Chronic Tension-Type Headache in Adolescents. Clinical and Psychological Characteristics Analyzed Through Self- and Parent-Report Questionnaires

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Objectives To analyze the relation between the symptoms reported by adolescents with chronic tension-type headache (CTTH) and their perception of their emotional and behavioral functioning. Methods Two groups of adolescents (clinical group, n = 48; control group, n = 135) and their parents (clinical group, n = 42; control group, n = 128) were studied, respectively, with the Youth Self-Report Questionnaire and the Child Behavior Checklist. Moreover, a secondary analysis was performed, identifying another subgroup of adolescents who reported having headaches. Results The clinical group of adolescents obtained higher scores than the control group in Internalizing Syndrome; Aggressive Behavior for Externalizing Syndrome; Social, Thought, and Attention Problems; and in all Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV)-oriented scales (except conduct problems). Differences between the two groups of parents were found in all the scales. The controls reporting headaches obtained interesting intermediate scores. Conclusions Adolescents with CTTH show greater emotional and behavioral problems than their healthy peers. Consequently, clinical approaches for proper diagnosis and treatment need to adopt a multidisciplinary prospective.

Key words adolescence; CTTH; externalizing and internalizing syndromes; multidisciplinary approach; self- and parent-report questionnaire.

Tension-type headache (TTH) is the most common of primary headaches (Guidetti, Russell, Sillanpää, & Winner, 2002; Headache Classification Committee of the IHS, 2004), and one of the most costly illnesses for society because its prevalence is very high (Guidetti, Lanzi, & Levi, 2002; Mongini, 1998; Silberstein, 1994), considering that it affects between 31% and 74% of the population (Schwartz, Steward, Simon, & Lipton, 1998). The World Health Organization acknowledged that primary headaches are among the first 20 major causes of disability (Pini, 2006), and various authors have noted an increase of TTH, both in adults and in children (Bendtsen & Jensen, 2006; Just et al., 2003; Sillanpää & Anttila, 1996). Nevertheless, TTH continues to be the least investigated form of primary headache (Anttila, 2004; Heckmann & Holroyd, 2006; Lewis, Gozzo, & Avner, 2005). Studies on the relation between this pathology and its associated psychological and social factors are few and inconclusive. This is particularly true in the pediatric age (Sarioglu et al., 2003), for the difficulties encountered in adapting clinical criteria to children (Abu-Arafeh, 2001; Balotin et al., 2005; Laurell, Larsson, & Eeg-Olofsson, 2003) and for the tendency to consider headache in general without distinguishing between different subtypes (Mazzone, Vitiello, Incorpora, & Mazzone, 2006). Studies have shown that individuals with headaches report more psychosocial problems and higher levels of psychological disorders, such as anxiety and depression, than unselected populations (Boz et al., 2004; Mazzone et al., 2006), but the nature of these associations are unknown. Many issues concerning the relation between primary headaches and associated psychological...
variables still need to be addressed (Pini, 2006), although some diverging hypotheses have been suggested. Some of these consider chronic pain as the cause or consequence of psychological–emotional distress; others indicate that stress or environmental and/or genetic factors may trigger a poor regulation of the serotonin and noradrenergic systems, considered the genesis of the disease (Bag, Hacihasanoglu, & Tufekci, 2003; Boz et al., 2004; Rhee, 2000; Venable, Carlson, & Wilson, 2001).

Few studies examined chronic tension-type headache (CTTH) in children and adolescents; moreover, present literature mainly considers TTH in general and focuses on the internalizing aspects of functioning. Some works, based on reports of adolescents with headache and of their parents, show an association between TTH, psychological stress, and internalizing problems (Anttila et al., 2004; Bag et al., 2005; Just et al., 2003; Mazzone et al., 2006) such as withdrawal, inhibition, shame, passiveness, fear of disease, anxiety, and depression, but results are often conflicting (Just et al., 2003). Only a few studies (Mazzone et al., 2006; Santalahi, Aromaa, Sourander, Helenius, & Piha, 2005; Virtanen et al., 2004) focus on the relation between TTH and externalizing behaviors (environmental conflict, impulsiveness, anger, antisocial behavior). Other research investigated disabilities in expressing emotions (Yücel et al., 2002) and modulating negative feelings as cause of irritability and interpersonal difficulties (Wise, Mann, Jani, & Jani, 1994). Some investigations found that individuals with TTH report unpleasant social relations (Karwautz et al., 1999; Martin & Soon, 1993; Martin & Theunissen, 1993) and strong reactions to stress. Others report heavy stress related to scholastic achievement as cause of truancy and excessive tiredness (Sarıoğlu et al., 2003).

