Evaluation of the relation between TMJ disorders and oral habits on the 1st year students at a faculty of dentistry: A questionnaire study

Diş hekimliği fakültesi 1. sınıf öğrencilerinin TME rahatsızlıklarının oral alışkanlıklarla ilişkisinin değerlendirilmesi: Bir anket çalışması

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Abstract

Background: The aim of this study was to evaluate the problems of temporomandibular joint (TMJ) problems on Faculty of Dentistry Students and to determine whether these problems were related to oral habits.

Methods: The prevalence and severity of TMJ disorders were evaluated using the Fonseca questionnaire for 63 students (37 females & 26 males) studying at the Faculty of Dentistry in Harran University. In addition, the Oral Behavior Checklist (OBC) questionnaire was applied to the same students in order to analyze the relationship between TMJ problems and oral habits.

Results: According to the results of Fonseca questionnaire, it was revealed that 73% of the participants had some degree of TMJ problems. When the female and male participants were investigated separately, it was observed that 73.2% of the male participants and 73% of the female participants had some degree of TMJ problems. The correlation between OBC and Fonseca was found to be positive.

Conclusion: In our study, it was revealed that the increase in oral habits also increased the prevalence of TMJ disorder.

Key words: Temporomandibular joint, Fonseca, Oral habits

Öz

Amaç: Bu çalışmanın amacı Diş hekimliği fakültesine yeni başlayan öğrencilerde Temporomandibular eklem (TME) problemlerinin değerlendirilmesi ve bu problemlerin ağız alışkanlıkları ile olan ilişkisinin olup olmadığının karşılaştırılmasıdır.

Materyal ve Metot: Harran Üniversitesi Diş Hekimliği Fakültesi 1. sınıfta eğitim gören 37 kız 26 erkek toplam 63 öğrencide TME problemleri prevalansı ve şiddeti Fonseca anketi kullanılarak değerlendirilmiştir. Bunun yanında TME problemlerini ağız alışkanlıkları ile olan ilişkisini değerlendirmek için Oral Behaviour Checklist (OBC) anketi aynı öğrencilere uygulanmıştır.

Bulgular: Çalışmanın sonucunda ankete katılan tüm öğrencilerde Fonseca anketin sonucuna göre katılımcıların %73' ünde herhangi bir derecede TME problemi olduğu ortaya çıkmıştır. Kız ve erkek katılımcılar ayrı ayrı incelendiğinde ise erkek katılımcıların %73.2'sinde kız katılımcıların ise % 73' ünde herhangi bir derecede TME probleminin olduğu gözlemlenmiştir. OBC ve Fonseca arasındaki korelasyonun pozitif yönde olduğu gözlemlenmiştir.

Sonuç: Çalışmamız da oral alışkanlıkların artması, TME rahatsızlığı görülme sıklığını arttırdığını ortaya çıkarmıştır.

Anahtar kelimeler: Temporomandibular eklem, Fonseca, Oral alışkanlıklar

Introduction

Mandibular condyle,Temporo Mandibular Joint (TMJ), is a bilateral joint created on the right and left sides of the mandibular fossa in the temporal bone.This joint takes on the functions of chewing, speaking, swallowing, breathing, as well as being a unique joint with harmonic functioning in our body. The joint constitutesa part of this system, while the teeth constitute alveolar structure, muscles, tendons and the other parts of the system (1,2).

TMJ disorders have been used synonymously with craniomandibular disorders. TMJ brings about many clinical problems of chewing muscles, dentition or a few of others all together among patients. TMJ pain is observed with abnormal or restricted mandibular movements. It also causes various symptoms pains ranging from head, neck, ear and eyes to a typical toothache and occlusal changes (3–5).

The most common symptom of TMJ disorder is pain. The pain is usually located in the chewing muscles and joints. There is a blunt pain. Impaired chewing and jaw functions often lead to an increase in pain (6–8). Stress, bruxism, teeth grinding, malocclusion during chewing, trauma spasms that occur in the chewing muscles due to oral habits and stretch are factors that increase symptoms (9). It has been reported that there is often a positive relationship between TMD and parafunctional habits. In the diagnosis of such oral diseases, Oral Behaviour Checklist (OBC) questionnaire consisting of 21 questions has been used (5).

