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Chronic Tension-Type Headache in School-Aged Children – Personality Traits and Behavior

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A B S T R A C T

Basic personality traits and specific behavior characteristics were assess in 39 patients (12 to 15 years old) having chronic tension-type headache. Patients were referred for clinical examination to the Neural-pediatrics Ward of the Department of Pediatrics, Osijek, Croatia. Eysenck Personality Questionnaire – Juniors (EPQ-J), a new Croatian personality Questionnaire of domination, aggression, introversion and ambition (DAIA), were applied for the testing. The scores obtained by patients in personality questionnaires were compared with averages scores normal sample of healthy pupil same ages. Our patients were found to have no signs of emotional instability. Their behavior is prosocial, nonaggressive, and ambitious, aimed at the achievement of superior results at school and life although already quite successful in their studies. Tensions arising from the school setting seem to be important factors triggering tension-type headaches.

Key words: *chronic tension-type headache, school-aged children, personality, behavior.*

Introduction

Persistent headache in children is a recurrent pain condition classified, according to DSM-IV[1], among the Somatoform Disorders as one of two types of the Pain Disorder: Pain Disorder associated with psychological factors and Pain Disorder associated with psychological factors and a general medical condition. In both subtypes, psychosocial factors and/or emotional states have an important role in the onset, duration and severity of symptoms. Chronic, intermittent or recurrent headache in children and adolescents usually occurs in the form of migraine or the muscle contraction type. Muscle contraction headache have also been named chronic daily headache, tension-type headache and psychogenic headache[2]. These forms of headaches are not associated with organic disease, but may occur in conjunc-

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tion with chest pain, breathlessness, a pounding heart or dizziness[3].

In clinical practice correct classification of the headaches depends on anamnestic data, neurological signs and diagnostic procedures[4]. In addition to diagnostic medical procedures, psychological evaluations and behavior profiles of the patients should be completed to help discern etiological factors[3]. Psychogenic causes such as depression, the school phobia syndrome or a conversion syndrome should be considered[4].

The prevalence of recurrent headaches is about 10 percent in school-aged children[5]. Personality traits and/or psychiatric symptoms associated with headache and other somatoform disorders in children and adolescents include depression and anxiety too[6–9]. Other studies suggest that such features are associated with pain in general and not specifically with headaches[7,10].

Psychologically important events and/or stressful factors could also precede migraine and tension-type headache[8,11,12]. Chronic and recurrent headache are particularly prevalent during the school years when the child encounters various psychosocial challenges[4]. Hence, school situations have been considered important risk factors for persistent headache[13].

Commonly used psychological personality questionnaires and inventories for children in clinical practice are mostly oriented on the findings of developmental deviations or pathological personality traits. The new instruments can offer more pieces of information if the child has or hasn't got emotional difficulties or certain behavior problems. One of the newer children personality questionnaire which supplement psychological instrument of primarily school psychologists in Croatia is Questionnaire of domination, aggression, introversion and ambition (DAIA). It is used for testing the individual differences in some personality traits of healthy children.

We set out to assess the basic personality traits and behavior characteristics in a population of pediatric patients with chronic tension-type headaches (CTTH) compared with the average values of those characteristics in normal sample of healthy children of the same age. We were particularly interested in specific behavioral traits and specific situations manifested by the personality of the CTTH children. In addition to the major aim of the study we tested and described both school achievement and global intelligence abilities of children with CTTH.

Participants and Methods

Subjects

The study involved 39 subjects (30 boys; $\chi^2 = 11.3$; $p<0.01$) referred during two years (1999 – 2001) for clinical psychological testing to the Neural-pediatrics Division of the Department of Pediatrics. The children were 12 to 15 years old (mean 13.7 years, SD $\pm$ 0.85). All children fulfilled criteria for the CTTH according to the classification of the International Headache Society[14]. The complaints of headache had lasted for at least six months. All patients were free of neurological symptoms and their EEG findings were normal. We did not use EEG routinely, but it was obligatory done if it was really necessary.

The patients were age-matched to a normal sample of healthy pupils in the two final classes of the elementary school in Croatia, used for the standardization of the personality questionnaires EPQ-J and DAIA[15,16].

The standardization of EPQ-J has been done on the sample of 652 pupils of elementary schools in Zagreb, Croatia (333 boys and 319 girls; from the age of 12.6 to 15.1)[15]. Validity of DAIA question-

naire has been done on the sample of 306 pupils ages 12 to 15 from the final classes of elementary schools in different towns and villages in Croatia[16]. We compared our results of the two above mentioned questionnaires with the normal sample of healthy children from Croatian schools as a control group.

