ORIGINAL ARTICLE

CONTENTS

Headache as a marker of psychological and somatic distress in children with non-psychotic mental disorders

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ABSTRACT

Aim: To determine the role of headache as a marker of psychological and somatic distress in children with non-psychotic mental disorders (NPMD), with a focus on its relationship with conflicts in the family and school environment.

Materials and Methods: A retrospective analysis was performed on medical records of 168 children aged 8–10 years who were under observation by child psychiatrists. According to ICD-10 diagnostic criteria, the cohort was divided into four subgroups: neurotic disorders (ND; n = 42), neurosis-like disorders (NSD; n = 46), emotional and behavioural disorders (EBD; n = 45), and developmental disorders of school skills (DSS; n = 35). Clinical complaints including headache, anxiety, sleep disturbances, learning difficulties, behavioural dysregulation, and interpersonal conflicts were analysed. The associations between binary variables were assessed using the phi (φ) coefficient.

Results: Headache was reported by 41% of children with ND, 60% with NSD, 36% with EBD, and 29% with DSS. In ND and NSD, headache was combined with anxiety, sleep problems, and cognitive deficits, whereas in EBD and DSS, it was more closely associated with interpersonal conflicts and school maladaptation. We revealed moderate-to-relatively strong associations between headache and conflicts with parents (φ = 0,28–0,48), as well as with teachers (φ = 0,33–0,46), indicating that headache may reflect relational distress.

Conclusions: Headache in children with NPMD serves as a clinically relevant psychosomatic marker that integrates biological, emotional, and social dimensions of maladaptation. Recognition of headache as an indicator of psychological suffering highlights the importance of integrative, family-centred, and ethically sensitive approaches to diagnosis and treatment.

KEY WORDS: headache, children, mental disorders, psychological conflict

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INTRODUCTION

Pediatric headache is highly prevalent, heterogeneous in etiology, and associated with substantial functional, psychological, and sleep-related comorbidity. Recent narrative and systematic reviews emphasize the need for integrated assessment – encompassing neurological, psychological, sleep, and dental/orofacial domains – and for evidence-based, biopsychosocial interventions tailored to children and families [1–3].

Systematic reviews and meta-analyses report a high and increasing prevalence of primary headache in children and adolescents, with migraine prevalence estimated at approximately 10–15% in teenagers and tension-type headaches also common. Overall, headache represents one of the most frequent chronic pain complaints in youth and contributes substantially to school absence, reduced quality of life, and increased health care use [1, 2, 4].

Diagnostic classification in children follows the ICHD-3 (International Classification of Headache Disorders, 3rd edition) criteria but requires developmental sensitivity, as symptoms and phenotypes often differ from those in adults (shorter duration, bilateral pain, and more prominent autonomic and gastrointestinal features). Specific presentations of note include primary nighttime headaches and rarer sudden-onset headache syndromes that require prompt emergency department (ED) assessment to rule out secondary causes [5–7].

Large systematic reviews show that children and adolescents with migraine have higher rates of anxiety and depressive symptoms and disorders than their peers, suggesting the need for routine screening in both specialty and primary care. Alexithymia (difficulty identifying and describing feelings) has been associated with pediatric headache and may mediate poorer coping and higher disability. Psychological comorbidities significantly increase overall burden and represent important treatment targets [8–10].

Structured approaches combining medical history, focused neurological examination, and selective imaging or laboratory tests reduce both missed secondary causes and unnecessary testing. Several reviews summarize triage and emergency department (ED) management strategies [7, 11].

Psychological therapies, including cognitive behavioral therapy (CBT) and other structured approaches, have demonstrated benefits for pediatric chronic and recurrent pain, including headache, reducing pain intensity and disability after treatment and, in some studies, at follow-up. Multimodal care addressing sleep, stress, school support, and family behavior is recommended as a first-line treatment or as an adjunct to pharmacotherapy [10, 12].

Accordingly, a retrospective analysis of headaches in children aged 8–10 years with non-psychotic mental disorders and school adaptation disorders who were treated by psychiatrists was conducted.

AIM

To determine the role of headache as a marker of psychological and somatic distress in children with non-psychotic mental disorders and to assess its relationship with conflicts in the family and school environment.

MATERIALS AND METHODS

The study included 168 children aged 8–10 years who were under observation by child psychiatrists and had diagnoses interpreted as borderline non-psychotic mental disorders according to ICD-10 (F category) [13]. A retrospective analysis of medical records was conducted with informed parental consent.

