



# Prevalence of Symptoms of Temporomandibular Joint Disorder in Lattakia-Syria

Nazih Issa, Naser Baherly, Maria Mayhoub

Department of fixed Prosthodontics, Faculty of Dentistry, Tishreen University, Lattakia, Syria

## Email address:

nazihissa8@gmail.com (N. Issa), naser.bahrli059@outlook.com (N. Baherly), mayhoubemaria@gmail.com (M. Mayhoub)

## To cite this article:

Nazih Issa, Naser Baherly, Maria Mayhoub. Prevalence of Symptoms of Temporomandibular Joint Disorder in Lattakia-Syria. *International Journal of Biomedical Engineering and Clinical Science*. Vol. 1, No. 2, 2015, pp. 23-28. doi: 10.11648/j.ijbecs.20150102.11

**Abstract:** The research aims to study the prevalence of the symptoms of TMJ disorder, TemporoMandibular Joint Disorder (TMJD), in Lattakia province – Syria. The research tool used is a form for a group of thoughtful questions related to the symptoms of TMJD. 450 questionnaire forms have been randomly distributed, by hand, to people in the ages of 15-60 years old, in different areas of the city. This allowed us to identify the prevalence of each symptom of TMJ disorders among each age group. We reached a conclusion that states that the prevalence of TMJD symptoms was the largest in males than females at a rate of 34.92%. Percentages showed a significant increase in the males category compared to a past research study done by the researcher Issa, his research showed a rate of 16% prevalence in males. This is attributable perhaps to the evolution of the predisposing conditions for the occurrence of such disorders. The most symptoms prevalent, in order, were the following: the inability to close the jaw after it opened, pain in the ear, hear sounds articular clicking and crepitation, pain when opening or wide yawn, pain of joints when chewing, the pain accompanying sounds, difficulty opening the mouth, pain around the jaws, deviation of the lower jaw.

**Keywords:** Temporomandibular Joint Disorder TMJD, Clicking, Crepitation

## 1. Introduction

The Temporomandibular Joint Disorder is a one of the most common poor diagnosis and illness-treatment in the medical practices [1]. The term Temporomandibular Joint Disorder (TMJD) is used to describe the pain and/or dysfunction of TMJ and structures associated with it [2]. This disorder affects children at any age and both the sexes with a difference in signs and symptoms that appear on patients [3], and therefore the diagnosis of clinical cases is complicated as a result of the diversity and difference in symptoms and signs between different patients and with the same patient different symptoms appear with aging [4-5]. The complaint is caused by one or more of the following symptoms: pain in the jaw joint or area, the ear, headaches, facial pain that is associated with a block of lower jaw movement whether, asymmetry in open jaw in the path or with the occurrence of articulated sounds (crackling, bang, Static) during the movement of the condyle or fatigue in the relevant muscles TMJ work. Also, it's associated with the presence of abnormal oral movements such as grinding or dental abrasion [6].

These disturbances are considered as non-life-threatening but strongly affect the quality of life, where the joint

functions become painful, and troublesome to patients day after day [7]. An epidemiological study showed that at least 33% of the America's population suffer from this problem [8]. The TMJ disorder begins with a clicking associated with normal-open (shift disk replies) to the stage clicking gradually stopping with the restriction of mouth opening (closed lock) [6].

It has been proposed that the classification of the involved and contributing factors are the following: the cause injury of TMJ disorder susceptible to Predisposing factors and the factors causing prefix Initiating and/or exacerbate Perpetuating factor.

Usually, factors are classified under the group of factors causing the injury that increases the risk of TMJD, and those factors are: the psychology (personality and behaviour), structural aspects (occlusion properties, the presence of severe deep bites, absent of molars, open bites, relaxed joints).

The following factors are usually classified under the group direct prefix or induced factors, namely: trauma (small and large trauma Micro- and Macro trauma), parafunctional habits, and excessive stress factors.

The misunderstanding of the disorder occurs when

defining one absolute contributing factor within those three groups, where the same factor can be, for example, just starting to appear on a patient and exacerbating on another patient, so that the amount of the contribution factor may vary in the pathogenesis from patient to other.

