https://doi.org/10.37939/jrmc.v27i2.1963

Prevalence Of Parafunctional Habits And Temporomandibular Disorder Symptoms In Young Individuals Reporting To Watim Dental Hospital

Aleshba Saba Khan[1], Aleeza Sana[2], Zarah Sufian[3], Ammarah Afreen[4], Asma Shakoor[5], Eruj Shuja[6]

Abstract

Objective: This study aims to identify the prevalence of parafunctional habits and common symptoms of temporomandibular disorders in young individuals reporting to the Watim Dental College

Materials and methods: This cross-sectional study was carried out by a survey and clinical examination over a period of six months from September 2021 to February 2022. Data from 103 patients, who fulfilled the inclusion criteria, were collected using a structured questionnaire and clinical examination regarding their parafunctional habits and temporomandibular joint symptoms. Informed consent was filled out by all the participants. Data were analyzed using SPSS version 23. A descriptive analysis was calculated for both quantitative and qualitative variables.

Results: The prevalence of oral parafunctional habits among the study sample was quantified on a binary scale (yes/no) where nail-biting was observed to be highly prevalent (38%), followed by mouth breathing (27%). The most frequently reported temporomandibular joint symptom was noise (clicking or crepitation) which was 66%. Difficulty in mouth opening was the least common (20%) of all the symptoms noted.

Conclusion: It may be concluded from our study that amongst parafunctional habits nail biting is the most common habit amongst young individuals and amongst the temporomandibular joint disorder clicking and crepitation is the most common symptom persistent with the condition.

Keywords: clicking, nail-biting, parafunctional habits, temporomandibular joint symptoms

[1] Assistant Professor Prosthodontics, Shahida Islam Dental College, Lodhran; [2] Demonstrators, Science of Dental Materials, School of Dentistry, Islamabad; [3] Assistant Professor and HOD Prosthodontics, Watim Dental College, Rawalpindi; [4] Assistant Professor, Operative Dentistry, Watim Dental College Rawalpindi; [5] Associate Professor, Community and Preventive Dentistry, CMH Lahore; [6] Assistant Professor, Watim Mental and Dental College;
Correspondence: Dr Aleshba Saba Khan, Assistant Professor of Prosthodontics, Shahida Islam Dental College, Lodhran. **Email:** aleshbasaba@hotmail.com
Cite this Article: Khan, A. S., Sana, A., Sufian, Z., Afreen, A., Shakoor, A., & Shuja, E. (2023). Prevalence Of Parafunctional Habits And Temporomandibular Disorder Symptoms In Young Individuals Reporting To Watim Dental Hospital . *Journal of Rawalpindi Medical College*, *27*(2). https://doi.org/10.37939/jrmc.v27i2.1963
Received July 3, 2022; accepted May 13, 2023; published online June 24, 2023

1. Introduction

The temporomandibular joint is a bilateral, synovial, hinge joint between the mandible and skull that helps in complex movements of the jaw while mastication, speech, and drinking.[1] It works as a functional unit in coordination with the muscle of mastication, some ligaments as well as teeth.[2] Any alterations in this functional unit beyond its adaptive capacity can have an impact on the adequate functioning of the joint, resulting in temporomandibular disorders.[1]

Temporomandibular disorders, which have multifactorial aetiology, according to the American Academy of orofacial pain (AAOP) are defined as a collection of dysfunctional, painful conditions in the temporomandibular joint and associated structures.[1, 3] The cause of these disorders can be attributed to psychological stress, tooth loss or malalignment, bruxism, clenching, parafunctional habits, poor posture for long durations, destructive changes within or around the joints, injuries, genetic factors or tumorous growths.[1, 3, 4] The signs and symptoms can vary depending upon the severity of the condition and can present as pain, noise, the issue with adequate mouth opening, headache, tooth wear or jaw getting stuck.[1, 3]Oral parafunctional habits, which present as abnormal or excessive use of teeth or masticatory muscles, are among the main causes leading to temporomandibular disorders.[5,6]These habits include clenching, bruxism, nail-biting, lip or cheek biting, and gum chewing, keeping pencil or anything in mouth habitually.[1, 6]

Temporomandibular disorders are mostly observed to be reported in individuals in the age range of 20 to 40 years and three times more commonly in females.[1,5]Diagnosis of TMD and finding its cause is a challenging task.[1] There are no universally accepted criteria established yet to figure out the accurate diagnosis.[1,7] A questionnaire was formulated in 1994 based on Fonseca's anamnestic index which was first made for Brazilian people and had been used multiple times since then as it provides a cost-efficient and simple tool for assessing signs and symptoms of TMDs.[1] A study conducted on university students showed the prevalence of TMDs to be 63% among

which 43.1% showed mild symptoms, 18.4% had moderate and only 1.3% showed severe symptoms.[1] Temporomandibular disorders are one of the reasons for seeking dental care other than dental pain. This study aims to identify the prevalence of parafunctional habits and common symptoms of temporomandibular disorders in young individuals reporting to Watim Dental College. Much research has not been carried out regarding the issue in Pakistan hence this study will prove to be a contributing factor to bring this to light. Early diagnosis will help in controlling or limiting the issue so avoid the severity of signs and symptoms and thus help in better management.

