TMD in Children and Adolescents: Prevalence of Pain, Gender Differences, and Perceived Treatment Need

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Aims: *The aim of this study was to determine the prevalence of pain that is related to temporomandibular disorders (TMD), gender differences, and perceived treatment need in children and adolescents at a public dental clinic in Linköping, Sweden.* **Methods:** *A total of 862 children and adolescents aged 12 to 18 years received a questionnaire and their jaw opening was measured. Those who reported pain once a week or more in the masticatory system received a more comprehensive examination, including the Research Diagnostic Criteria for TMD and a neurologic examination (group 1). Group 2 reported pain less than once a week.* **Results:** *Seven percent of subjects (63/862) were diagnosed with TMD pain. Both genders exhibited similar distributions of TMD diagnoses, except that myofascial pain was significantly more common in girls than in boys. Prevalence of pain once a week or more was reported as: 21% in the head; 12% in the temples; and 3% in the face, temporomandibular joint, or jaws. The prevalence of TMD-related pain was significantly higher in girls than in boys. Self-reported TMD symptoms were significantly more common ($P < 0.001$) in group 1. No significant gender differences were found in group 1 for pain intensity, behavioral rating scale scores, medicine consumption, reported days of school absence, or perceived need for treatment.* **Conclusion:** *Overall, TMD-related pain was more common in girls than in boys. A majority of children and adolescents who experienced pain once a week or more perceived a need for treatment. Seven percent of the examined subjects were diagnosed with TMD pain.*
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In population-based studies of children and adolescents the prevalence of temporomandibular disorders (TMD) is reported to range from 6% to 68%.[1–4] The variation in TMD prevalence is partly a result of differences in diagnostic criteria, examination procedures, population sampling, and the definition of TMD used. Temporomandibular pain has been defined as

> pain, usually localized in the muscles of mastication, the preauricular area, and/or the temporomandibular joint (TMJ). The pain usually is aggravated by chewing or other jaw function. In addition to complaints of pain, patients with these disorders frequently have limited or asymmetric mandibular movement and TMJ sounds.[5]

Several of these symptoms, eg, clicking, have been found to fluctuate considerably over time and to be common not only in TMD patients but also in nonpatient populations. Therefore, to avoid overregistration of signs and symptoms, some epidemiologic studies have defined TMD in terms of pain that is reported in the masticatory system.[6] In a recent review article on the prevalence of TMD pain in children and adolescents, pain in the temples was reported by approximately 10% of the subjects, and pain that occurred in the face, jaws, and TMJ was reported to vary from 0.7% to 4% depending on age.[7]

Pain is a common complaint of children and adolescents, and it has a potential impact on daily activities and quality of daily living.[8–11] The most prevalent types of pain that are reported are headache and abdominal pain.[10] Several musculoskeletal pain conditions, eg, tension headache,[11–14] TMJ pain,[8,15,16] back pain,[17] fibromyalgia,[18] and juvenile chronic arthritis,[19,20] have been found to be more prevalent in girls than in boys. In young age groups, a similar prevalence of headache is reported for both genders,[10] but the frequency for girls increases during adolescence.[21] Experimental and clinical studies have found that pain is affected by the menstrual cycle.[22,23] It has been suggested that hormonal variations influence the biologic mechanisms of pain transmission, pain sensitivity, and pain perception.[21] Female reproductive hormones may therefore be a contributing factor to the development of TMD.[7]

If studies are to be compared and reliable conclusions are to be drawn from a comparison of results, then the method of investigation must be standardized and the criteria for identifying children and adolescents with TMD must be clearly defined. The measurements that are used to assess whether individuals meet the criteria should be of acceptable reliability. Experience from epidemiologic studies allowed the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) to be developed so that individuals with TMD could be identified in a reliable manner.[24] In a previous study of a Swedish population of children and adolescents, Wahlund et al[25] found that physical diagnosis according to the RDC/TMD classification and questionnaire was reliable.

The aim of this study was to evaluate the prevalence of pain-related TMD in children and adolescents according to gender and to assess treatment needs at a public dental clinic in Sweden.