The causal factors can also be classified into anatomical, muscular neurological, psychological/behavioural, each one of these groups affect the other group and can affect at the same time together.

Depending on the pattern of the existing turmoil and even depending on the existing pathogenesis appearing on a specific patient, these three groups can be either vulnerable to injury, prefix or aggravating factors of the disease. Within this pathogenesis concept, it has become accepted by researchers in the field of treatment of TMJ disorders that anatomical factors, for example, may not play a role at all in the pathogenesis on a patient while it may be a factor causing the starting of the disease or exposing another patient to injury. Anatomical factors are no longer classified as a causative pathological only. (REFERENCE MANUA v32.no6 .10-11 guideline acquired TMD in infants, children and adoleasco). According to the adopted model by the American dental Association in 1992 [5], it is common to use interrogation to collect information on the prevalence of the disorder among the population. It is observed that the rate of these disorders proliferation is relatively large in auditors to the postgraduate Clinic at the Department of fixed prosthodontics, which encouraged us to understand the prevalence of this injury in the region. Through this study we could find out the most common complaints expressed by patients and that itself reflected this problem.

## 2. Aim of the Research and Its Importance

To know the prevalence of symptoms of temporomandibular joint disorders within the province of Lattakia, and to investigate symptoms associated with TMJ injuries.

## 3. Research Methods and Materials

The required data for this research was collected by creating a form (survey) distributed to a sample study, which is composed of a random sample of 450 people, who were chosen randomly within the district, Lattakia City. Samples included people aging between of 15 to 60 years old. We have distributed the survey by hand directly to the individuals under study, in 2013. We received 420 full valid surveys for statistical analysis i.e.93.3% as the average response.

Data collecting form (Survey).

Ministry of higher Education.

Tishreen University

Faculty of Dentistry

Department of Higher studies/ fixed Prosthodontics Department

Survey about diagnosing patients with temporomandibular joint disorders

(Aim of the survey: to know the range of prevalence for the TMJD

name: \_\_\_\_\_

gender: ☐Female ☐Male

age: \_\_dd/mm/yy\_\_\_\_\_

date: \_\_\_\_\_

address: \_\_\_\_\_

Tel. number: \_\_\_\_\_

Circle the appropriate choice:

Do you have difficulty in opening your mouth? ☐Yes ☐No

2) Do you hear sounds while opening your mouth? ☐ Yes ☐No ☐often

3) When Do you hear these sounds?

While opening – while closing - while closing and opening - while eating - while yawning – waking up in the morning

4) Are these sounds associated with pain? ☐Yes ☐No

5) Do you feel pain around the jaws when you wake up in the morning? ☐ Yes ☐No ☐often

6) Do you have pain in your ears or around them? ☐Yes ☐No

7) Do you suffer any pain while chewing? ☐Yes ☐No

8) Do you feel pain when you open your mouth widely or yawn? ☐ Yes ☐No ☐often

9) When you bite, do you feel uncomfortable? ☐ Yes ☐No ☐often

10) Do you have bruxism of teeth? ☐ Yes ☐No

If yes, is it at night or while driving or while doing your regular work?

11) Do you have bad habits like biting your lips or gnashing of teeth? ☐ Yes ☐No

12) Have you ever opened your mouth but you wasn't able to close it back? ☐ Yes ☐No ☐often

13) Does your lower jaw deviate when you open your mouth? ☐ Yes ☐No ☐often

14) Have you suffered of head, neck or jaws injuries (accident, trauma, fracture, punch)?

☐Yes ☐No ☐I can not remember

If your answer was Yes,

15) When did it happen?

16) How did you treat it?

17) Did you consult a doctor to treat any of the mentioned issues?

☐ Yes ☐ No ☐ I can not remember

18) When did you treat it?

19) How has it been treated?

## 4. Results and Discussion

The chart (1) represents the prevalence of symptoms of TMJ disorders:

Variables included:

Difficulty in opening the mouth

Hearing sounds during jaw opening

- Pain accompany with these sounds
- Pain around jaws
- Pain in the ear or around the ear
- Pain when chewing deposited around the joint
- Pain when opening the mouth widely or when yawning
- Lock jaw
- Deviation of the lower jaw when you open jaws

As the chart shows, the most prevalent symptoms, in order, are: lock jaw, pain in the ear, hear articulated sounds, pain at the broad opening or yawning, pain when chewing, pain accompanying sounds arthropod, difficulty opening the mouth, pain around the jaw, deviation lower jaw.

