Original Article

THE EFFECT OF STRESS ON THE PAIN SEVERITY IN TEMPOROMANDIBULAR JOINT DYSFUNCTION AMONG COLLEGE AND UNIVERSITY STUDENTS

Dr. Basheer Rehman BDS, MCPS, Demonstrator, Department of Oral Pathology, Khyber College of Dentistry, Peshawar, Pakistan.

Dr. Rabia Noreen House Officer, Khyber College of Dentistry, Peshawar, Pakistan.

Dr. Hussam Siddiqui House Officer, Khyber College of Dentistry, Peshawar, Pakistan.

Prof. Qiam ud Din BDS, MSc (London), FCPS (Pak), Department of Oral & Maxillofacial Surgery, Khyber College of Dentistry, Peshawar, Pakistan.

ABSTRACT

Objectives: *To evaluate the influence of stress and anxiety on the severity of pain in Temporomandibular Joint Dysfunction and on the subjective pain report.*

Material and Methods: *The study was carried out in the Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar, Khyber Pakhtunkhwa, between the period of May 2010 to November 2010. One hundred and ten students reporting from universities and colleges with TMJ pain were clinically diagnosed as Temporomandibular Joint Dysfunction and were interviewed using specially designed proforma. To measure the level of pain, Visual Analog Scale was used. Variables like gender, age, geography and various stress factors were determined and analysed using statistical tools (SPSS V.17).*

Results: *Students in the age group of 26-30 years were commonly affected (30%) followed by age group of 16-20 years (22.73%). Most commonly affected students (68.18%) were those with moderate to very severe pain symptoms. Students belonged to Malakand Division (28.67%) and FATA (25.67%) were commonly in the low income (n=42, 38.18%) and middle income (n=36, 32.73%) categories. Post Graduate students (40%) showed increased pain intensity during eating (35.45%) and talking (29.10%), particularly in their busy academic days, were reported to be the victims of severe painful episodes.*

Conclusion: *A large proportion of students with Temporomandibular Joint Dysfunction have potential psychological problems. Female gender, advanced educational levels and hostel residence as well as poor socioeconomic status are predisposing factors for pain severity in Temporomandibular Joint Dysfunction.*

Keywords: *Temporomandibular joint pain, Pain Dysfunction Syndrome, Myofacial Pain Dysfunction, University students.*

INTRODUCTION

Temporomandibular joint dysfunction (TMD) is a loss of function in the masticatory system as a result of deleterious changes in one or both temporomandibular Joints (TMJs) and in the muscles of mastication. The cardinal signs in the TMD are clicking, crepitus, pain and limitation of mandibular movement[1]. Pain is described as originating in the preauricular area, temple, or ear when chewing or opening the mouth which may radiate to the head, face, or eyes. Sounds such as crunching, popping, or grinding are usually described[2]. A few patients may describe an occasional jaw lock; the patient may have to wiggle the jaw to unlock it. Behavioural changes associated with TMD include an aversion to open the mouth wide to bite into food such as an apple or a burger, cutting food into smaller than usual pieces, and sub-

Correspondence:
Dr. Basheer Rehman
Demonstrator
Department of Oral Pathology, Khyber College of Dentistry Peshawar, Pakistan
Office: 091-9216217
Cell: 03339199288
E-mail: trygeminal76@yahoo.com

stituting food of a harder texture for foods of softer consistency. Clinical studies usually report a greater incidence of TMD in females[2].

Clinicians treating TMJ disorders cannot but be impressed with their patient's psychological distress. Several investigators believe that psychological factors are more important than other factors[3]. Stressful life events have been more frequently reported in a group of TMDs patients than in non-affected control group[4]. It is worthy of note that bruxism and/or myofascial pain may themselves adversely affect quality of life. An increased prevalence of post traumatic stress disorder in TMD patients has been suggested but remains unconfirmed[5].

Students, females in particular, are more prone to TMD[6]. Zulqarnain and Khan[7] found that at least 70% of 739 university students had signs of TMD. They further stated that external stressors such as academic activities have a potential impact on masticatory muscle tenderness, regardless of the presence of a previous condition such as masticatory myofascial pain.

Visual Analogue Scale (VAS) is a measuring instrument that tries to measure the amount of pain that a patient feels ranges across a continuum from none to an extreme amount of pain[8]. Patient's subjective history of signs and symptoms, clinical examination and pain measuring scales like VAS can be effectively used to determine the severity and intensity of pain in TMD[9]. The purpose of this study is to evaluate the influence of stress and anxiety on the severity of pain in TMD and on the subjective pain report.

