Clinical Characteristics and Psychological Profiles in Children with Temporomandibular Disorders

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INTRODUCTION

Temporomandibular disorders (TMD) are a diffuse spectrum of diseases which involve temporomandibular joint and associated structures. There have been satisfying evidences exist about their impact on the adult population, but there is great lack of information in children. Painful TMD in children may impact negatively the individual´s life, and tends to increase the persistence of pain and to facilitate its chronification later.

PURPOSE

The aim of this study was to investigate the clinical characteristics, psychological profiles, and psychosocial dysfunction in children and adolescents with TMD based on the Diagnostic Criteria for Temporomandibular Disorders.

METHODS

1. Subjects

The retrospective review consisted of 5- to 85-year-old patients who visited the Department of Oral Medicine, Seoul National University Dental Hospital between June 2019 and November 2021. The patients were divided into three age groups of children (5- to 12-year-old, n=122), adolescents (13- to 18-year-old, n=123), and adults (19- to 85-year-old, n=122).

2. Evaluation of clinical features and psychological profiles

The clinical examination was performed on all patients based on the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD). Radiographic evaluation was followed to rule out degenerative joint disease. The assessment of contributing factors was done. Most of the patients were asked to answer the axis II questionnaire and the Symptom Checklist-90-Revision (SCL-90-R) for evaluation of psychological profiles and psychosocial dysfunction.

3. Statistical analyses

Chi-square tests were used for analyzing gender distribution, prevalence of diagnostic subtypes, pain origins, chief complaints, trauma history, comorbidities, and contributing factors. For the comparison of pain severity, duration, psychological profiles and psychosocial dysfunction of axis II parameters between age groups, one-way ANOVA was applied. Independent t-test was used for comparison of SCL-90-R scores between adolescents and adults.

RESULTS

Table 1. Demographics of the patients

	Children (n=112)	Adolescents (n=123)	Adults (n=122)	P-value
Gender (female) (%)	78 (69.6)	82 (66.7)	95 (79.2)	0.079 [a]
Age (years) (Mean ± SD)	10.8 ± 1.5	14.2 ± 1.1	44.9 ± 15.8	< 0.001 [b]

a: P-value was obtained from Chi-square test
b: P-value was obtained from One-way ANOVA

Table 2. Comparison of pain severity and duration

	Children (Group A)	Adolescents (Group B)	Adults (Group C)	P-value [a]	Multiple comparisons [b]
Pain severity (NRS)	3.1 ± 2.7	2.6 ± 2.4	4.4 ± 2.5	<0.001	(A,C), (B,C)
Pain duration (months)	8.6 ± 15.1	14.2 ± 17.7	32.7 ± 61.3	<0.001	(A,C), (B,C)

a: P-value was obtained from One-way ANOVA
b: Post-hoc tests were performed by Tukey tests

Table 3. Prevalence of DC/TMD Axis I diagnoses

Axis I diagnosis	Children (n=112)	Adolescents (n= 123)	Adults (n= 122)	P-value [a]
Pain Disorders				
Myalgia	53 (47.3%)	47 (38.2%)	56 (46.7%)	0.284
Arthralgia	49 (43.8%)	44 (35.8%)	39 (32.5%)	0.192
Headache attributed to TMD	13 (11.7%)	7 (6.0%)	24 (20.0%)	0.005
Joint Disorders				
Disc displacement	77 (68.8%)	108 (87.8%)	87 (72.5%)	0.001
Degenerative joint disease	44 (39.3%)	68 (55.3%)	71 (59.2%)	0.006
Subluxation	1 (0.9%)	1 (0.8%)	2 (1.7%)	0.788

a: P-value was obtained from Chi-square test

Table 4. Comparison of TMD pain origins

Pain group	Children (n=112)	Adolescents (n= 123)	Adults (n= 122)	P-value [a]
No pain	43 (38.4%)	57 (46.3%)	46 (38.3%)	0.348
Myogenous pain	20 (17.9%)	22 (17.9%)	35 (29.2%)	0.051
Arthrogenous pain	16 (14.3%)	19 (15.4%)	18 (15.0%)	0.969
Mixed pain	33 (29.5%)	25 (20.3%)	21 (17.5%)	0.074

a: P-value was obtained from Chi-square test

RESULTS continued

Table 5. Comparison of chief complaints at the first visit

Chief complaint	Children (n=112)	Adolescents (n= 123)	Adults (n= 122)	P-value [a]
General examination	28 (25.0%)	12 (9.8%)	8 (6.7%)	<0.001
Joint noise	56 (50.0%)	74 (60.2%)	53 (44.2%)	0.041
Pain symptom	73 (65.2%)	84 (68.3%)	100 (83.3%)	0.004
Mouth opening limitation	14 (12.5%)	27 (22.0%)	23 (19.2%)	0.157
Subluxation	1 (0.9%)	2 (1.6%)	2 (1.7%)	0.855

a: P-value was obtained from Chi-square test

Table 6. Trauma history and comorbidities

	Children (n=112) (A)	Adolescents (n=123) (B)	Adults (n=122) (C)	P-value
Trauma history (%)	9 (8.2)	6 (5.1)	7 (5.8)	0.608 [a]
Number of comorbidities	0.18 ± 0.41	0.22 ± 0.57	0.61 ± 0.85	< 0.001 [b] (A,C), (B,C)

a: P-value was obtained from Chi-square test
b: P-value was obtained from One-way ANOVA, Post-hoc tests were performed by Tukey tests