Materials and Methods

Subjects

The study population was drawn from the children and adolescents aged 12 to 18 years who were registered at the Ryd Public Dental Clinic in Linköping, Sweden (1,008 individuals). The investigation was a part of the yearly recall checkup. Fourteen percent (146) of the patients did not participate in the study for the following reasons: 40 refused to participate, 47 failed to show up in spite of several summons, 51 had moved from the area, 6 were being treated by other dentists, and 2 were mentally retarded. Of the 862 patients screened for TMD and/or headache, 470 were boys and 392 were girls. Eleven percent (113) of the patients reported pain in the face, jaws, or temples once a week or more. These individuals were invited to a second clinical session for a more comprehensive clinical examination. Of the 113 patients who reported TMD-related pain, 88 individuals (78%) participated and 25 (22%) dropped out. The main reason that was given for not attending this second examination was that the pain was not severe enough to motivate the patient to participate. Demographically, the individuals were representative of the town and suburban areas. The study was approved by the local Ethics Committee and all patients/parents signed an informed consent form.

Study Design

All 1,008 potential participants were mailed a questionnaire and asked to bring it to the clinical investigation (Fig 1). To avoid misunderstandings, an examiner confirmed the questions verbally with each patient. Four dentists, one dental hygienist, and one dental assistant screened the patients after being trained and calibrated for reliability of measurement of the range of mandibular motion. The reliability of measurements of the range of mandibular motion was tested prior to the study and found to be high (range Intraclass Correlation Coefficient = 0.94 unassisted opening without pain, ICC = 0.94 maximum unassisted opening, ICC = 0.93 maximum assisted opening). Patients who reported pain and/or discomfort once a week or more often in the face, jaws, TMJs, or temples were asked to return for a more comprehensive clinical examination. This examination included an RDC/TMD clinical examination as well as the clinic's standard neurologic screening examination by a calibrated operator. A previous study established acceptable reliability for the questionnaire, the TMD examination, and the diagnosis in children and adolescents.[25] The patients

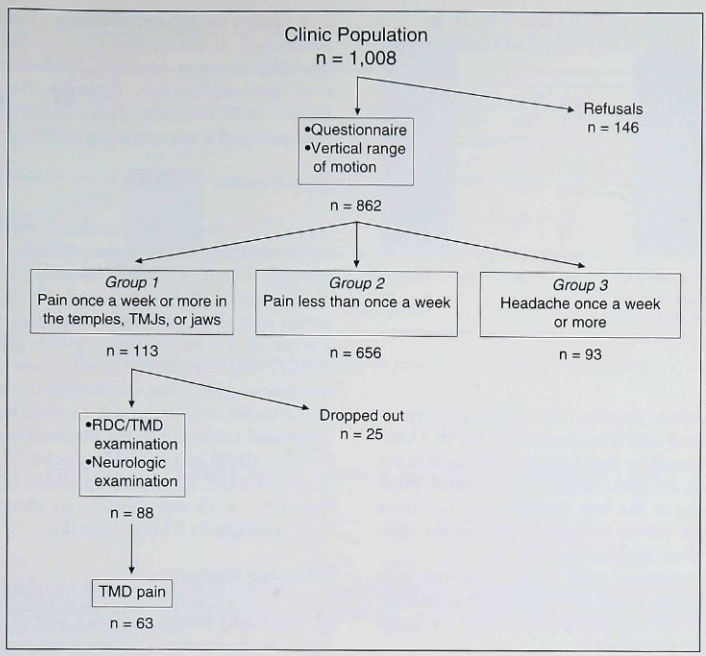

Fig 1 Flow diagram of the study.

were subdivided into 3 mutually exclusive groups according to the pain location and the frequency of the pain (Fig 1):

- Group 1: pain once a week or more often in the face, jaws, TMJs, or temples (could include headache)
- Group 2: no pain, or pain less than once a week
- Group 3: headache once a week or more often

The present article reports comparisons between group 1 and group 2 only; data for group 3 will be presented in a following paper.

