

Assessment of Impact of Temporomandibular Disorder on Oral Health Related Quality of Life among School Children aged 12–15 Years. In Kota, Rajasthan

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Abstract

Introduction: Temporomandibular disorders (TMDs) encompass a range of clinical issues affecting the masticatory muscles, temporomandibular joint (TMJ), and associated structures. Increasing attention has been directed toward TMDs in children and adolescents due to their potential impact on oral health-related quality of life (OHRQoL). However, limited studies have explored this relationship among Indian adolescents. This study aims to assess the impact of TMDs on OHRQoL in school children aged 12–15 years in Kota, Rajasthan. **Materials and Methods:** A cross-sectional study was conducted over a 1-month period (December 2024) among 389 students using a multistage sampling technique. Data were collected through face-to-face interviews using a self-designed questionnaire addressing sociodemographics and oral health behaviors. TMD signs and symptoms were assessed using the American Academy of Orofacial Pain screening tool, whereas OHRQoL was measured using the 16-item children's perception questionnaire (CPQ). Clinical examination assessed TMJ and malocclusion. **Results:** The prevalence of TMD was 23.13% (90/389), with a higher occurrence in males (58.9%). Common habits included lip biting (78.9%), chewing gum (61.1%), and nail biting (51.1%). The most reported symptoms were jaw joint sounds (75.6%) and headaches or neck pain (50%). The mean CPQ score among TMD cases was 23.03 ± 12.1 . Malocclusion types varied, with Class I (30%) and Class II Division II (28.9%) being most common. The association of jaws getting stiff, tight, or tired regularly with social well-being and total CPQ was statistically significant with $P = 0.009$ and $P = 0.048$. **Conclusion:** TMDs adversely affect adolescents' OHRQoL, with malocclusion identified as a major contributing factor. Early diagnosis and conservative management are essential for improving outcomes.

Keywords: Adolescent, Children, Malocclusion, Oral health-related quality of life, Temporomandibular joint disorder.

INTRODUCTION

Oral health encompasses physical, psychological, and social well-being, marked by the absence of pain and dysfunction in the oral and facial regions.^[1] Disruptions in oral health can affect essential functions such as chewing, speaking, and tasting, and may also impact social aspects such as self-esteem and emotional well-being. Temporomandibular disorders (TMDs) represent a prevalent musculoskeletal condition within dentistry, involving the temporomandibular joint (TMJ), masticatory muscles, and associated tissues. TMDs are recognized as the leading non-dental cause of orofacial pain, with a multifactorial etiology including malocclusion, parafunctional habits, and joint hyperlaxity.^[2,3]

Common symptoms of TMDs include facial and jaw pain, TMJ sounds (clicking or crepitation), restricted jaw movements, joint tenderness, and mandibular locking. These symptoms

often result in impaired function, particularly while eating, yawning, or speaking, and are frequently associated with headaches, especially in the temple and forehead areas. Such symptoms can significantly affect children and adolescents, with studies noting increased school absences and use of pain medication, especially among adolescent girls.^[4,5]

The World Health Organization emphasizes the importance of freedom from orofacial pain in maintaining oral health, reinforcing that dysfunctions such as those caused by

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TMDs can hinder overall well-being. Individuals with TMD symptoms tend to seek medical care more frequently and report a lower quality of life. In the past three decades, increasing attention has been given to TMDs in younger populations. Adolescent prevalence rates vary widely (26–50%), often due to differences in study design, symptom criteria, and diagnostic tools.^[6,7]

Given the often-chronic nature of TMDs, their psychological and physical effects are presumed to negatively influence oral health-related quality of life (OHRQoL). Traditional assessments of oral health, which were limited to clinical indicators, have evolved into a multidimensional framework incorporating psychosocial factors. Instruments such as the Children's Perception Questionnaire (CPQ11–14) are now widely used to assess OHRQoL in children, capturing the impact of oral disorders on daily life, emotional state, and social interactions.^[8]

TMD subgroups characterized by muscle disorders or joint pathologies (e.g., arthralgia and osteoarthritis) are associated with more severe pain and lower OHRQoL scores compared to those with disc displacements. Declines in OHRQoL are particularly pronounced in the domains of orofacial pain and psychosocial well-being. This underscores the importance of using OHRQoL assessments as supplementary measures in clinical practice and research.^[9–11]

Despite growing literature on the relationship between TMDs and OHRQoL, there is a lack of research focused on adolescents in India. To address this gap, the present study was designed to assess the impact of TMDs on the OHRQoL of school children aged 12–15 years in Kota, Rajasthan.

