

## PREVALENCE OF SYMPTOMS ASSOCIATED WITH TEMPOROMANDIBULAR DISORDERS IN PATIENTS WITH PSYCHOSOCIAL DISORDERS

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### Abstract

The identification of an unambiguous universal cause for Temporomandibular Joint Disorders (TMD) is still lacking. It is considered as a multifactorial disorder that results from existence of various contributing factors; psychosocial factors being one of them. Some studies have reported that in a significant number of patients, psychosocial factors play a role in causation and maintenance of temporomandibular disorders. However, whether the symptoms related to TMD are more prevalent in patients with psychosocial disorders, still needs to be explored. This study is expected not only to provide a baseline data about the prevalence, but also throw some light on the complex inter-relationship between TMD and psychosocial disorders.

Two hundred adult individuals diagnosed with some psychosocial disorder, either institutionalized or under out-patient care, were included in the study. Based on direct interviews and standard clinical examination methods, subjective and objective TMJ symptoms were evaluated. The results were then, post-hoc compared to prevalence of the same symptoms in hundred normal individuals.

Analysis of the results showed prevalence of subjective TMJ symptoms to be 12%, where as objective TMJ symptoms were present in 19.5% of participants with psychosocial disorders. Compared to this, prevalence of these subjective and objective symptoms in normal individuals was 32% and 27% respectively.

The prevalence of symptoms related to TMJ disorders does not appear to be unusually high in patients with psychosocial disorder. Though some comorbidity between both these conditions is present, no clear relationship could be established.

Clinical article (*J Int Dent Med Res* 2012; 5: (1), pp. 26-29)

**Keywords:** Psychosocial disorders; temporomandibular disorders; prevalence.

Received date: 04 January 2012

Accept date: 09 January 2012

### Introduction

The complex interrelationship between oral and psychosocial health has often been explained on the basis of the "biopsychosocial model" of disease. This model emphasizes how the combination of somatosensory and

psychosocial input influences a patient's response to acute pain, and how a chronic stimulus contributes to the suffering and pain behaviour commonly demonstrated in chronic pain conditions.<sup>1</sup>

Temporo-mandibular disorders (TMD) constitute a complex and heterogenous group of conditions and clinical problems that involve the temporo-mandibular joint and the masticatory musculature. TMD are an important challenge for a dental professional due to various controversies associated with etiopathogenesis, diagnosis and treatment.

The identification of an unambiguous universal cause for TMD is still lacking. It is considered as a multifactorial disorder that results from existence of various contributing

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factors; psychosocial factors being one of them. Some studies have reported that in a significant number of patients psychosocial factors play a role in causation and maintenance of temporomandibular disorders.<sup>2,3</sup>

There are some studies done previously which assess prevalence of psychosocial disorders in patients with TMD,<sup>2,4</sup> however, there is a dearth of data regarding prevalence of TMD in patients with psychosocial disorders.

To understand the complex relationship between psychosocial disorders and TMD, it is not only necessary to find out whether there is an increased incidence of psychological problems in patients with TMD, but it is also equally crucial to know whether there is an increased incidence of TMD in patients with psychosocial disorders. If the relationship between these conditions is found to be two-way, it shall help in better understanding of the speculated "cause and effect" relationship between psychosocial disorders and TMD. Hence, this study was carried out to find the prevalence of subjective and objective symptoms associated with TMJ disorders in patients with psychosocial disorders, and then compare it with the same in normal individuals.

### Materials and methods

The recruitment of participants with psychosocial disorders, was done from three different centres in Pune, Maharashtra which provided in-patient and out-patient care to such patients. Patients reporting to dental O.P.D. with a history of such disorders were also included.

Adults over the age of 18 years, who were medically stable i.e. not under psychotic attack and were capable of understanding the supplied information and provide informed consent were considered for the study, and were explained the need and the procedure of the study. Out of the total 218 potential participants, 200 agreed for the participation, and signed the informed consent to become participants of the study.

