

Association Between Temporomandibular Pain & Dysfunction and Effects of Psychological Stress, Trait Anxiety & Prolong Dental Treatment in Dental Students

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ABSTRACT

Aim: The aim of this study was to evaluate the relationship between temporomandibular pain and psychological stress, trait anxiety and prolonged dental treatment among dental students. And to discuss its effects on their daily life routine.

Material and method: A total number of 247 students with age ranging from 18 to 25 years was randomly selected from among the dental student population. TMD was evaluated using a self-administered questionnaire, composed of 12 questions regarding common TMD symptoms and they are affected by them.

Results: According to our results, 16.6% (41 dental students) had experienced TMJ pain, and out of this, 5.7% (14 dental students) were under stress during / before they experienced TMJ pain. The correlation between TMJ pain and stress was not found to be significant.

Conclusion: The current study showed no correlation between the incidence and response if the TMD to psychological stress among the dental students participated in this study. However, considering the limitation in this study. It is recommended that, there is a need for the assessment of TMD and objective evaluation of psychological stress among a larger sample size.

Keywords: TMJ, Psychological Stress, Dental students.

INTRODUCTION

Temporomandibular Joint disorder (TMD) has been commonly described as a group of disorders characterized by pain in the TMJ, masticatory muscles or preauricular area leading to clicking in the TMJ giving rise to limited mandibular movements and functions, deviation or limitation in mandibular range of motions usually unrelated to growth or developmental disorders, macro-trauma or systemic diseases. TMD also are the most

common non-infective painful condition of the orofacial region.^[1]

Approximately 60-70% of the general population will have at least one of the signs of TMD at some stage in their lives, whereas nearly about 5% seek medical treatment (Smriti et al).^[2] An insight into the underlying etiology and the significant contributing factors for TMJ pain reveals the fact that the relationship between stress and TMD has been a topic of rigorous debate for more than four decades. Hence, it may be understood that

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a multidimensional, biomechanical, neuromuscular, bio-psychosocial and neurobiological factors contribute to the disorder

These factors are classified as-

1. Initiating (trauma or repetitive adverse loading of the masticatory system)
2. Predisposing (structural, metabolic and/or psychological conditions)
3. Aggravating (parafunction, hormonal, or psychosocial factors)

to emphasize their role in the progression of TMD.⁴ Considering multifactorial etiologies, an attempt was made to find the role of stress and personality as an etiology of TMD.

OBJECTIVE

The objective of this preliminary study was to find the etiological role of psychological stress, trait anxiety and prolong dental treatment and temporomandibular pain and dysfunction. And its effects on subject's daily life routine, and factors aggravating these effects among dental students.

MATERIALS AND METHODS

Subjects:

This study was carried out in UTTARANCHAL DENTAL AND MEDICAL RESEARCH INSTITUTE with the sample of 247 students with age ranging from 18 to 25 years. Subjects were randomly selected from among the student population. The presence and severity of TMD was determined using a self-administered questionnaire composed of 12 questions regarding common TMD symptoms.

QUESTIONNAIRE (refer table No. 1)

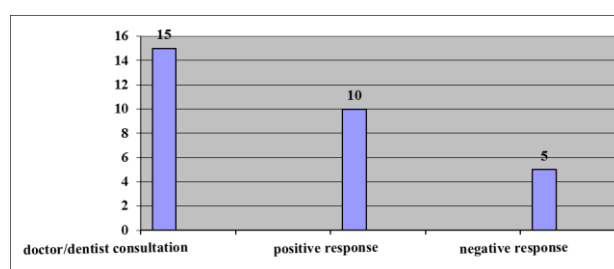
STATISTICAL ANALYSIS

Data was computerized and it was used for analysis. The percentages of subjects with temporomandibular joint (TMJ) pain, stress, dental problems, prolong dental treatment and stressful events were calculated. These associations were tested using Chi- Square test. The significance level was set at $P < 0.05$.

