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Original Research

To assess the comparison of relation between parafunctional oral habits and Temporomandibular dysfunction in himachal population

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ABSTRACT:
Background: Temporomandibular disorders (TMDs) are a group of abnormalities affecting the Temporomandibular joint (TMJ), jaw muscles, or both. Pain, malocclusion, deviated mouth opening, limited jaw function, and headache are some of the most commonly noticed signs and symptoms of TMDs. Therefore, the present study was conducted to assess relationship between parafunctional habits and signs and symptoms of Temporomandibular dysfunction. **Material & methods:** The present study was conducted among 400 participants (15–25 years) over a period of 6 months. Data were collected using self-administered questionnaire and both intraoral and extraoralexamination. Statistical Package for Social Science (SPSS) of version 11.5 was used for statistical analysis of obtained data. $P < 0.05$ was considered as statistically significant. **Results:** In the present study Maximum (52.5%) participants had habit of nail biting followed by grinding teeth (52%). A statistically significant association was found between having harmful oral habits and three or more signs and symptoms of TMD. There was a statistically significant association between patients with TMD and three or more signs/symptoms, such as headache, noises in the TMJ, chewing difficulties and facial fatigue ($P < 0.0001$). **Conclusion:** The present study concluded that maximum participants had habit of nail biting followed by grinding teeth. A statistically significant association was found between having harmful oral habits and three or more signs and symptoms of TMD. There was a statistically significant association between patients with TMD and three or more signs/symptoms.
Keywords: Parafunctional habits, Temporomandibular dysfunction, Temporomandibular joint.

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INTRODUCTION

Temporomandibular disorder (TMD) is defined as a set of painful and/or dysfunctional conditions involving the muscles of mastication and/or the Temporomandibular joint (TMJ).[1]The American Academy of Orofacial Pain defined TMD as "a collective term embracing a number of clinical problems that involve the masticatory musculature, the Temporomandibular joint (TMJ) and associated structures, or both." These disorders have been principally characterized by: Pain in the Temporomandibular region or the muscles of mastication, Limitations or deviations in mandibular range of motion, TMJ sound during jaw function, Masticatory muscle soreness.[2] TMD has multifactorial aetiologies with various initiating factors (trauma, parafunctional habits); predisposing factors (systematic, genetic, structural, psychological) and perpetuating factors (metabolic factors, muscle stress).[3] It initially manifests as quintessential triology of sign and symptoms in which patient usually experience joint pain followed by clicking sound in joint and finally difficulty in mouth opening.[4] Other commonly occurring sign and symptoms are "soreness of muscles of mastication, attrition of teeth and sensitivity, hyper mobility of teeth, headaches in the temple region, pain in the area of forehead and eyes, pain in the back of the head (possibly extending to the shoulders and neck), fullness in the ears, tinnitus, pressure on the eyes,

sensitivity to light, dizzy spells, vertigo, nausea, lack of concentration".[5] The term oral parafunctional habit is used to describe any abnormal behavior or functioning of the oral structures and associated muscles. Abnormal behaviors commonly include bruxism, clenching, excessive gum chewing, lip/nail biting or nonnutritive sucking. During parafunctional activities, however, it seems that neuromuscular protective mechanism is suppressed and therefore not fully capable of protecting masticatory components, specially masticatory muscle from high level of their activity, this leads to an increase parafunctional activity.[6-8] Deleterious parafunctional habits affect the dentoalveolar structures. If these habits are diagnosed late, resulting in delayed treatment, they will give rise to severe problems which might be irreversible or associated with high costs, difficult technical problems and severe patient suffering.[9] Therefore, it is necessary to decrease these habits through proper intervention and correct treatment planning, which is not possible without acquiring good statistics. Therefore, the present study was conducted to assess relationship between parafunctional habits and signs and symptoms of Temporomandibular dysfunction.

MATERIAL & METHODS

The present study was conducted among 400 participants (15–25 years) over a period of 6 months. Before the commencement of the study ethical clearance was obtained and written consent was obtained from the patient/parent. Participants included had all permanent dentition (absence of primary teeth), no craniofacial anomalies. Patients with mental disorder, any gross pathology of ear were excluded from the study. Data were collected using self-administered questionnaire and both intraoral and extraoralexamination. The clinical examination was conducted under adequate illumination and proper patient's position. The patient was seated upright and examination was done using mouth mirror and probe. TMJ was palpated bilaterally for any asymmetry, swelling in preauricular region, TMJ noise for any irregularities on closing or opening of mouth, deviation of mandible. Masticatory muscle and accessory muscle were palpated to check tenderness using index, middle and third finger. The subject were requested to answer a questionnaire, if the subject is unable to answer then parents of the patient was asked for the same. Statistical Package for Social Science (SPSS) of version 11.5 was used for statistical analysis of obtained data. $P < 0.05$ was considered as statistically significant. To find the association between parafunctional habits and sign and symptoms of TMD Chi-square test was applied.

RESULTS

In the present study 400 participants were included in which 180 (45%) were males and 220 (55%) were females. 134 of the participants (33.5%) reported no signs or symptoms of TMD. 266(66.5%) had signs or symptoms of TMD. Twenty-five percent (n = 100) of the participants reported having none of the habits.