We also found that the number of males who have had one symptom at least of these symptoms, is 95 individuals with a rate of 34.92% (95/272), while the number of females who have had one symptom at least of these symptoms, is a 51 individuals with a rate of 34.46% (51/148).

Therefore injuries distributed among males are higher than females by a small percentage, and with that our study contradicts the study conducted by researcher Issa, that was aimed to discuss his master's project, where his study showed

the prevail among females over the males. The study was conducted in the Lattakian community, in 1456, among people of different ages also ranging between 15 and 60 years old. They had been questioned in accordance to the custom of the research form where there was a preponderance of females among them males [13] due to the evolution of life and the psychological pressure on the shoulders of males in our society.

As well as the study carried out by the researcher Gesch d and his colleagues, to determine the prevalence of these disorders in adults aged 20-79 years old. They have been numbered (7.008) in a small-sized towns in the northern part of Germany, where the proportion was higher in females [9]. This is also A summed to be due to the difference in the community sample.

For the breakdown of the spread of symptoms according to age groups the results were as follows:

#### 1-Difficulty opening the mouth:

As shown in the table (1) the prevalence of difficulty opening the mouth within each age group.

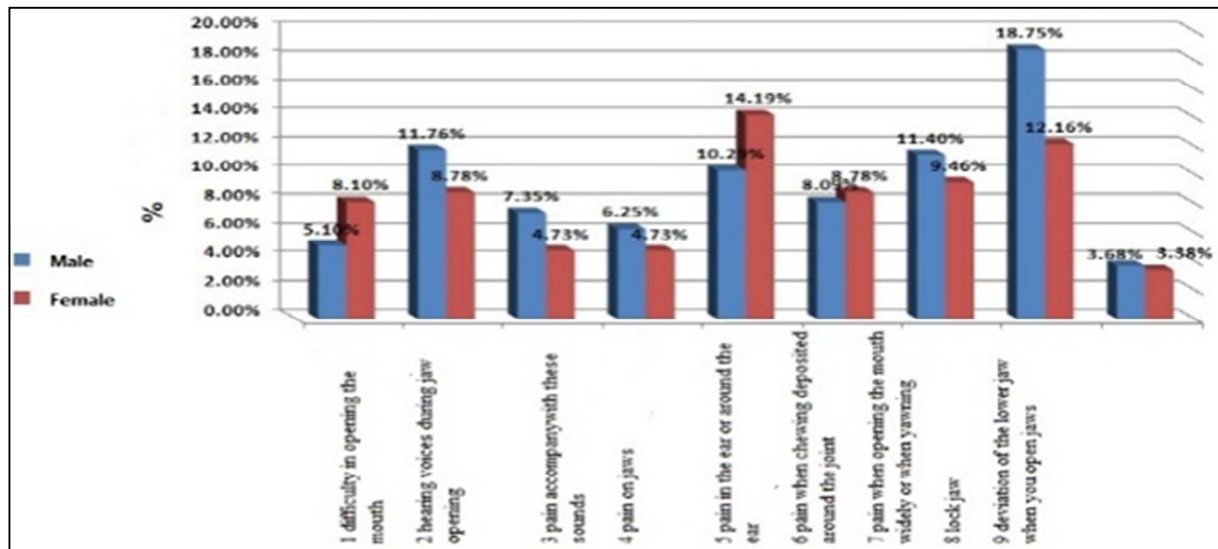


Figure 1. The symptoms prevalence of TMJ disorders.

Table (1). The prevalence of difficulty opening the mouth within age groups.

Age	Response		Prevalence rate
	Yes	No	
15 - 25	11	315	%3.37
26 - 35	7	47	%12.96
36 - 45	7	26	%21.21
46 - 60	1	6	%14.29
Total	26	394	%6.19

We noticed that the difficulty of opening the mouth were higher at ages 36-45 than other ages, and when we studied the link of these symptoms to the age using the Chi-square test debugger we found significant correlation between the difficulty of opening the mouth and age at the 5% level, where ( $P < 0.05$ ) as shown in the following table.