MATERIALS AND METHODOLOGY

This study was based in the Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry Peshawar over a period of 7 months i.e. from May 2010 to November 2010. One hundred and ten students reporting from universities and colleges with TMJ pain were clinically diagnosed as TMD and were interviewed using specially designed proforma. Patients belonged to other provinces and those with dental malocclusions were excluded from this study.

To measure the level of pain, Visual Analog Scale (VAS) was used. Operationally a VAS is usually a horizontal line, 100 mm in length, marked from 0-10 with descriptors of pain intensity at regular interval from no pain to very severe. The patient marks on the line, the point that they feel represents their perception of their current state. Patient's gender, age, geography and various stress factors were determined and analysed using statistical tools (SPSS V.17).

RESULTS

In this study, males (34.45%) were dominated by females (64.55%) with male to female ratio of 1:1.8. Age distribution was such that patients in age group of 26-30 years were commonly affected (51.81%), followed by the age group of 16-20 years (22.73%). The mean age of these patients was 27.55+8.23 years. The detail of age distribution is given in Table 1.

Of the total 110 patients, 9.1% had very mild pain symptoms, 22.72% had mild pain, 33.64% had moderate pain, 27.27% had severe pain while only 7.27% had very severe pain. Details are given in Table 2.

Students from Malakand Division (28.67%) and FATA (25.67%) most frequently suffered TMJ pain. The details of students from other areas are given in Figure 1. Socioeconomically, majority of the patients fall in low income (n=42, 38.18%) and middle income (n=36, 32.73%) categories with monthly income below Rs. 15000. The lowest figure (n=32, 29.09%) was reported in those with satisfactory monthly income i.e. above Rs. 15000 (Figure 2). Post Graduate students (40%) most commonly suffered moderate to severe painful episodes followed by Undergraduates. The detail of distribution is given in Figure 3.

Pain aggravating factors were determined during interview showing increased pain intensity during eating (35.45%), talking (29.10%) and study (26.36%) in descending order of frequency. Further details are given in Table 3. Questions regarding present status of activities revealed that preparations for examination (n=55, 50%) and examination itself (n=44, 40%) have more negative influence on pain severity than vacations or holidays (n=11, 10%).

DISCUSSION

Many studies have investigated the prevalence of musculoskeletal pain in men and women, with some assessing chronic musculoskeletal pain irrespective of the site, whereas others have been site specific. In a previous review, Rollman and Lautenbacher[10] concluded that women have greater frequency of musculoskeletal pain than men. A number of recent studies

Table 1: Age Distribution (n=110)

S. No.	Age (in years)	Number of patients	Percentage
1	16- 20	25	22.73
2	21-25	24	21.81
3	26-30	33	30.00
4	31-35	8	7.28
5	36-40	6	5.45
6	41-45	12	10.91
7	46-50	2	1.82

Table 2: Pain severity score on VAS (n=110)

Severity	Number of patients	Percentage
No pain (0)	0	0
Very mild (1-2)	10	9.10
Mild (2-4)	25	22.72
Moderate (4-6)	37	33.64
Severe (6-8)	30	27.27
Very severe (8-10)	8	7.27
Total	110	100

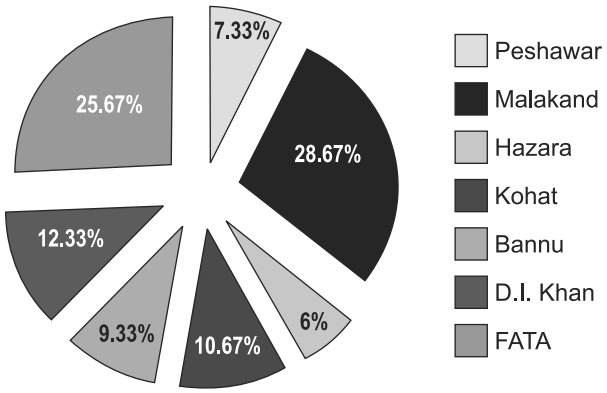

Fig. 1: Geographic Distribution (n=110)