MATERIAL AND METHODS

A cross-sectional observational study was conducted in Kota, Rajasthan, over a period of 1 month in December 2024. The objective was to evaluate the impact of TMD on the OHRQoL in school children aged 12–15 years. The target population comprised school-going children between the ages of 12 and 15 years in the urban limits of Kota, Rajasthan.

A preliminary pilot study was conducted on 30 children within the same age range. Using the G*Power software (version 3.1.2, Denmark), the minimum required sample size was calculated to be 90, assuming an effect size of 0.5, a confidence level of 95%, and a power of 80%. A total of 389 children were screened to obtain 90 confirmed TMD cases, at which point data collection was ceased. A multistage sampling technique was employed:

Inclusion criteria

- Children aged 12–15 years present on the day of the survey
- Children willing to participate and provide written informed assent with parental consent.

Exclusion criteria

- Children unwilling to participate or provide consent
- Children whose parents declined to provide written informed consent
- Children with disabilities.

The study was approved by the Institutional Ethical Review Board of the Dental College and Research Institute. Written permission was obtained from the school administrations, and informed consent was secured from the participants and their guardians.

A structured and pre-tested proforma was used to gather both general and clinical data through face-to-face interviews and clinical examinations. The proforma comprised:

- Part I: Sociodemographic data using the BG Prasad Socioeconomic Status Scale (2024 revision)
- Part II: Oral health behavior questionnaire
- Part III: Screening questionnaire for TMD and parafunctional habits, as recommended by the American Academy of Orofacial Pain (AAOP)
- Part IV: OHRQoL assessment using the 16-item version of the CPQ11-14
- Part V: Clinical examination checklist for TMD and malocclusion

Data were analyzed using the Statistical Package for the Social Sciences Version 20 (Chicago Inc., USA). The analysis was conducted in two phases: Means and standard deviations were calculated for continuous variables; proportions were calculated for categorical variables. Inferential statistics: The Chi-square test was used for categorical data comparisons. A Student's *t*-test was applied to compare means between two independent groups. Moreover, $P < 0.05$ was considered statistically significant.

RESULTS

Out of 389 children, 90 (23.13%) had TMD, whereas 299 (76.87%) did not have TMD. Table 1 shows sociodemographic data of school children with TMD, and it was found that children of 12-year aged were 29 (32.2%), of 13 years were 24 (26.7%), of 14 years were 19 (21.1%), and of 15 years were 18 (20%). Out of 90 children, 53 (58.9%) were male and 37 (41.1%) were female. 12 (13.3%) were from the upper class, 34 (37.8%) were from the upper middle class, 19 (21.1%) were from the lower middle class, and 9 (10%) were from the lower class.

Table 2 shows distribution of children according to parafunctional habits and it was found that nail biting was present in 46 (51.1%), clenching of teeth in 46 (51.1%), grinding of teeth in 21 (23.3%), biting lip in 71 (78.9%), and chewing gums in 55 (61.1%) of children.

Table 3 shows the distribution of children according to signs and symptoms of TMD, and it was found that the major finding was hearing a sound in the jaw joints in 68 (75.6%) children, followed by headache, neck pain, or toothaches in 45 (50%) children.