2. Materials & Methods

This cross-sectional study was carried out by a survey and clinical examination over a period of six months from September 2021 to February 2022. Written informed consent was signed by all patients before joining the study. The purpose of the study was explained at the beginning of the questionnaire. Patients attending Dental Outpatient Department with different oral health issues were examined by assigned doctors. The patients were seated upright during the examination. A mouth mirror and explorer were used for examination. No radiographs were taken. Patients after examination were asked different questions using a pre-existing questionnaire by Fonseca for classifying TMJ.[8,9] The criteria for inclusion included men and women ranging from 15-35 years of signs of bruxism and other para-functional habits. Bruxism was evaluated by clinically observing signs of tooth wear, cracks, scalloped tongue, linea alba, muscle hypertrophy or patient reporting pain. Mouth breathing was assessed by asking questions given in the questionnaire as well as oral examination showing dry mouth, high arched palate and adenoid faces. Exclusion requirements included patients above 35 years of age and patients with neurological disorders or severe chronic diseases. A sample size of 103 subjects was selected using a 1.1 WHO calculator and a non-probability, consecutive sampling technique. The sample was estimated using a 90%confidence level, and a 5% margin of error.

The questionnaire was divided into three components. The first component (Section I) gathered information about demographic data, and the second component (Section II) consisted of questions about participant's dental history, questions such as teeth sensitivity, caries, dental trauma, pain history, and gum disease in them and the third component (Section III) consisted of questions about parafunctional habits, locking of the jaw, experienced clicking sounds while eating or talking, difficulty in opening the mouth, difficulty while yawning/chewing and question regarding a complaint of aesthetics. The questionnaire also contained other questions about parafunctional activities such as nail/lips biting chewing, bruxism, tongue thrusting, left baby/feeder bottle at a later age, and finger and thumb sucking.

Data were analyzed using the software Statistical Package for the Social Sciences (SPSS version 23). Descriptive statistics were computed for the variables in terms of frequency and percentages.

3. Results

103 individuals were selected for the study. Out of 103, 61(59%) were females and 42 (41%) were males. The mean age of the participants was 24.11±4.76 and the age range was 15-35 years.

The prevalence of oral parafunctional habits among the study sample was quantified on a binary scale (yes/no) where nail-biting was observed to be highly prevalent (38%), followed by mouth breathing (27%), tongue thrusting (23%), lip biting and clenching was seen in 17% of the participants and thumb sucking was prevalent in only 11% of the participants (figure 1).

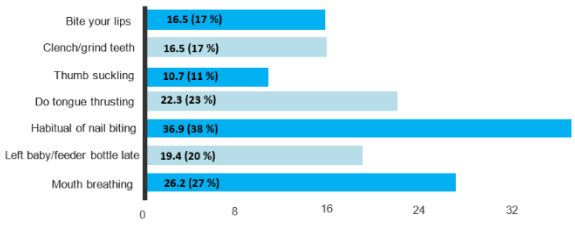

Figure 1: Prevalence (%) and frequency of parafunctional habits

The prevalence of the temporomandibular joint disorder among the study sample was quantified as difficulty in mouth opening (yes/no/rarely), pain in the temporomandibular joint (yes/no/rarely), TMJ noise either clicking or crepitation(yes/no/rarely), sudden stocking of the jaw (yes/no/rarely). The most frequently reported symptom was noise (clicking or crepitation) from TMJ which was 66%. Difficulty in mouth opening

was the least common (20%) of all the symptoms noted.

5. Discussion

The cross-sectional research was conducted at Watim Dental College, Rawalpindi to assess the prevalence of parafunctional habits and temporomandibular disorder symptoms in patients reporting to the outpatient department of the institute. The most commonly seen habit was nail-biting, followed by mouth breathing, tongue thrusting, clenching and lip biting and lastly thumb sucking with the least prevalence. This is in partial accordance with a study by Aloumi et al[10] who reported nail biting and mouth breathing to be among the top two common factors and in partial contrast to the present study as Aloumi et al reported teeth clenching to be the least common parafunctional habit (6%) whereas in this study thumb sucking was the least common habit (11%).[10] The present study was in total accordance with Alawsi et al who reported that mouth breathing and nail biting are the most commonly seen habits.[11] Present study contradicts dy by Murshid et al who reported clenching to be the most common parafunctional habit whereas clenching was seen to be the second least common habit.[12] This study also is in contrast to findings by Atsu et al who reported bruxism and lip biting to be more common than nail biting.[13] The variation in the prevalence of multiple parafunctional habits might be due to disparity in sociodemographic factors, age and difference in the region of the target population.[10]Mouth breathing was the second most common habit in the present study as well as in results reported by Aloumi et al.[10] This may be due to the high prevalence of deviated nasal septum or adenoids in the general population.[14,15]