Self-Administered Questionnaire

The questionnaire consisted of 17 questions and 3 pain scales and was designed to assess the frequency and location of TMD-related pain, jaw function, parafunctional habits, and jaw disability, as well as medication use. The content of the questionnaire measure was as follows:

1. Nine questions inquired into the frequency of symptoms, eg, headache; pain in the temporal regions; pain in the face, jaws, or jaw joints; pain when opening wide or when chewing; discomfort when opening wide or when chewing; clicking or popping when opening or closing the mouth or when chewing; grating or grinding noises when opening or closing during chewing; tiredness or stiffness in the face or jaws; restricted mouth opening (was able to open wider before). The frequencies were reported on a 5-point scale: never, 1 to 2 times a month, once a week, several times a week, or daily.
2. Six dichotomous (yes/no) questions assessed jaw function, parafunction, and aspects of treatment: Have you ever had your jaw lock or catch so that it won't open all the way? Have you been told or have you noticed that you grind your teeth or clench your jaws? Have you had a recent injury to your face or jaw? Do you have migraine? Have you had or are you receiving orthodontic treatment? Would you like to have treatment for your headache or facial pain?

Table 1 Prevalence of Pain Once a Week or More, by Pain Site, in 862 Boys and Girls Aged 12 to 18 Years

Question	Girls (%)	Boys (%)	Total (%)	*P* Value
Do you have headaches?	29	14	21	0.001
Do you have pain in the temple regions?	19	6	12	0.001
Do you have pain in the facial area, the jaws, or the jaw joint?	3	2	3	0.180
Do you have pain when you open your mouth wide (eg, yawn) or when chewing?	6	3	4	0.004

3. Two questions required the patients to report duration and interference associated with TMD-related pain: How long have you had pain in the face, TMJ, or jaws (number of months)? How many days in the last month have you been home from school because of pain in the face, TMJ, or jaws (number of days)?
4. A visual analogue scale (VAS) anchored with the terms "no pain" and "worst pain imaginable" was used to record the patient's average pain in the past week.[26]
5. A 6-point behavioral rating scale measured the effect of the pain on the patient's daily activities: 0 = no pain; 1 = pain, I am only aware of it if I pay attention to it; 2 = pain, but I can ignore it at times; 3 = pain, I can't ignore it but I can do my usual activities; 4 = pain, it's difficult to concentrate, I can only do easy activities; 5 = pain, such that I can't do anything. The development of this scale followed the methods and rationale reported by Blanchard and Andrasik.[27]
6. A 6-point scale previously developed by Carlsson et al[28] was used to measure the frequency of use of pain medication: daily, 3 to 4 times a week, 1 to 2 times a week, once in a while, every month, and never or almost never.

Clinical Examination

The RDC/TMD examination was used to assess the clinical signs and symptoms. The following signs and symptoms were assessed: pain site; mandibular range of motion (mm) and associated pain (jaw opening pattern, unassisted opening without pain, maximum unassisted opening, maximum assisted opening, mandibular excursive and protrusive movements); TMJ sounds; and muscle and joint palpation for tenderness.[24]

A routine neurologic screening examination was conducted. It comprised tests of the facial and hypoglossus nerve function, spontaneous nystagmus, gaze-nystagmus, diplopia, field of vision according to Donders, diadochokinesis, a finger-nose test, and a test according to Romberg's sign.

Classification

Since TMD and tension headache often coexist, 2 complementary classification systems were used in parallel. The RDC/TMD classifies the most common forms of TMD into 3 mutually exclusive categories and allows multiple diagnoses across categories to be made for a given patient. The RDC/TMD diagnostic groups are as follows: myofascial pain; disc displacements; and arthralgia, arthritis, and arthrosis. Tension headache was diagnosed according to the International Headache Society (IHS) criteria (Headache Classification Committee)[29] as either episodic tension-type headache (< 15 days/month) or chronic tension-type headache (> 15 days/month).