In all studies, it has been pointed out that TMJ disorder is related with age and it is more common among girls (10–12).

When the issue of health is considered in developed societies, it is observed that lifestyle, socio-economic and environmental factors are of importance. In some studies, it has been reported that the higher socio-economic standards and it is more likely that an individual becomes healthy (5–7).

In the studies conducted, it has been reported that individual factors such as personal oral health care, professional mechanical tooth cleaning and eating habits may be related to oral health as well as lifestyles and socio-economic conditions (6–8).

Diagnosis of TMD patients is a challenging process for a clinician. One of the tool indices used to diagnose TMD patients among healthy population is the Fonseca Anamnestic Index (FAI). The fact that lower cost of and easily applicability of index enables it to be preferred by TMD patients. FAI; TMJ is a questionnaire consisting of 10 questions that provides determining pain in the head, back, and chewing besides parafunctional habits, restriction of movement, click, malocclusion and emotional stress (4).

In this study, the severity and prevalence of TMJ problems were evaluated using the Fonseca questionnaire for the students who had just started the Faculty of Dentistry in Harran University. Oral Behavior Checklist (OBC) tool was applied to determine the oral habits of the students.

Table 1. Fonseca Questionnaire Form

Fonseca survey questions	Yes	Sometimes	No
1- Do you have difficulty opening your mouth?			
2- Difficulty while shifting your lower jaw Are you shooting?			
3- Fatigue/pain in your muscles during chewing is it?			
4- Do you often have headaches?			
5- Are you suffering from neck pain or neck?			
6- Do you have ear and temporomandibular joint pain?			
7- Any mouse click on TME during chewing and mouth opening Did you hear the sound?			
8- Do you have the habit of squeezing and grinding?			
9- Do you feel that your teeth do not close properly?			
10- Do you consider yourself a tense person?			

Materials and Methods

Our study was conducted with the students at the Faculty of Dentistry in Harran University. The study consists of 63 voluntary participants, 37 of whom are females and 26 males. After informing the volunteers, verbal and written consents were obtained on the fact that they agreed to participate in the study.

A questionnaire consisting of 10 questions of Fonseca, with factors such as chewing, click noises from TMJ, movement restrictions, articulation and ear pain, was applied to the participants in the study (Table 1). For each question, "yes", 'no' and 'sometimes'answer options were given accordingly (Table 1). The students were asked to mark only one option for each item, and they were informed that the options "yes" referred to 10 points, "sometimes"to 5 points 'no' to 0 point. The revealed scores were used to determine the severity of the TMJ disorder.

In addition, a 21-item OBC questionnaire was used to test the oral habits of the participants (Table 2). Regarding the frequency of complaints, participants filled out each item as 4 = all of the time; 3 = most of the time; 2 = some of the time; 1 = a little of time or 0= none of the time". The total score of the OBC was used for the analysis.

Table 2. Oral Habits Questionnaire Form

Questions	Always	Most of the times	Sometimes	A few times	Never
1-Do you have a habit like a squeeze or chew your teeth while you are sleeping?					
2-Do you apply pressure on your chin while sleeping?					
3-Do you grind your teeth when you are in the day hours?					
4-Do you squeeze your teeth when you are on day hours?					
5-Do you contact your teeth each other when you are in the day hours					
6-Do you feel pain or stretch in the jaw muscles when you are awake?					
7-Do you keep your chin ahead or lateral position in the day?					
8-Do you push your tongue towards to your teeth in the day?					
9-Do you keep your tongue between your teeth in the day?					
10-Do you bite or chew your tongue in the day?					
11-Do you always keep close your lips and cheeks in the day?					
12-Do you keep objects (pen, nail) between your teeth in the day?					
13-Do you chew gum?					
14-Do you use a musical instrument played using the mouth?					
15-Would you support your chin with your hands while you are studying?					
16-Would you do one-sided chewing while eating?					
17-Do you eat something between main dishes?					
18-Is your job requiring continuously talk? (customer service representative, etc.)					
19-Would do you often sing?					
20-Would you like often do to yawn motion?					
21-Would you do keep your phone between your head and shoulder while you are talking?					