Table (2). Represents Chi-square test results of the relationship between age and the difficulty opening the mouth.

Chi-square	p-value	correlation
22.33	*0.000	Significant

Thus, we agree with the study by researcher Jalil Khademi and his colleagues that aimed to find out the prevalence of TMJ disorder on the auditor patients of the Faculty of Dentistry in GUILAN Alaanah University, which included a sample of 265 people with ages 15-62, in the years 2010 - 2011. They found a prevalence of 6.19% rate [JALIL KHADEMI]. Moreover, our results agree with the study conducted by researcher Kohler Aa and HelkimoAn and their colleagues, in children and adults in Sweden, [10] which aimed to observe the symptoms of TMJD for twenty years. There was a hundred volunteers in three age categories 3-5-

10-15. Observing them within the past 83, 93 and 2003. They filled out the forms about general questions and oral health, and more private questions about presence or absence of symptoms. Their findings were that the symptoms related to TMJD increases with aging.

2-Articular hear sounds: as we have seen, in accordance with the scheme (2):

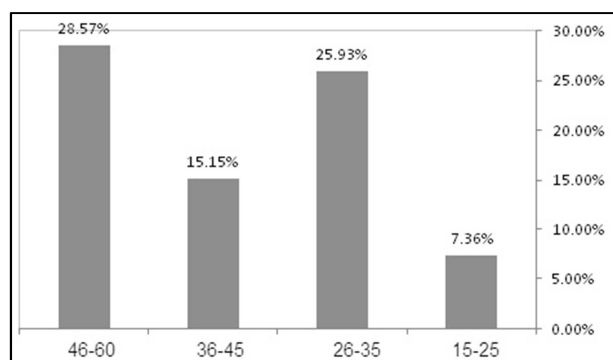


Figure 2. The spread rates of voices articular by age.

In examining the correlation of these symptoms with age using Chi-square test debugger, we found a strong statistically significant correlation, which is represented in the following table:

Table (3). Chi-square test of the relationship between age and hearing voices articulated results.

Chi-square	p-value	correlation
35.77	*0.000	Significant

Overall, the prevalence of this symptom is 28%. Thus, we agree with the study done by Gesch D and his colleagues in Germany, where articulated voices rate have 25% [9]. And also we agree with the study by Bara Bagis and colleagues, done on 243 patients and aimed to see the prevalence of symptoms of TMJ disorders between September 2011 and December 2011, in the city of Trabzon in Turkey. They found that sounds articular frequently display in a rate of 39%.

3-Do you feel sounds?

Table (4). Represents the results of the question "Do you feel sounds?"

Age	Repetition	Response					
		When open	When close	When Open And close	In the orning Wake up	When eating	When yawning
15-25	Absolute	84	86	34	25	36	61
	Relative	%25.77	%26.38	%10.43	%7.67	%11.04	%18.71
26-35	Absolute	19	4	12	6	4	9
	Relative	%35.19	%7.41	%22.22	%11.11	%7.41	%16.67
36-45	Absolute	21	2	7	0	1	2
	Relative	%63.64	%6.06	%21.21	%0.00	%3.03	%6.06
46-60	Absolute	5	0	0	0	0	2
	Relative	%71.43	%0.00	%0.00	%0.00	%0.00	%28.57
Total	Absolute	129	92	53	31	41	74
	Relative	%30.71	%21.90	%12.62	%7.38	%9.76	%17.62

In examining the link of these symptoms with age using Chi-square test debugger we found strong statistically significant correlation as shown that in the following table.

Table (5). Chi-square test of the relationship between age and sense of the voices.

