

Beyond aches and pain: the hidden economic burden of musculoskeletal conditions in children and adolescents

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Implications for practice and research

- Early, comprehensive pain management can significantly reduce the societal burden of musculoskeletal pain in children and adolescents by minimising disability, school absences, and lost productivity.
- Further research on the economic burden of musculoskeletal pain in low- and middle-income settings is needed to understand global impact and inform appropriate interventions.

Context

Musculoskeletal pain significantly impacts children and adolescents, and their families. It contributes to global years-lived with disability, leading to disrupting daily activities, school absences, socioeconomic costs and increased healthcare utilisation. There is an association between childhood musculoskeletal pain and the development of chronic pain in adulthood, along with elevated risks of anxiety, depression, and suicidal ideation. This study¹ synthesised evidence on various aspects of the economic burden associated with musculoskeletal pain in children and adolescents.

Methods

This systematic review investigated the economic burden of musculoskeletal pain in children and adolescents (up to 24 years) by analysing cost-of-illness studies. Focusing on specific conditions like juvenile idiopathic arthritis (JIA), adolescent idiopathic scoliosis, and headache/migraine, and mixed pain conditions, the reviewers comprehensively searched MEDLINE, EMBASE, CINAHL, EconLit, NHSEED, and HTA databases (final search July 2022). To ensure consistency and accuracy, two independent reviewers screened records, assessed methodological quality, and extracted data. They primarily focused on cost outcomes across various perspectives (healthcare, patient/family, lost productivity, and societal). Random-effects meta-analysis was conducted where studies were comparable in terms of time horizon, context, and cost category.

Findings

The review included 45 studies (19 cross-sectional, 25 cohort and 1 randomised controlled trial). All originated from high-income (38, 84.4%) or middle-income countries (7, 15.5%) - none represented low-income nations. While 75.5% of the studies clearly presented unit costs and 69% offered transparent expenditure data, only 29% incorporated and differentiated lost productivity costs.

Annual healthcare costs for children and adolescents with musculoskeletal pain ranged from \$14,328 to \$41,379 per patient. JIA led to the highest reported healthcare costs (\$2,379 to \$41,379), followed by mixed pain conditions (\$3,716 to \$12,409), headaches/migraines (\$143 to \$2,942), and adolescent idiopathic scoliosis (\$5,795).

Annual societal cost (healthcare cost + patient/family cost + lost productivity) for musculoskeletal pain in children and adolescents with JIA was higher (ranging from \$10,959 to \$69,351) per patient, compared to that of children and adolescents with other conditions.

Commentary

This study highlights the substantial economic implications of musculoskeletal pain in children and adolescents, particularly emphasizing the disproportionate burden associated with JIA. Recognising the different cost perspectives is crucial, as the economic burden extends beyond healthcare costs. Non-healthcare categories such as patient/family expenses and lost productivity due to missed work or school, significantly contribute to the broader societal cost. This underscores the urgency of developing targeted interventions and prioritising resources to alleviate the economic and societal strains associated with this condition.

Rheumatology nursing is a specialist service delivered within the context of a multidisciplinary team, to address complex rheumatic and musculoskeletal diseases, minimising their impact on individuals, families, and society.² Understanding the individual

and wider societal costs of these conditions enables the rheumatology nurses to implement targeted interventions like comprehensive pain management, optimised access to healthcare and addressing social and economic challenges.³

Comprehensive pain management should include care plans for supporting self-management, medication adherence, access to tools and resources for coping with pain, stress management, lifestyle modification (physical activity, healthy nutrition, sleep hygiene) and maintaining independence.⁴ Connecting families with physiotherapy, occupational therapy, psychological services, and community resources are essential to ensure person-centred care and address financial barriers to healthcare or connect families to financial assistance. Coordinating healthcare with schools helps ensure a supportive and inclusive educational environment for managing pain.

In addition to the above interventions, it is important to engage communities, the public and policy makers, to raise awareness about musculoskeletal health and their impact. As most evidence (84%) originated from high-income countries, research focusing on low-income settings is urgently needed⁵ to advocate for policies that support affordable and accessible healthcare for children and adolescents with musculoskeletal conditions globally.

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