Table 3. Fonseca scores of students.

Gender	N	Mean	Std. Deviation
Female	37	32.83	12.05
Male	26	33.26	12.19
Total	63	33.01	12.01
	100		

Table 4. Oral Behavior Checklist score averages of students.

Fonseca scores	%	Presence of TMD
0-15	27	No
20-40	42.7	Mild
45-65	27.1	Medium
70-100	3.2	Severe
	100	

Statistical analysis was performed using software program of SPSS 21 version. Eligibility of variables to normal distribution,visual (histogram graphs) and analytical methods (Shapiro-Wilk test) were implemented accordingly. Descriptive statistical methods were applied for frequencies, percentages, mean scores, and standard deviations. Levene test was used to determine homogeneous distribution of variables. For independent and normally distributed variables, Independentt sample" test was used; while "Mann Whitney-U" test was used for variables that did not show normal distributions. Pearson correlation test was carried out to determine the correlation between variables. In the end, the results were considered to be statistically significant (p <0.05) at 95% reliability interval.
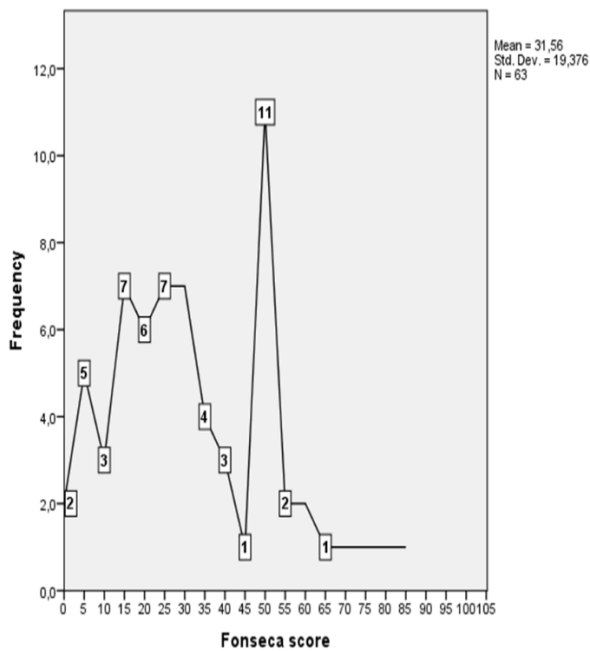
Chart 1: The score of students' answers to Fonseca survey questions.

Results

A total of 63 dental students, 37 females and 26 males, participated in the research (n = 63). The mean ages of the participants ranging from 17 to 26 were calculated as 19.62 $\pm$ 1.77. In our study, questions were directed to the participants via the Fonseca questionnaire (Table-1). The mean scores of students' answers to Fonseca questions are shown in the chart (Chart 1). According to the results of the Fonseca questionnaire, 73% of the participants had some degree of TMJ problems. In addition, 42.7% of the participants were found to be affected at milddegrees of TMD, 27.1% of them at moderate degrees, and 3.2% at severe degrees (Table 3). Once male and female participants were investigated separately, it was observed that 73.2% of the male participants and 73% of the female participants had some degree of TMJ problems.

In addition, OBC questionnaire was used to examine the oral habits of the participants. The questions directed to the participants in the OBC survey are shown in the table (Table 4). The participants' responses to the OBC questionnaire ranged from 10 to 60, whereas the OBC mean scores of the total participants were 33.01 $\pm$ 12.01. The OBC mean scores of the female and male participants are illustrated in the table (Table-4).