The results of the present research show that the most prevalent temporomandibular joint disorder symptom observed is noise from TMJ (66%) followed by pain, and difficulty in mouth opening and the least common symptom seen was jaw getting stuck (24%). These results are in total accordance with the results of the study by Atsu et al and Chazopoulos et al who reported TMJ noises to be the most common, pain to be 2nd most common followed by difficulty in jaw opening.[13,16]The results of our study are also similar to findings by Al warren et al who reported TMJ noises as most commonly observed followed by pain.[17] In another research by Al Khotani et al, TMJ pain was seen to be most commonly reported.[18]The results of this study are in contrast with the present study which found TMJ noise to be 66% and TMJ pain to be 23%, that is almost half of TMJ noises. The reason for this difference may be because the study by Al Khotani et al did not consider TMJ noises in the evaluation of the patient at all thus pain turned out to be the most common, which is the second most common observation in the present study.[18]

The prevalence of TMDs is slightly greater in females as compared to males. This is by a study published by Beaumont et al in Australian Dental Journal. According to that study the TMDs persisted for a longer time in females as compared to males.[19] However their study shows that oral habits might be an independent factor when compared with TMD in the same individuals.[19]

Sergio et al in their study found gum chewing to be the most prevalent habit for causing temporomandibular joint disorders. However, the prevalence of TMD was less in young individuals than in the older population.[20]

Hong MH et al Study conducted in Korea suggests that multiple factors such as oral health status, mental health status, and temporomandibular joint symptoms are positively correlated.[21]

Limitations and future gap: The study was carried out using a convenience sampling technique and participants were assessed based on a questionnaire. Detailed evaluation of all the causes i.e. hormonal changes, diet, routine, sociodemographic factors, etc. was not done. The etiologic factors leading to parafunctional habits and TMDs must be assessed. In future, similar studies can be done while keeping in consideration the other factors as well as clinical examination can be compared to radiographic evaluation for a more definitive diagnosis of the signs and symptoms. This will help in the provision of a more targeted management strategy.

5. Conclusion

It may be concluded from our study that amongst parafunctional habits nail biting is the most common habit amongst young individuals and amongst the temporomandibular joint disorder clicking and crepitation is the most common symptom persistent with the condition.

CONFLICTS OF INTEREST- None

Financial support: None to report.
Potential competing interests: None to report

Contributions:

A.S.K, A.S- Conception of study
A.S.K, A.S, Z.S, A.A - Experimentation/Study conduction
A.S.K, A.S, Z.S, A.A , A.S, E.S- Analysis/Interpretation/Discussion
A.S.K, Z.S, A.S - Manuscript Writing
Z.S, A.A, A.S, E.S - Critical Review
A.S, A.A, A.S, A.A, E.S - Facilitation and Material analysis

References

[1] Khan MW, Zaigham AM. Prevalence and severity of temporomandibular disorders in medical/dental undergraduate students. J Pak Dent Assoc 2021;30(2):94-98, doi.org/10.25301/JPDA.302.94

[2] Domenyuk D, Dmitrienko S, Domenyuk S, Harutyunyan Y. Structural arrangement of the temporomandibular joint given the constitutional anatomy. ArchivEuroMedica. 2020;10(1):126. DOI: 10.35630/2199-885X/2020/10/37

[3] Paulino MR, Moreira VG, Lemos GA, Silva PL, Bonan PR, Batista AU. Prevalence of signs and symptoms of temporomandibular disorders in college preparatory students: associations with emotional factors, parafunctional habits, and impact on quality of life. Ciência&SaúdeColetiva. 2018;23:173-86. doi.org/10.1590/1413-81232018231.18952015

[4] Acharya S, Pradhan A, Chaulagain R, Shah A. Temporomandibular joint disorders and its relationship with parafunctional habits among undergraduate medical and dental students. Journal of College of Medical Sciences-Nepal. 2018 Sep 30;14(3):154-9. doi.org/10.3126/jcmsn.v14i3.20289

[5] Ekici Ö. Association of Malocclusion, Parafunctional Habits and Quality of Life in Patients with Temporomandibular Joint Disorder. TurkiyeKlinikleri. DishekimligiBilimleriDergisi. 2021;27(4):551-8. DOI: 10.5336/dentalsci.2020-79483