Table 1: Sociodemographic data of school children with TMD

Sociodemographic data	n (%)
Age (in years)	
12	29 (32.2)
13	24 (26.7)
14	19 (21.1)
15	18 (20)
Gender	
Male	53 (58.9)
Female	37 (41.1)
Socioeconomic status	
Upper class	12 (13.3)
Upper middle class	34 (37.8)
Middle class	19 (21.1)
Lower middle class	16 (17.8)
Lower class	9 (10)

TMD: Temporomandibular disorders

Table 2: Distribution of children according to parafunctional habits

Parafunctional habits	n (%)
Nail biting	46 (51.1)
Clenching of teeth	46 (51.1)
Grinding of teeth	21 (23.3)
Biting lip	71 (78.9)
Chewing gums	55 (61.1)

Table 4 shows mean $\pm$ standard deviation scores for each domain of CPQ among school children with TMD. It was found that the mean of oral symptoms with TMD was 5.1 ± 3.9 . The mean of functional limitations with TMD was 6.5 ± 3.1 . Mean of emotional well-being with TMD was 5.5 ± 3.9 . Mean of social well-being with TMD was 5.8 ± 3.4 . Mean of total CPQ with TMD was 23.03 ± 12.1 .

Table 5 shows the distribution of children according to TMJ clinical examination. Among the opening patterns, a straight pattern was found in 52 (57.8%), and the corrected deviation was found in 38 (42.2%). In the reduced opening, a normal pattern was found in 41 (45.6%), reduced in 35 (38.9%), and limited opening in 14 (15.6%). Right lateral movement was seen in 37 (41.1%), left lateral was seen in 38 (42.2%), and protrusion was seen in 15 (16.7%). Myofascial pain was present in 25 (27.8%), cross bite was present in 44 (48.9%), open bite was present in 39 (43.3%), and bruxism was present in 46 (51.1%). A 0–3 mm overjet was present in 29 (32.2%), 3–6 mm was seen in 36 (40%), and >6 mm was seen in 25 (27.8%). 0–3 mm overbite was seen in 29 (32.2%), 3–6 mm was seen in 46 (51.1%), and >6 mm was seen in 15 (16.7%).

Figure 1 shows distribution of children according to occlusion status and it was found that Class I was seen in 27 (30%) children, Class II div I was seen in 23 (25.6%), Class II div II

Table 3: Distribution of children according to signs and symptoms of TMD

Signs and symptoms of TMD	n (%)
Having difficulty, pain, or both when opening the mouth/yawning	
Yes	51 (56.7)
No	39 (43.3)
Jaw gets stuck/locked/out of place	
Yes	24 (26.7)
No	66 (73.3)
Difficulty, pain, or both when chewing, speaking, or using the jaws	
Yes	36 (40)
No	54 (60)
Hear sounds in your jaw joints	
Yes	68 (75.6)
No	22 (24.4)
Jaws get stiff, tight, or tired regularly	
Yes	20 (22.2)
No	70 (77.8)
Pain in or around the ears, temples, or cheeks	
Yes	32 (35.6)
No	58 (64.4)
Headaches, neck pain, or toothaches	
Yes	45 (50)
No	45 (50)
Suffered recent trauma to your head, neck, or jaws	
Yes	21 (23.3)
No	69 (76.7)
Felt any recent change in your bite	
Yes	34 (37.8)
No	56 (62.2)
Recent treatment for an unexplained problem in the jaw joints	
Yes	33 (36.7)
No	57 (63.3)

TMD: Temporomandibular disorders

Table 4: Mean $\pm$ standard deviation scores for each domain of the child perception questionnaire among school children with TMD

Domains	With TMD Mean $\pm$ SD
Oral symptoms	5.1 ± 3.9
Functional limitations	6.5 ± 3.1
Emotional well-being	5.5 ± 3.9
Social well-being	5.8 ± 3.4
Total CPQ	23.03 ± 12.1

TMD: Temporomandibular disorders, CPQ: Child perception questionnaire

was seen in 26 (28.9%) and Class III was seen in 14 (15.6%) of children.