CTTH is a subtype of TTH. Its prevalence in childhood and adolescence is uncertain although a study, conducted in Scotland on children aged 5–15 years, estimated a frequency of ~0.9% (Abu-Arafeh & Russell, 1994). Another study of children referred to a clinical center for headache estimates diagnosis of CTTH in 5–7% of the young patients visited (Wober-Bingol et al., 1993). As stated above, little data are available on personality and psychological characteristics of individuals with CTH (Holroyd et al., 2000). However, the most common psychiatric disorders described in patients with CTH are anxiety, depression, and psychosomatic problems. The effect of this pathology on functioning is poorly comprehended, but some authors underline that it has a great impact on the lives of individuals who suffer from headaches and that emotional distress is an important correlate of impairment (Holroyd et al., 2000; Puca et al., 1999).

The main purpose of this study was to compare a clinical sample of adolescents with CTTH and a control group of students in order to identify differences in their emotional and behavioral profiles through the use of self- and parent-report questionnaires. Specifically, on the basis of previous studies on TTH (Just et al., 2003), we hypothesized that adolescents with CTTH would have more problems than those in the control group, especially in internalizing aspects.

Methods
Participants
Clinical Groups
The clinical group of adolescents comprised youths (aged 11–18 years) referred to a third-level diagnostic center (Division of Child Neurology and Psychiatry of our Hospital) between 2004 and 2006, with a diagnosis of CTTH based on ICHD (3) criteria (International Classification of Headache Disorders, 2nd version). To meet ICHD diagnostic criteria for CTTH, average frequency must be at least 15 or more headache days per month, for at least 3 months. Headache may last hours or may be continuous (for all criteria, see Table I). For our study, additional inclusion criteria were: absence of known causes of headache (negative orthopedic, otorhinolaryngological, and ophthalmologic examinations; normal brain computerized tomography scan or magnetic resonance imaging; no food intolerance and/or allergies) and normal neurological examination. Patients with overuse of medication drugs were excluded.

The clinical group of parents included the parents of the adolescents in the clinical group. Forty-eight

<table>
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<tr>
<th>Table I. The ICHD-2 criteria for CTTH diagnosis</th>
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<tr>
<td>(A) Headache happening on ≥15 days/month on average ≥3 months (≥180 days/year and fulfilling criteria B–D);</td>
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<td>(B) Headache last hours or may be continuous;</td>
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<tr>
<td>(C) Headache has at least two of the following characteristics:</td>
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<td>1- bilateral location;</td>
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<td>2- pressing/tightening (nonpulsating) quality;</td>
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<td>3- mild or moderate intensity;</td>
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<td>4- not aggravated by routine physical activity such as walking or climbing stairs.</td>
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<td>(D) Both of the following:</td>
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<td>1- no more than one of photophobia, phonophobia, or mild nausea;</td>
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<tr>
<td>2- neither moderate nor severe nausea or vomiting.</td>
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<tr>
<td>(E) Not attributed to another disorder.</td>
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</table>
adolescents with CTTH (clinical group of adolescents) and their parents (clinical group of parents) were recruited in the hospital.

All questionnaires compiled by the adolescents were used for the study [Youth Self-Report (YSR), n = 48], whereas 6 of the 48 questionnaires filled by the parents were excluded for partial or incomplete completion [Child Behavior Checklist (CBCL), n = 42].

Control Groups
The control group of adolescents comprised students regularly attending the public schools that agreed to take part in the study. Inclusion criterion was an age between 11 and 18 years. All students in the selected classes were invited to participate.

The control group of parents included the parents of the control students recruited for the study. Questionnaires were anonymous in the control groups, so answers of students could not be matched to those of their respective parents.

In all, 340 questionnaires (170 YSR and 170 CBCL) were distributed at school. In total, 140 YSR and 140 CBCL questionnaires were filled in and returned with parent’s permission (response rate of 82%). Five YSR and 12 CBCL questionnaires were eliminated for incorrect or only partial completion; therefore, a total of 135 YSR and 128 CBCL questionnaires were analyzed.