Statistical Methods

Comparisons between gender and group percentages for qualitative variables were performed with Chi-square tests. In cases of expected cell frequencies less than 5, exact *P* values were computed for the Chi-square tests (PROC FREQ, SAS version 6.12). Comparisons between gender and group means for quantitative variables were performed with the paired-sample *t* test; to account for the effects of age and gender, linear regression analyses were used for quantitative variables, and logistic regression analyses were used for qualitative variables. Gender was always included in the regression models to adjust for gender differences when the effects of age were assessed.

Results

An 86% response rate was achieved with the initial mailed questionnaire. The most prevalent sites for pain "once a week or more" reported by the participants were headache (21%); pain in the temples (12%); pain on opening wide or chewing (4%); and pain in the face, jaws, or TMJs (3%). Significantly higher prevalence rates were found for girls compared with boys for all pain sites; the higher prevalence rate among girls for pain in the face, jaws, or TMJs was not statistically significant (Table 1). Among the patients with pain once a

Fig 2 Prevalence of TMD-related pain in girls and boys aged 12 to 18 years.

Table 2 Prevalence of TMD-Related Symptoms in Boys and Girls in Groups 1 and 2

Question	Group 1 Girls (%) (n = 79)	Group 1 Boys (%) (n = 34)	Group 1 *P* value	Group 2 Girls (%) (n = 259)	Group 2 Boys (%) (n = 397)	Group 2 *P* value	Group 1 vs group 2 *P* value
Do you have discomfort when you open wide or chew?	15	18	0.760	2	1	0.270	< 0.0001
Does your jaw click or pop when you open or close your mouth while chewing?	27	38	0.270	8	8	0.680	< 0.0001
Does your jaw make a grating or grinding noise when it opens or closes on chewing?	14	18	0.630	6	2	0.015	< 0.0001
Does your jaw or face ache or feel stiff?	21	15	0.470	0	2	0.014	< 0.0001
Do you have a restricted opening of your mouth?	6	6	1.000	1	0	0.310	< 0.0010
Have you been told or have you noticed that you grind your teeth or clench your jaws?	37	38	0.880	19	15	0.170	< 0.0001
Have you had a recent injury to your face or jaws?	4	21	0.008	4	6	0.360	< 0.0300

week or more, 57% reported pain at 1 site; the remaining individuals reported pain at more than 1 site. The prevalence tended to increase with age, particularly in girls, but the increase was not statistically significant (Fig 2). The prevalence of TMD-related pain yielding an RDC/TMD diagnosis of myofascial pain and/or arthralgia (Fig 1) averaged 7% (63/862) and was significantly higher in girls than in boys ($P < 0.001$). No significant age-gender interactions were found ($P = 0.99$).

Prevalence of TMD-related symptoms for the entire group was 11% for self-reported clicking, 3% for tiredness and stiffness of the jaw, and 1% for restricted opening. No significant differences were found between genders. Comparisons of TMD-related symptoms for groups 1 and 2 are shown in Table 2. Significant differences were found between groups 1 and 2 for all reported symptoms. A significant difference between genders was found in group 1, where more boys than

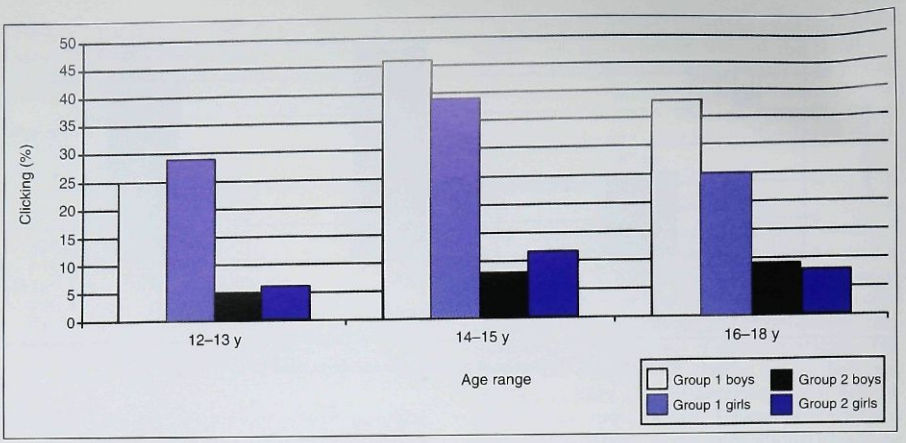

Fig 3 Prevalence of reported clicking in the TMJ for boys and girls in group 1 (n = 113) and group 2 (n = 656).

