Frequency of Symptoms of Temporomandibular Disorders among Prishtina Dental Students

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Abstract

BACKGROUND: Early diagnosis of temporomandibular disorders (TMD) is important for prevention of greater damages of the parts of the oro-facial system. There are early symptoms that can be used as predictors of TMD.

AIM: The study aimed to assess the frequency of the symptoms of TMD among dental students.

METHODS: Total number of 166 respondents, all undergraduate dental students, (84 female, 82 male), mean age 22, participated in this study. For the study, the questionnaire of Fonseca was used. There were ten questions to answer with: no, sometimes and yes. Fonseca questionnaire has its importance in initial data of TMD, among non-graduate population.

RESULTS: Forty-six point four percentages of the students, had no symptoms of TMD, 44.6 % had mild TMD, 7.8% moderate TMD and only 1.2 % had severe TMD. By conventional criteria, there is not any statistical difference of the TMD between male and female (χ² = 1.133, p = 0.769).

CONCLUSION: Fonseca questionnaire has its importance in the early diagnosis of TMD that can occur in the young population.

Introduction

Temporomandibular Disorders (TMD) are a group of signs and symptoms related to an orofacial region that typically involves the Temporomandibular Joints (TMJ), occlusion and masticatory muscles [1, 2].

There are a variety of pain experiences that may involve the maxillofacial structures. These types of pain are of special significance to the dental profession not only because of the area of the body affected but also because of their complexity. Therefore many authors propose a multifactor aetiology for TMD [3-9].

These etiologic factors can vary from occlusal disharmony, masticatory muscle fatigue, oral habits, neoplastic growths, emotional stress, unilateral chewing and early loss of teeth, bruxing or it can be the combination of such factors [10].

Because of the variability of complaints, TMD is diagnosed by associating signs and symptoms that may be frequent even in the non-patient population [11-15].

According to the literature, the prevalence of the TMD ranges from 20-50 %. This difference can be associated with the different methods of collecting data or different population or race [16-19].

The most common method for obtaining the initial data of TMD, among the non-patient population is using the Fonseca questionnaire. This questionnaire allows collecting the data in a short period with a low cost, and it’s easy to understand from the examinees [20].
Fonseca index is frequently used in Brazil to classify the severity of the signs and symptoms of TMD [11, 20-22] and further development in diagnosing of TMD [23].

The Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) aimed to standardize the diagnosis and classification of the different clinical forms of TMD [2, 16].

Therefore the rationale for this study was to pay attention to TMD among young students, due to its prevalence even in this period of life, as well as high social and personal cost to treat it.

Material and Methods

The research was carried out in Department of Prosthetic Dentistry, University of Pristina, Kosovo. A total number of respondents was 166 (84 female, 82 male). They were all volunteers; undergraduate dental students mean age 22.

For the study, the questionnaire of Fonseca (1994) [25] was used. This questionnaire proposed by Fonseca is commonly used to classify TMD severity because it is good in obtaining relevant data. [18, 26, 27]. The questionnaire was translated in Albanian language and was distributed to the students. There were ten questions to answer with: No, Sometimes and Yes (Table 1).

Table 1: The questions of Fonseca index

1. Do you have difficulty opening your mouth wide?  
2. Do you have difficulty moving your jaw to the side?  
3. Do you feel fatigue or muscle pain when you chew?  
4. Do you have headaches?  
5. Do you have neck pain or a stiff neck?  
6. Do you have ear aches or pain in that area (temporomandibular joint)?  
7. Have you ever noticed any noise in your temporomandibular joint while chewing or opening the mouth?  
8. Do you have any habits such as clenching or grinding your teeth?  
9. Do you feel that your teeth do not come together well?  
10. Do you consider yourself a tense (nervous) person?

For analyze of the answers, the following values were used: 10 for Yes, 5 for Sometimes and 0 for No. The total score gives the Fonseca index classification (Table 2).

Table 2: Fonseca-Clinical index classification

| Points | Classification    |
|--------|------------------|
| 0-15   | no TMD           |
| 16-20  | mild TMD         |
| 21-45  | moderate TMD     |
| 46-65  | severe TMD       |
| 66-80  | mild TMD         |
| 81-100 | severe TMD       |

Data analysis

Numerical series are analyzed by descriptive statistics and mean±standard deviation (SD). Chi-Square test (p < 0.05) was used for finding the statistical difference between men and women.

Results

Forty-six points four percentages % of the students have no symptoms of TMD, 47 % have mild TMD, 7.2% moderate TMD and only 1.2 % have severe TMD. Based on the results, there is no difference of Fonseca Index, due to the sex (Table 3).

