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## Prevalence of anxiety levels in patients with temporomandibular disorder among Kashmiri population

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### Abstract

Temporomandibular disorder is a collective term for a group of disorders that include the disease of temporomandibular joint, masticatory muscles and associated structures. It commonly affects young adults and middle aged adults and less commonly involves children's and older population. It is the most common cause of orofacial pain of non dental origin. This case control study was conducted in the outpatient clinic of Oral Medicine and radiology. A total of 100 consecutive patients suffering from various TMJ disorders were enrolled in this case control study that also included 100 controls that visited the department for various acute disorders. The study was approved by the institutional ethical committee; all the patients and subjects were informed about the study and appropriate consent were taken from all the subjects. Study it can be concluded that anxiety levels are more common in patients with temporomandibular disorders than in general population. Also from this study we can conclude that females are more commonly involved than males with temporomandibular disorders. Since this study was conducted on the small sample size so we recommend that large sample sized study should be conducted in order to further clarify the results.

**Keywords:** Anxiety, Temporomandibular, Kashmiri, TMD

### Introduction

A temporomandibular disorder is a collective term for a group of disorders that include the disease of temporomandibular joint, masticatory muscles and associated structures. It commonly affects young adults and middle aged adults and less commonly involves children's and older population [1]. It is the most common cause of orofacial pain of non-dental origin [2]. About 60-70% of the populations have at least one sign of TMJ but only 25 % of these individuals are aware of these symptoms and report to the specialist [3]. An association between stress and anxiety and different symptoms of TMD is being correlated frequently in the past studies [4, 5, 6]. The most important symptom is pain, followed by restricted mandibular movements, which can cause difficulty in eating or speaking; noises from the temporomandibular joints during jaw movement are also recorded [7]. The way the human organism responds to stress can be positive, such as fast decisions and reactions when facing potential danger [8]. Cortisol is released during a stressful event. This hormone is an essential corticosteroid which is involved in the restoration of homeostasis [9], but it can be harmful when the organism is exposed to frequent stress. Humans respond to stressful events by an increasing expression of adrenocorticotrophic hormone and cortisol. Stress is believed to underlie first episodes of depression, which in most people appear in adolescence or early adulthood. According to many researchers, stress also affects the function of the masticatory system [10].

Keeping in view this there was need to evaluate the prevalence of anxiety in patients with temporomandibular disorders to explore the role of stress in temporomandibular disorder among Kashmiri population and to compare their anxiety levels with subjects without TMD.

**Materials and subjects:** This case control study was conducted in the outpatient clinic of Oral Medicine and radiology. A total of 100 consecutive patients suffering from various TMJ disorders were enrolled in this case control study that also included 100 controls that visited the department for various acute disorders. The study was approved by the institutional ethical committee; all the patients and subjects were informed about the study and appropriate consent were taken from all the subjects.

A detailed history of each patient were recorded and adequate examination of each patient were performed using structured history sheet

**Inclusion in the study required the controls to fulfill the following criteria**

- Subjects without the signs and symptoms
- Subjects who are without systemic disease which may affect the functioning of TMJ
- Subjects with no history of trauma or surgery to the temporomandibular region.
- Subjects who are mentally fit

**Exclusion criteria for controls**

- Subjects with systemic connective tissue disorders like scleroerma
- Patients with systemic co morbid conditions like diabetes, hypertension etc.
- Subjects with past history of maxillofacial trauma or TMD story of surgery in the maxillofacial or past history of surgery in the maxillofacial region
- Subjects who are not mentally fit for answering the questionnaire
- Since gender and age influence the occurrence of TMD, in order to negate this influence the controls were matched to the cases in all demographic features.
- All the patients and controls were given hospital and anxiety questionnaire to be completed. HAD scale developed by Zigmond and Snaith in 1983 was chosen for the present study, consist of 14 elements 7 elements measure the intensity of anxiety and seven elements measure the intensity of depression. Only the anxiety component of the scale was used in the present study. TMD patients were diagnosed with TMD/RDC criteria and were categorized into different disorders. HAD scale used in wide variety of environments by various authors has been found to be sensitive, specific and

consistency in assessing the anxiety and depression signs<sup>11</sup>. For the present study only anxiety component was chosen was. So the score was graded as:  
 0-7 was graded as normal  
 8-10 was graded as borderline abnormal  
 11-21 was graded as abnormal

**Results:** This case control study was conducting on 100 TMD patients and 100 controls which were selected randomly. Among 100 TMD patients 64 were females and 36 were males and age ranged from 17-57.

