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Prevalence and main determinants of preschool sleep disorders in a Portuguese birth cohort.

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Abstract

Sleep is a complex process with a significant impact on children's physical, emotional and behavior development. In childhood, the prevalence of sleep disorders is around 20% to 30%, and the difficulties regarding the initiation and maintaining of sleep are the most frequent problems in this age strata.

However, the main associations between maternal and children characteristics and short nighttime sleep duration and sleep disorders remain unclear. Thus, we aimed to evaluate the prevalence and the main associations of short nighttime sleep duration, as well as, sleep disorders, in preschool children, focusing particularly on demographic and socioeconomic characteristics, children's health status, lifestyle, and sleeping habits.

This study evaluated about 5600 children, as part of the 4/5 years follow-up evaluation of a Portuguese birth cohort, Geração XXI. Nighttime sleep duration less or equal to 9 hours per night was defined as short nighttime sleep duration. Sleep disorders included sleep onset delay, night awakenings and parasomnias [including sleepwalking, sleep terrors and enuresis (after 5 years of age)]. Results showed that sleep onset delay and night awakenings were the most prevalent sleep disorders. A lower prevalence of sleep onset delay and night awakenings was also observed in older children. Sleepwalking was more frequent in older children. Despite the decrease of total sleep duration in older children, in these children was observed a tendency to increase nighttime sleep duration.

Short nighttime sleep duration was independently associated with higher maternal ages and inversely associated with maternal educational level, unemployed working condition and housewives and with the presence of siblings in the household. An association with the family income of 1001-1500€/month, screen-based media use ≥ 2 hours per day, napping during the afternoon and the need of a familiar presence at bedtime was also found. Reading stories before fall asleep and longer maternal sleep duration were inversely associated with short nighttime sleep duration.

Sleep onset delay was inversely and independently associated with older maternal ages, higher maternal education level, and with the presence of siblings in the household. Rhinitis and allergy diagnosis, screen-based media use ≥ 2 hours per day, napping during the afternoon, sleeping in parent's bedroom, the need of a familiar presence at bedtime and reading stories before fall asleep were associated with a higher probability of having sleep onset delay. Mother's sleep duration was also inversely associated with this sleep problem.

Night awakenings were independently associated with unemployed working condition and inversely associated with having a mother that is single, divorced or widow. Rhinitis diagnosis, overweight and obesity and parental presence at bedtime were associated with a higher prevalence of night awakenings. Night awakenings were also inversely associated with reading stories before fall asleep 1 to 6 times per week and with longer maternal sleep duration.

A category of disorders of arousals from Non-Rapid Eye Movement (NREM) sleep, which includes sleepwalking and sleep terrors, was inversely associated with a higher family income, with the presence of siblings in the household, afternoon naps and longer maternal sleep duration. Children with allergy diagnosis were more likely to have disorders of arousals from NREM sleep.

Sleep enuresis was positively associated with male gender. A tendency towards lower prevalence of enuresis in children with older mothers, particularly in girls, as well as, with higher maternal educational level and family income was observed. Having an unemployed mother or housewife, and the presence of siblings in the household seemed to be associated with a higher prevalence of enuresis. In addition, the prevalence of enuresis was higher in children with asthma, rhinitis, eczema, underweight and with caffeinated beverages intake.

In conclusion, short nighttime sleep duration and sleep disorders are a common health problem in our sample, being distinctively and independently associated with different groups of maternal and children's characteristics, enhancing the complexity and dynamic of sleep disorders during the preschool years.

Keywords: Prevalence, Short nighttime sleep duration, Sleep disorders, Maternal and children characteristics, Preschool children.