Table 3 Comparison of Selected Pain Behaviors in Girls and Boys in Groups 1 and 2

	Group 1			Group 2			Group 1 vs group 2
Pain condition	Girls (n = 79)	Boys (n = 34)	*P* value	Girls (n = 259)	Boys (n = 397)	*P* value	*P* value
Pain intensity (VAS, mean ± SD)	5.0 ± 2.0	4.7 ± 1.9	0.460	1.2 ± 1.9	0.7 ± 1.7	0.0040	< 0.0001
Pain frequency (md q1–q3)	3.3–3.0	3.3–3.0	0.096*	1.1–2.0	1.1–1.0	< 0.0001	< 0.0001
Behavior rating scale (BRS, mean ± SD)	3.0 ± 0.9	2.7 ± 0.9	0.900	0.8 ± 1.2	0.5 ± 1.0	< 0.0004	< 0.0001
Medicine consumption (once a week or more)	24%	15%	0.320	0%	0.3%	0.9900	< 0.0001
Reported days of school absence (1 day a month or more)	22%	18%	0.650	2%	1%	0.4400	< 0.0001
Perceived treatment need	46%	64%	0.008	5%	4%	0.4400	< 0.0001

*Wilcoxon's ranked sum test.
md = median; q1 = first interquartile range; q3 = third interquartile range.

girls reported a recent injury to the face or jaw. No significant differences between genders were found for the other self-reported symptoms in group 1. Prevalence of TMJ clicking is shown in Fig 3. Significant differences between groups 1 and 2 were seen for all age groups. No gender-age interactions were found.

Comparisons of selected pain behaviors by girls and boys in groups 1 and 2 are shown in Table 3. A significant difference was seen between groups 1 and 2 for all variables, but no significant differences were found between genders in group 1, except for perceived treatment need. Similar pain intensities were reported across the different age groups (Fig 4). No gender-age interactions were seen.

The vertical range of motion is shown in Table 4. The patients in group 1 exhibited significantly reduced opening capacities compared with the patients in group 2. No significant differences were found between genders. While younger girls (ages 12 to 13 years) tended to have slightly wider maximum unassisted jaw opening, this tendency was reversed,

Fig 4 Pain intensity for boys and girls in group 1 (n = 113) and group 2 (n = 656).

Table 4 Comparison of Range of Motion* in Girls and Boys in Groups 1 and 2

	Group 1			Group 2			Group 1 vs group 2
Vertical measurement	Girls (n = 79)	Boys (n = 34)	*P* value	Girls (n = 259)	Boys (n = 397)	*P* value	*P* value
Unassisted opening without pain	48.5 ± 6.1	48.3 ± 8.8	0.92	50.0 ± 6.2	51.6 ± 6.8	0.26	< 0.0001
Maximum unassisted opening	53.9 ± 6.3	55.0 ± 6.9	0.41	55.8 ± 6.1	56.2 ± 6.4	0.44	< 0.0130
Maximum assisted opening	55.8 ± 6.4	56.7 ± 7.1	0.51	57.3 ± 6.2	57.7 ± 6.5	0.49	0.0400

*Values given in mm (mean ± SD).

with boys in the older groups (ages 14 to 15 and 16 to 18 years) showing a slightly larger range of vertical jaw motion. The range of motion in the different age groups is seen in Fig 5; overall, no significant gender or age interactions were found.

For the 88 patients who received a more comprehensive examination, the prevalence of the different diagnoses is presented in Table 5. Multiple subdiagnoses encompassing more than 1 diagnostic group are possible with the RDC/TMD, but not with the IHS criteria. Myofascial pain was the most common symptom recorded in both genders, with pain reported significantly more frequently by girls. No significant gender differences were found in those diagnosed with disc displacements; with arthralgia, arthritis, or arthrosis; or with episodic or chronic tension-type headache. There were no positive findings from the neurologic examinations.