Table 6 shows the association of parafunctional habits with CPQ among children with TMD, and it was found that none of the parafunctional habits was statistically significant with CPQ ($P > 0.05$). Table 7 shows the association of signs and symptoms of TMJ with CPQ among children with TMD, and it was found that the association of jaws getting stiff, tight,

Table 5: Distribution of children according to TMJ clinical examination

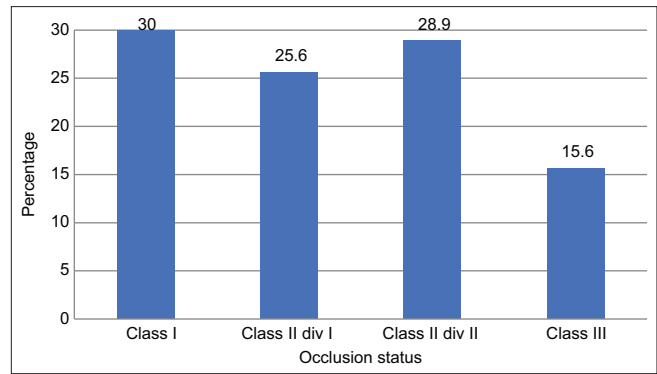
TMJ clinical examination	n (%)
Opening pattern	
Straight	52 (57.8)
Corrected deviation	38 (42.2)
Reduced opening	
Normal	41 (45.6)
Reduced	35 (38.9)
Limited opening	14 (15.6)
Lateral and protrusive movements	
Right lateral	37 (41.1)
Left lateral	38 (42.2)
Protrusion	15 (16.7)
Myofascial pain	
Present	25 (27.8)
Absent	65 (72.2)
Cross bite	
Present	44 (48.9)
Absent	46 (51.1)
Open bite	
Present	39 (43.3)
Absent	51 (56.7)
Bruxism	
Present	46 (51.1)
Absent	44 (48.9)
Overjet	
0–3 mm	29 (32.2)
3–6 mm	36 (40)
>6 mm	25 (27.8)
Overbite	
0–3 mm	29 (32.2)
3–6 mm	46 (51.1)
>6 mm	15 (16.7)

or tired regularly with social well-being and total CPQ was statistically significant with $P = 0.009$ and $P = 0.048$.

DISCUSSION

The detrimental impact of TMJ disease on the stomatognathic system makes it a perplexing problem for medical professionals worldwide. A “group of orofacial conditions affecting TMJ and its associated structures” is referred to by this term.^[12] The definitive trilogy of signs and symptoms is how it first appears, with the patient typically experiencing joint discomfort, a clicking sound in the joint, and then trouble opening their mouth.^[13]

Various epidemiological studies have shown the occurrence of signs and symptoms of TMD disorders in all age groups, with low prevalence among adolescents. Among children, it is very difficult to identify TMD signs and symptoms. The TMD also lowers the OHRQoL of children. The advancement of research that focuses on the relationship between OHRQoL and TMDs among children aged 12–15 years is crucial for effectively allocating public and private organizations to address urgent

**Figure 1:** Distribution of children according to occlusion status

and impactful health care needs guided by the principle of equitable care. Hence, the present cross-sectional study was conducted in Kota, Rajasthan.

In the current study, out of 389 children screened, 90 children had a TMD problem; hence, the prevalence found in our study was 23.13%. Similarly, according to studies by Sarit *et al.*, Tecco *et al.*, and Ebrahimi *et al.*, the prevalence among children aged 12–15 years was 28.7%, 23.7%, and 34.7%, respectively.^[14–16] TMD was present in 20.7% of Saudi children, according to a study done by Farsi. The absence of international standards and different assessment methods can explain the differences in prevalence among different studies.^[7] In the present study, the overall maximum children and those having TMD were of the age 12 years, i.e., above a quarter, and the least were of 15 years of age. In a study conducted by Sarit *et al.*, it was found that the mean age of children was 13.84 ± 0.9 years.^[14] In a study conducted by Jomhawi *et al.*, about 12.6% of children were 15 years old.^[17] Our results were somewhat similar to the above studies, as the starting age of TMD is around 12/13 years, where children can appreciate the difference between the normal joint operation and an abnormal one.