Secondary Analysis
To further control the influence of headache symptoms on results, a secondary analysis was performed, identifying another subgroup of adolescents who reported having headaches. The control sample of adolescents was divided into two groups on the basis of their answer to YSR questionnaire item 56b: “Physical problems without known medical cause—headache.” Students who gave an affirmative answer to item 56b were included in the control group with headache (n = 69), whereas those who declared that they never had headache comprised the control group without headache (n = 66).

Procedure
This cross-section comparative study, carried out between 2004 and 2006, was approved by the review board of our hospital. The clinical groups (clinical group of adolescents and clinical group of parents) were enrolled at our third-level diagnostic center. Adolescents with CTTH and their parents compiled the self-administered questionnaires in the Child Neurology and Psychiatry Division, after informed consent of all.

For the control groups, participating classes were randomly selected by computer from a convenience sample of two public schools, chosen on a geographic basis. A total of nine classes took part in the study, four from a junior high school and five from a secondary high school. During the first encounter, an informed consent sheet, an YRS, and a CBCL questionnaire were distributed to each student in a closed envelope, for a total of 340 questionnaires (170 YSR and 170 CBCL). During the second encounter, informed consent sheets were retrieved together with the questionnaires compiled by the parents who agreed to participate in the study. Only students with parent’s consent proceeded to answer their questionnaires. In total, 140 CBCLs were completed at home by parents, and 140 YSRs were filled at school by adolescents.

Measures
In this study, we used the Italian translated versions of the Achenbach YSR questionnaire for youths aged 11–18 years (Achenbach & Rescorla, 2001; Frigerio, 2008) and the CBCL (Achenbach, 1991) for administration to parents of offspring aged 4–18 years. These pertain to the Achenbach System of Empirically Based Assessment, which provides information about the adolescent’s functioning. We used two different editions of the same questionnaires for adolescents and for parents; however, to our knowledge there are no significant implications on results reported in literature. The two versions (1991 and 2001) are highly correlated (Achenbach & Rescorla 2001), and the constructs measured by the two instruments are the same. Moreover, data of adolescents were analyzed separately from those of parents.

T-score values of the scales could not be used for statistical analysis since reference values for the Italian population were not available. For this reason, control samples were used. However, these instruments are widely adopted and have been cross-culturally validated on large sample of adolescents from 12 different countries (Frigerio et al., 2004).

The answers of adolescents in the YSR and of parents in the CBCL questionnaires are scored on two profiles: the competence profile and the syndrome profile. The competence profile is composed of three scales: Activities, Social, and Academic (in YSR)/School (in CBCL). High scores in these scales indicate good functioning of the adolescent in the above areas. The syndrome profile comprises Internalizing Syndrome, Externalizing Syndrome, and Mixed Syndromes. This second part of the questionnaire includes 113 items rated on a scale between 0 and 2. High scores in these syndromes are associated with inadequate
functioning of the adolescent in the areas examined. In particular, Internalizing Syndrome includes the Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints scales. Externalizing Syndrome includes Rule-Breaking Behavior (in YSR)/Delinquent Behavior (in CBCL) and Aggressive Behavior scales. The Social Problems, Thought Problems, and Attention Problems scales constitute the so-called Mixed Scales. Some items are not included in any of the above scales or syndromes and are simply indicated as Other Problems.

Finally, to improve taxonomy and the comprehension of psychopathology in childhood, some of the YSR items have been grouped according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) (American Psychiatric Association, 1996) criteria. Obviously, a high score in one of these scales is not directly equivalent to a DSM diagnosis, but it does suggest possible diagnoses that should be considered and checked, consulting DSM-IV criteria.

Statistical Analysis

Analysis of variance was used to test between-subject effects for each scale. Scale was the dependent variable, and group (clinical or control), sex (male or female), and age (<14 and ≥14 years, considered as age of admission to high school) were included as factors. Differences in sex and age among groups were accessed using the chi-square test.

In the secondary analysis, the Sidak method was used to correct alpha level in post hoc multiple comparisons between the clinical group with CTTH, the control group with headache, and the control group without headache. Since headache was used as a clustering criterion, item 56b was excluded from calculation in the Somatic Complaints scale, Internalizing Syndromes, Total scores and in Somatic Problems (in DSM-IV-oriented scales). This approach permitted to highlight differences that were not influenced by the headache symptom.