Discussion

In the present study, children and adolescents were not randomly selected according to strict epidemiologic principles. However, the individuals screened comprise 86% of all children and adolescents known to the compulsory dental public health system for this region in Sweden and can therefore be considered representative of all children and adolescents in this region of Sweden. The dropout rate observed was comparable to that reported in other studies.[15,30,31]

To standardize pain reporting across TMD and headache conditions, we used a comparable time frame of "once a week or more" consistently for all symptoms in the questionnaire. Acceptable reliability was found for the instrument in a previous study.[25] The method adopted is consistent with findings by Unruh,[21] who analyzed studies

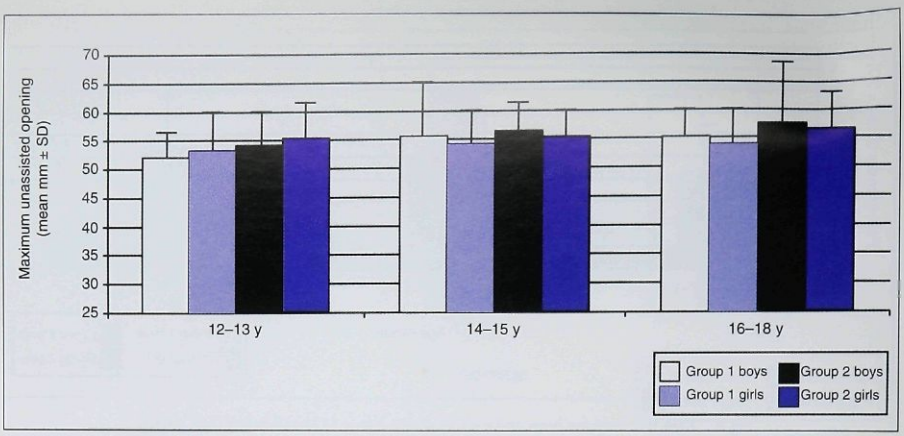

Fig 5 Range of motion for boys and girls in group 1 (n = 113) and group 2 (n = 656).

Table 5 Classification Criteria: Comparison of Frequencies of Diagnosis in 88 Girls and Boys Aged 12 to 18 Years

Diagnosis	Girls (%) (n = 63)	Boys (%) (n = 25)	Total (%) (n = 88)	*P* value
RDC/TMD				
Muscle disorders	78	52	70	0.02
Disc displacements	17	16	17	1.00
Arthralgia, arthritis, arthrosis	24	12	20	0.22
IHS criteria				
Episodic tension-type headache	52	56	53	0.76
Chronic tension-type headache	42	40	41	0.87

reporting gender differences in pain and suggested that short recall periods should be used in self-reporting of pain to improve reliability. Nydell et al[4] reported in a review of 40 epidemiological studies that "clinical relevance" of the prevalence of headache improved considerably when the time frame "once a week or more" was used; in the latter study, however, time limits were evaluated only for headache and not for other TMD-related symptoms.

In our study, the prevalence of reported headache and pain in the temples was similar to that reported in other surveys.[11,15,16,32–34] Brattberg and Wickman[17] reported considerably higher frequencies of headache, but their study combined assessments of head and neck pain. In our study, headache was found to be significantly more common in girls than boys. This finding is also supported by others.[8,11,14,17,35] One study, however, found no gender difference in the prevalence of headache.[33]

A low prevalence of pain in the face, jaws, or TMJs or pain on mandibular motion was found in our study, similar to findings of others.[8,15,16,33,36] In our study, girls had significantly more pain associated with wider jaw openings and with chewing, but not with pain in the face, jaws, or TMJs. Wänman and Agerberg,[8] however, found no gender differences associated with these jaw functions in his study.

