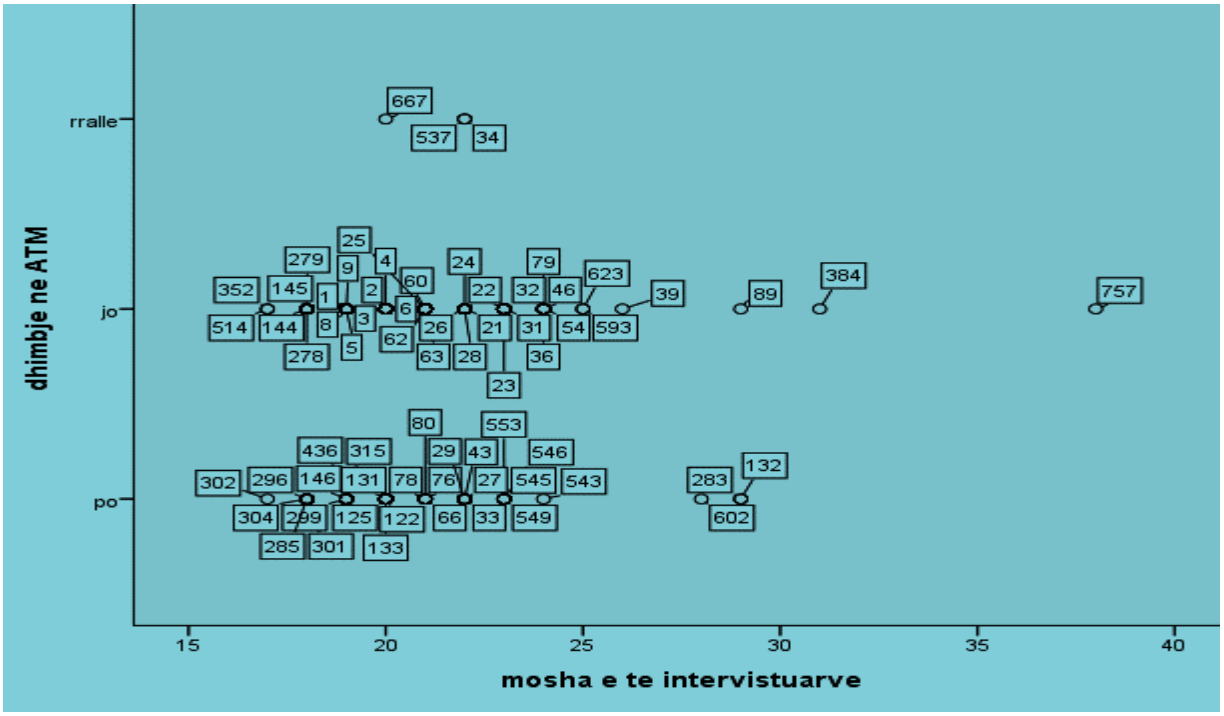
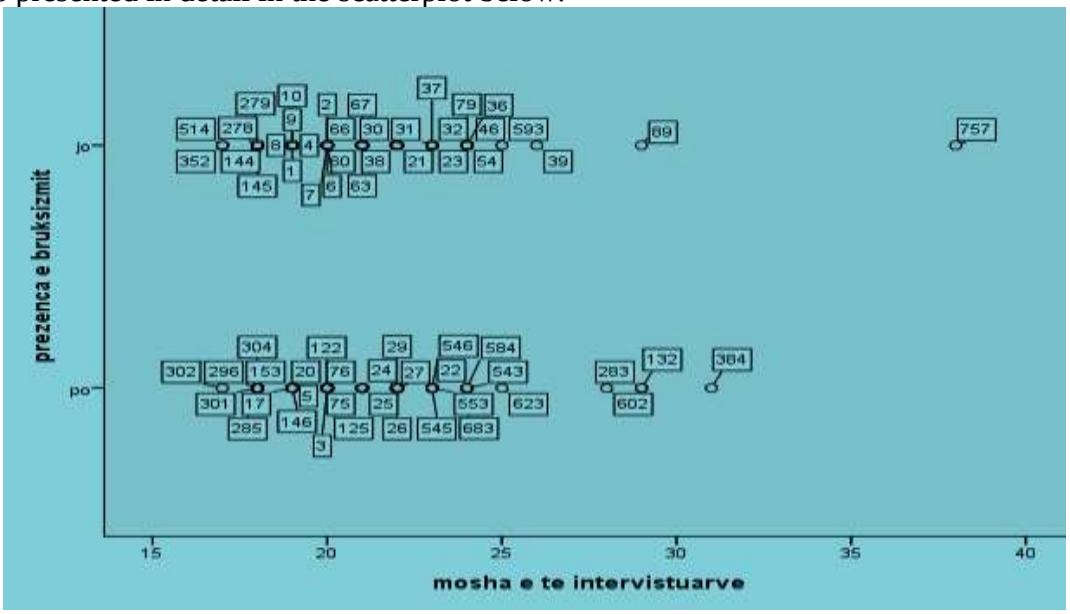


