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Original Article



Frequency of Bruxism among Myofascial Temporomandibular Pain Disorder Patients

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ABSTRACT

The connection between bruxism and temporomandibular disorders is complex and not yet well understood. Bruxism is a disorder marked by recurrent jaw movements that result in teeth clenching or grinding. It is frequently regarded as a significant risk factor for temporomandibular problems (TMD). **Objective:** To determine the frequency of bruxism among myofascial pain disorder in temporomandibular joint patients. **Methods:** A non-probability convenient sampling strategy was used to conduct a descriptive cross-sectional study with a sample size of 179 patients. Questionnaire was based upon the diagnostic criteria of American Academy of Sleep Medicine for bruxism and data were collected from Lahore Medical and Dental College and Ghurki Teaching Trust Hospital Lahore. **Results:** Out of the 179 patients 94 (52.5 %) reported symptoms of jaw joint noise and the frequency of bruxism in the participants was 106 (59.2 %). **Conclusions:** The study concluded that bruxism is more frequent in myofascial pain disorder in temporomandibular joint patients

INTRODUCTION

Temporomandibular Joint is complex synovial joint of condylar variety that consists of squamous portion of the temporal bone, the articular disc, joint capsule and mandible. Strengthening of joint is provided by capsule, ligaments, synovial membrane and muscles of mastication. Any problem in this complex structure causes temporomandibular disorders [1]. Temporomandibular joint disorder (TMD) is define as any change or variations in the temporomandibular joint, muscles of mastication and related structures. TMDs types involves myofascial pain , disc displacement and neck disability and multiple risk factors that include trauma ,headache, stress, posture instability, bruxism, dental problems ,excessive chewing ,open mouth breathing and muscles of mastication

problems that can cause TMDs. According to recent study the most common form of temporomandibular disorder that reported was myofascial pain in jaw muscles. According to survey data, the majority of general dentists and TMD experts think that bruxism has a major part in the aetiology of TMDs [2]. This myofascial pain disorder syndrome was distinguished from another type of temporomandibular joint (TMJ) dysfunction, known as internal derangement, characterized by displacement of the TMJ disc, disc-condyle relationship disturbances, or alterations in the shape of the condyle, which could be identified through clinical or radiological examination. This classification proposed by Laskin was influential in the field of TMJ disorders and helped differentiate between



different etiologies of TMJ pain and dysfunction. The previously listed common symptoms were included in the myofascial pain disorder criteria, with the exception that pain had to always be in one side. Two other requirements should also be fulfilled: (a) lack of clinical or radiological evidence of organic alterations in the temporomandibular joint; and (b) when the temporomandibular joint is palpated in the external auditory meatus, there is no discomfort there [3]. Bruxism is a disorder marked by recurrent jaw movements that result in teeth clenching or grinding. Bruxism is main etiological factor of temporomandibular disorders and routinely present in general population causes TMJ pain [4]. It is mostly related to stress [5]. Sleep bruxism is the clenching of teeth during night. Its clinical signs are abnormal tooth wear and grinding of teeth during sleep, second is muscle of mastication pain in the morning and third is jaw locking upon awakening. According to dentists about 40% self-reporting sleep bruxism mostly occurs in people with painful TMDs [6]. Sleep bruxism is difficult to identify and have been associated with TMDs and other musculoskeletal conditions. The etiology of TMDs and Bruxism is still not clearly understood [7]. When sleep bruxism associated with TMDs it will increase the risk of headache and migraine [8]. Prevalence of TMDs associated with bruxism in overall sample was calculated according to RDC/TMD diagnosis criteria [9]. In another study the grinding of teeth or bruxism was highly prevalent TMD symptom (35.6%), joint noise (33.4%) and locked jaw (10.6%). TMD and its risk factors affects the approximately 33% of the population [10, 11]. Treatment of TMJ pain involves medications, therapeutics treatment, acupuncture, splints and physiotherapy techniques include manual therapy, TENS, massage, mobility exercises. A study was conducted that end up with the conclusion that the mobilization techniques and manual therapy have a long term effect on TMJ patients. A notable reduction in pain and improvement in restricted ROMs seen [12].

This study was conducted to estimate the frequency of bruxism among myofascial pain disorder in temporomandibular joint patients and to provide help to clinical professionals to focus on prevention and early treatment of pathological effects of bruxism.