Chi-square	p-value	correlation
50.15	*0.000	Significant

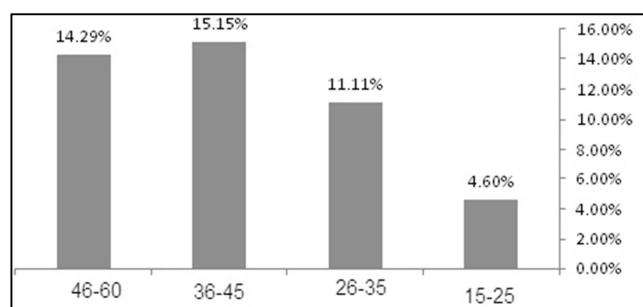


Figure 3. The association of sound pain and aging.

Table(5) shows that sense of the voices resides at 30.71%

rate during opening the mouth, so again our study supported the results of BORA BAGIS and his colleagues study. They assessed the prevalence of symptoms and joint signs between September 2011 and December with 243 patient visited the department of fixed prosthodontics in the Faculty of Dentistry in TRABZON, showing the incidence of articular voices at a 39% rate and a strong correlation with age.

4-Are these sounds associated with pain?

In examining the link of these symptoms with age using Chi-square test debugger, we found a significant correlation of the age with these symptoms as shown in the following table:

Table (6). Chi-square test of the relationship between age and the existence pain with voices.

Chi-square	p-value	correlation
12.77	*0.047	Significant

At this point our research supported Issa's study [13], which showed that the pain is actually associated with increasing steadily sounds with age from 29% rate at ages 15-25 years to up to 45% at ages 46-60 years.

Also, we agree with the study done by Bara Bagis and

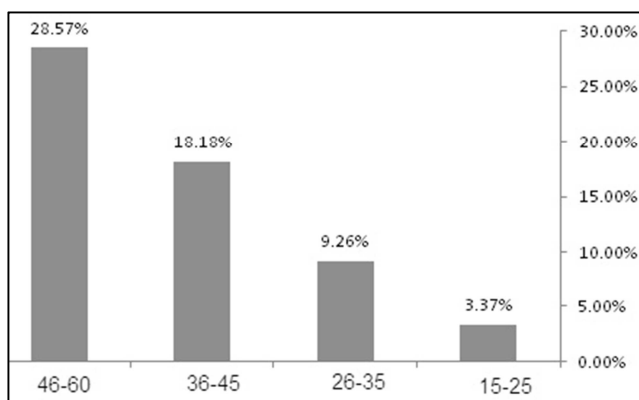
colleagues, on 243 patients, that aimed to observe the prevalence of symptoms of TMJ disorders between September 2011 and December 2011 in the city of Trabzon in Turkey, where they found that 72% of the pain accompanying with the articular sounds [11].

5-Do you feel pain around the jaws when you wake up in the morning?

In examining the link of these symptoms with age using Chi-square test debugger, we found a significant correlation between age and these symptoms as shown in the following table (7):

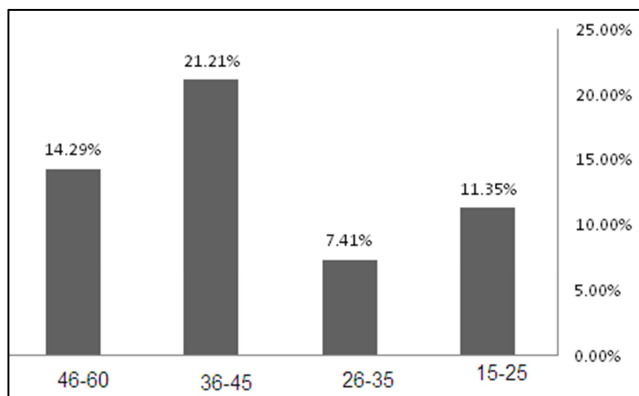
**Table (7).** Chi-square test result of the link of these symptoms with age.

Chi-square	p-value	correlation
30.6	*0.000	Significant



**Figure 4.** The association of pain around the jaws when you wake up and aging.

6-Do you have pain in the ear or around the ear?