Table 3: Classification of Fonseca Index

|          | Women | Man | Respondents | %   |
|----------|-------|-----|-------------|-----|
| No TMD   | 37    | 37  | 74          | 44.6|
| Mild TMD | 39    | 39  | 78          | 47.0|
| Moderate TMD | 8  | 4   | 12          | 7.2 |
| Severe TMD| 0    | 2   | 2           | 1.2 |
| Total    | 84    | 82  | 166         | 100 |

χ² test = 1.133, P=0.769

From all the questions, the most frequent answer with “Yes” was the seventh question, (Did you notice any clicking on the TMJ during chewing or opening the mouth?) with 21.7% (Table 4).

Table 4: Respondents for the question no. 7 (Did you notice any clicking on the TMJ during chewing or opening the mouth?)

|          | Respondents | %   |
|----------|-------------|-----|
| No       | 88          | 53.0|
| Sometimes| 42          | 26.3|
| Yes      | 36          | 21.7|
| Total    | 166         | 100.0|

The most frequent answer with “No” was the first question, (Do you have difficulties on opening the mouth) with 88.6% (Table 5).

Table 5: Table of respondents for the question no. 1 (Do you have difficulties on opening the mouth)

|          | Respondents | %   |
|----------|-------------|-----|
| No       | 147         | 88.6|
| Sometimes| 17          | 10.2|
| Yes      | 2           | 1.2 |
| Total    | 166         | 100.0|

For the second question, (Do you have difficulties on moving the mandible from side to side) with 88.6% (Table 6).

Table 6: Table of respondents for the question no. 2 (Do you have difficulties on moving the mandible from side to side)

|          | Respondents | %   |
|----------|-------------|-----|
| No       | 147         | 88.6|
| Sometimes| 15          | 9.0 |
| Yes      | 4           | 2.4 |
| Total    | 166         | 100.0|

Discussion

Using Fonseca questionnaire, there is possible to collect a lot of important data that can be
very useful for early diagnosis of TMD [11, 27, 28].

In our sample 44.6 % of participants have no symptoms of TMD, 47% have mild TMD, 7.2% moderate TMD and only 1.2% have severe TMD. These results are similar to the findings of Nomura et al. and Rashid Habib et al. [11, 28].

Manfredini et al. [24] found a TMD prevalence from 2.6% to 11.4% in the normative population, in different countries while Agerberg and Ikapool [29] found the even higher percentage of TMD signs and symptoms of the general population, 88.0% of 637 individuals. In another side, Carlsson [30] found that TMD prevalence varies between 6.0% and 93.0%.

Based on our results, there is no difference of Fonseca Index, due to the sex (X2 test = 1.133, P=0.769) while Gonçalves et al. [31] found a 39.2% prevalence of TMD symptoms in the Brazilian population, in which women were significantly more likely to have TMD than men (RR > 1.0; p < 0.001). Based on the results of Bevilaqua-Grossi et al. [20], Magnuson et al. [32] and Celic at al. [33] women are also more affected of TMD.

The most frequent answer with “Yes”, in our study was the seventh question, (Did you notice any clicking on the TMJ during chewing or opening the mouth?) with 21.7%, while Nomura et al. [11] in their study have found 65.52% positive answers for the same question.

Although there were used ten questions of the Fonseca questionnaire, Campos JADB [34] et al., based on their data, suggest that Fonseca questionnaire (1994) should be adapted, so it includes only questions 1, 2, 3, 6 and 7 of the original version. So, [35] showed that reduced Fonseca questionnaire is also valid and reliable.

In conclusion, Fonseca questionnaire has its importance in the early diagnosis of TMD that can occur in the young population.