Statistical analysis was performed with STATA9 software and SPSS 8.

Results

Descriptive Results

The groups in the study were balanced for sex, but age, categorized as <14 years and ≥14 years, was significantly different in the groups of adolescents (clinical group of adolescents vs. control group of adolescents; \( p = .021 \)) and in the groups of parents (clinical group of parents vs. control group of parents; \( p = .033 \)).

The clinical group of adolescents included 48 patients (females = 66.7%), with mean age of 13.4 years \( (SD = 1.8 \) years), whereas the clinical group of parents comprised 42 parents (61.9% with female offspring); the mean age of their children was 13.3 years \( (SD = 1.8 \) years). The mean duration of each single headache attack was 4.8 hr \( (SD = 2 \) hr), and the mean frequency of attacks was 20.3 per month \( (SD = 5.1 \) attacks per month). The pain was described as mild (not interfering with normal daily activities) by 66.5% of patients, moderate (interfering with some, but not all activities) by 31.5%, and severe (interrupting all activities) by 2%.

The control group of adolescents included 135 students (females = 65.9%), with average age of 13.9 years \( (SD = 1.4 \) years). The control group of parents included 128 parents (64.8% with female offspring) whose children had a mean age of 13.7 years \( (SD = 1.4 \) years).

The control group of adolescents \( (n = 135) \) was divided into two subgroups: 69 (51.1%) reported to have headache sometimes or frequently (control group with headache, 62.3% female; mean age = 13.8 years; \( SD = 1.4 \) years), while the remaining 66 adolescents (48.9%) denied having headache (control group without headache, 69.7% females; mean age = 140 years; \( SD = 1.4 \) years).

Results From Adolescents’ Questionnaires

No differences were found in total Competence scales, although adolescents with CTTH reported poorer School performance \( (p < .05) \). The clinical group of adolescents had a higher total score than the control group \( (p < .001) \). In particular, the adolescents with CTTH obtained higher scores in all the scales of Internalizing Syndrome \( (p < .001) \), all Mixed Syndromes scales \( (p < .001) \), and the total scores of Externalizing Syndrome \( (p < .05) \). In the latter, differences were found for Aggressive Behavior \( (p < .001) \) but not for Rule-Breaking Behavior (Fig. 1). In the DSM-IV-oriented scales of the YSR, the clinical group had higher scores than the control group in all scales \( (p < .001) \), except Conduct Problems.

Results were also confirmed considering the following subgroups: control group with headache and control group without headache (Table II). In this separate analysis, significant differences were found in all Internalizing Syndrome scales and in all Mixed Scales when comparing each group with the other \( (.05 < p < .001) \). With respect to Externalizing Syndrome \( (p < .05) \), we observed significant differences only between the adolescents with CTTH and those without headache \( (p < .001) \). The differences were due to Aggressive Behavior \( (.05 < p < .001) \) but...
not due to Rule-Breaking Behavior. In the DSM-oriented scales, all the differences were significant (.05 < p < .001) except for Conduct Problems (Table III).

**Results From the Parents’ Questionnaires**

The analysis of results from the parent questionnaires (Fig. 2) showed an analogous trend to that of adolescents. No differences were found in the total Competence scales, although the parents of the clinical group obtained lower scores in Social (p < .05) and School competences (p < .001).

Differences (.05 < p < .001) between the clinical and the control groups were found in all scales of emotional and behavioral problems, where the parents of adolescents with CTTH obtained higher scores than the parents of the control group.

**Sample Size**

We chose a convenience sample because there were no previous studies in Italy on CTTH with this experimental design using YSR/CBCL scales. However, a post hoc analysis confirmed adequate sample size. Considering the Internalizing Syndrome as the main outcome (clinical group of adolescents of this study, $M = 18.9$; $SD = 9.4$; control group of adolescents of this study, $M = 9.2$; $SD = 7.3$) and alpha level = .05, the post hoc analysis showed a 100% study power.

