



Environmental Factors such as Stress, Diet, and Screen Time in Headaches Among Children and Adolescents: A Literature Review

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Objective

To analyze the influence of environmental factors - particularly stress, dietary habits, and screen time - on the frequency and severity of headaches in children and adolescents.

Methods

This review followed PRISMA 2020 guidelines. A systematic search was conducted from January to March 2025 in PubMed, SciELO, Scopus, and Web of Science using the Boolean strategy: ("headache" OR "migraine") AND ("children" OR "adolescents") AND ("stress" OR "psychosocial stress") AND ("diet" OR "nutrition") AND ("screen time" OR "digital media"). Inclusion criteria were original studies or systematic reviews involving participants aged 5–18, published from 2011 to 2024 in English, Portuguese, or Spanish, analyzing the association of at least one environmental factor (stress, diet, or screen time) with headaches. Exclusion criteria included articles without full text, drug-only approaches, case reports, editorials, or studies not addressing the topic.

A total of 248 records were retrieved; 56 duplicates were removed. Of 192 screened by title and abstract, 51 full texts were assessed and 20 were included. Two blinded reviewers independently selected and analyzed the studies, resolving disagreements by consensus.

Results

Headaches in young populations are strongly associated with modifiable environmental influences. Stress was the most consistent trigger, often linked to academic demands, family conflicts, and emotional instability, especially during the COVID-19 pandemic. Irregular eating habits, such as skipping breakfast, were also significantly related to

more frequent episodes, suggesting a metabolic component.

Prolonged screen exposure - over nine hours per day - was associated with increased headache intensity and frequency. It also contributed to poor sleep quality and reduced physical activity, reinforcing a negative behavioral cycle. Nighttime screen use, in particular, disrupted circadian rhythms. Non-pharmacological strategies, including mindfulness, structured nutrition, and screen-time limitation, were effective in alleviating symptoms.

Factor	Effect on Headaches	Notes
Stress	↑ Frequency & severity	Related to academic and family conflicts
Poor Diet	↑ Frequency	Skipping meals, esp. breakfast
Screen Time	↑ Intensity & ↓ Sleep quality	>9h/day, worse at night

Table 1: Impact of Stress, Diet, and Screen Time on Headache Prevalence in Children and Adolescents

Conclusion

Stress, poor diet, and excessive screen time are key contributors to pediatric headaches. Multidisciplinary prevention strategies involving health education and lifestyle changes in clinical, school, and family settings may significantly reduce the burden of headaches among children and adolescents.

References