RESULTS

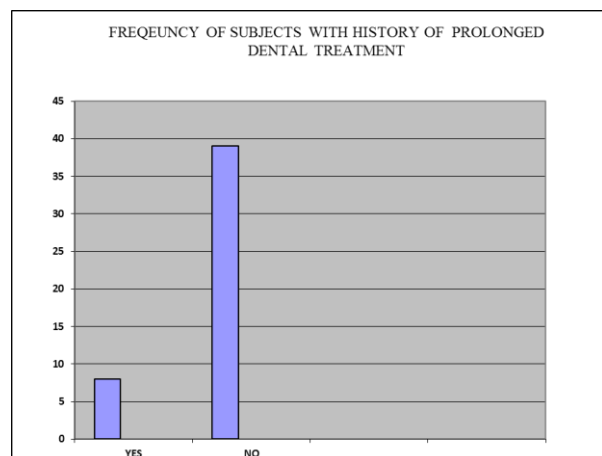
Table 1: Questionnaire

1. Are you aware of the temporomandibular joint?
2. Have you ever experienced pain in the temporomandibular joint?
3. Have you experienced any specific stressful event during/ before episodes?
4. Did you consult a doctor /dentist for TMJ pain?
5. Was that helpful?
6. Did the pain reoccur?
7. Did you undergo prolong dental treatment recently?
8. Have you undergone treatment for replacement of missing teeth?
9. If you already have TMJ problem
a) Does it become worse during exams?
b) Any diurnal variation / difficulty in mouth opening
10. Is your TMJ pain associated with any emotional/ stress event such as
• Travelling
• Family event
• Happy or sad event
• Holidays
11. What effect TMJ pain has on your daily life-
• Missing classes
• Missing meals
• Social awkwardness
• Sleeplessness
12 When you come out stress, do the symptoms subside?

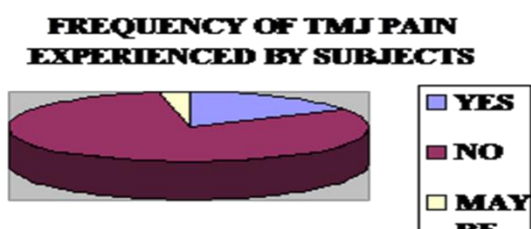


Graph 1: Positive and negative response table.

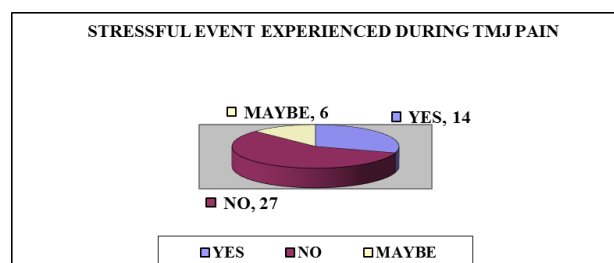
Out of 247 students, females (183) were greater than males (64) in number and statistically important as well. According to our results, 16.6% (41 dental students) had experienced TMJ pain, and out of this, 5.7% (14 dental students) were under stress during or before they experienced TMJ pain.(refer diagram NO. 1 and 2) However, the correlation between TMJ pain and stress among



Graph 2: Frequency of subjects with history of prolonged dental treatment.



Graph 3: Frequency of TMJ pain experienced by subjects.



Graph 4: Stressful event experienced during TMJ pain.

these subjects was found to be $P=0.254$ which was not statistically significant ($p<0.05$). Among the subjects who had experienced TMJ pain, 6.1% (15 dental students) consulted a dentist and out of which for 4.1% (10 dental students) consultation and treatment resulted in relief from pain. 7.7% (19 dental students) (refer table no.2) experienced reoccurrence in TMJ pain with or without treatment. 3.2% (8 dental students) had undergone prolonged dental treatment procedure in the recent past. For 2% (5 dental students) (refer table no. 3) pain became worse during exams, 0.8% (2 dental

students) experienced diurnal variations and 1.2% (3 dental students) faced difficulty in mouth opening. Events such as examination, travel (1.6%), family events (1.2%), holidays (4.0%) and sad events (12.6%) were considered in the study, showing higher percentage for sad events. Somatic and psychological complaints such as missing classes 0.4% (1 student), missing meals 1.6% (4 dental students), social awkwardness 2.8% (7 dental students) and sleeplessness 2.8% (7 dental students) were experienced by the subjects. 6.5% (16 dental students) felt symptoms of temporomandibular joint subsided when they came out of stressful situation.