In our study, the number of male children was more as compared to females. Results were similar to a study conducted by Jomhawi *et al.* in which males were more affected than females, Sarit *et al.*^[14] (Males 61.1%, females 38.9%) and were dissimilar to the study conducted by Taneja *et al.*^[18] (females 57.1%). A study conducted by Al-Khotani *et al.* did not find any sex difference in their research.^[19] Although these differences have been explained by behavioral, psychosocial, hormonal, and constitutional factors, no conclusions have been drawn yet, but during the age of puberty, symptoms and signs of TMD can be higher in one gender or can be equivalent in both.

In our study, the maximum children were of upper-middle-class level and the least were of lower-class level. In a study done by Sarit *et al.*, maximum children had family income between 8707 and 13,028 rs.^[14] In a study done by Carvalho *et al.*, the maximum children had family income up to US\$387.00.^[20] Variation in the results depends on the fact that the region or area and type of schools were taken for the research part. Like

Table 6: Association of parafunctional habits with child perception questionnaire among children with temporomandibular disorder

Parafunctional habits	Oral symptoms	Functional limitations	Emotional well-being	Social well-being	Total CPQ
Nail biting					
Yes	5.1±4.2	6.1±3.4	5.7±4.2	5.5±3.6	22.6±13.7
No	5.0±3.7	6.8±2.7	5.4±3.5	6.1±3.2	23.4±10.3
<i>t</i>	0.032	1.090	0.157	0.599	0.091
<i>P</i>	0.859	0.299	0.693	0.441	0.763
Clenching of teeth					
Yes	4.4±3.8	6.0±3.2	5.1±3.8	5.3±3.3	20.9±12.1
No	5.8±3.9	7.0±3.0	6.0±3.9	6.3±3.6	25.1±11.9
<i>t</i>	2.892	2.120	1.104	1.758	2.738
<i>P</i>	0.093	0.149	0.296	0.188	0.102
Grinding of teeth					
Yes	4.1±3.9	5.7±3.2	5.0±4.0	4.9±3.1	19.8±12.1
No	5.4±3.9	6.7±3.0	5.7±3.9	6.1±3.5	24.0±12.0
<i>t</i>	1.686	1.786	0.495	1.918	1.944
<i>P</i>	0.198	0.185	0.483	0.170	0.167
Biting lip/objects					
Yes	4.9±3.8	6.3±3.1	5.5±3.9	5.6±3.3	22.5±11.9
No	5.6±4.3	6.9±3.2	5.8±4.0	6.4±3.8	24.8±13.0
<i>t</i>	0.482	0.464	0.108	0.709	0.561
<i>P</i>	0.490	0.498	0.743	0.402	0.456
Chewing gums					
Yes	5.4±4.0	6.8±2.8	5.9±3.9	6.3±3.4	24.5±11.6
No	4.6±3.8	6.0±3.5	4.9±3.8	5.0±3.4	20.6±12.7
<i>t</i>	0.995	1.363	1.368	3.038	2.270
<i>P</i>	0.321	0.246	0.245	0.085	0.135

CPQ: Child Perception Questionnaire

most probably, the children of government schools had lower family income, whereas children of private schools belonged to families with higher income.

In the present, maximum children had parafunctional habits of biting their lip, followed by chewing gum, nail biting, clenching of teeth, and grinding of teeth. Our results were dissimilar to studies conducted by Emodi-Perlman *et al.*, Winocur *et al.*, Troeltzsch *et al.*, and Alamoudi *et al.*^[21-24] Because of their impact on the stomatognathic system, these parafunctional behaviors should be regarded as risk factors for TMD since they serve as catalysts for the onset of the condition.