The psychological examinations were performed individually and included personality questionnaires and intelligence testing. The parents were interviewed. Statistical comparisons were made using the χ^2-test for the gender differences and the two-tailed t-test for the EPQ-J and DAIA results.

Measures

Eysenck Personality Questionnaires – Juniors (EPQ-J) is a widely used self-assessment questionnaire revealing basic personality traits. It is composed of 81 items and comprises four measurement scales: P (psychoticism), N (neuroticism – emotional stability), E (extroversion-introversion) and L (lie scale). The average total patients scores on each scale were compared to the corresponding average values obtained in a normal sample of 652 healthy pupils.

Questionnaire of domination, aggression, introversion and ambition (DAIA) is a new self-assessment questionnaire developed in Croatia in 1992[16]. It comprises four measurement scales with 24 items total, 6 for each scale. Each item consists of two opposite claims separated by line 10 centimeters long, without marks. For example:

I like people — I don't like people

I think my peers like me — I don't think my peers like me

The child marks his or her opinion to a corresponding position on the line. The answer is transformed into a numerical value by measuring the distance in millimeters. The sum of numerical values of items within each scale forms the result of that scale. In our study, results of the patients on each scale and on each item were compared to the corresponding average values obtained in normal sample 306 healthy pupils.

Wechsler Intelligence Scale for Children (WISC) is an intelligence test composed of verbal and non-verbal part and ten subtests, equal in each part. The global intelligence quotient (GIQ) was used for description the numbers of patients in each intelligence category[17].

The school achievement of the children was assessed by interviewing the parents and according to the official school grades which, in the Croatian system, range from 1 (failed) to 5 (excellent) assessed.

Results

According to the EPQ-J, the average scores of the CTTH subjects were significantly below the average scores of the normal sample healthy pupils on the neuroticism scale ($t = 2.86$; $p < 0.01$). This seems to indicate that patients were emotionally as stable as their peers were, and perhaps even more so. High scores on the neuroticism scale disclose stress or trait anxiety, poor emotional control, depressive mood, and possible psychosomatic symptoms and sleep disturbances[15].

With the same questionnaire (EPQ-J), the average scores of the subjects were significantly lower than the average scores of the normal sample healthy pupils on the psychoticism scale ($t = 4.21$; $p< 0.01$). These results seem to indicate patients' prosocial behavior, i.e. an absence of aggressive, hostile and emotionless behaviour[15].

The introversion-extraversion and the lie-scores of the patients were not significantly different from the average scores of the normal sample pupil (Table 1).

DAIA showed that our patients, compared to the normal sample healthy pupil, were significantly less aggressive ($t = 3.68$; $p<0.01$) and significantly more ambitious ($t = 2.61$; $p<0.05$) (Table 2).

With regard to various items of the DAIA aggression and ambition scale, the patients were significantly more tolerant to foolishness of others ($t = 4.72$; $p<0.01$), unfair treatment ($t = 2.51$; $p<0.05$) and seldom wished to fight other children ($t = 2.59$; $p<0.01$). They strive more eagerly to achieve superior marks at school ($t = 3.67$; $p<0.01$) and to succeed in life ($t = 1.99$; $p<0.05$). At last, patients believed that they were able to achieve success in life ($t = 3.00$; $p<0.01$) (Table 3).

The Global Intelligence Quotients (GIQ) of the patients according to WISC varied from 75 to 125 (average 103.56± 10.53). We found that more than half of the patients (61.5%) were within the average range and approximately one-third (30.7%) were either above the average or high above average range. Only two patients were under the average and one was borderline. None patients were mentally retarded.

Almost half of the 39 patients (46.1%) were excellent pupils (grade 5) and 33.3% were very good ones (grade 4). A minority (18.0%) had a school grade of 3; none had a grade 2 and only one patient (2.8%) failed in school. Interestingly, the patient who failed in school had an above average intelligence score (GIQ = 114). The patient with borderline intelligence (GIQ = 75) achieved a school grade of 3 (Table 4).