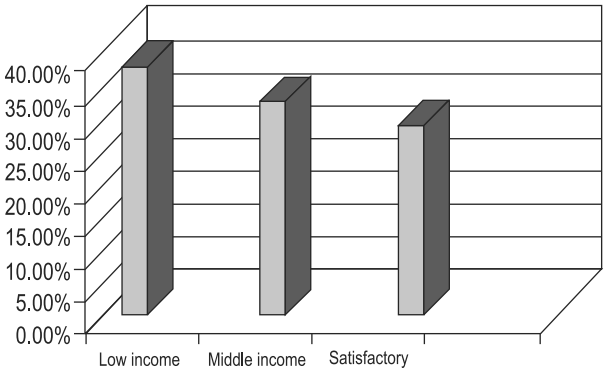

Fig. 2: Socioeconomic Status (n=110)

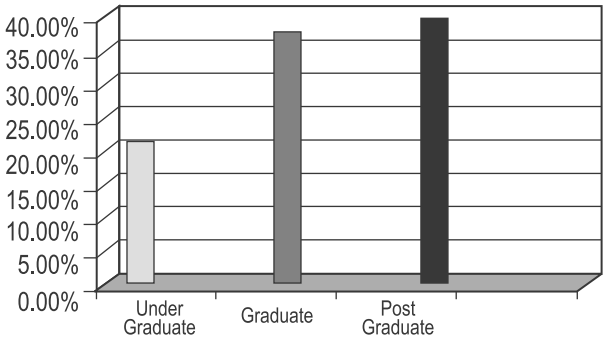

Fig. 3: Educational Level (n=110)

Table 3: Aggravating factors (n=110)

S. No.	Factors	Number of patients	Percentage
1.	Eating	39	35.45
2.	Talking	32	29.10
3.	Study	29	26.36
4.	Doing nothing	6	5.45
5.	Sleep	4	3.64
	Total	110	100

have tested for sex differences in musculoskeletal pain at any site. In a study spanning 17 countries across 6 continents with a total sample size of 85,052 adults, the prevalence of any musculoskeletal pain was higher among females (62%) than males (38%)[11]. Higher pain intensity scores for female students (64.55%) as compared to males (35.45%) were found to be in conformity with similar studies[10,11]. Fluctuation of hormone levels, biological differences, differences in social display rules may account for gender differences in reported pain types. Females are socialized to express pain more openly than males[12]. The female students in the present study may have felt more at ease reporting pain types they experienced.

In this study, stress was evaluated among college and university students including its sources and its correlation with severity of TMJ pain. This study showed that the added morbidity of stress and anxiety with TMJ pain is strongly associated with more severe pain and greater interference with daily activities. Moderate to very severe pain were noted in 68.18% patients which is in agreement with the study conducted by Zulqarnain and Khan.[7]

Students are subjected to different kinds of stressors, such as the pressure of academics with an obligation to succeed, an uncertain future and difficulties of integrating into the system[13]. The students also face social, emotional, physical and family problems which may affect their learning ability and academic performance. Too much stress can cause physical and mental health problems, reduce a student's self-esteem and may affect students academic achievement. In recent years, there is a growing appreciation of the stresses involved in pain severity of TMD among college and university students almost worldwide[14].

A study from Aga Khan University, Karachi has reported that more than 90% of students felt stressed at one time or the other during their course and subsequent myofacial pain[15]. A similar study from India reported that 73% of the students had perceived stress at one time or the other during their academic years and consult hospitals for their TMJ symptoms[16].

The stress factors mentioned earlier[1,2,4,12-16] have also demonstrated highest figures in our study. Students belong to remote areas (away from home) like Malakand Division (28.67%) and FATA (25.67%) most commonly suffered severe pain episodes than those with easily accessible areas like Peshawar and Mardan. Another contributing factor to a greater extent may be that both these areas of Khyber Pakhtunkhwa are severely affected in the war against terrorism. Similarly, those students having monthly income of less than Rs. 15000 comprised 70.91%. Other variables such as advanced levels of studies (40%), pain aggravating factors (eating and talking) and academic activities showed similar results to most of the previous work. However United Kingdom and Singapore have reported different rates of psychological morbidity among students[17,18]. The results of these studies cited may not be comparable with our findings because of variations in the sociocultural contexts and the curricula of the settings where such studies were carried out.

CONCLUSION & RECOMMENDATIONS

A large proportion of students with TMD have potential psychological problems. Female gender, advanced educational levels and hostel residence as well as poor socioeconomic status are predisposing factors for pain severity in TMD. Clinicians dealing with myofacial pain should have a good working relationship with clinical psychologist. The stressors experienced by the students were mainly related to academics and psychosocial concerns. These stressors need to be analyzed further. The students should be taught different stress management techniques to improve their ability to cope with a demanding professional course. The living conditions of the students and their recreational facilities should be improved. There is also need to bring about changes in the quality of teaching and evaluation system.

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