Table 7. Comparison of contributing factors

Contributing factors	Children (n=112) (A)	Adolescents (n= 123) (B)	Adults (n= 122) (C)	P-value [a]
Bruxism	54 (49.1%)	35 (29.9%)	42 (35.0%)	0.009
Clenching habit	23 (21.1%)	38 (32.5%)	63 (52.5%)	<0.001
Perioral contraction	12 (12.5%)	18 (17.3%)	14 (11.7%)	0.433
Tongue thrusting	5 (5.2%)	9 (8.7%)	8 (6.7%)	0.625
Hard food chewing	26 (27.1%)	25 (24.0%)	41 (34.2%)	0.226
Unilateral chewing	41 (42.7%)	52 (50.0%)	72 (60.0%)	0.038
Unilateral sleep	51 (53.1%)	56 (53.8%)	59 (49.2%)	0.750
Hard or high pillow	12 (12.5%)	8 (7.7%)	10 (8.3%)	0.449
Bite something	44 (45.8%)	37 (35.2%)	17 (14.2%)	<0.001
Irregular diet	16 (16.7%)	34 (32.7%)	38 (31.7%)	0.017
Chin buttressing	31 (32.3%)	38 (36.5%)	15 (12.5%)	<0.001
Coffee or caffeine	7 (7.3%)	24 (23.1%)	68 (56.7%)	<0.001
Insomnia	5 (5.2%)	9 (8.7%)	45 (37.5%)	<0.001
Indigestion	7 (7.3%)	17 (16.3%)	47 (39.2%)	<0.001
Bad posture	65 (67.7%)	76 (73.1%)	66 (55.0%)	0.014
Much talking	38 (39.6%)	39 (37.5%)	37 (30.8%)	0.365
Number of contributing factors	3.9 ± 2.5	4.2 ± 2.7	5.4 ± 2.4	<0.001 [b] (A,C), (B,C)

a: P-value was obtained from Chi-square test
b: P-value was obtained from One-way ANOVA, Post-hoc tests were performed by Tukey tests

RESULTS continued

Table 8. Psychological profiles of DC/TMD Axis II parameters

DC/TMD Axis II scale	Children (Group A)	Adolescents (Group B)	Adults (Group C)	P-value [a]	Multiple comparisons [b]
Anxiety (GAD-7)	3.5 ± 4.8	3.5 ± 4.9	3.9 ± 4.4	0.861	-
Depression (PHQ-9)	3.6 ± 4.9	3.8 ± 5.8	4.4 ± 4.8	0.720	-
Physical symptoms (PHQ-15)	2.7 ± 2.7	4.2 ± 4.3	5.5 ± 4.6	0.024	(A,C)

a: P-value was obtained from One-way ANOVA
b: Post-hoc tests were performed by Tukey tests

Table 9. Comparison of SCL-90-R T scores

Dimension	Adolescents (n=59)	Adults (n=119)	P-value [a]
SOM	41.2 ± 5.9	44.8 ± 7.7	0.002
O-C	39.7 ± 8.7	42.9 ± 8.1	0.015
I-S	40.9 ±7.9	42.7 ± 7.0	0.109
DEP	39.9 ± 7.7	43.2 ± 8.1	0.009
ANX	46.6 ± 51.6	43.1 ± 6.9	0.467
HOS	48.6 ± 53.7	43.0 ± 6.0	0.254
PHOB	43.0 ± 4.5	44.0 ± 5.8	0.231
PAR	40.2 ± 5.8	41.9 ± 5.5	0.061
PSY	40.9 ± 4.2	42.8 ± 5.9	0.026
GSI	38.9 ± 6.3	41.9 ± 8.2	0.014
PSDI	43.3 ± 8.2	43.7 ± 7.0	0.730
PST	34.5 ± 8.5	41.6 ± 9.5	0.000

SOM: somatization, O-C: obsessive-compulsive, I-S: interpersonal-sensitivity, DEP: depression, ANX: anxiety, HOS: hostility, PHOB: phobic anxiety, PAR: paranoid ideation, PSY: psychoticism, GSI: global severity index, PSDI: positive symptom distress index, PST: positive symptom total

a: P-value was obtained from One-way ANOVA

Table 10. Psychosocial dysfunctions from the Graded Chronic Pain Scale (GCPS) Version 2

GCP parameters	Children (Group A)	Adolescents (Group B)	Adults (Group C)	P-value [a]	Multiple comparisons [b]
Pain Intensity	3.3 ± 2.4	2.9 ± 2.2	4.0 ± 2.4	0.023	(B,C)
Disability days	2.6 ± 9.4	0.9 ± 2.3	1.7 ± 5.7	0.594	-
Disability score	14.2 ± 22.4	17.8 ± 22.3	24.0 ± 23.8	0.105	-
GCPS grade	1.2 ± 1.0	1.0 ± 0.8	1.4 ± 0.8	0.036	(B,C)

a: P-values were obtained from One-way ANOVA
b: Post-hoc tests were performed by Tukey tests

CONCLUSIONS

Our study suggests that distinct examination and management compared to adults are necessary for the successful treatment of children with TMDs.