**Discussion**

In our study, adolescents with CTTH reported global Competence analogous to their peers. No differences were perceived by adolescents with CTTH and their parents in the quantity and quality of Activity (Figs 1 and 2) with respect to controls. These results contradict studies

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**Table II. Results from ANOVA (YSR) for the Three Groups of Adolescents: Clinical Group, Control Group with Headache, Control Group without Headache**

<table>
<thead>
<tr>
<th></th>
<th>Clinical group</th>
<th>Adjusted mean (SE)</th>
<th>Control group with headache</th>
<th>Control group without headache</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competences</td>
<td>17.71 (0.63)</td>
<td>17.25 (0.50)</td>
<td>17.17 (0.55)</td>
<td>ns</td>
<td></td>
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<tr>
<td>Activity</td>
<td>8.39 (0.45)</td>
<td>7.79 (0.36)</td>
<td>7.64 (0.27)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>7.43 (0.31)</td>
<td>7.29 (0.24)</td>
<td>7.04 (0.20)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Academic</td>
<td>1.92 (0.51)</td>
<td>2.05 (0.40)</td>
<td>1.97 (0.39)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Internalizing syndrome</td>
<td>16.76 (1.08)</td>
<td>11.07 (0.86)</td>
<td>5.67 (0.94)</td>
<td>(0.000)$a,b,c,*$</td>
<td></td>
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<tr>
<td>Anxious/Depressed</td>
<td>7.33 (0.61)</td>
<td>5.24 (0.48)</td>
<td>2.91 (0.52)</td>
<td>(0.000)$a,b,c,*$</td>
<td></td>
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<tr>
<td>Withdrawn/Depressed</td>
<td>4.86 (0.40)</td>
<td>2.97 (0.32)</td>
<td>1.72 (0.35)</td>
<td>(0.000)$a,b,c,*$</td>
<td></td>
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<tr>
<td>Somatic complaints</td>
<td>4.56 (0.33)</td>
<td>2.90 (0.26)</td>
<td>1.04 (0.29)</td>
<td>(0.000)$a,b,c,*$</td>
<td></td>
</tr>
<tr>
<td>Externalizing syndrome</td>
<td>11.33 (0.95)</td>
<td>9.12 (0.75)</td>
<td>7.38 (0.82)</td>
<td>(0.002)$a,b,c,*$</td>
<td></td>
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<tr>
<td>Rule-breaking behavior</td>
<td>2.76 (0.42)</td>
<td>2.71 (0.33)</td>
<td>2.47 (0.36)</td>
<td>ns</td>
<td></td>
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<tr>
<td>Aggressive behavior</td>
<td>8.49 (0.65)</td>
<td>6.41 (0.52)</td>
<td>4.91 (0.57)</td>
<td>(0.000)$a,b,c,*$</td>
<td></td>
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<tr>
<td>Mixed scales</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Social problems</td>
<td>4.83 (0.43)</td>
<td>3.15 (0.34)</td>
<td>1.68 (0.37)</td>
<td>(0.000)$a,b,c,*$</td>
<td></td>
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<tr>
<td>Thought problems</td>
<td>4.30 (0.41)</td>
<td>2.37 (0.32)</td>
<td>1.54 (0.35)</td>
<td>(0.000)$a,b,c,*$</td>
<td></td>
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<tr>
<td>Attention problems</td>
<td>7.28 (0.46)</td>
<td>4.69 (0.37)</td>
<td>3.21 (0.40)</td>
<td>(0.000)$a,b,c,*$</td>
<td></td>
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<tr>
<td>Other problems</td>
<td>5.34 (0.40)</td>
<td>3.83 (0.32)</td>
<td>3.20 (0.35)</td>
<td>(0.000)$a,b,c,*$</td>
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<tr>
<td>Total</td>
<td>49.50 (2.89)</td>
<td>34.26 (2.30)</td>
<td>22.10 (2.51)</td>
<td>(0.000)$a,b,c,*$</td>
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*aClinical group versus control group with headache.
*bClinical group versus control group without headache.
*cControl Group with headache versus Control group without headache.
*dSignificant post hoc test calculated with Sidak method.
sustaining that a primary source of stress for adolescents with headache is excessive activity (Karwautz et al., 1999). However, we cannot exclude the influence of CTTH on the results obtained by the clinical group in the Activity scale. Perhaps, the activity level of this group was higher prior to the onset of headaches and diminished as a consequence. Diagnostic criteria do not include severe invalidating pain, but this chronic pathological condition may have influenced results in this sense. On the other hand, the adolescent’s discomfort may not have been induced so much by the amount of activity, but rather by the feelings of inadequacy, perfectionism, and consequent anxiety, as already described in literature (Mazzone et al., 2006). In our study, this is confirmed by the high scores in the items of the Internalizing Syndromes scales. Further studies could specifically investigate the relation between CTTH and the quantity and quality of activities in adolescent patients.