[6] Fale H, Hnamte L, Deolia S, Pasad S, Kohale S, Sen S. Association between parafunctional habit and sign and symptoms of temporomandibular dysfunction. Journal of Dental Research and Review. 2018 Jan 1;5(1):17. DOI: 10.4103/jdrr.jdrr_1_18

[7] Habib SR, Al Rifaiy MQ, Awan KH, Alsaif A, Alshalan A, Altokais Y. Prevalence and severity of temporomandibular disorders among university students in Riyadh. Saudi Dent J. 2015;27:125-30. doi.org/10.1016/j.sdentj.2014.11.009

[8] Melou C, Leroux L ,Meary F, Bertaud V, Lemaire A, Dominique CL. Relationship between Occlusal Factors, Oral Parafunctions and Temporomandibular Disorders: A Case Control Study. Intl J Dent Oral Health. 2019:5(44); 1-5. DOI: http://dx.doi.org/10.16966/2378-7090.295

[9] Feteih R. M.Signs and symptoms of temporomandibular disorders and oral parafunctions in urban Saudi Arabian adolescents: a research report. Head & face medicine.2006:2(25); 1-7. https://doi.org/10.1186/1746-160X-2-25

[10] Aloumi A, Alqahtani A, Darwish A. Oral parafunctional habits among preschool children in Riyadh, Saudi Arabia. Saudi Journal of Oral Sciences. 2018 Jan 1;5(1):22. DOI: 10.4103/sjos.SJOralSci_46_17

[11] Alawsi HR, Hassan BA, Al-Talabani SZ. Prevalence of Parafunctional Habits among Preschool Children and its Correlation to Parental Education Status. Polytechnic Journal. 2021 Aug 26;11(1):42-5. doi.org/10.25156/ptj.v11n1y2021.pp42-45

[12] Murshid ZA, Abdulaziz AA, Amin HE, Al Nowaiser AM. Assessment of parafunctional oral habits among a sample of Saudi dental patients. Journal of King Abdulaziz University-Medical Sciences. 2007 Oct 1;14(4):35-47.

[13] Atsü SS, Güner S, Palulu N, Bulut AC, Kürkçüoğlu I. Oral parafunctions, personality traits, anxiety and their association with signs and symptoms of temporomandibular disorders in the adolescents. African health sciences. 2019 Apr 23;19(1):1801-10. DOI: 10.4314/ahs.v19i1.57

[14] Valcheva Z, Arnautska H, Ivanova G, Atanasova I, Gogushev K. Influence of adenotomy/adenoidectomy on the respiration and occlusion in mouth-breathing children. Journal of the Union of Scientists-Varna. Medicine and Ecology Series. 2020 Dec 1;25(1):67-71.

[15] Šidlauskienė M, Lopatienė K, Šidlauskas M, Šidlauskas A. Mouth breathing habit correction. Interdisciplinary literature review. In95th European orthodontic society congress (EOS 2019): 17-22 June 2019, Nice France: abstracts: Houston and scientific poster/European Orthodontic Society 2019. https://hdl.handle.net/20.500.12512/23285

[16] Chatzopoulos GS, Sanchez M, Cisneros A, Wolff LF. Prevalence of temporomandibular symptoms and parafunctional habits in a university dental clinic and association with gender, age, and missing teeth. CRANIO®. 2019 May 4;37(3):159-67. doi.org/10.1080/08869634.2017.1399649

[17] AlWarawreh AM, AlTamimi ZH, Khraisat HM, Kretschmer W. Prevalence of temporomandibular disorder symptoms among orthognathic patients in southern Germany: retrospective study. International journal of dentistry. 2018 Oct 18;vol 2018. doi.org/10.1155/2018/4706487

[18] Al-Khotani A, Naimi-Akbar A, Albadawi E, Ernberg M, Hedenberg-Magnusson B, Christidis N. Prevalence of diagnosed temporomandibular disorders among Saudi Arabian children and adolescents. The journal of headache and pain. 2016 Dec;17(1):1-1. DOI 10.1186/s10194-016-0642-9

[19] Beaumont S, Garg K, Gokhale A, Heaphy N. Temporomandibular disorder: a practical guide for dental practitioners in diagnosis and management. Australian Dental Journal. 2020 Sep;65(3):172-80. doi.org/10.1111/adj.12785

[20] Sergio Paduano MD, Rosaria Bucci DD, Roberto Rongo DD, Silva R, Michelotti A. Prevalence of temporomandibular disorders and oral parafunctions in adolescents from public schools in Southern Italy. CRANIO®. 2018 Dec 14. doi.org/10.1080/08869634.2018.1556893

[21] Hong MH. Effects of Mental Health Levels and Oral habits on Temporomandibular Joint symptom in some adolescents. Journal of the Korea Academia-Industrial cooperation Society. 2020;21(2):381-7. doi.org/10.5762/KAIS.2020.21.2.381