**Table 1:** showing distribution of TMD patients

	Males	Females
Cases	36	64
Controls	36	64

In the present study age ranged between 17-57 years with mean age of 25.3±12.5years, with age groups 20-40 involved most commonly. The controls were aged between 19-53 with mean age of 27.4±13.7years.

**Table 2:** showing age wise distribution of the TMD patients

Age range	Females	Males	
<19	8	5	
20-29	27	13	
30-39	19	11	
40-49	7	5	
>50	3	2	
Total	64	36	100

HAD score in patients with TMD and in controls is shown in table 3. There was statistically significant difference in the patients with signs and symptoms of TMD and control subjects with p value <0.001

**Table 3:** showing HAD score for TMD patients and controls

	HAD Score					
	Males (36%)			Females (64%)		
	0-7	8-10	11-21	0-7	8-10	11-21
Cases	15	13	8	32	23	9
Controls	26	9	1	53	10	1
	P<0.001*	P<0.001*	P<0.001*	P<0.001*	p<0.001	P<0.001*

\*P value <0.001 statistically significant

**Table 4:** Total anxiety score in cases and controls

	0-7	8-10	11-21	
Cases	47	36	17	100
Controls	79	19	2	100
	126	55	19	200

**Discussion:** The etiology of the TMD is multifactorial that may include psychological, structural, postural, and genetic factors, occlusal abnormalities, orthodontic treatment, bruxism and orthopedic instability, macrotrauma and microtrauma, joint laxity and exogenous estrogen that may play individually or collectively to the causation of this disorder<sup>[7]</sup>. There was statistically significant difference between TMD patients and controls in anxiety levels when compared on the basis of HAD scale. This means there could be association between TMD and levels of anxiety. Borderline abnormal and abnormal anxiety scores were more common in TMD patients than in controls and this was statistically significant. This is inconsistent with the studies of Bonjardam *et al*<sup>[12]</sup>, Mazetto *et al*<sup>[13]</sup>, Restreppo *et al*<sup>[14]</sup> and Fillingim *et al*<sup>[15]</sup>.

There is conclusive evidence that psychological factors are important causative factor in TMD, which is in turn common cause of orofacial pain of chronic nature. Any surpassing of the adaptive potential of the body may lead to pathological reactions, especially in high-energy or low-resistance tissues. Dental arches are the somatic sites where excessive psychoemotional tension can be diffused and reduced<sup>[16, 17]</sup>. If the psychoemotional tension persists, strain and/or ischemia may appear in the overloaded muscles and trigger points are activated, causing myofascial pain and its sequels<sup>[18]</sup>. Overextended contraction of the muscle, alter the local alteration of the circulation in the muscles and ionic exchange leading to accumulation of the pyruvic and lactic acid which in turn stimulate the pain receptors<sup>[19]</sup>. In the present study TMD was more commonly present in females than males this was in accordance with the various studies<sup>[20, 21]</sup>. This high prevalence in women may be due to hormonal variation especially estrogen which might cause greater laxity in the tissues<sup>[22]</sup>. Age group between 20- 40 were more commonly involved

than other age groups with signs and symptoms of TMD. This was in accordance with other studies of the past [23, 24]. This population group is more susceptible to stress, important stressors in this group include pressure of getting good education, peer pressure, an uncertainty about future, living in isolation away from home. Moreover this population suffers social, emotional, physical and family problems.

**Conclusion:** From the present study it can be concluded that anxiety levels are more common in patients with temporomandibular disorders than in general population. Also from this study we can conclude that females are more commonly involved than males with temporomandibular disorders. Since this study was conducted on the small sample size so we recommend that large sample sized study should be conducted in order to further clarify the results.

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