With regard to school achievement, both YSR and CBCL questionnaires showed significant differences between the two groups of adolescents. Parents of adolescents with CTTH were preoccupied about school adaptation, perhaps due to the frequent truancy from school of adolescents with clinical CTTH. Their worries were evident from the scores in the CBCL School Scale, which provides information about all the complex multiple aspects of school attendance (rules, social relationships, performances). The Academic YSR score only regards school performance, but more complex aspects of school attendance can be analyzed through self-reports of adolescents in some items of Mixed and Internalizing Syndromes.1

For example, it is interesting to consider the answers of adolescents with CTTH to item 9 “Can’t get mind off thoughts” (Thought Problems in Mixed Scales): a number of them reported worries about school and fear to be judged by others or to disappoint them. School often causes anxiety and stress in students with TTH (Carlsson, Larsson, & Mark, 1996) and is considered one of the most important precipitating factors (Anttila, Metsahonkala, & Sillanpää, 1999). Özge et al. (2002) found that this was true for 19.5% of the patients between 8 and 16 years of age included in his research.

In this study, no differences emerged in the Social Competences scores of adolescents (Fig. 1), although parents of adolescents with CITH underlined difficulties in this area (Fig. 2), which included peer group relations, friendships, and behavior with others. However, inadequate social competences were clearly confirmed by the high scores in the Social Problems scale that evaluates the adolescent’s relations with adults and peers.
The scores of the clinical group were higher both in the YSR (Fig. 1) and in the CBCL (Fig. 2) questionnaires. On the basis of our results, we hypothesize that relations are perceived as hostile and social support as not functional or unsatisfactory. This has already been described in other studies, both with adults (Martin & Soon, 1993; Martin & Theunissen, 1993) and children, that focused on relational difficulties with family members and peers (Mazzone et al., 2006; Sariougli et al., 2003).

Pullkinnen proposes a bidimensional model of emotional and behavioral regulation (Valamoo, Pulkkinnen, Kinnunen, Kaprio, & Rose, 2002; Virtanen et al., 2004). Emotional regulation refers to the redirection, control, and modification of emotional arousal to enable an individual to function adaptively in emotionally arousing situations, maintaining the internal arousal level within an optimal performance range. Behavioral regulation has the purpose of adjusting the individual's responses to external circumstances. The model shows two orthogonal dimensions: expression/inhibition of behaviors and low/high self-control of emotions. Internalizing and externalizing problems are due to low emotional regulation. In internalizing problems, intense emotions are associated with suppressed behavior (reserved and anxious people), while externalizing problems link intense emotions to active behavior (aggressive and impulsive individuals).

Internalizing and Externalizing Syndromes were also examined in our study through the profiles of emotional and behavioral problems in YSR and CBCL reports. The clinical group obtained higher scores in Internalizing Syndrome, both in YSR and CBCL, with significant differences between the clinical group and controls in all the scales of Internalizing Syndrome (anxiety, depression, somatic complaints). High scores in the Internalizing Syndrome scales of adolescents and parents indicate the presence of anxiety and depression, as confirmed by other studies with adults (Bag et al., 2005; Materazzo, Cathcart, & Pritchard, 2000; Puca et al., 1999), as well as children and adolescents (Just et al., 2003; Pakalnis, Butz, Splaingard, Kring, & Fong, 2007; Pini, 2006). Regarding Externalizing Problems, we found that the adolescents with CITH perceived themselves as more aggressive than others, while no differences were found for Rule-Breaking Behavior. They did not report severely abnormal behaviors, but often acknowledged to be disobedient, quarrelsome, and/or short-tempered. Granted that externalizing syndrome involves problems associated with external conflicts and to expectations concerning the adolescent, we hypothesize that these feelings are related to the already mentioned difficulties in social adaptation. Moreover, they may indicate problems in the expression of personal negative feelings and in the care of interpersonal relations, as frequently described in literature (Bag et al., 2005; Wise et al., 1994). Parents also seemed to emphasize externalizing behavior: in this area, parents of the clinical group obtained higher scores than parents of controls. Significant differences were found among the groups even in delinquent behavior (Rule-Breaking Behavior in YSR) and aggressive behavior. Regarding these issues, data in literature are contrasting. Some researches sustain that individuals with TTH are often angry and hostile (Bag et al., 2005; Hatch et al., 1991; Venable et al., 2001) and tend to repress these emotions (Pini, 2006). Our study highlights the difficulty of the adolescents with headaches to control anger, confirming the results already found by Perozzo et al. (2003). In Mixed Syndromes, social, thought, and attention problems are investigated. Significant differences were found in all three scales, from reports of both adolescents and parents. Few studies have previously focused on such aspects, especially on attention problems, which concern feelings of inadequacy, impulsiveness, and confusion, as well as difficulties in concentrating and finishing tasks.