This study was conducted in accordance with the principles of bioethics and international legal standards, including the Declaration of Helsinki (World Medical Association, 2013), the Convention on Human Rights and Biomedicine (Oviedo Convention, 1997), and relevant Ukrainian legislation, such as the Law of Ukraine "On the Protection of Personal Data" (No. 2297-VI, 2010) and the Order of the Ministry of Health of Ukraine No. 690 (23.09.2009), which regulates ethical requirements for biomedical research involving human participants.

The research had a retrospective design, based on the analysis of medical records and psychological assessment results previously conducted as part of routine clinical practice. No experimental interventions were introduced, and the confidentiality of personal data was strictly maintained. All children were examined and treated in compliance with current clinical and ethical standards. Parents or legal guardians provided informed consent for psychological assessment and medical treatment of their children. The study protocol complied with institutional ethical principles and posed no additional risk or burden to participants.

According to diagnostic criteria, the children were divided into four conditional subgroups. The first subgroup (predominantly neurotic disorders [PND]) consisted of 42 children. Psychogenic factors played a leading role in their etiopathogenesis, such as acute or chronic psychological trauma and emotional intrapsychic conflicts. The main diagnoses included childhood neurotic disorders (ICD-10: F95–F98) [13]. Comorbidities were also observed, including general underdevelopment of speech (level III) and, occasionally, impaired development of scholastic skills.

The second subgroup (neurosis-like disorders [NLD]) included 46 children. In their pathogenesis, central nervous system damage played a leading role. Their medical history revealed biological factors affecting the nervous system during early ontogenesis, such as pregnancy toxicosis, complicated childbirth, psychomotor developmental delays in the first year of life, and chronic somatic diseases. Neurological symptoms were also present, including nystagmus, synkinesias, instability in the Romberg posture, and other neurological signs. In addition to neurotic symptoms (ICD-10: F95–F98), children in this subgroup also had diagnoses from the F0 category, as confirmed by a neurologist.

The third subgroup (emotional and behavioral disorders [EBD]) consisted of 45 children. Their clinical picture was characterized by pronounced emotional and behavioral disturbances occurring at home and/or at school. The main diagnoses were "Hyperkinetic behavior disorder" (F90.1) and "Conduct disorders" (F91), particularly "Unsocialized conduct disorder" (F91.1). Occasionally, "Oppositional defiant disorder" (F91.3) and "Mixed disorders of conduct and emotions" (F92) were also diagnosed.

The fourth subgroup (specific developmental disorders of scholastic skills [SDD]) included 35 children. These were schoolchildren, whose main diagnoses involved speech disorders and delays in the acquisition of scholastic skills. Children in this subgroup most often underwent planned outpatient rehabilitation tailored to their individual neuropsychological and speech therapy needs, including work with speech therapists, special education teachers, and psychologists, as well as sensory integration classes. In the children's hospital setting, patients with SDD were rarely encountered, most often in the context of psychological trauma or during initial psychiatric evaluations.

Clinical complaints were analyzed from medical records, including headache, increased anxiety, sleep disturbances, learning difficulties, attention deficits, behavioral problems, as well as conflicts with parents and teachers.

To assess interpersonal conflicts, the Etkind Color Association Test [14-15] was used. This nonverbal projective technique is based on the M. Luscher Color Test. In the first stage, children were asked to associate colors with family members and other significant figures. In the second stage, colors were ranked by preference. Associations with colors placed in the 7th and 8th positions were interpreted as indicators of emotional conflict with the person assigned to that color. Long-term studies have confirmed the diagnostic validity of this method, which is effective in identifying unconscious psychological conflicts in both children and adults, particularly in family and school relationships.

We used IBM SPSS Statistics v. 27.0 (Armonk, NY: IBM Corp., USA) for statistical data analysis. Qualitative data were presented as relative frequency (%) and a standard error. To evaluate the associations between binary (dichotomous) variables, the phi (φ) coefficient was calculated based on 2×2 contingency tables. The strength of association was interpreted according to conventional thresholds: negligible (<0,1), weak (0,1–<0,2), moderate (0,2–<0,4), relatively strong (0,4–<0,6), strong (0,6–<0,8), and very strong (≥0,8).

RESULTS

The analysis of symptom profiles across diagnostic subgroups revealed patterns of psychosomatic and behavioral manifestations, emphasizing the heterogeneity of headache expression within different categories of non-psychotic mental disorders in children. The results for each subgroup are presented below.

