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Awareness of TMJ disorders among Indian population

[1]Divya Rupawat, [2]Vinay Sivaswamy, [3]Tulsani Minal Gopal, [4]Sanjana Devi N, *[5]Dhanraj Ganapathy

ABSTRACT

Background: *Temporomandibular disorders (TMDs) represent a group of orofacial pain disorders that cause structural and functional changes in the temporomandibular joints and related structures. Prevalent clinical signs include pain, tenderness upon palpation, limited range of movement, and clicking sounds. A correct diagnosis and treatment, will resolve pain over time in most cases. Long-standing TMD without a correct diagnosis and treatment can sometimes give rise to chronic or persistent pain. This study aims to evaluate the awareness of TMJ disorders among Indian population.*

Aim*: To evaluate the awareness of TMJ disorders among the general population in India .*

Material and methods: *The survey was conducted in India, among different individuals using a standardised questionnaire. The questions were related to awareness of tmj disorders. A total of 15 close ended questions were included. All the questions were graded using 'Bipolar scaling method' to maintain balance and symmetry between the options. Survey was sent to 380 individuals across different states in India of all age groups, of which 334 individuals responded voluntarily. The data obtained was tabulated in SPSS for windows, Chi square test was done as well as descriptive data was obtained in the form of pie charts.*

Results: *It was found that the awareness regarding clicking noises in the jaw joint was 64.1%, that frequent headaches cause tmj disorders was 31.7%. 26.3% were unaware of the treatment options available for jaw joint disorders.*

Conclusion: *TMDs decrease the quality of life, and pose treatment challenges for the dentists. Therefore, every effort must be made for prevention and early diagnosis of TMDs. Various awareness programs should be conducted regarding tmds for Indian population so individuals can seek treatment when required.*

Keywords: *TMJ disorders , jaw joint, clicking, tenderness ,stress*

[1]*Postgraduate Student, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical And Technical Sciences, Saveetha University, Chennai, India.*
[2] *Senior Lecturer, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical And Technical Sciences, Chennai – 600077 Tamil Nadu, India.*
[3]*Postgraduate Student, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical And Technical Sciences, Saveetha University, Chennai, India.*
[4]*Postgraduate Student, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical And Technical Sciences, Saveetha University, Chennai, India.*
[5]*Professor and Head Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical And Technical Sciences, Chennai – 600077 Tamil Nadu, India.*

I. INTRODUCTION

Temporomandibular disorders (TMDs) represent a group of orofacial pain disorders that cause structural and functional changes in the temporomandibular joints and related structures (1). TMD has a multifactorial etiology, resulting from psychological factors, malocclusion, oral parafunction, oral habits, trauma, occlusion and stress (2,3)(4). Prevalent clinical signs include pain, tenderness upon palpation, limited range of movement, and clicking sounds (5) . A wide variety of symptoms including headache, bruxism, difficulty opening the mouth, clicking sounds, and orofacial pain has been reported (6)(7,8)(pone). Cervical spine disorders were shown to be associated with TMD pain in 70% patients(9). Distinguishing between joint and muscle-related disorders is important in the context of possible treatment (10). A correct diagnosis and treatment, will resolve pain over time in most cases. Long-standing TMD without a correct diagnosis and treatment can sometimes give rise to chronic or persistent pain (11) .

TMDs are usually underdiagnosed due to lack of awareness among individuals (12)(5). There is a misconception that dentists only treat teeth problems. Patients usually consult an ENT specialist for tenderness or pain in the TMJ area as the joint is situated near the ear. In cases where TMDs cause headaches (12), neck pain (13) or shoulder pain (14)(14,15) patients visit their physician ,the etiology is usually not diagnosed and left untreated.

Various articles have been reported in literature on awareness of TMJ disorders in countries like Japan (16) , Australia (17), Brazil (18), (19)(20), Netherlands (21), Norway (21,22), Iran (10) and others but none have evaluated the awareness in India.This study aims to evaluate the awareness of TMJ disorders among Indian population.There are surveys conducted in India for awareness of TMJ disorders among dental students but none have evaluated the awareness among general population. This survey aims to evaluate the awareness of TMJ disorders among Indian population.