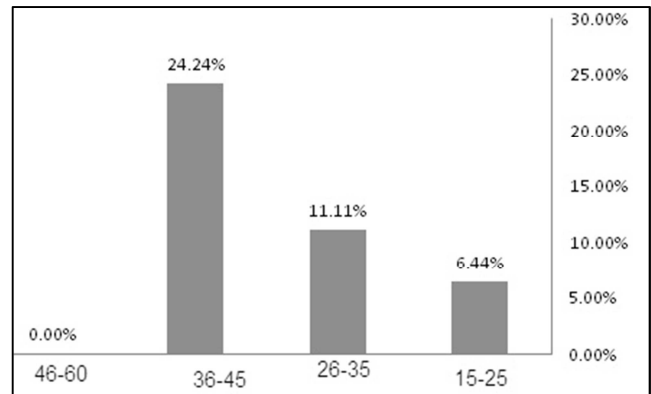


**Figure 5.** The distribution of the sample according to the fifth symptom by age.

Note, from the chart (5), that the prevalence of symptoms at the highest rate is in the older age groups (35 and above). In examining the link of these symptoms with age using Chi-square test debugger, we found a lack of links to age with these symptoms. Thus we agreed with the study conducted by researcher Soukaina Ryalat and colleagues, on the university students in Jordan, where the number reached 1103 students aged between 18-25 years old, which showed that the most frequent symptom is pain in or around the ear

or on the chin, due to the simplicity of expressing joint pain with ear pain [12].

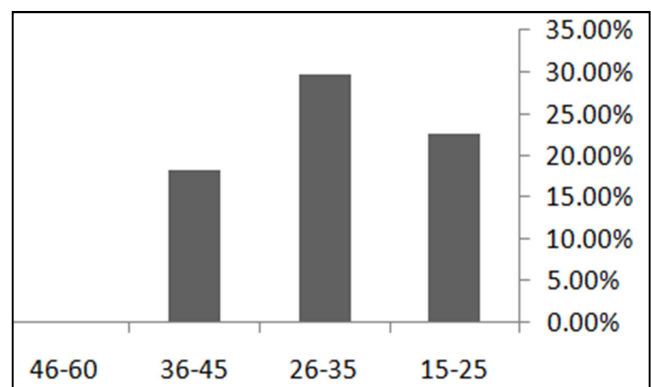
7-Do you suffer from pain in the TMJ when chewing?



**Figure 6.** The distribution of the sample according to the sixth symptom by age.

Note, in the chart (6), that chewing difficulty was higher in older age groups. In examining the link of these symptoms with age using chi-square debugger test. We found a significant correlation between the age and these symptoms as noticed that the associated chewing pain and the pain around the jaws when you wake up in the morning are associated with age, reaching the highest proportion which was in the over 35 years individuals and non-existing after the age of 45.

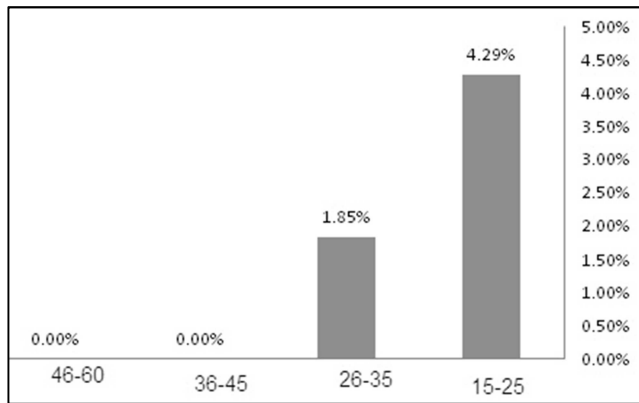
8-Do you feel pain when you open your mouth widely or when you yawn?



**Figure 7.** The distribution of the sample according to the seventh symptom by age.

Note, in the chart (7), that the sensation of pain when you open your mouth widely or when yawning is more prevalent within the 26-35 age group for the non-existing at the age of 46. In examining the link these symptoms to age using the Chi-square test debugger we found significant correlation between age and these symptoms.

9-Deviation of the lower jaw when opening the jaws?