Discussion

The children involved in our study were found to have low neuroticism scores at Eysenck Personality Questionnaire – Juniors. The issues of personality traits and of the psychopathological states such as

TABLE 1
EYSENCK PERSONALITY QUESTIONNAIRE – JUNIORS (EPQ-J): SCORES OF 39 PATIENTS COMPARED TO VALUES IN 652 HEALTHY CHILDREN (MEANS ± STANDARD DEVIATIONS)

Subjects	Psychoticism	Neuroticism	Extraversion	Lie-scale
Patients (N=39)	2.36±1.56	9.90±5.04	17.05±3.47	9.87±4.79
Healthy children (N=652)*	3.72±2.52	11.94±4.18	18.01±3.25	8.80±4.80
p	< 0.01	< 0.01	ns	ns

* Sample of healthy Croatian children as normal standard in EPQ-J test

TABLE 2
QUESTIONNAIRE OF DOMINATION, AGGRESSION, INTROVERSION AND AMBITION (DAIA): SCORES OF 39 PATIENTS COMPARED TO VALUES IN 306 HEALTHY CHILDREN (MEANS ± STANDARD DEVIATIONS)

Subjects	Domination	Aggression	Introversion	Ambition
Patients (N=39)	26.5±7.67	15.76±11.00	39.13±9.68	45.79±7.86
Healthy children (N=306)*	24.1±9.59	21.90±10.61	38.20±8.21	42.40±8.93
p	ns	< 0.01	ns	< 0.05

* Sample of healthy Croatian children as normal standard in DAIA

TABLE 3
SIGNIFICANT ITEMS ON THE AGGRESSION AND AMBITIONS SCALE OF THE DAIA QUESTIONNAIRE: SCORES OF 39 PATIENTS COMPARED TO AVERAGE IN 306 HEALTHY CHILDREN (MEANS ± STANDARD DEVIATIONS)

Item	Patients (N=39)	Healthy children (N=306)	p
I do/don't tolerate foolishness of others	3.90±3.54	6.40±3.32	<0.01
I do/don't retaliate if I'm mistreated	3.72±3.31	5.00±3.31	<0.05
I seldom/often wish to fight others	1.79±2.67	3.50±3.36	<0.01
I am/am not eager to get the best marks at school	9.21±1.91	7.80±2.96	<0.01
I do/don't care to be very successful in life	8.99±1.84	8.30±2.60	<0.05
I believe I can/can't achieve my aims	8.07±2.28	6.90±2.75	<0.01

* the sample of healthy Croatian children as normal standard in DAIA

TABLE 4
SCHOOL GRADES OF 39 PATIENTS (FROM 1 (FAILED) TO 5 (EXCELLENT)) COMPARED TO PATIENTS GLOBAL INTELLIGENCE QUOTIENTS (WISC)

School grade	N (%)	GIQ range	GIQ X ± SD
1	1 (2.6)	114	–
2	0	–	–
3	7 (18.0)	75–114	96.9±13.4
4	13 (33.3)	86–116	102.7± 9.3
5	18 (46.1)	91–125	106.2± 9.5
		–	–

anxiety and depression in the patients with headache were addressed in several clinical and epidemiological studies by using various instruments. Lanzi et al.[6] found, using the Cattell test that low self-esteem and feelings of guilt were associated with persistent headaches. Those features of the neurotic personality profile were, however, more prevalent in migraines than in the tension-type headaches. Higher neuroticism in adults who had migraine headaches was found by the Eysenck Personality Inventory[18]. Slightly more depressive symptoms in adults with tension-type headaches were found by the Zerssen Depression Scale[19]. The Rorschach technique (psychodynamic testing) revealed a reduced empathic identification and prevailing rationalization as defensive mechanisms in children suffering from migraine[11].

Cooper et al.[8] found, using the State -Trait Anxiety Inventory for Children, the Revised Children's Manifest Anxiety Scale and the Children's Self-Report Psychiatric Rating Scale, comparable anxiety and stress scores in children suffering from migraines and their headache-free peers. Other[7] pointed out that anxiety and depression in young children suffering from headaches are related to the pain in general and not specifically to the headache.

A comparison of studies is probably not always possible because they employed different tests/check lists containing different lists of symptoms. However, children with tension-type headache are likely to have milder emotional problems than children with anxiety and depression who need psychiatric treatment where somatic complaints, most commonly headache and abdominal pain, may be significant features of anxiety and depression[9].