Our cross-sectional study showed that pain prevalence increased with age, which coincides with results of other cross-sectional studies[14–16,37] and a longitudinal study.[36] Studies have found that boys under 7 years of age report more headache than girls.[10] A similar prevalence of headache between genders was reported for children 11 to 12 years old.[32] In later stages of adolescence a significant difference consistently appears, with more girls than boys reporting headache[12,32]; this coincides with our findings for gender-related TMD pain.

Of the sample in the population with pain once a week or more (n = 113), 43% reported pain at

multiple sites, ie, the head, temples, face, TMJs, and/or jaws. Brattberg and Wickman[17] noted that 19% of their population reported not only headache but also back pain. Similar findings were also reported in a study in which 25% of the children reported multiple pain sites, ie, neck, shoulders, head, and/or back.[38]

Temporomandibular joint sounds were reported by 11% of the overall group and were the second most common finding, in agreement with other studies.[8,15,16,33,36] In our study, no significant difference was seen between genders in rates for TMJ clicking, which is in accordance with the findings of others.[8] In a study of young adults, however, gender differences in TMJ clicking were also reported.[30] Clicking is reported to be a common symptom in the population, but it rarely develops into a more serious disease.[39] It is interesting to note, however, that clicking was significantly more common when pain was present (group 1 vs group 2; see Table 2). It has been suggested that clicking might result from disc displacement[40] or an irregularity of the TMJ surface.[41]

Reports of bruxism were common among the participants, independent of whether or not pain existed. Reports of tiredness and stiffness of the jaw were significantly more common in group 1 than in group 2; however, no gender differences were seen in group 1.

Trauma has been suggested as one etiologic factor leading to TMD.[5] In our study, trauma or injury occurred significantly more often in boys than in girls, and more in group 1 than in group 2. Other studies have also reported gender differences for trauma in adolescents[8] as well as differences between adult patient populations and nonpatient populations.[42] Katzberg et al[43] reported that trauma was the cause of TMD pain in 26% of a pediatric population. Unruh[21] reported that men have approximately 50% to 60% more injuries than women. She suggested that this might lead to different pain experiences between the genders.

The range of vertical motion of the jaw showed changes over time and across genders, but these changes were only suggestive and not statistically significant. For example, range of vertical motion increased slightly from 12 to 18 years of age, which is in agreement with observations by others,[15,16,34,44,45] and in the youngest age group, boys had a slightly smaller mouth opening than girls, a trend that was reversed after age 14 to 15. As pointed out by others, range of mandibular movement correlates highly not only with age,[44,45] but also with body height.[45] A significantly reduced range of motion was seen in group 1 compared with group 2, although clinically the reduction in range of motion is less than 3 mm. Studies in adult populations have found similar results in TMD populations compared with healthy controls.[46] The results suggest that TMD-related pain appears to be associated with a reduction in vertical range of motion.

Fearon et al[47] reported no gender differences in the severity or frequency of pain in young children. Girls, however, were more likely to respond by crying, screaming, or becoming angry. In our study, no difference was found in group 1 between the genders in ratings of pain intensity or frequency. Contradictory to our results, other studies found that girls report significantly more intense pain and more frequent headache than boys.[8,9,17,31] This difference in outcomes might be a result of the differing methods used to perform the analysis. In our study, gender comparisons were made in a group of individuals who reported pain once a week or more; thus, our results are not directly comparable to studies of gender-related pain that reflect gender-related differences in pain reporting for the population at large.

The behavioral consequences of chronic pain are (in addition to subjective personal discomfort) higher rates of absence from school, higher rates of consumption of medication, and reduction in several activities of daily living.[3,28,48] Headache, for example, has been found to be one of the main reasons for children visiting the school nurse.[17,49] In our study, the majority of patients in group 1 judged that their pain did not limit their daily activities considerably; however, 22% of the girls and 18% of the boys reported being absent from school once a month or more because of pain. No gender differences were found for either limitations in activities of daily living or school absence. This is in accordance with other studies, which report similar rates for limitations in activities of daily living for both sexes.[21] The frequency of consumption of medicine was higher in this study compared with reports by others.[8,50] No difference between genders was found, which is in accordance with findings by others.[8,35] In our study, several patients reported that their pain had a considerable impact on their lives; however, this impact seems to be even more pronounced in TMD cases treated at a specialist center than in patients treated at a dental clinic.[25] An implication of these findings is that while gender-related differences clearly appear in the rate at which pain affects girls compared to boys, no gender differences are observed in the impact of the painful conditions for those children and adolescents with pain.