Table 1: Frequency and percentage of harmful habits

Parafunctional habits	N(%)	p-value
Nail biting	210(52.5%)	0.068
Clenching teeth	140(35%)	0.436
Grinding teeth	120(52%)	0.257
Biting lip/objects	120(40%)	0.386
Chewing gum	180(45%)	0.255

Maximum (52.5%) participants had habit of nail biting followed by grinding teeth (52%).

Table 2 Frequency and percentage of harmful habits according to the presence of signs and symptoms of TMD

Parafunctional habits	Signs and symptoms		Total	p-value
	Upto 2 N (%)	3 or more N (%)		
Nail biting	60(28.57%)	150(71.42%)	210(52.5%)	**0.022**
Clenching teeth	60(42.85%)	80(57.15%)	140(35%)	**<0.001**
Grinding teeth	40(33.33%)	80(66.67%)	120(52%)	**0.030**
Biting lip/objects	30(25%)	90(75%)	120(40%)	**0.012**
Chewing gum	145(80.55%)	35(19.45%)	180(45%)	0.411

A statistically significant association was found between having harmful oral habits and three or more signs and symptoms of TMD.

Headache was the most frequently reported sign or symptom of TMD (40.6%; n = 99). Noises in the TMJ constituted the second most frequently reported sign or symptom of TMD (24.6%; n = 60). A total of 13.5% (n = 33) reported difficulties speaking, chewing or using the jaws. Facial fatigue was reported by 9.8% (n = 24) and 9% (n = 22) stated that their 'jaw locked' at times. Facial pain was reported by 7.8% (n = 19) and 2.5% (n = 6) reported difficulty or pain upon opening the mouth.

Table 3: Frequency and percentage of TMD according to the presence of signs and symptoms

Signs and symptoms	Without TMD N (%)	With TMD N (%)	Total	p-value
Headache	57(55.89%)	45(44.11%)	102(100%)	**<0.001**
Joint noise	29(44.62%)	36(55.38%)	65(100%)	**<0.001**
Difficulty or pain upon masticating	10(29.42%)	24(70.58%)	34(100%)	**<0.001**
Tired feeling in face	7(28%)	18(72%)	25(100%)	**<0.001**
'Locked' jaw	7(62.17%)	14(37.83%)	21(100%)	**0.042**
Facial pain	3(15%)	17(85%)	20(100%)	**0.042**
Difficulty or pain upon opening mouth	3(37.5%)	5(62.5%)	8(100%)	**0.016**

There was a statistically significant association between patients with TMD and three or more signs/symptoms, such as headache, noises in the TMJ, chewing difficulties and facial fatigue (P < 0.0001).

DISCUSSION

TMJ is one of the most complex joints in the human body and is closely related to the profession of dentistry. The disorders of this joint consist of clinical problems that involve the masticatory muscles system and/or the joint itself. Based on the definition provided by the American Dental Association, the symptoms and signs of TMJ disorders consist of pain, tenderness to palpation in TMJ area or masticatory muscles, limitations in the jaw movements, mandibular deviation at mouth opening and closing, and TMJ sounds during mandibular movement.[10] TMD exhibits a classic triad of signs and symptoms. The first sign/symptom is pain (joint and/or muscle), followed by noises in the joints and finally, difficulties upon opening the mouth.[4]

Study done by Lobbezoo et al., and Respetro C et al., had stated "bruxism, clenching/grinding of teeth, nail biting, object biting, forward thrust of mandible as parafunctions".[11,12]

In the present study 400 participants were included in which 180 (45%) were males and 220 (55%) were females. 134 of the participants (33.5%) reported no signs or symptoms of TMD. 266(66.5%) had signs or symptoms of TMD. Twenty-five percent (n = 100) of the participants reported having none of the habits. Maximum (52.5%) participants had habit of nail biting followed by grinding teeth (52%). A statistically significant association was found between having harmful oral habits and three or more signs and symptoms of TMD. Headache was the most frequently reported sign or symptom of TMD (40.6%; n = 99). Noises in the TMJ constituted the second most frequently reported sign or symptom of TMD (24.6%; n = 60). A total of 13.5% (n = 33) reported difficulties speaking, chewing or using the jaws. Facial fatigue was reported by 9.8% (n = 24) and 9% (n = 22) stated that their 'jaw locked' at times. Facial pain was reported by 7.8% (n = 19) and 2.5% (n = 6) reported difficulty or pain upon opening the mouth. There was a statistically significant association between patients with TMD and three or more signs/symptoms, such as headache, noises in the TMJ, chewing difficulties and facial fatigue (P < 0.0001).

Fale H et al concluded that there was no association between parafunctional habits and signs and symptom of TMD. In age group of 15–19 years, it was statistically significant. Hence, while treating patient dentist should give attention to parafunctional habits in this age group especially.[13]

Motghare V et al found a statistically significant association between nail biting, lip/ object biting and grinding of teeth with signs and/or symptoms of TMD.[14]

Motta LJ et al found a statistically significant association between signs and/or symptoms of TMD and harmful oral habits in adolescents.[4]

CONCLUSION

The present study concluded that maximum participants had habit of nail biting followed by grinding teeth. A statistically significant association was found between having harmful oral habits and three or more signs and symptoms of TMD. There was a statistically significant association between patients with TMD and three or more signs/symptoms.

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