Finally, we report some observations that emerged from our secondary analysis, in which we compared the answers of adolescents with CTTH, adolescents of the control group with headache, and adolescents of the control group without headache. Analyzing the scores obtained, we noted that adolescents of the control group with headache seem to constitute a sort of “bridge” between adolescents with clinical headache and those without headache. Further studies are needed to investigate if these differences indicate a real gap in problem intensity or if they are related to the characteristics of headache or to different evaluation settings or conditions (together in a classroom vs. alone in a clinical setting; Just et al., 2003). It is important, however, not to underestimate the difficulties reported by these adolescents since subthreshold symptomatology may become troublesome in the future.

Before concluding, some limitations of the present study need to be discussed, especially in view of future investigations. The assessment of the behavioral and emotional components included different viewpoints (adolescents and parents) but was based on the use of a single instrument. Moreover, normative data referred to the Italian population were not available for these questionnaires at the moment. Further studies could provide in-depth analyses using ad hoc instruments to evaluate the psychopathological aspects discussed. In particular, Social
Competences could be better investigated with instruments that account for chronic pain, in order to gain a more realistic picture of these abilities, including the influence of variables such as the adolescent’s social and economic opportunities (Drotar, Stein, & Perrin, 1995). The analysis of other psychosocial variables such as social status, composition of nuclear family, and environmental background may enhance comprehension of how such factors influence results. It would also be interesting to investigate the amount and perceptions of activities faced by teens with CTTH to better understand this relation. As regards the control group with headache, scarce information was obtained about the characteristics of their illness, such as the type, quality, and frequency of pain. Future research could analyze these aspects and adequately compare a clinical group with CTTH to a control group that reports headache pain. Finally, the differences in the scores of the clinical and control groups could be due to some unavoidable referral or selection bias. Factors such as the tendency of the adolescents toward help-seeking, their readiness to complain and to admit problems, individual pain thresholds, and parental concern and solicitude could also differentiate the two groups.

To confirm our results, this study should be extended to a larger clinical population, and the influence of setting on results should be carefully weighed, in particular for the control group with headache. Follow-up studies may be useful to control how headaches evolve and to understand the relation between causes and effects. In particular, it would be interesting to see if and how many adolescents with headache later manifest psychopathologies.

Given the vast array of factors that influence patients with CTTH, such as the psychological discomfort underlined by this research, the study and treatment of CTTH necessarily requires a multidisciplinary approach (Abu-Arafeh, 2001). Specific ways of management that shift the clinician’s focus from a mere neurological view to a multidimensional perspective need to be found (Labbe, 1999; Pakalnis et al., 2007; Pini, 2006; Strine, Okoro, McGuire, & Balluz, 2006). The clinical approach to the adolescent patient with CTTH has to not only tend toward providing relief from pain during crises but also aim toward a deep understanding of the psychological characteristics of the adolescent himself. Along with all psychological factors, environmental, social, and familial variables need to be considered in order to support the patient and his family in finding efficient coping strategies and ameliorate resilience. In our opinion, it could be useful to integrate clinical observations with periodic clinical interviews with the adolescents and their family and to analyze the role of headache in the adaptive equilibrium of the patients and their family. A profound comprehension of the psychological characteristics of youths with CTTH is a necessary step toward the improvement of secondary prevention strategies through complete medical and health assessments that permit early diagnosis and proper treatment.

Furthermore, instruments that promote adequate means of primary prevention need to be devised in order to strengthen personal, interpersonal, and social abilities in adolescents with CTTH, thus favouring the development of efficacious coping strategies.

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