Do sleeping habits mediate the association between time spent on digital devices and school problems in adolescence?

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## Sample

Sample of 7595 adolescents (mean age: 13.53 years; 48.1% boys).

# Abstract

Background
This study examined the associations of Internet and computer screen time with school difficulties and the role of sleep quality and soft and energy drinks consumption.
Methods
We used data from the cross-sectional Health Behaviour in School-aged Children study collected in 2014 among Slovak adolescents (aged 11.0–15.9 years, N = 7595, 48.1% boys). We examined the inter-relations between time spent with on digital devices (time spent playing digital games or Internet use), sleeping quality (sleeping shortage, sleeping difficulties), soft/energy drinks consumption and school problems (low academic achievement, disliking school, being pressured by schoolwork and truancy), using structural equation modeling.

Results
Results showed that the more time adolescents spent on digital devices during leisure time, the more school problems they had. This association was mediated by a higher consumption of soft or energy drinks and a lower quality of sleeping. The direct effect of time spent on digital devices on school problems and its indirect effect via sleeping quality were relatively small (−0.26 and −0.30, respectively, standardized solution), compared with the indirect effect of time spent on digital devices via soft/energy drinks consumption as well as sleeping quality (0.65, standardized solution).
Conclusions
Time spent on digital devices is associated with school problems, with sleeping and soft/energy drinks consumption playing a substantial role in this association.

# Outcome

Results showed that time spent on digital devices was associated with school problems directly and also indirectly via high consumption of soft and energy drinks and lower sleeping quality and quantity. "The more time adolescents spent online, the higher their consumption of soft or energy drinks was. Higher consumption of soft or energy drinks was associated with lower quality of sleeping as well, and lower quality of sleeping was associated with more school problems, e.g. with a less positive attitude towards school, worse academic achievement, higher experienced pressure from schoolwork and truancy." (Husárová et al., 2017) The direct effect of time spent on digital devices on school problems was relatively small in comparison with the indirect effect via soft/energy drinks consumption and sleeping problems.