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References

1. Okeson JP. Etiology of functional disturbances in the masticatory system. In: Okeson JPeditor. Management of temporomandibular disorders and occlusion, 7th ed. Rio de Janeiro: Elsevier, 2013: p. 102-128.
2. Dworin SF & LeResche L. Research diagnostic criteria for temporomandibular disorders: review, criteria, examinations and specifications, critique. J Craniomandib Disord. 1992;6:301–55.
3. Tecco S, Crinco1 V, Di Bisceglie B, Saccucci M, Macri M, Polimeni A, et al. Signs and symptoms of temporomandibular joint disorders in Caucasian children and adolescents. The Journal of Craniofacial Surgery. 2011;29:71-79. https://doi.org/10.1177/cm.2011.010
4. Marklund S, Wänman A. Risk factors associated with incidence and persistence of signs and symptoms of temporomandibular disorders. Acta Odontol Scand. 2010;68:289-299. https://doi.org/10.3109/00016357.2010.494621 PMid:20528485
5. Macfarlane TV, Kenealy P, Kingdon HA, Mohlin BO, Pilley JR, Richmond S, et al. Twenty-year cohort study of health gain from orthodontic treatment: temporomandibular disorders. Am J Orthod Dentofacial Orthop. 2009;135:692.e1-e8. https://doi.org/10.1016/j.ajodo.2008.10.017
6. Oral K, Bal Küçük B, Ebeoğlu B, Dincer S. Etiology of temporomandibular disorder pain. Agri. 2009;21:89-94. PMid:19779999
7. Monteiro DR, Zuim PRJ, Pesqueira AA, Ribeiro PP, Garcia AR. Relationship between anxiety and chronic orofacial pain of temporomandibular disorder in a group of university students. Journal of Prosthodontics Research. 2011;55:154-158. https://doi.org/10.1016/j.jpor.2010.11.001 PMid:21122717
8. Moscoso T, de la Fuente R, Alegre A. Study of the prevalence of TMJ clicks in different campus in Spain. J Oral Rehabil. 2013; 40: 754-759. https://doi.org/10.1111/j.1365-2842.2013.02540.x PMid:23971155
9. de Miranda PM, de Menezes AMR, de Carvalho AMR, de Lima MR, da Rocha MHN. Prevalence of temporomandibular disorders in a group of university students. Arch Oral Biol. 2014;59:1165-1170. https://doi.org/10.1016/j.archoralbio.2014.04.002 PMid:24985538
10. Monteiro DR, Zuim PRJ, Pesqueira AA, Ribeiro PP, Garcia AR. Relationship between anxiety and chronic orofacial pain of temporomandibular disorder in a group of university students. Journal of Prosthodontics Research. 2011;55:154-158. https://doi.org/10.1016/j.jpor.2010.11.001 PMid:21122717
11. Nomura K, Vitti M, de Oliveira AS, Chaves THC, Sempirini M, Siessere S, Hallak JEC, Regallo SCH. Use of the Fonseca’s questionnaire to assess the prevalence and severity of temporomandibular disorders in Brazilian dental undergraduates. Braz Dent J. 2007; 18(2):163-167. https://doi.org/10.1590/S0103-64402007000200015 PMid:17982599
12. Bonjardim LR, J Lopes Filho R, Amado G, Albuquerque RLC, Goncalves SRJ. Association between symptoms of temporomandibular disorders and gender, morphological occlusion, and psychological factors in a group of university students, Indian J of Dent Res. 2009; 20 (2): 190-194. https://doi.org/10.4103/0970-9290.52901 PMid:19553721
13. Pedroni CR, de Oliveira AS, Guaratini MT. Prevalence Study of signs and symptoms of temporomandibular disorders in university students. J Oral Rehabil. 2003; 30:283-289. https://doi.org/10.1111/j.1365-2842.2003.00400.x PMid:12588501
14. Otuoyemi OD, Owotade FJ, Ugboro VI, Ndukwe KC, Olusile OA. Prevalence of signs and symptoms of temporomandibular disorders in young Nigerian adults. J Orthod. 2000; 27: 61-5. https://doi.org/10.1093/ortho/27.1.61 PMid:10790446
15. Miyake R, oohubo R, Takehara J, Morita M. Oral parafunctions and association with symptoms of temporomandibular disorders in Japanese university students. J Oral Rehabil. 2004; 31: 518-23. https://doi.org/10.1111/j.1365-2842.2004.01269.x PMid:15183507
16. Lee JY, Kim YK, Kim SG, Yun PY. Evaluation of Korean teenagers with temporomandibular joint disorders. J Korean Assoc. Oral Maxillofac. Surg. 2013; 39: 231–37. https://doi.org/10.5125/jkoms.2013.39.5.231 PMid:24471050 PMCID:PMC3858142
17. Modi P, Shaikh SS, Munde A. A cross sectional study of prevalence of temporomandibular disorders in university students. Int J Sci Res Publ. 2012;2(9):1–3.
18. Vojdani M, Bahrami F, Ghadiri P. The study of relationship between reported temporomandibular symptoms and clinical dysfunction index among university student in Shiraz. Dent Res J (Isfahan). 2012;9:221-5. https://doi.org/10.4103/1735-3327.95240
19. Ebrahimi M, Dashti H, Mehrabkhani M, Arghavani M, Daneshvar-Mozafari A. Temporomandibular disorders and related factors in a group of Iranian adolescents: a cross sectional survey. J Dent Res Dent Clin Dent Prospects. 2011; 5(4):123–27. PMCID:PMC3442434