For TMD signs and symptoms in our study, the major finding was hearing sounds in the jaw joints, followed by headache, neck pain, or toothaches. In a study done by Motghare *et al.*, the research population's top three TMD symptoms were jaw noises (34.2%), mouth opening pain (38.8%), toothache (46.2%), and headache.^[25] Three AAOP questionnaire statements showed a statistically significant gender difference ($P \leq 0.05$). According to Motta *et al.*, among Brazilian teenagers, the top three signs and symptoms of TMD were headache, neck pain, toothache (46.2%), joint noises (38.7%), and discomfort in the mouth opening (34.1%), similar to our study. These three signs and symptoms, which appear in a sequential pattern, are thought to be the classic triad of the TMD condition. These screening tools can assist in the early

detection of those exhibiting TMD signs and symptoms, after which they can be referred for preventative care.^[12]

On clinical examination in our study, it was found that the most important factor in examining TMD was opening, closing, and lateral movement pattern, and the most important examination features were myofascial pain, bruxism, open bite, cross bite, overjet, and overbite. The most common occlusion status in our study was class II div II. In a study conducted by Taneja *et al.*, it was found that bruxism was found in the highest number among children with TMD, with a statistically significant association.^[18] Our results were also similar to research conducted by Jenni *et al.*, and in a study conducted by Macri *et al.*, it was found that 37.37% of the subjects with TMDs present a molar Class I relationship.^[26] Significant differences were also observed in patients with Class III malocclusion. There was no discernible correlation between TMD symptoms and the index of orthodontic treatment needed in Akeel and Al-Jasser.^[27] The reason for checking occlusion status in TMD patients is that the development of TMD is substantially affected by malocclusion. The ultimate position of the jaw while chewing and swallowing is dictated by the configuration of the teeth. Consequently, it is likely that an individual with TMDs may also be suffering from malocclusion.

In our study, it was found that the mean of oral symptoms was

Table 7: Association of signs and symptoms of temporomandibular joint with child perception questionnaire among children with temporomandibular disorder

TMJ clinical examination	Oral symptoms	Functional limitations	Emotional well-being	Social well-being	Total CPQ
Having difficulty, pain, or both when opening the mouth/yawning					
Yes	5.0±4.0	6.4±3.1	5.5±4.0	5.6±3.3	22.6±12.2
No	5.1±3.8	6.6±3.1	5.5±3.8	6.1±3.6	23.4±12.2
<i>t</i>	0.014	0.117	0.001	0.442	0.095
<i>P</i>	0.905	0.733	0.977	0.508	0.759
Jaw gets stuck/locked/out of place					
Yes	4.9±4.2	5.8±3.2	4.9±4.0	5.6±3.8	21.3±13.1
No	5.1±3.8	6.7±3.0	5.8±3.9	5.8±3.3	23.6±11.8
<i>t</i>	0.087	1.353	0.924	0.104	0.637
<i>P</i>	0.769	0.248	0.339	0.748	0.427
Difficulty, pain, or both when chewing, speaking, or using the jaws					
Yes	4.6±3.5	6.8±2.5	5.1±3.2	6.1±3.0	22.8±9.3
No	5.4±4.2	6.2±3.4	5.8±4.3	5.6±3.7	23.1±13.8
<i>t</i>	0.891	0.870	0.568	0.409	0.016
<i>P</i>	0.348	0.353	0.453	0.524	0.900
Hear sounds in your jaw joints					
Yes	5.2±4.0	6.7±2.9	5.7±3.9	6.1±3.4	23.8±11.8
No	4.8±3.7	5.8±3.6	4.9±3.8	4.8±3.3	20.5±13.0
<i>t</i>	0.123	1.246	0.729	2.456	1.267
<i>P</i>	0.727	0.267	0.395	0.121	0.263
Jaws get stiff, tight, or tired regularly					
Yes	3.9±3.4	5.8±3.4	4.5±3.5	4.0±2.6	18.3±11.0
No	5.4±4.0	6.7±3.0	5.8±4.0	6.3±3.5	24.3±12.1
<i>t</i>	2.487	1.328	1.772	7.104	4.026
<i>P</i>	0.118	0.252	0.187	0.009*	0.048*
Pain in or around the ears, temples, or cheeks					
Yes	4.3±3.9	6.0±3.3	5.3±4.1	5.4±3.4	21.1±12.9
No	5.5±3.9	6.7±3.0	5.7±3.8	6.0±3.4	24.0±11.7
<i>t</i>	2.099	0.879	0.224	0.705	1.225
<i>P</i>	0.151	0.351	0.637	0.403	0.271
Headaches, neck pain, or toothaches					
Yes	4.6±4.0	6.0±3.4	5.0±3.9	5.2±3.5	20.9±12.7
No	5.6±3.8	7.0±2.7	6.1±3.8	6.3±3.3	25.1±11.3
<i>t</i>	1.440	2.219	1.813	2.134	2.675
<i>P</i>	0.233	0.140	0.182	0.148	0.105
Suffered recent trauma to your head, neck, or jaws					
Yes	4.2±3.7	6.1±3.3	4.8±3.6	5.5±3.4	20.7±12.0
No	5.3±4.0	6.6±3.0	5.8±4.0	5.9±3.5	23.7±12.2
<i>t</i>	1.369	0.375	1.046	0.199	0.996
<i>P</i>	0.245	0.542	0.309	0.657	0.321
Felt any recent change in your bite					
Yes	4.6±4.0	5.7±3.5	5.0±4.1	5.1±3.6	20.6±13.5
No	5.4±3.9	6.9±2.7	5.8±3.8	6.2±3.3	24.5±11.1
<i>t</i>	0.885	3.174	0.846	2.075	2.184
<i>P</i>	0.349	0.078	0.360	0.153	0.143
Recent treatment for an unexplained problem in the jaw joints					
Yes	5.3±4.0	6.8±3.0	5.6±3.8	5.9±3.2	23.7±11.8
No	5.0±3.9	6.3±3.1	5.5±4.0	5.7±3.6	22.6±12.4
<i>t</i>	0.146	0.601	0.026	0.032	0.183
<i>P</i>	0.703	0.440	0.871	0.858	0.670