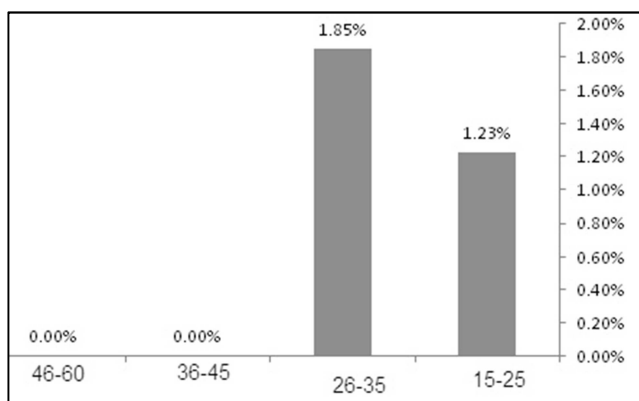


**Figure 8.** The distribution of the sample according to the eighth symptom by age.

Where we noticed that the lower jaw deviation disappears with aging, as they are of significant correlation with age.

Thus, we agree with Dr. Issa, we have varying percentages by age group while he presents it as fading away with aging [13].

10-Are you treating TMJD?



**Figure 9.** The distribution of the sample according to the ninth symptom by age.

## 5. Conclusions and Recommendations

- 1) The most common symptom complained by patients is pain in the ear area.
- 2) The temporomandibular joint disorders are common between individuals in the Lattakian society.
- 3) Most of the symptoms related to temporomandibular joint disorders increase with ageing.

## Recommendations

- 1) The dentist should not ignore the patient's complains.
- 2) Raise doctors awareness on how to deal with temporomandibular joint disorders.
- 3) Conduct extensive statistical study that include all the

country's other provinces.

## References

- [1] JOSEPH KNIGHT, PA-C: diagnosis and treatment of temporomandibular disorders in primary care. *hospital physician* June 1999;55-58.
- [2] Mongini f, ciccone g, ibertis f, negro c: personality characteristics and accompanying symptoms in temporomandibular joint dysfunction, headache, and facial pain. *journal of facial pain* 2000; 1:52-8.
- [3] SARI S, SONMEZ H. investigation of the relationship between oral parafunctions and temporomandibular joint dysfunction in Turkish children with mixed and permanent dentition. *journal of oral rehabilitation* 2002; 29(1), 108-112.
- [4] SCHMITTER M, RAMMELSBURG P, HASSELD A. the prevalence of signs and symptoms temporomandibular disorders in very old subjects. *journal of oral rehabilitation* 2005;32(7):467-473.
- [5] NASSIF NJ, HILSEN KL. screening for temporomandibular disorders: history and clinical examination. *american dental association journal of prosthodontics* 1992;1(1):42-26.
- [6] OKESON JP: management of temporomandibular disorders and occlusion (ed3). st. louis.
- [7] CHUANG SY. incidence of temporomandibular disorders (tmds) in senior dental students in Taiwan. *journal of oral rehabilitation* 2002; 29(12):1206-1211.
- [8] COOPER BC, KLEINBERG I. examination of a large patient population for the presence of symptoms and signs of temporomandibular disorders. *cranio* 2007;25(2):114-126.
- [9] GESCH D, BERNHARDT O, ALTE D, SCHWAHN C, KOCHER T, JOHN U, HENSEL E. Prevalence of signs and symptoms of temporomandibular disorders in an urban and rural German population: results of a population-based Study of Health in Pomerania. 2004 Feb; 35(2):143-50.
- [10] KÖHLER AA, HELKIMO AN, MAGNUSSON T, HUGOSON A. Prevalence of symptoms and signs indicative of temporomandibular disorders in children and adolescents. A cross-sectional epidemiological investigation covering two decades. *Eur Arch Paediatr Dent*. 2009 Nov; 10 Suppl 1:16-25.
- [11] Bora bagis, elifaydoganayaz, sedanurturgut, rukiye durkan, ozcan: gender difference in prevalence of signs and symptoms of temporomandibular joint disorders: a retrospective study on 243 consecutive patients. *international journal of medical sciences* 2012; (7):539-544.
- [12] SOUKAINA RYALAR, ZAID H BAQAIN, WALA M. AMIN, FALCH SAWAIR, OSAMA SAMARA, DARWISH H. BADRAN: prevalence of temporomandibular joint disorders among students of the university of Jordan. *journal of clinical medical research*. 2009; (3):58-64.
- [13] Issa nazih: temporomandibular joint disorders and functional occlusion, master research, 1989.