The need for treatment can be based on a clinician's judgment or on a perceived need for treatment reported by patients.[51] In one study, the perceived need for TMD treatment was reported to be 3%, while treatment need based on clinical judgment was found to be much higher.[51] However, many of the signs and symptoms of TMD are common in the population, and it appears that persons of all ages who report headache and TMD signs and symptoms do not always perceive the need to seek treatment for these complaints.

In adults, pain has been shown to be the most common reason for seeking TMD treatment,[52] and an analogous perceived need was found to be true in children and adolescents.[53] In our study, across genders, the majority of patients who reported pain once a week or more also had a significantly higher perceived need for treatment than those who reported less frequent pain. However, this perceived need for treatment was significantly more pronounced among boys than girls: 64% of the boys and 46% of the girls with pain once a week or more perceived a need for treatment.

Lee et al[54] found that among patients reporting pain, the most common reason not to consult a physician was that the pain was not perceived to be serious enough, while another study reported that actual healthcare utilization for the treatment of headache was similar between the genders.[17] Klein and Litt[55] reported that 14.5% of all adolescent girls seek medical assistance for menstrual pain; this includes only 29% of those with severe dysmenorrhea.

It is clear that perceived need for treatment and actual treatment-seeking behavior are complex and imperfectly understood issues, even more so in the case of children. One contributing factor, we speculate, may be that children of both genders are exposed to frequent pain, ie, dysmenorrhea in girls and sports-related pain for both genders. In this context, children may tend to experience TMD pain as a nonserious condition that can be successfully self-treated with rest and in more severe cases with over-the-counter medication, guided by advice and recommendations from others. It seems reasonable to assume that many factors, including attitude, knowledge, seriousness of pain, and the expectations of parents and caregivers, may influence demand for treatment of pain-related conditions such as TMD.

A standardized comprehensive clinical investigation was performed on 88 youngsters who reported localized pain once a week or more in the face, jaws, TMJs, or temple region. Anatomically, the temporal muscle, a powerful elevator of the mandible, is localized in the region where both TMD and headache pain are reported, and epidemiologic studies have reported an association between headache and TMD.[12,14]

According to the RDC/TMD criteria, patients who report pain in the temples and exhibit pain upon palpation of the masticatory muscles merit a TMD diagnosis (myofascial pain). In our study according to the RDC/TMD criteria, myofascial pain was the most common diagnosis in both genders; however, the proportion of girls affected was significantly greater than boys. Episodic and chronic tension-type headaches were found to be common in both genders and often coexisted with TMD pain.

Several studies have found that TMD pain is most prevalent in females during the reproductive years of life.[56] In our study, girls exhibited significantly more pain than boys in late adolescence, whereas the differences were much smaller in the younger age groups. Biologic factors (eg, estrogen levels) have been found to interact with pain[57] and it has been suggested that reproductive hormones might be involved in the development of TMD pain.[7] Another factor thought to influence the pain experience of women is the fact that they routinely experience nonpathologic pain, ie, pain associated with menstruation and ovulation, which is highly prevalent among menstruating women and deemed a virtually universal experience of women at one time or another. Men have no comparable experiences with nonpathologic pain on such a routine basis. The genders are also differentially associated with well-known and sometimes stereotypical social role expectations (eg, homemaking responsibilities), which may require different coping strategies. Taken together, the patterns of response to pain in girls and boys seem most usefully viewed as a complex interaction of biologic, behavioral, and sociocultural factors. It is critical to identify as early as possible those individuals who experience pain—however these complex factors interact in a particular patient—so that the most effective early interventions can be determined and implemented and long-lasting chronic pain can be prevented.

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