20. Bevilaqua-Grossi D, Chaves TC, de Oliveira AS, MonteiroPedro V. Anamnestic index severity and signs and symptoms of TMD. Cranio. 2006;24:112-18. https://doi.org/10.1179/crn.2006.018 PMid:16711273

21. Oliveira AS, Dias EM, Contato RG, Berzin F. Prevalence study of signs and symptoms of temporomandibular disorder in Brazilian college students. Braz Oral Res. 2006;20(1):3-7. https://doi.org/10.1590/S1806-83242006000100002 PMId:16729167

22. Brandini DA, Pedrini D, Panzarini SR, Benete IM, Trevisan CL. Clinical evaluation of the association of noncarious cervical lesions, parafunctional habits, and TMD diagnosis Quintessence Int. 2012;43(3):255-62. PMid:22299126

23. Resende CM, Alves AC, Coelho LT, Alchieri JC, Roncalli AG, Barbosa GA. Quality of life and general health in patients with temporomandibular disorders. Braz Oral Res. 2013;27(2):116-21. https://doi.org/10.1590/S1806-83242013000500006 PMId:23459771

24. Manfredini D, Guarda-Nardini L, Winocur E, Piccotti F, Ahlberg J, Lobbezoo F. Research diagnostic criteria for temporomandibular disorders: a systematic review of axis I epidemiologic findings. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2011;112:4534-62. https://doi.org/10.1016/j.tripleo.2011.04.021 PMid:21835653

25. Fonseca DM, Bonfante G, Valle AL, De Freitas SFT. [Diagnóstico pela anamnese da disfunção craniomandibular]. Rev Gaucha Odontol. 1994;4(1):23-32. Portuguese.

26. Bahrami F GP, Vojdani M. Comparison of Temporomandibular Disorders in Iranian Dental and Nondental Students. J Contemp Dent Pract. 2012;2:173-77. https://doi.org/10.5005/jp-journals.10024.1116

27. Wahid A, Imran F, Mian A, Razzaq SA, Bokhari H, Kaukab T, Iftikhar A, Khan H. Prevalence and Severity of Temporomandibular Disorders (TMD) in Undergraduate Medical Students using Fonseca’s Questionnaire. Pakistan Oral Dent J. 2014;34(1):38-41.

28. Habib SR, Al Rifaiy MQ, Awan KH, Alsaf A, Alshalan A, Altokaiy Y. Prevalence and severity of temporomandibular disorders among university students in Riyadh. Saudi Dent J. 2015;27(3):125-30. https://doi.org/10.1016/j.sdentj.2014.11.009 PMid:26236125 PMCID:PMC4501441

29. Agerberg G, Inkapiö I. Craniofacial problems and related conditions in urban Swedish population. J Craniofac. 1990;4(3):154-64. PMid:2098391

30. Carlsson GE. Epidemiology and treatment need for temporomandibular disorders. J Orofac Pain. 1999;13(4):232-7. PMid:10823035

31. Gonçalves DA, Dal Fabbro AL, Campos JA, Bigal ME, Speciali JG. Symptoms of temporomandibular disorders in the population: an epidemiological study. J Orofac Pain. 2010;24(3):270-8. PMid:20664828

32. Magnusson T, Egermark I, Carlsson GE. A longitudinal epidemiologic study of signs and symptoms of temporomandibular disorders from 15 to 35 years of age. J Orofac Pain. 2000;14:10-19.

33. Celic R, J erolimov V, Knezovic Zlataric D. Relationship of slightly limited mandibular movements to temporomandibular disorders. Braz Dent J. 2004;15:151-54. https://doi.org/10.1590/S0103-64402004000200012 PMid:15776199

34. Campos JADB, Gonçalves DAG, Camparins CM, Speciali JG. Reliability of a questionnaire for diagnosing the severity of temporomandibular disorder. Rev Bras Fisioter. 2009;13(1):38-43. https://doi.org/10.1590/S1413-35552009000500007 PMid:15776199

35. Campos JADB, Carrascosa AC, Bonafé FSS, Maroco J. Severity of temporomandibular disorders in women: validity and reliability of the Fonseca Anamnestic Index. Braz Oral Res (São Paulo). 2014;28(1):1-6. https://doi.org/10.1590/1807-3107BQR-2014.vol28.0033