

Prevalence of Disorders of Temporomandibular Joint and its Association with Mouth Opening In an Indian Population

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Abstract: *Background:* The temporomandibular joint is the joint of the jaw and is frequently referred to as TMJ. The TMJ is a bilateral synovial articulation between the mandible and temporal bone. TMJ is only responsible for mouth opening. The movement of mandible is ensured by TMJ. In studies, Maximum mouth opening for adults has generally been around 50 mm; with a range from 32mm to 77mm. Men can open to about 50-60, and women to 45-55mm. To make survey and evaluate number of people suffer from Temporomandibular joint mouth opening disorder in an Indian population.

Keywords: Temporomandibular Joint, Disorder, Prevalence

1. Introduction

Temporomandibular joint is a joint present in the jaw. It is a bilateral synovial joint with bicondylar articulation between temporal bone and mandible.[1] Temporomandibular joint and muscle disorders are a group of conditions that cause pain and dysfunction in the jaw joint and muscles that control jaw movement. Problems in this area can cause head and neck pain, facial pain, ear pain, headaches, a jaw that is difficult to open and close, problem in biting, and jaw clicking sounds when there in any movement of jaw. Mouth opening should be considered as one of the diagnosis for temporomandibular disorder. Mouth opening value may different for different people. Patients with increased temporomandibular joint disorder, oral cancers, craniofacial fractures, who have undergone plastic surgeries and any major surgery in the face.[2] Research has shown that the measurement of mouth opening may depend on sex, age, and even different population has different measurement. The aim of our study is to correlate between mouth opening and temporomandibular joint disorder. Mouth opening value should be taken seriously as diagnosing tool while checking for temporomandibular joint disorder.

2. Materials and Methods

One hundred individuals were selected for this research aged between 3-70 years. The subjects were asked to open their mouth maximally till no further opening was possible. Using a proper calibrate fibre scale the measurement is taken. The distance between Incisal edge of maxilla to the Incisal edge of the mandible was taken as length and the distance between angle of mouth from both the side was taken as width. The subjects were questioned that whether they are suffering from any symptoms of temporomandibular joint disorder. The measurements are recorded in millimetre. All the subjects were taken into account with people including temporomandibular joint disorders, smokers, oral cancer, pan chewers etc.

3. Results

There were totally 101 individuals were taken into account for the study. In which 69 are female and 32 are male. In males totally 24 individuals do not suffer from the temporomandibular disorder and 8 individuals do suffer. In females 58 individuals do not suffer from the disorder and 11 do suffer from the disorder.

The average Normal value of mouth opening in males is 4.9 cm lengthwise and width is 5.2 cm and in females 4.6 cm lengthwise and 5.3 cm is the width. The average value of mouth opening in individuals who suffer from the disorder in males is 3.4 lengthways and 3.8 cm is the width and in females 3.8cm length and 3.9 cm is the width. So according to the study normal mouth opening value is more as compared to the value of the individuals who suffered from the disorder.

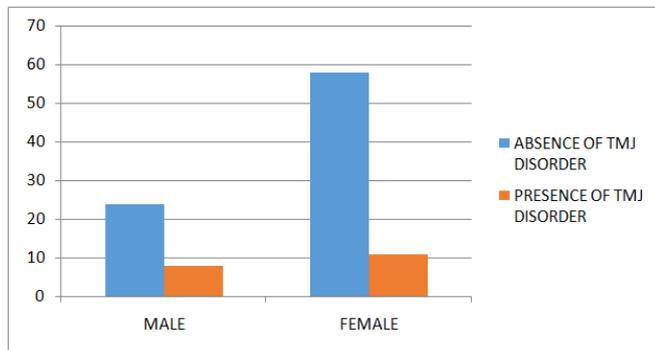
4. Statistical Analysis

Table 1: Shows the difference between male and female and number of individuals.