The participant's demographic data, details of their psychosocial disorder as well as the management and stage of recovery were retrieved from their most recent records and entered in a pre-designed proforma.

The presence of subjective TMJ symptoms was assessed based on response to questions regarding presence of pain around ear

region, restriction in mouth opening, and the time of the day when the participant experiences restricted mouth opening. The third question was included to rule out any organic cause behind restricted mouth opening, as restricted mouth opening only in the mornings is most often associated with degenerative disorders of TMJ.

For objective assessment of symptoms, examination of temporomandibular joint was done using the standard clinical method, as suggested by Okeson.<sup>1</sup> Other symptoms and signs that were assessed included tenderness of muscles of mastication and presence of occlusal facets. All the above data were sorted, tabulated and analyzed to meet the objectives of the study.

The results were then compared with prevalence of these symptoms in hundred normal individuals. These were the participants of another on-going study, aimed at estimating the prevalence of TMJ symptoms in general adult population of the age range 30 years and above. Similarity in research protocols and source of participants made the results of these two studies comparable.

### Results

Among the 200 participants with psychosocial disorders, majority of the participants (62.5%) were men. The mean age of the male participants in this group was 35.81 years and that of female participants was 38.65 years.

As far as prevalence of subjective TMJ symptoms was concerned, total 24 (12%) participants reported to have one or more TMJ symptoms.

Table 1 depicts the prevalence of objective TMJ symptoms, masticatory muscle tenderness and occlusal facets in patients with specific psychosocial disorders. TMJ clicking was the commonest objective symptom, and was present in 39 (19.5%) participants. It was followed by tenderness of masticatory muscles and presence of occlusal facets, both of which were present in 38 (19.0%) participants each.

Apart from this, there were many (89, 44.5%) of the participants who did not elicit any subjective or objective TMJ symptoms at all.

On comparison with normal individuals, the prevalence of subjective TMJ symptoms was found to be significantly higher in general population (32.0%) than in psychiatric population

(11.8%). The prevalences of objective TMJ symptoms, however, were similar in psychiatric (23.7%) and general (27.0%) populations.

[Z-test for estimate of proportions was used at confidence level of 95% with Z-values of 4.96, 3.192 and 1.462 respectively for three symptoms.]

Objective symptoms	Diagnosis of Psychosocial Disorder* (% of participants with disorder)							Total % of all part.
	S (n=83)	D (n=38)	BMD (n=17)	AWS (n=16)	P (n=9)	SA (n=11)	Others <sup>§</sup> (n=26)	
Deviation	9 (37.5)	8 (33.3)	1 (4.2)	0 (0.0)	4 (16.7)	2 (8.3)	2 (7.6)	24 (12.0)
Clicking	18 (46.2)	11 (28.2)	1 (2.6)	2 (5.1)	4 (10.3)	3 (7.7)	3 (11.5)	39 (19.5)
Crepitus	0 (0.0)	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (1.0)
TMJ tenderness	10 (45.5)	5 (22.7)	1 (4.5)	0 (0.0)	2 (9.1)	0 (0.0)	4 (15.3)	22 (11.0)
Muscle tenderness	16 (42.1)	7 (18.4)	2 (5.3)	1 (2.6)	5 (13.2)	3 (7.9)	4 (15.3)	38 (19.0)
Occlusal Facets	19 (50.0)	10 (26.3)	4 (10.5)	5 (13.2)	1 (2.6)	1 (2.6)	3 (11.5)	38 (19.0)

**Table 1.** Psychosocial Disorder-wise Distribution of Objective TMJ Symptoms.

\* S=Schizophrenia, D=Depression, BMD=Bipolar Mood Disorder, AWS= Alcohol withdrawal Syndrome, P=Psychosis, SA= Schizoaffective Disorder.

§ Other psychosocial disorders including Polysubstance abuse disorder, mania, obsessive compulsive disorder, delusional amnesia, conversion disorder, anxiety, and dysthymia.