METHODS

This descriptive cross-sectional study was conducted among 179 patients of myofascial pain of temporomandibular joint disorder from Ghurki Trust and Teaching Hospital (GTTH), Lahore, Pakistan in six-month duration after the approval from Ethical Review Committee of Lahore College of Physical Therapy, LMDC. Sample size was calculated by World Health Organization (WHO) sample size calculator with 0.75% prevalence [13]. Patients who

met the diagnostic criteria were accepted in the study. The diagnosis of bruxism was based on the diagnostic criteria of the American Academy of Sleep Medicine reporting tooth grinding or clenching in combination with at least one of the following abnormal tooth wear, jaw joint noise with bruxism and jaw muscle discomfort. Questions were asked about the TMJ noise and tooth grinding. The nonprobability convenient sampling strategy was utilized. The inclusion criteria of patients for both genders were temporomandibular joint patients, 20 - 35 years of age, with complain of noise in jaw joint. Patients were excluded with dental problems, abnormal tooth wear, braces, stress, fatigue, anxiety and common health problems [13]. Data were compiled and analyzed using SPSS version 21.0. Variables were analyzed by descriptive statistics that provided frequency mean and standard deviation. A written consent form was provided to every patient and the purpose along with the nature of study was explained. The test was performed on every patient with the reassurance that their information was not disclosed and remained confidential.

RESULTS

The participant's mean age was 28.03 ± 4.505 years (table 1).

Table 1: Descriptive Statistics of Age of Population

Age of Population	N	Minimum	Maximum	Mean \pm SD
	179	20.0	39.0	28.03 \pm 4.505

Noise in temporomandibular joint 179 participants were included in study in which 94 (52.5%) came out with positive results and 85 (47.5%) with negative results (table 2).

Table 2: Noise in Temporomandibular Joint

Do You Feel Noise in Jaw Joint?	Frequency (%)
Positive/Yes	94 (52.5)
Negative/No	85 (47.5)

The frequency of bruxism both in males and females was 59.2% (table 3).

Table 3: Frequency of Bruxism in Both Males and Females

Bruxism	Frequency (%)
Positive/Yes	106 (59.2)
Negative/No	73 (40.8)

DISCUSSION

Bruxism is repetitive movement of jaw muscles that includes grinding and clenching of teeth. There are many problems that are responsible for developing TMJ problems. TMJ problems and its signs and symptoms are prevalent in almost 50% world's population [14]. One of the studies reported that 22.1% patients suffering from TMJ disorder with myofascial pain and clenching was their main problem. Out of all TMD symptoms the clenching was there main problem also reported TMD muscle pain in 26.1% patients [15]. TMJ problem had no significant association

with malocclusion, gender and age. In this study patient were presented with TMJ pain jaw muscle discomfort and jaw joint noise. Another study investigated TMD symptoms and clenching was the most prevalent among the investigated students with a prevalence of about 35.6% which proved strongest relationship between bruxism and development of TMD [16]. Joint noise is second most common symptom of development of temporomandibular joint disorders Bruxism or clenching of teeth during daytime and night time are considered to have great impact on the etiopathogenesis of TMDs [17]. One of the studies showed that anxiety and bruxism were the risk factors for the development of the tension type headache associated with painful TMD [18]. Bruxism is a condition of great interest to researchers and clinicians of medicine and allied specialties. It is important that professionals take into account the signs and symptoms among young adults, especially the report of muscle pain in TMJ. In this study, temporomandibular joint patients were included that were diagnosed or known case of myofascial pain disorder. Patients reported with jaw muscle pain, discomfort and noise in jaw joint. One of the researches reported that grinding of teeth presents in 26-66% of patient diagnosed with TMDs Researches showed that prevalence of bruxism is 8 to 31.4% [17]. Clenching of teeth is associated with stress and self-reported muscle pain. A cross sectional study was done to investigate the association of bruxism and temporomandibular disorder pain in which females and males are both included age is between 16 to 24 years and patients was asked question about bruxism In the study its showed that the bruxism is positively associated with that TMJ pain [19]. In this study, 179 TMJ patients with myofascial pain both males and females were included. The exact mechanism of bruxism is still not well understood. Clenching of teeth is associated with stress and self-reported muscle pain. One of the researches reported that grinding of teeth presents in 26-66% of patient diagnosed with TMDs [20]. Based on the findings of the study, the frequency of bruxism among myofascial pain disorder in temporomandibular joint patients both in males and females was 59.2%.

CONCLUSIONS

The study concluded that the bruxism is more frequent in myofascial pain disorder in temporomandibular joint patients.

Authors Contribution

Conceptualization: AS

Methodology: AS

Formal analysis: YM

Writing, review and editing: AS, YM, HS, HMA

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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