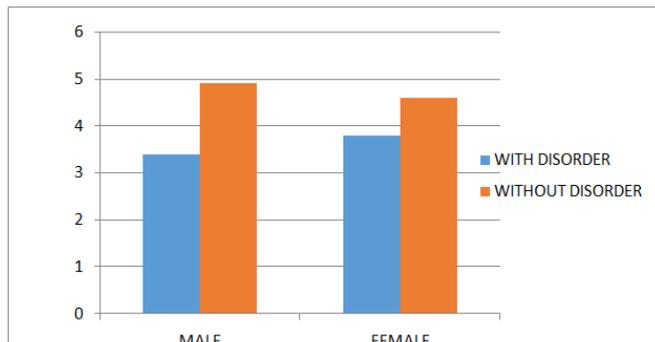
Male		Female	
32		69	
Absence of TMJ disorder	Presence of TMJ disorder	Absence of TMJ disorder	Presence of TMJ disorder
24	8	58	11

Table 2: Shows the difference between normal and abnormal mouth opening value in association with male and female.

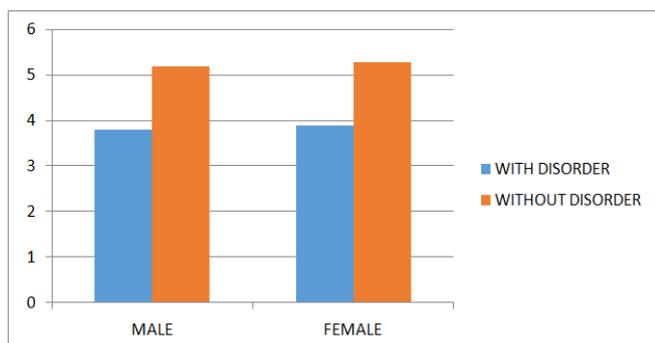
	Male		Female	
	Length	Width	Length	Width
With Disorder	3.4	3.8	3.8	3.9
Without Disorder	4.9	5.2	4.6	5.3



Graph 1 shows an association between gender and the temporomandibular disorder.



Graph 2 shows the mouth opening value length and gender.



Graph 3 shows the relation between mouth opening value width and gender.

5. Discussion

Mouth opening value is mostly heard on the daily basis. It act as a reference to many diseases like temporomandibular joint, craniofacial disorder, oral cancer etc. There are treatments available to correct this diseases in order to correct the mouth opening value for an individual.[2]Restriction or limitation of mouth opening may lead to masticatory, speaking and some social difficulty for an individual and even it may be a problem for the dentist. The maximum mouth opening reflects the capacity of the condyle to translate within the joint.[3]

Measuring the mouth opening value from Incisal edge of maxilla to the one in the mandible is the easiest method known but it may create difficulties in the person who have limited mouth opening.[3] So many researchers have given different value for normal mouth opening from inter-Incisal edge distance. Most common one is <40 mm. Others set the limit at <39 mm, at <38 mm, at <37 mm and

at <35 mm. Whereas other investigators consider <35 mm for men and <30 for women as restricted opening.[3]. There are so many methods were used to determine the normal mouth opening value. It is important to notice that these are used to assess the temporomandibular joint.[3]

Mouth opening is influenced by a number of factors which include age, gender and race. Gallagher et al studied the normal mouth opening in Irish population and found that the normal mouth opening in males was 43.3mm and in females was 41.4mm. Mezitis et al studied 1, 160 Greek individuals aged 18–70 years. The average maximum inter-incisal distance was found to be 52.85mm for men (Range 38.74–67.27mm) and 48.34mm for women (Range 36.67–60.45mm). Cox and Walker studied 700 symptom-free Nepalese adults, aged 18- 68years. They reported a mean value for an inter-incisal distance of 47.1mm (Range 33.7–60.4mm). In the study which was done by Nishant Khare et al the mean mouth opening for males was 51.3mm (Range 37–70mm; SD8.3). Females had a mean mouth opening of 44.3mm (Range 32–61mm; SD6.7).[2]

In the present study the mean Normal value of mouth opening in males is 4.9 cm lengthwise and width is 5.2 cm and in females 4.6 cm lengthwise and 5.3 cm is the width. The average value of mouth opening in individuals who suffer from the disorder in males is 3.4 lengthways and 3.8 cm is the width and in females 3.8cm length and 3.9 cm is the width. A significance difference in the mouth opening value has been seen between genders in which men have more than female. Similar results have been seen in a study with man having more than 45.36mm and female have more than 41.27mm.[4]

6. Conclusion

This study conclude that

- Temporomandibular joint plays an important role in maintaining normal mouth opening value.
- Male have more than female.
- Patients with TMJ disorder have less mouth opening value than the normal one.

Reference

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