J Pediatr (Rio J). 2016;92(2):149–155

Jornal de Pediatria
www.jped.com.br

ORIGINAL ARTICLE

Factors influencing excessive daytime sleepiness in adolescents☆

Thiago de Souza Vilela, Lia Rita Azeredo Bittencourt, Sergio Tufik, Gustavo Antonio Moreira*

Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil

Received 9 December 2014; accepted 27 May 2015
Available online 10 December 2015

KEYWORDS
Adolescents;
Sleep;
Sleep deprivation;
Sleepiness

Abstract
Objective: Sleep deprivation in adolescents has lately become a health issue that tends to increase with higher stress prevalence, extenuating routines, and new technological devices that impair adolescents' bedtime. Therefore, this study aimed to assess the excessive sleepiness frequency and the factors that might be associated to it in this population.
Methods: The cross-sectional study analyzed 531 adolescents aged 10–18 years old from two private schools and one public school. Five questionnaires were applied: the Cleveland Adolescent Sleepiness Questionnaire; the Sleep Disturbance Scale for Children; the Brazilian Economic Classification Criteria; the General Health and Sexual Maturation Questionnaire; and the Physical Activity Questionnaire. The statistical analyses were based on comparisons between schools and sleepiness and non-sleepiness groups, using linear correlation and logistic regression.
Results: Sleep deprivation was present in 39% of the adolescents; sleep deficit was higher in private school adolescents ($p < 0.001$), and there was a positive correlation between age and sleep deficit ($p < 0.001$; $r = 0.337$). Logistic regression showed that older age ($p = 0.002$; PR: 1.21 [CI: 1.07–1.36]) and higher score level for sleep hyperhidrosis in the sleep disturbance scale ($p = 0.02$; PR: 1.16 [CI: 1.02–1.32]) were risk factors for worse degree of sleepiness.
Conclusions: Sleep deficit appears to be a reality among adolescents; the results suggest a higher prevalence in students from private schools. Sleep deprivation is associated with older age in adolescents and possible presence of sleep disorders, such as sleep hyperhidrosis.

☆ Please cite this article as: Vilela TS, Bittencourt LR, Tufik S, Moreira GA. Factors influencing excessive daytime sleepiness in adolescents. J Pediatr (Rio J). 2016;92:149–55.

* Corresponding author.
E-mail: gustavo_a_moreira@hotmail.com (G.A. Moreira).

http://dx.doi.org/10.1016/j.jped.2015.05.006

PALAVRAS-CHAVE
Adolescentes;
Sono;
Privação de sono;
Sonolência

Fatores que influenciam na sonolência excessiva diurna em adolescentes

Resumo
Objetivo: A privação de sono na adolescência é um importante problema de saúde na atualidade e só tende a se agravar com o aumento do estresse, da rotina extenuante e do advento de novos aparelhos tecnológicos que parecem refletir negativamente no início do sono em adolescentes. O estudo objetiva avaliar a frequência da sonolência excessiva e quais fatores podem estar associados à ela nesta população.
Métodos: O estudo transversal avaliou 531 adolescentes de 10 a 18 anos em duas escolas de ensino privado e uma de ensino público, aplicando para cada adolescente cinco questionários: Cleveland Adolescent Sleepiness Questionnaire; Sleep Disturbance Scale for Children; Critério de Classificação Econômica Brasil; Questionário geral de saúde e maturação sexual; Questionário de atividade física. Realizou-se comparações entre as escolas e entre grupos com e sem sonolência por meio de correlação linear e regressão logística.
Resultados: Observou-se privação de sono em 39% dos adolescentes, débito de sono maior para escolares do ensino privado ($p < 0,001$) e correlação positiva entre idade e débito do sono ($p < 0,001$; $r = 0,337$). Na regressão logística, apontou-se como fatores para pior grau de sonolência maior faixa etária dos escolares ($p = 0,002$; RP: 1,21[IC:1,07-1,36]) e maior escore na variável hiperidrose do sono do questionário de distúrbios do sono ($p = 0,02$; RP: 1,16[IC:1,02-1,32]).
Conclusões: Conclui-se que o déficit de sono é uma realidade na população estudada, apresentando-se pior em escolares do ensino privado. A privação de sono está relacionada com a maior faixa etária dos adolescentes e possível presença de distúrbios do sono, como a hiperidrose do sono.

Introduction

Sleep is extremely important for appropriate physical growth, emotional stability, behavior, and maintenance of cognitive function in adolescents.[1,2] Physiological studies have shown that adequate sleep is also important for memory consolidation, which has serious implications on school success in this age group.[2,3] A good quality night sleep will reflect in better school performance and increased motivation to study.[3] Several studies suggest that this population requires an average of eight to nine hours of sleep per night to adequately perform everyday activities and absorb the physical and mental benefits of sleep.[4,5]

Although this is the goal for a good-quality sleep, it is known that adolescents have been sleeping for shorter periods than necessary.[6] The upgrading and launching of increasingly more attractive videogames and virtual reality simulators and the broad presence of Internet through chat groups, and social networks are aggravating factors for inadequate sleep.[7] The presence of TVs, video game consoles, and computers in bedrooms[7–9] are related to greater sleep deprivation. With the advent and popularization of handheld devices, more studies should be performed to evaluate their effects on sleep, as adolescents have the habit of taking them to bed at bedtime, consequently delaying sleep onset. Moreover, the current hectic lifestyle, especially in large cities, negatively affects adolescents, making them victims of anxiety, aggression, stress, social and school burdens, with possible damage to an adequate sleep.[2,10]

Sleep deprivation, more than previously thought, is not restricted to psychosocial alterations. Recently, associations were observed between sleepiness and obesity.[11] Overweight adolescents appear to have a shorter and more disturbed sleep,[11,12] and overweight is also a risk factor for sleep-disordered breathing, such as obstructive sleep apnea syndrome (OSAS).[13]

What is known so far is that both internal factors, such as sexual maturity, age, gender, and obesity, as well as external factors, such as school shift, use of technology and drug use, can influence the sleep.[5,7] However, Brazil still lacks large studies that demonstrate this scenario in the country.

Thus, to evaluate sleepiness in this population, an alternative is the use of questionnaires. One of the most often used, the Pediatric Daytime Sleepiness Scale (PDSS),[14] shows as limitation a restrict age group for adolescents. The Modified Epworth Sleepiness Scale (ESS),[15] in turn, is an adaptation of the Epworth Sleepiness Scale, containing few questions in its evaluation and also restricted age group. Thus, as it addresses questions from four areas (sleepiness at school, alert in school, sleepiness in the evening, and sleepiness during transport), the Cleveland Adolescent Sleepiness Questionnaire (CASQ)[16] is one of the most complete questionnaires to assess excessive sleepiness in that population, even though it does not have a cutoff point for the classification of presence or not of sleepiness. Although it is a new questionnaire to assess sleepiness, other questionnaires commonly applied to children and adolescents are used in smaller populations and have limited national application.

Given this reality, the aim of this study was to verify the frequency of excessive daytime sleepiness in adolescents, as well as the effect of several variables on excessive sleepiness.