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Factors associated with sleep deficit in children and adolescents

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ABSTRACT

Objective: To evaluate the impact of school schedules in sleep parameters and, therefore, analyze the difference between weekday and weekend sleep schedules on sleep deficits in children and adolescents.

Methods: This cross-sectional study involved 639 elementary and high-school students (mean age 13.03 ± 2.62 years; 58.5% female) recruited from cities in the Vale do Taquari region, in Rio Grande do Sul, Brazil. Participants answered the Morningness-Eveningness Questionnaire (MEQ), and asked as to their sleeping habits on weekdays and the weekend. *Sleep deficit* was defined as the difference between sleep duration on weekdays and the weekend. The cut-off point for sleep deficit was set at 1h30min.

Results: According to our data, sleep duration and the midpoint of sleep in the weekdays were significantly higher in the evening shift students comparing to morning shift students. However, the morning shift students presented a significantly higher bedtime and wake up difference, sleep deficit and social jet lag. In this sample, 37.4% of the males and 49.9% of the females had a sleep deficit of 1h30min or more. The difference between wake times and total sleep duration on weekends and weekdays was significantly higher in females than males. Sleep deficit was positively correlated with age ($r = 0.171$; $p < 0.001$) and negatively associated with MEQ scores ($r = -0.168$; $p < 0.001$). A step-by-step multivariate logistic regression identified age, gender, MEQ scores and school start time as significant predictors of increased sleep deficit (adjusted $R^2 = 0.10$; $F = 18.6$; $p < 0.001$).

Conclusion: Our results showed that school schedules influence the sleep deficit experienced. The combination of school schedules and physiological factors was found to influence the sleep/wake cycle.