PND SUBGROUP (N = 42)

For children in this subgroup, the most characteristic features were neurotic symptoms (81% ± 6%), with predominant manifestations of increased anxiety (64% ± 7%) and sleep disturbances (64% ± 7%). Somatized complaints were observed in the form of headache, which was reported in 41% ± 8% of cases. Thus, the PND subgroup was typified by a combination of inner tension and pronounced neurotic symptoms, generating significant distress in the interpersonal sphere. A considerable proportion of children experienced interpersonal difficulties, particularly conflicts within the family (50% ± 8%) and strained relationships with teachers (31% ± 7%).

NLD SUBGROUP (N = 46)

This subgroup demonstrated an even more pronounced symptom complex, where leading features included neurotic manifestations (87% ± 5%) combined with learning difficulties (85% ± 6%). Sleep disturbances (72% ± 7%) and heightened anxiety (63% ± 7%) were also typical. Complaints of cognitive impairment were frequent, with memory decline (72% ± 7%) and attention deficits (67% ± 7%) being most common. Interpersonal conflicts occurred somewhat less often than in PND, but remained noticeable: with parents (37% ± 7%) and teachers (48% ± 7%). Headache was reported more often than in the PND subgroup – 60% ± 7%, underscoring the significant role of somatization. Overall, NLD was characterized by the combination of neurotic symptoms with cognitive and learning difficulties, substantially reducing children's adaptive capacity.

EBD SUBGROUP (N = 45)

Children in this subgroup were distinguished by a predominance of attention deficits (87% ± 5%) and unbalanced behavior (87% ± 5%), often combined with learning difficulties (71% ± 7%). Unlike PND and NLD, in this group, behavioral and emotional-affective symptoms were more prominent, including phobic manifestations (62% ± 7%). Conflicts within the immediate environment were significant: with parents (64% ± 7%) and, to an even greater extent, with teachers (69% ± 7%). Somatic complaints in the form of headache were less frequent (36% ± 7%). Overall, EBD presented as a pattern of behavioral maladaptation with high conflict levels and a tendency toward emotional instability.

SDD SUBGROUP (N = 35)

In this subgroup, leading features were learning difficulties (86% ± 6%), which were combined with attention deficits (71% ± 8%) and memory impairments (46% ± 8%). Unlike other groups, the academic domain served as the primary source of maladaptation, whereas marked neurotic or behavioral symptoms played a secondary role. Interpersonal problems were mainly reflected in conflicts with teachers (63% ± 8%), whereas conflicts with parents were less frequent (31% ± 8%). Headache had the lowest prevalence among all subgroups – 29% ± 8%. Thus, subgroup SDD was characterized by predominant cognitive and scholastic difficulties with relatively limited involvement of the emotional and behavioral domains.

Importantly, the symptom manifestations differed across diagnostic subgroups. In the ND subgroup, headache was predominantly associated with family-related

Table 1. The associations between headache and conflicts in different subgroups

N	Subgroup	Headache ↔ Parental conflicts (φ)	Headache ↔ Teacher conflicts (φ)	Interpretation
1	ND (n=42)	0.42	0.33	Somatization of emotional distress, more strongly linked to the family environment
2	NSD (n=46)	0.28	0.40	Cognitive and academic difficulties reflected in school conflicts
3	EBD (n=45)	0.48	0.46	High conflict proneness in both family and school settings
4	SDL (n=35)	0.37	0.43	Headache accompanies academic frustration and school stigmatization

Source: compiled by the authors of this study

emotional distress, anxiety, and sleep disturbances. In the NSD subgroup, headache was more prevalent and closely linked to cognitive difficulties and academic challenges. The EBD subgroup presented with attentional deficits, impulsivity, and heightened interpersonal conflict, with headache appearing as a secondary but clinically meaningful symptom. In the SDD subgroup, academic difficulties were the most pronounced, while headache, when present, tended to accompany emotional tension in peer and teacher relationships.

At the next stage, we revealed significant associations between headache and interpersonal conflicts both within the family and at school across all subgroups of children with non-psychotic mental disorders (Table 1).

In the ND subgroup, headache showed a relatively strong association with conflicts with parents (φ=0,42) and a moderate association with conflicts with teachers (φ=0,33). In the NSD subgroup, the association with family conflicts was moderate (φ=0,28) but more pronounced with school conflicts (φ=0,40). Among children in the EBD subgroup, the strongest associations were found: headache was associated both with parental conflicts (φ=0,48) and teacher conflicts (φ=0,46). Finally, in the SDD subgroup, headache showed a moderate association with family conflicts (φ=0,37) and a somewhat stronger association with school conflicts (φ=0,43).