Table 15 presents the correlation between age and bruxism presence. According to the study results, a significant statistical correlation is indicated with a prevalence of p=0.006.

Table 15 The correlation between age of patients and bruxism presence

Correlations				
			Interviewers Age	Bruxism Presence
Spearman's rho	Interviewers Age	Correlation Coefficient	1.000	-.101**
		Sig. (2-tailed)	.	.006
		N	747	747
	Bruxism Presence	Correlation Coefficient	-.101**	1.000
		Sig. (2-tailed)	.006	.
		N	747	762
**. Correlation is significant at the 0.01 level (2-tailed).				

The correlation between age of the participants and bruxism presence is illustrated in Figure No.14, as well as presented in detail in the scatterplot below.



Discussion

This study investigated 762 students (aged 17-30 years) from Dental Medicine Faculty and Aldent Medicine Faculty during 15 months.

The study case reported shows, about 74.4% of the interviewers were women and 25.4% were men.

Females outnumber male, mainly linked to their sensitivity towards stress. Okesan in his study emphasises that emotional stress is among the most common factors that affect the masticatory function[3].

On the other hand, Clark, in his study highlights the prevalence of bruxism in 66% of the study cases. Whereas the authors Cheifetz and Ng. Dee. Kong[6,7] reports bruxism to be present among children at a rate ranging from20 to 38% of cases.

According to the results of this study, the age of the participants involved varies from 18-30 years, where the age of 18-24 years outnumbers all the age groups with 96.9% of the study cases. Clenching of the teeth is noticed at this age as it is mainly linked to the period when they face the stress of exams.

Different authors explain that this high prevalence at this age is related to the increased functioning of the hypothalamus, the reticular system and especially the limbic system, which have the main responsibility for the individual emotional state. This increased emotional state is discharged at night with teeth grinding[10,11,12].

It is precisely the main reason for student age, which should be taken care of and much more important prophylactic measures, in order this bad pathological symptom does not worsen further[13].

The typical consequences of Bruxism are abrasion of the dental system, pain in the TMJ and masticatory muscles[14]. Abrasion of the dental system was evident in 9.1% of cases, pain in TMJ in 10.9% of cases and difficulty in opening the mouth in 8.4% of cases.

The concentration time of Bruxism in the oral cavity varies from 1 year to 6 years, which was evident in 19.5% of cases. The longer the patient lives with this pathology, the more severe the consequences and the more difficult it is to avoid this vice.

Treatment of patients with bruxism is combined psycho-prosthetic manners[15,16]. Positive results in treatment are achieved by applying three methods: ***psychological***, ***medicinal*** and ***prosthetic*** with relaxing splints. In the treatment of patients with bruxism, many authors emphasise that a very good patient-doctor cooperation is needed, as the patient must follow every advice of the specialist gnathologist[17,18], the patient must keep the teeth regularly not only at night but in special cases also during the day.

4. Conclusion and future scope

Based on the results obtained from this study case analysis, the following conclusion could be derived: (1) Out of 762 examined patients (students), approximately 32.3% have indicated the presence of bruxism; (2) The majority of participants involved in our study (74,4%) were female; (3) The results of the study indicated a statistically significant relationship between age and presence of muscle pain (prevalence of p-0.008), and the presence of ATM pain for subjects involved in our study (prevalence of p-0.008), as well as between age and the presence of bruxism (prevalence of-0.006).

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