## Discussion

In case of TMJ symptoms, especially myofascial pain, the proverbial dilemma 'egg first or chicken first' may apply. Chronic TMJ pain may be an effect or a cause of psychosocial stresses.<sup>5</sup> Motor dysfunctions associated with psychosocial disorders may give rise to sustained activity of the masticatory muscles.<sup>2</sup> This in turn initiates anaerobic metabolism in the muscles of mastication leading to release of lactic acid, which is a known irritant for the nerve endings which carry the pain sensation.

In this study, TMJ clicking, tenderness of masticatory muscles and presence of occlusal facets showed almost similar prevalences (around 19%). These three symptoms being associated with Temporomandibular disorders (TMD), their similar prevalence lends internal validity to the study.

Motor disturbances associated with the psychosocial disorders may be responsible for the presence of the symptoms related to masticatory complex.<sup>6</sup> Due to these motor dysfunctions, it is likely that many of these

participants with psychosocial disorders develop parafunctional habits; such as bruxism and/or abnormal jaw, tongue or head positions.<sup>7</sup>

It is therefore to be expected that these patients exhibit signs of bruxism habit. The sustained muscle activity associated with bruxism is known to cause tenderness in the TMJ as well as muscles of mastication. Further, it may lead to functional disorders of the joint, manifesting as deviation of jaw and joint clicking.

Hence, one could infer that symptoms related to TMD and other TMJ disorders are commonly prevalent objective symptoms present in patients with psychosocial disorders. This association has been studied by only some investigators in the past, and it was reported that in significant number of patients psychosocial factors play a role in causation and maintenance of temporomandibular disorders.<sup>8</sup>

On the other hand, there are several studies in which presence of psychiatric disorder is shown in patients with bruxism and signs of TMD.<sup>2,8,9,10,11,12</sup> These studies have revealed some psychological comorbidity in the patients with bruxism and disorders of masticatory complex, however the association is not very clear.

In our study also, a relatively smaller number of participants (24, 12.0%) reported these symptoms, however this could even be due to adaptive ability of the masticatory system.

Moreover, the fact that psychiatric patients gave positive responses to joint and muscle palpation, does not necessarily make them TMD patients. We evaluated only the signs and symptoms of TMD, which is not synonymous with TMD diagnosis.

Thus, these findings shall be considered with care, especially in view of the fact that it is sometimes difficult to obtain a reliable anamnesis from psychiatric patients. It is a known fact that patients with certain psychosocial disorders like depression are hyperalgesic, where as those with certain other disorders like schizophrenia suffer from agnosia, and eventually become indifferent and non-responsive to pain.<sup>13, 14, 15</sup>

The relationship between the masticatory complex and psychosocial disorders is said to be bidirectional. One would therefore expect a significant co-existence of these two. However, the observations made in our study, as well as some other studies<sup>4</sup> show relatively low degree of co-existence. This casts a doubt on the role of

psychosocial disorders in the development of masticatory complex disorders.

Similarly, it appears that prolonged disorders of masticatory complex may not result in psychosocial morbidity. Hence, it is difficult to draw a conclusion regarding relationship between psychosocial disorders and objective oral symptoms.

Another interesting observation in this study was a higher prevalence of subjective symptoms in general population and similar prevalence of objective TMJ symptoms in both general and psychiatric population. This could indicate that many non-psychiatric individuals, though not diagnosed with TMD, do report symptoms associated with TMD, viz. joint and masticatory muscle tenderness, joint clicking and restricted mouth opening. Whether the same applies to the psychiatric individuals, remains a matter for further exploration.

## Conclusions

Hence, we conclude that though subjective and objective TMJ symptoms are prevalent in some patients with psychosocial disorders, no clear correlation can be established between these two. This calls for further efforts to explore the organic causes for TMJ disorders, rather than merely assigning a psychological etiology.

## Declaration of Interest

The authors report no conflict of interest and the article is not funded or supported by any research grant.

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