*Significant ($P<0.05$). TMJ: Temporomandibular joint, CPQ: Child Perception Questionnaire

5.1 ± 3.9, functional limitations were 6.5 ± 3.1, emotional well-being was 5.5 ± 3.9, and social well-being was 5.8 ± 3.4. The mean of total CPQ was 23.03 ± 12.1 for females. In our study, a significant association was found between CPQ and TMD signs and symptoms such as jaw getting stiff or tired quickly ($P = 0.048$), as well as with occlusion status and social well-being CPQ score ($P = 0.049$). Our results were in concordance with the fact that in the CPQ domains of oral symptoms, emotional well-being, and social well-being, TMD patients showed noticeably lower ratings. Impaired OHRQoL was also linked to a multiplicity of signs and symptoms. The current understanding that TMDs are complicated diseases rather than a localised orofacial pain syndrome is further supported by these findings. It is easily understood in the context of a bio-psycho-social paradigm of sickness.^[28] Our findings are in corroboration with those of previous studies by Renner-Sitar *et al.*^[29] John *et al.*,^[30] Dahlström and Carlsson^[31] and Rusanen *et al.*^[32] However, our findings showed no association between TMDs and all the domains of CPQ, except social well-being, which might be due to the fact that children had already having sought treatment for the limiting conditions.

TMD development is significantly influenced by malocclusion. The final position of the jaw closure during chewing and swallowing is determined by the arrangement of the teeth. Therefore, there is a good chance that someone with TMDs may also be experiencing malocclusion.^[32]

CONCLUSION

Even minor occlusal interferences can influence a child's appearance and self-esteem. Effective TMD management emphasizes patient education and conservative treatment approaches, including self-care, relaxation, splints, physical therapy, and medications to alleviate pain and restore function. Evidence-based clinical guidelines are essential for standardized care. Health policymakers should integrate oral and mental health services into adolescent health programs to enhance outcomes and reduce long-term healthcare burdens.

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