

# Musculoskeletal multisite pain and patterns of association after adjusting for sleep, physical activity, and screen time in adolescents

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Musculoskeletal pain is highly prevalent in adolescents and a strong predictor of pain in adulthood. Young people with musculoskeletal pain tend to report pain at multiple body sites. Nevertheless, it is unclear whether pain at one body site increases the probability of pain at other body sites. Therefore, this study aimed to describe the association between multiple painful body sites after controlling for predictive factors such as age, sex, sleeping hours, time spent in physical activity, and time spent in screening based activities in adolescents aged 13 to 19 years. Pain for the last 3 months, time spent in moderate and vigorous physical activity, sleeping, and in screen-based activities were assessed for 969 students. Of these, 41,2% reported pain in at least 2 body sites. Multivariate regression analysis showed that the association between painful body sites remained significant, after controlling for age, sex, physical activity, sleep and screen time (OR between 1.50 and 3.07,  $p < 0.05$ ). We believe that these findings question the theory of cumulative effects of shared risk factors and highlight the need for preventive and intervention strategies that take a whole-body approach to pain instead of strategies directed at specific body sites.



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