II. MATERIALS AND METHODS

A cross-sectional questionnaire survey was conducted among the general population in India during June 2018. The structured questionnaire was formulated online comprising 15 closed-ended questions regarding the knowledge and awareness of the participants of various signs, symptoms, etiology and treatment options for tmds. All the questions were graded using ‘Bipolar scaling method’ to maintain balance and symmetry between the options. Validation was done among the faculty and post graduate students of the Department of Prosthodontics in Saveetha Dental College. Changes in the questions regarding grinding of teeth at night and shoulder pain were made according to the suggestion of the validation committee.

Sample size calculation was done using a survey sample size calculator with a 95% confidence interval and a 5% margin error, with an estimated 20% dropout, which was up to 334 samples. A simple random sampling was done . Survey was sent to 380 individuals across different states in India of all age groups, of which 334 individuals responded voluntarily. The responses were collected using web protocol forms that enabled quick and secure access to data.

Ethical approval was obtained from the SRB Saveetha Dental College,Chennai, India. Ethical clearance number for this study is SDC/PROSTHO/1805/19/152. Guidelines were followed as per the Helsinki declaration.

All the collected data were then tabulated and analysed using SPSS Statistics software version 20.0. Descriptive data was obtained and the results obtained were used to formulate pie charts for every question. Nominal data used, blue colour to highlight "yes" responses and red colour to highlight the "no" responses.

III. RESULTS

Questionnaire was sent to 380 individuals of all age groups out of which 334 responded which gives a response rate of 87.89%. The results of the survey are given in Table 1.

Table 1: All the questions of the survey, options for the responses, cumulative percentage of responses, chi square value and p value have been tabulated.

Questions	**Options**	**Cumulative Response (%)**	**Chi square Value**	***P* Value**
Are you aware of clicking noises in the jaw joint	Yes No	64.1 35.9	26.455	0.000
Are you aware that discomfort or tenderness around the jaw joint may be a dental problem	Yes No	56.3 43.7	5.281	0.022
Do you or anyone in your family and friends have clicking noise or discomfort around the jaw joint	Yes No	22.8 77.2	99.174	0.000
Have they taken treatment for that	Yes No	8.4 91.6	231.389	0.000
Are you aware that frequent headaches may be because of jaw joint disorders	Yes No	31.7 68.3	44.563	0.000

1. Are you aware of the treatment options available for jaw joint problems	Yes No	26.3 73.7	74.743	0.000
Do you know the consequences of jaw joint problems if left untreated	Yes No	26.3 73.7	74.743	0.000
Are you aware that grinding of teeth at night leads to jaw joint problem	Yes No	33.5 66.5	36.228	0.000
Are you aware that stress may lead to jaw joint problems	Yes No	28.7 71.3	60.371	0.000
Do you know that pain in jaw muscles could be due to jaw joint problems	Yes No	50.9 49.1	0.108	0.743
Are you aware that neck pain or shoulder pain can be due to jaw joint problems	Yes No	24.6 75.4	86.527	0.000
Are you aware that deviation during mouth opening indicates a problem in the jaw joint	Yes No	38.3 61.7	18.216	0.000
Are you aware that there is difficulty in opening and closing of jaws due to jaw joint problems	Yes No	58.1 41.9	8.731	0.003
Would you visit an ENT specialist for a jaw joint problem	Yes No	43.7 56.3	5.281	0.022
Are you aware that females are more prone to jaw joint disorders	Yes No	17.4 82.6	142.287	0.000

***The chi square statistic is significant at the 0.05 level**

Figure 1:

Are you aware of clicking noises in the jaw joint

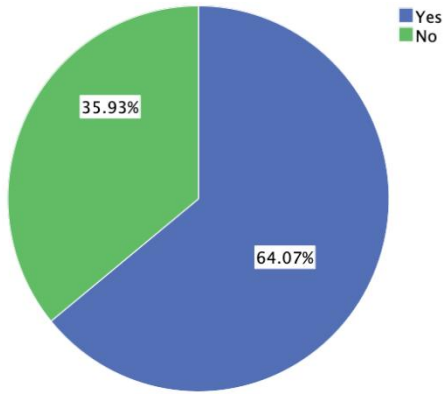


Figure 2:

Are you aware that discomfort or tenderness around the jaw joint may be a dental problem

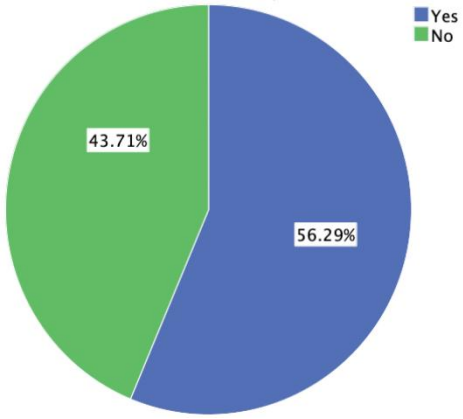


Figure 3:

Do you or anyone in your family and friends have clicking noise or discomfort around the jaw joint

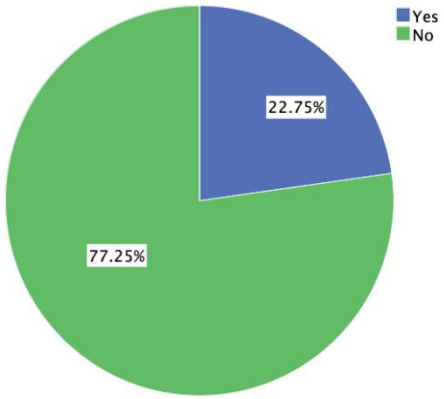


Figure 4:

Have they taken treatment for that

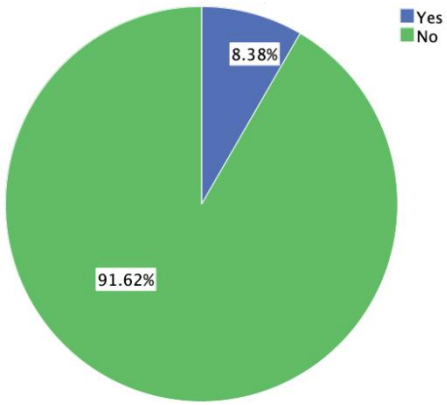


Figure 5:

Are you aware that frequent headaches may be because of jaw joint disorders

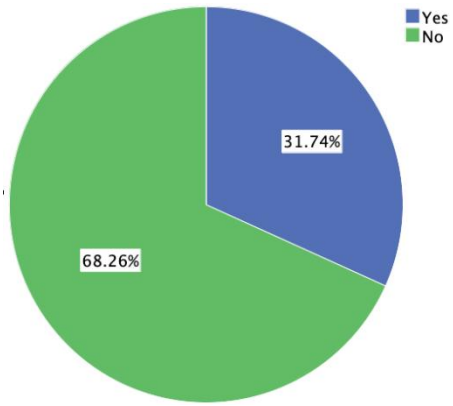


Figure 6:

Are you aware of the treatment options available for jaw joint problems

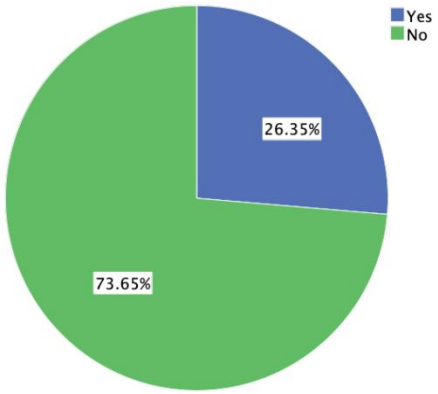


Figure 7:

Do you know the consequences of jaw joint problems if left untreated

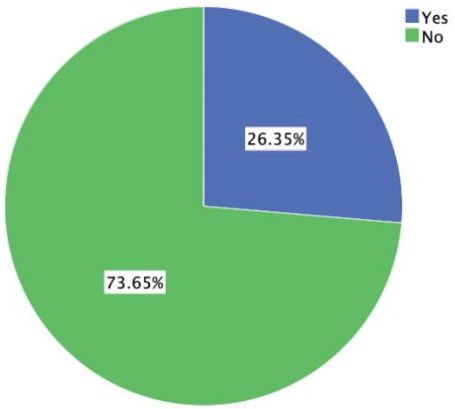


Figure 8:

Are you aware that grinding of teeth at night leads to jaw joint problem

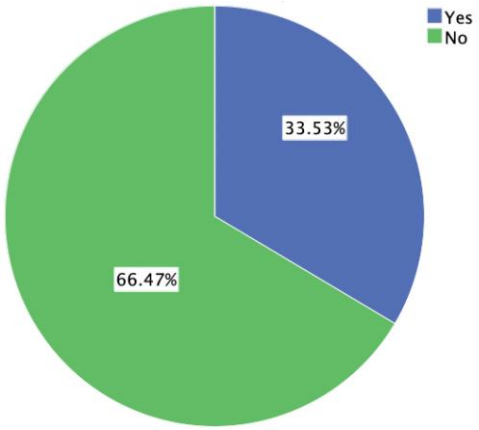


Figure 9:

Are you aware that stress may lead to jaw joint problems

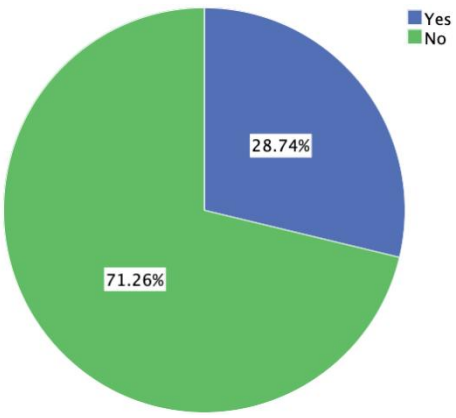


Figure 10:

Do you know that pain in jaw muscles could be due to jaw joint problems

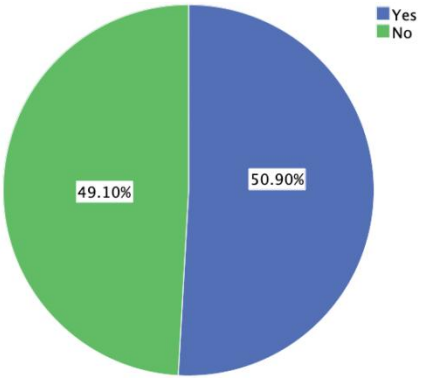


Figure 11:

Are you aware that neck pain or shoulder pain can be due to jaw joint problems

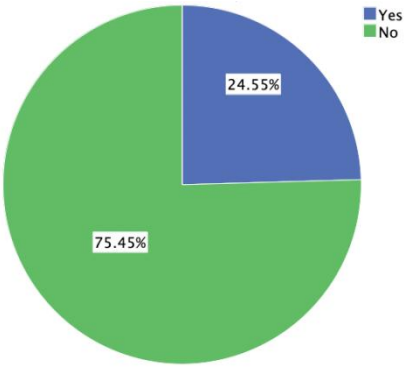


Figure 12:

Are you aware that deviation during mouth opening indicates a problem in the jaw joint

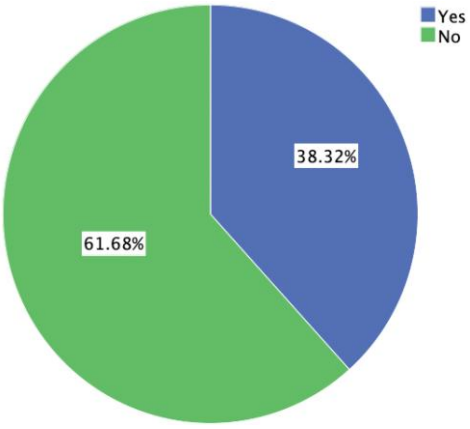


Figure 13:

Are you aware that there is difficulty in opening and closing of jaws due to jaw joint problems

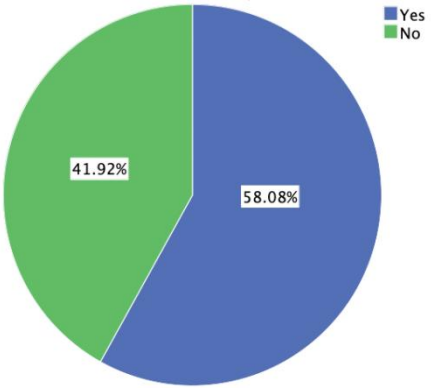


Figure 14:

Would you visit an ENT specialist for a jaw joint problem

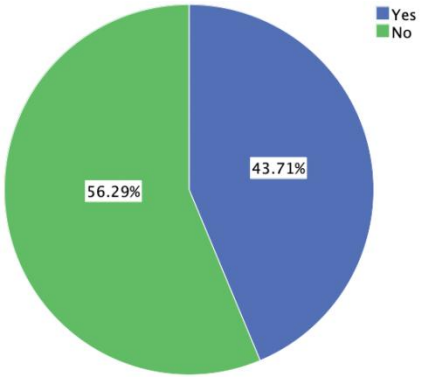
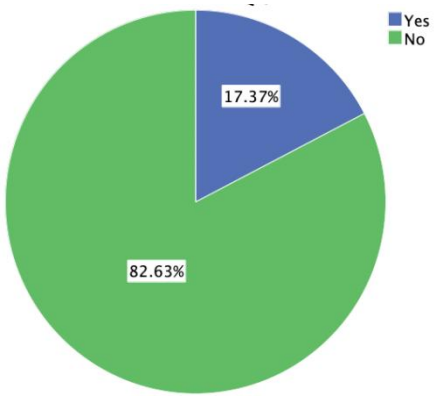