Thus, the analysis revealed a significant association between headache complaints and relational conflicts across both family and school contexts, highlighting its role as an indicator of systemic maladaptation. Family dynamics emerged as particularly influential: conflictual, overcritical, or emotionally detached parenting styles were associated with higher headache prevalence, and relational tensions at home frequently extended into the school environment, reinforcing maladaptive behavioral patterns.

The observed associations between headache and interpersonal conflicts–especially within the family–highlight the pivotal role of family dynamics in children's psychosocial adaptation and school adjustment. These findings demonstrate that headache functions as a distinct psychosomatic marker in children with non-psychotic mental disorders, reflecting the complex interplay of emotional distress, cognitive impairments, and maladaptive behavioral patterns.

The obtained results underscore the necessity of an integrated, multidisciplinary approach to management, combining medical, psychological, family-oriented, and school-centered interventions.

DISCUSSION

Headache is among the most prevalent somatic complaints in children and adolescents, and its clinical significance becomes particularly evident in those with non-psychotic mental disorders [1, 4, 5]. In pediatric psychiatry and clinical psychology, headache is increasingly viewed not as an isolated neurological symptom but as a psychosomatic marker reflecting underlying emotional distress and maladaptation [2, 3, 8, 9].

Epidemiological studies estimate its prevalence at over 30% in school-age populations [1, 4], with even higher rates among children with psychiatric comorbidities [8, 10]. In line with our findings, headache frequently co-occurs with anxiety, sleep disturbances, cognitive impairments, learning difficulties, and behavioral problems [2, 8, 9, 12, 16], thereby representing a multidimensional indicator of distress that encompasses the emotional, cognitive, and behavioral domains of functioning [5, 9, 10].

The etiology of headache in childhood is multifactorial. Biological mechanisms–including genetic predisposition, neurochemical imbalances, somatic illnesses, and sleep disorders–play an important role [6, 7, 16]. However, growing evidence highlights the influence of psychosocial determinants such as emotional stress, school maladaptation, insufficient social support, and family conflict [8, 9, 10, 17]. These factors have been shown to contribute not only to the onset but also to the chronicity and treatment resistance of pediatric headache [10, 12, 16, 17].

The role of family relationships deserves special emphasis. Parenting style and the quality of emotional contact between parents and children critically shape psychosomatic well-being [9, 10, 12]. Authoritarian practices, excessive criticism, emotional detachment, and lack of support have been linked to higher rates of somatization, often manifesting as recurrent headaches [9, 10]. Conversely, democratic parenting, openness, and acceptance serve as protective factors that buffer stress and reduce the likelihood of somatic symptom formation [12, 15]. In our study, conflicts with parents were significantly associated with headache complaints, suggesting that intrafamilial stress may act as a core driver of psychosomatic manifestations in this population.

Importantly, the family environment appears to extend its influence into the school context. Conflicts with teachers were also associated with headache prevalence, indicating that maladaptive interaction patterns established within the family may be projected onto other authority figures [9, 10, 15]. This observation is consistent with theories of transference and relational patterns in child development, which posit that unresolved family conflicts often generalize to broader social contexts [9, 12]. Thus, headache in children with non-psychotic mental disorders may be conceptualized as a clinical marker of systemic maladaptation that bridges somatic, emotional, and relational dimensions [2, 5, 10].

From a clinical perspective, the analysis of headache as a psychosomatic symptom opens avenues for integrative diagnostic and therapeutic strategies [11, 12, 16]. A narrow biomedical approach may overlook the psychosocial context in which headache develops and persists. Conversely, incorporating psychological and family-centered interventions–such as family therapy, parent training, and school-based support–may enhance treatment outcomes [11, 12]. Moreover, understanding headache as a psychosomatic indicator provides clinicians with an accessible and observable symptom through which underlying distress and family dysfunction can be identified early [5, 8, 12].

Finally, these findings highlight important bioethical considerations. Integrating biological, psychological, and social dimensions of care aligns with the principles of holistic, patient-centered, and ethically responsible practice in child treatments [10, 12, 13].

CONCLUSIONS

Headache represents a key psychosomatic marker in children with non-psychotic mental disorders, reflecting the interaction of emotional distress, cognitive dysfunction, and maladaptive behavior. Symptom patterns varied across diagnostic subgroups, with neurotic and neurosis-like disorders showing the strongest links between headache, anxiety, and family conflict, whereas emotional-behavioral and developmental learning disorders were characterized by interpersonal and academic maladaptation.

From a bioethical standpoint, headache in children should be regarded not merely as a clinical symptom but as an expression of psychological suffering–requiring a patient-centered, non-stigmatizing approach aimed at fostering trust, supporting emotional well-being, and ensuring effective psychiatric care.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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