

Prevalence of Temporomandibular Joint Disorders in 9–12–Year–Old Boy Students in Kerman, Southeast of Iran

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Abstract

Despite numerous studies on the prevalence of temporomandibular joint disorders (TMJDs) in adults, those performed in children are limited. This study determined the prevalence of TMJDs in 9–12-year-old Kermanian boy students living in Southeast of Iran. 240 boy students selected by randomized method and studied through a descriptive cross-sectional epidemiologic survey including interviews and physical examinations. Overall, 11.7% of the boys had TMJDs, 1.7% limitation in mouth opening and 5.4% deviation on jaw opening. Attention to temporomandibular joint disorders in children is necessary by preschool examination in order to prevent their progress in later stages of life.

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Keywords • Temporomandibular disorder • children • epidemiology

Introduction

Temporomandibular joint disorders (TMJDs) are heterogeneous collection of signs and symptoms that can be generally characterized by the presence of pain, temporomandibular joint noise, and limitation or deviation in jaw motion.¹ TMDs can be broadly grouped as structural/organic (ankylosis, trauma, infection, neoplasia and arthritis) or functional disorders associated with pain, joint noise, or limitation of jaw motion. A distinct subgroup of musculoskeletal and rheumatologic disorders also represent a major cause of non dental pain in the orofacial region.²⁻⁵ Despite the fact that TMDs have traditionally been considered as an adult disorder, few documented studies report its prevalence in the younger population.⁶ As TMDs pose a general health problem and may progress to irreversible destruction of the intra-articular temporomandibular joint (TMJ) elements, particularly if diagnosed too late, the epidemiologic studies emphasize the need to continue the evaluation of TMDs during childhood and adolescence.^{3-5,7,8} The present study was thus needed for early treatment of TMDs in children and to compare their prevalence in children reported by those of previous investigators.

Subjects and Methods

The present study comprised 240 elementary school boys aged from 9-12 years, selected from 3235 students by random sampling method.

The exclusion criteria included histories of maxillofacial trauma, surgery, infection and rheumatologic disease, the presence of

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acute abscess of maxillofacial region and inflammation of tympanic membrane. The evaluation of symptoms of TMJDs was achieved by interviews with students. The questions asked involved difficulty in chewing, feeling pain on extreme opening of mouth, hearing noises in preauricular area, feeling pain in TMJ region, and sustained earache.

The signs of TMJDs in students were evaluated through physical examination. These consisted of tenderness on different parts of TMJ and intra-acoustic area, S-shaped deviation on opening the mouth, maximum mouth opening with and without pain, limitation of less than 35 mm in mouth opening, and auscultation of joint noises with and without stethoscope. Subjects were excluded from the study if, by examination with otoscope, showed signs of inflammation of the eardrum.

Results

Based on interviews, it was concluded that of 240 students, 4.2%, 10%, 35% and 12.1% had difficulty in chewing, feeling pain on full opening of the mouth, joint noises and painful TMJ region, respectively. Respective values, obtained from physical examination of the students, for tenderness on right and left TMJ regions, tenderness on intra-acoustic examination, S-shaped deviation on mouth opening, limits between 28-35 mm of mouth opening, maximal opening of the mouth associated with pain (42.85 ± 6.63 mm) and maximum painless mouth opening (34.8 ± 4.59 mm) were 39.2%, 21.6%, 10.4%, 2.9%, 1.7%, 1.7% and 1.7%. On auscultation of TMJ, 1.3% had crepitation, 6.3% clicking, 8.3% crepitation with stethoscope and 22.9% clicking with stethoscope.

Discussion

The present study showed that 19 students (7.9%) had TMJDs on the right, 8 (3.6%) on the left, and 23 (9.6%) on both sides. However, considering such signs and symptoms as difficulty in chewing, reduced mouth opening, and pain on maximum mouth opening which were unrelated to any specific side, an overall average of TMJDs was 11.7%, a value of 11.5%, similar to a study reported on 10-16-year-old Japanese students⁷, but different from the results of the study reported by Magnusson and colleagues reported on a sample of 11-15-year-old individuals who were examined for signs and had symptoms of TMJDs and one or more TMJD symptoms were found in 35%, 61%, and 66% at ages of 7, 11 and 15 year, respectively.⁵ In our study we found that 4.2% of the individuals had difficulty in chewing,