Low psychoticism scores in our subjects (EPQ-J) highlighted their prosocial behavior. Other authors found in migraines and tension-type headaches children aged 9–13 years a marked adherence to

moral values and regulations, and clear sense of duty and responsibility (using Cattell tests, Factor G)[6]**.** Our findings may be explained by the fact that the majority of our patients were girls, whose behavior is constitutionally and socially patterned to be less aggressive[15,20].

Counseling the parents of ill children and psychological support of the children themselves should address the role of psychosocial factors in the genesis and perseverance of somatoform disorders such as the CTTH[3,4]. According to our findings by EPQ-J, the parents should be reassured that a psychological contribution to the symptoms of disease does not necessary imply the existence of pathological personality traits or states. Child psychiatrists need not treat a majority of children suffering from headache, but a thorough assessment of basic psychopathological and other personality features is recommendable.

We obtained additional knowledge about personality and behavioral features of our patients we obtained using the new Questionnaire of domination, aggression, introversion and ambition (DAIA). Patients are ambitious and still successful in their studies, they strive towards even better results at school and in social life. Such an ambitious attitude may generate more strain and tension than the efforts of the less ambitious peers to achieve mediocre results. Their less aggressive scores (DAIA) and low psychoticism scores (EPQ-J) probably indicated also repressed aggression transformed into ambitious and competitive behavior in school setting.

Lanzi et al.[11] noted that schoolwork may precipitate headaches in superior school achievers. Children having tension--type headaches and migraine with aura in Test Anxiety Inventory frequently stated: »I often/ nearly always I freeze up when taking important examinations« [6]. Borge and Norhagen reported that Norwegian children aged 4–10 years who complained of headache and behaved well as pre-scholars showed a tendency towards high achievement motivation at school[21]. Paschier and Orlebeke, in a study involving 10–17 year old children in Amsterdam, found the fear of failure and concern with school problems to be positively correlated to headaches, but the achievement motivation was not[22]. Rudan et al.[23] found in a pilot study using Achenbach's Child Behavior Checklist and the Teacher's Report Form that parents of school-aged children 7–11 years old were more sensitive to the mental problems of the children than the teachers. The parents paid more attention to the somatic complaints than to the emotional issues. The authors suggest that the teachers' sensitivity to the psychological problems of children should be improved by appropriate education.

In modern society, school performance is considered an important social asset. Demanding attitudes of the parents may overload their children's mental resources that in turn affect their health. Health--care professionals and teachers should address that issue with parents of CTTH children. Educational professionals should have a role in the management of recurrent headaches in children and adolescents too. Patience and flexibility of teachers may contribute to a resolution of somatic complaints in generally in children[3].

Interpretation of children's answers on the questionnaires and the description of children's psychological profiles could help parents to better comprehend their children. Children could also benefit by understanding the relationship between emotion and headaches. Information acquired by the new psychological instruments may facilitate definition and monitoring of situations in which persistent headaches occur.

In conclusion, the characteristics of our school-age children with chronic tension-type headache are their stable personality, prosocial, ambitious and non-aggressive behavior with high motivation for achieving even better school and life results. Clinical psychological management of the patients having chronic tension-type headache should be directed towards counseling the parents and teachers that school demands may trigger tension--type headaches in their children and helping patients and parents to better understanding the possible cause of their children's headache better.

In this way, new psychological instruments as DAIA may be useful.

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KRONIČNE TENZIJSKE GLAVOBOLJE U ŠKOLSKE DJECE: OSOBINE LIČNOSTI I PONAŠANJE

SAŽETAK

U 39 djece (dobi 12 do 15 godina) s kroničnim tenzijskim glavoboljama procijenjene su osnovne osobine ličnosti i specifična obilježja ponašanja. Djeca su primljena su na kliničko ispitivanje i liječenje u neuropedijatrijski odjel, Klinike za pedijatriju, Osijek,

Hrvatska. U testiranju su primijenjeni Eysenckov upitnik ličnosti za djecu (EPQ-J) i novi hrvatski Upitnik dominacije, agresivnosti, introverzije i ambicioznosti djece (DAIA). Rezultati pacijenata uspoređeni su s odgovarajućim prosječnim rezultatima uzorka zdravih učenika iste dobi. U pacijenata nisu utvrđeni znakovi emocionalne nestabilnosti. Njihovo ponašanje je prosocijalno, neagresivno i ambiciozno, usmjereno na postizanje najboljih rezultata u školi i životu iako već jesu uspješni učenici. Napetost zbog školskog okružja može biti važan čimbenik koji pokreće tenzijsku glavobolju u školske djece.