DISCUSSION

The aim of this study was to evaluate the relationship between TMJ pain and psychological stress among dental students aged between 18-25 through a frequency distribution of the data obtained from a self-administered questionnaire.

In this study 16.6% out of 247 subjects had some degree of TMJ pain, showing lower incidence than in studies carried out by Smriti et al using a questionnaire study, who reported 23% out of 150 subjects², and Bonjardim et al reported 50% subjects who had TMD respectively.⁶ Similar studies by different authors Aldieris A Pesqueira, Paulo R J Zuim, T. I. Suvinen, J. Ahlberg M. Rantala^{1,7} showing relationship between TMJ pain and psychological stress were carried out in different university and colleges obtaining results.

Studies like, association between symptoms of temporomandibular disorders and gender, morphological occlusion, and psychological factor in dental students, VSPM's dental college and research Centre, Nagpur, Maharashtra, India³ were carried out to find a relationship between temporomandibular pain and psychological stress and effects caused by the morphological occlusal dysfunction which ultimately leads to TMD. This study was designed to report the academic stress and its repercussion on the health of dental students. Psychological stress are the most common and frequent clinical disorders in the general population and are also significantly present among dental students pertaining to the academic, social and peer pressure, however in the present study correlation between pain experienced and stressful

events during the experience ($P=0.254$) show negative co-relation. However, smriti et al found that TMD had statistically significant association with anxiety ($P=0.0023$),² it is important to note that this correlation in the current study differed from that found in other similar studies conducted in a different sample group. Correlation between pain experienced and prolong dental treatment show $P=0.235$.

In his study which was aimed to find relationship between TMD and prolong dental treatment (orthodontic treatment), Ronaldo Antonio leite et al reported that orthodontic treatment — regardless of the technique used and whether or not the extraction of premolars during treatment — does not increase the signs and symptoms of TMD and therefore it is not a risk factor for its development. The orthodontic treatment does not appear to be a valuable resource for treating or preventing the onset of signs and symptoms of TMD.⁵ Correlation between pain experienced and possibility of pain becoming worse during exams or diurnal variation or difficulty in mouth opening was shown to be ($P=0.602$.) Also in a similar study, Aldrieris A. Pesqueira et al reported correlation between trait anxiety score and chronic pain degree was not significant, which can be compared to our trait anxiety that is in the examination period²

Though the result of our study is not coinciding with the desired aim, of other similar studies there can be reasons we would like to consider for the same. There is a probability of differences in social conditions and acceptance of the subjects involved in the above various studies and the study we have conducted here. Our study also included students with varying knowledge about the topic; there is a possibility of inaccuracies in answering to the questions in the questionnaire due to the ambiguity in the subjects understanding and perception of the oro- facial pain. Also another possible reason could be lack of objective analysis of the subjects. As TMD has been evaluated only on the basis of the questionnaire and not clinically and only on the basis of subject's history.

There is a likelihood that the variation may have occurred due to the time of the year, during which our study was conducted/when there were

no examinations approaching and holidays in a fortnight. Subjects (dental students) were possibly in a more relaxed environment during that time. The present study showed no statistically significant between TMDs and psychological stress among the dental students. Certain limitations can be considered such as questionnaires were used in the present study. However, subjective bias may always occur when gathering data with questionnaires. The reporting of pain symptoms may depend on several factors, e.g., subjects' motivation; therefore, comparing data of different studies may include bias due to cultural or social differences. sometimes individuals with different kinds of stress may be more likely to perceive, over-react and complain about their sensations during reporting of pain symptoms (Suvinen et al. 2004)⁷ second, we did not evaluate other psychosocial and behavioral domains such as anxiety, depression and fatigue. The size of the sample with TMD in the present study was not significantly large enough to draw conclusions, making it necessary to evaluate the objective of the current study among a larger sample size.

CONCLUSION

The current study showed no co- relation between the incidence and response if the TMD to psychological; stress among the dental students who participated in this study. However, considering the limitation in this study. It is recommended that, there is a need for the assessment of TMD and object evaluation of psychological stress among a larger sample size.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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