10% pain on opening their jaw, 12.1% pain on TMJ area and 35% joint noises. However, in a study by Sonnesen and his associates on 96 children aged from 7 to 13 years and selected for orthodontic treatment, 9.4%, 7.3% and 14.6% had such difficulties as chewing tough meat, opening their mouth and joint noises.⁹ These values were higher than those obtained from our study. Also in a similar study performed on 525 children aged from 4 to 6 years, 13% felt more pain during jaw opening compared with that found in the present study.¹⁰

In our study, 6.3% of the subjects had far noise clicking without stethoscope and 22.9% by auscultation with stethoscope. Widmalm's study on 203 children aged from 4 to 6 years showed that 14.8% had far noise and 41.2% noise by auscultation with stethoscope.⁷ In Sonnesen study, 2.1% of individuals had far noise and 15.6% noises with stethoscope.⁹ In another report on 500 Saudi children aged from 3 to 7 years, the prevalence of clicking was 7.8% that was in accord with the results of present study.¹¹ However, the results of these studies differed from those of our study.

The limit of mouth opening of less than 35 mm was considered as reduced,¹ and comprised 1.7% of the subjects. In another study performed by Kieser and his colleagues on 150 cases aged between 6 to 9 years, the corresponding limit was reported as 25 mm, and 9.5% of their cases had decreased mouth opening.¹² Considering the results of the present investigation as well as those of other studies on TMJDs in children, it is concluded that the frequency of TMJDs differ in various geographic regions and among different races.¹⁰ Epidemiological studies in different regions of Iran, are thus needed to determine the prevalence of and to prevent the progress of TMJDs in adulthood.

In conclusion, in view of numerous epidemiological reports on temporomandibular joint disorders in adults, limited studies on children and the lack of a corresponding uniform physical examination form and charting, attempts must be made to prepare a uniform standardized charting for interview and physical examination of Iranian children, in order to compare the results of different studies on temporomandibular joint disorders.

References

- 1 Farsi NMA. Symptoms and signs of temporomandibular disorders and oral parafunctions among Saudi children. *J Oral Rehabil* 2003; 30:1200-8.
- 2 Choi YS, Choung PH. Moon HS, Kim SG. Temporomandibular disorders in 19 year

- old korean men. *J oral Maxillofac surg* 2002; 60: 797-803.
- 3 Almoudi n, Farsi N, salako NO, feteih R. Temporomandibular disorders among school children. *J clin pediat Dent* 1998; 22: 323-9.
 - 4 Dodson TB: Epidemiology of temporomandibular disorders in: Fonseca RJ, Bays RA, Quinn PD: oral and maxillofacial surgery vol 4. Philadelphia, Saunders Company, 2000. p. 93-107.
 - 5 Magnusson T, Egermark EI, Carlsson GE. Four year longitudinal study of mandibular dysfunction in children. *Community Dent oral Epidemiol* 1985; 13: 117-20.
 - 6 Castelo PM, Gaviao MBD, Pereira LJ, Bonjardim LR. Relationship between oral parafunctional/nutritive sucking habits and temporomandibular joint dysfunction in primary dentition. *Int j pediat dent* 2005; 15: 29-36.
 - 7 Widmalm SE, christiansen RL, Gunn SM, Hawley LM. Prevalence of signs and symptoms of craniomandibular disorders and orofacial parafunction in 4-6 year old African-American and caucasian children. *J Oral Rehabil* 1995; 22: 87-93.
 - 8 Barone A, sbordone L, Ramaglia L: Craniomandibular disorders and orthodontic treatment need in children. *J Oral Rehabil* 1997; 24: 2-7.
 - 9 Sonnesen L, Bakke M, Solow B. Temporomandibular disorders in relation to craniofacial dimensions, head posture and bite force in children selected for orthodontic treatment. *European J of orthodontics* 2001; 23: 179-92.
 - 10 Widmalm SE, Christiansen RL, Gunn SM; Race and gender as TMD risk factors in children. *Cranio* 1995; 13:163-6.
 - 11 Almoudi N: Correlation between oral parafunction and temporomandibular disorders and emotional status among Saudi children. *J clin Pediatr Dent* 2001; 26: 71-80.
 - 12 Kieser JA, Groeneveld HT. Relationship between Juvenile bruxing and craniomandibular dysfunction. *J Oral Rehabil* 1998; 25: 662-5.