Pearson correlation analysis was carried out to assess the correlation between participants' responses to OBC and Fonseca questionnaires. When we evaluated the Pearson correlation analysis results, we found a positive (r = 0.667)

correlation between OBC and Fonseca scores. The positive correlation between OBC and Fonseca can be seen in the graph (Chart-2). As a result of our study, it was revealed that the increase in oral habits also increased the prevalence of TMJ disorders.
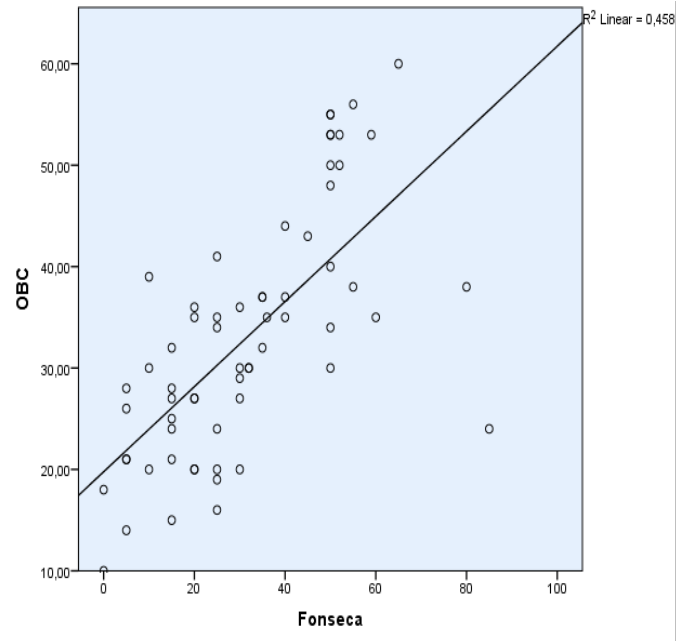

Chart 2: Graph showing correlation between Fonseca and Oral Behavior Checklist scores.

Discussion

In this study, our aim was to evaluate the relationship between TMJ problems and oral habits at a faculty of dentistry.

Fonseca questionnaire has been used to evaluate the severity of TMD in various studies. With this tool, it is very easy to collect data on TMJ problems in a shorter time by saving from cost and time. In addition to Fonseca questionnaire, some studies suggest the diagnosis of TMJ problem by physical examination whereas some studies agree on evaluation with various questionnaires (4,5,13).

In our study,   according to the results of the Fonseca questionnaire, 73% of the participants had some degree of TMJ problems. In addition, 42.7% of the participants had mild, 27.1% of them had moderate and 3.2% had severe degrees of TMD. When female and male participants were investigated separately, it was observed that 73.2% of the male participants and 73% of the female participants had some degree of TMJ problems.

In the studies performed, it was reported that more TMJ symptoms were observed in female groups (13,14,15). In our study, no difference was observed between the genders. We bind this result to stress exposure in the same environment in the same environment.

Paduano et al. reported that TMJ disorders were related

with oral habits and that the pain during chewing a gum was significantly related with TMD. The outcome was reported to have been higher in female individuals (14). In our study, there was no significant difference between male and female students. We may attribute this difference to the variety in environmental factors, physiological differences, mental stress and genetic make up.

Paulino et al. report to have been a positive relationship between oral habits and TMD indicationor symptoms (15). This result seems to be in line with our study.

In studies conducted, 26 - 66% of patients with TMD are reported to have parafunctional habits. Bruxism has been reported to be common, especially in those patients (15–17). In our study, there was a statistically significant relationship between parafunctional habits and TMD.

TMD is a difficult disease to diagnose. Individuals participating in a questionnaire should be aware of the importance of the questions to obtain reliable and reproducible answers. The questionnaire of this study was applied to first year students of Harran University. These results show that the questionnaires remain as the primary scanning tools for the diagnosis of TMD.

Conclusion and Suggestions

As a result of this study, oral habits were found to be related to TMD prevalence among the first year students of Faculty of Dentistry. No statistically significant difference was revealed between male and female students. The awareness of the students was observed to have been established about their oral habits and TMD. Those who needed treatment were directed to the relevant clinics.

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