Figure 15:

Are you aware that females are more prone to jaw joint disorders



IV. DISCUSSION

This study evaluated the knowledge of the signs, symptoms and related etiologic factors of TMDs among Indian population. The response rate was 87.89 which is more than that found in similar studies in Italian population (10), Japan (10,16), Brazilian adolescents (20) and Norway (20,22) . The demographic data of individuals who filled the survey questions was not recorded to maintain the anonymity. Age can be recorded to compare the awareness of TMDs among different age groups in future surveys . As interpreted from the results, the majority of the individuals were not aware of the TMDs. Similar results were obtained in a study done on korean population. The signs and symptoms of Tmds and whom to approach for treatment of TMDs was not known by the majority of the population. Similar results obtained in studies done by Lupoli et al, Laat et al, and others (12,23,24)(25,26). The number of tender points upon palpation of the shoulder and neck muscles in TMD patients is significantly more . The TMJ and the cervical spine acts as a single functional entity, which could be one of the reasons for this association (12,23).The association became stronger as severity of TMD increased, indicating a positive correlation between severity of TMD and spinal pain (9). According to the results of this study it was found that two third of the population was unaware of shoulder pain or neck pain as a symptom of tmd.

Headaches are the most prevalent neurological disorders and one of the most common symptoms reported in general practice (27). Headache makes pain parameters more intense and frequent, complicating dysfunctional diseases both in the diagnostic and treatment phases (28). Around 70% of the participants were unaware that tmd could be an etiological factor for headache. In a study done on brazilian population it was found that 70.9% 70.9% of the adolescents had headache/migraine, and in a quarter of them it was associated with TMD (25.9%) in the past six months ($p<0.001$) (19). There were significant statistical associations between headache in the past six months and TMD, this was in agreement with previous studies by Franco AL et al, Nilsson I-M et al and many others(29)(20)(25)(30). Two third of the population were not aware that tmds may lead to headache. Similar results were obtained in (31)(32)(33)(30).

Around half of the individuals were not aware that deviation during mouth opening may indicate a jaw joint problem. Similar results were obtained in (34)(35). Studies have demonstrated that anxiety increases the risk of experiencing TMD (30,36)(37). TMD patients have an upregulated HPA axis shown by increased psychological scores and increased level of cortisol in saliva (37,38). Individuals were unaware that stress may lead to jaw joint problems. Similar results were obtained in (38). The results of this study conducted in Australia demonstrated that anxiety decreased significantly as students progressed through the course and that females experienced considerably higher levels of anxiety (17).

Women appear to be more strongly influenced by mental health and psychological factors

in the association with TMD. Rollman et al. broke down the gender disparity in TMD as follows: First, women sought treatment 7 times more than men for TMD (39), which reflects gender role or psychological difference between genders in seeking solutions to pain (39,40). Second,men show higher sensitivity to pain than women when healthy (41). Third, women tend to be more cautious in recognizing and accepting physical symptoms, and monitoring change than men (42). Fourth, gender differences may be influenced by the endocrine system. According to a 1997 study by LeResche et al., TMD occurred in about 30% of menopausal women on

estrogen replacement medication, hinting at an association between sex hormones and TMD occurrence (43). Dao et al. also suggested that reproductive hormones may contribute to TMD (Korea) pathophysiology based on the observation that myofascial pain is more prevalent in women with childbirth experience (43,44). In this survey it was found that many were unaware that women are more prone to TMDs. Similar results were obtained in a study done in (45)(46).

A few factors affecting the outcome of study of the study have been discussed below. The Hawthorne effect or the observer effect is a common factor with all surveys and hence not a major parameter to be considered. The results of this survey are based on 334 resonses. Sample size can be increased to generalize the findings among Indian population. In future, studies can be conducted about awareness of tmds among different socioeconomic age groups and compared. Various awareness programs should be conducted regarding tmds for Indian population so individuals can seek treatment when required.

V. CONCLUSION

TMDs decrease the quality of life, and pose treatment challenges for the dentists. Therefore, every effort must be made for prevention and early diagnosis of TMDs. The data obtained from this study shows that there is a need to increase the awareness about TMDs among Indian population.

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