



ORIGINAL ARTICLE

Amount of sleep and changes in its patterns in children less than two years old[☆]



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KEYWORDS

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Daytime sleep;
Nighttime sleep

Abstract

Objectives: The aim is to study the sleep duration and the 24-h sleep distribution pattern in children under 2 years old from two different areas of Spain, as well as to determine the prevalence of abnormal sleep duration and the influence of age on this prevalence, and compare them with the already published data.

Materials and methods: An observational, descriptive and cross-sectional study on children from two health centers: one in Castilla y León and the other in Asturias. Their parents completed the Brief Infant Sleep Questionnaire (BISQ). Daytime and nighttime sleep durations were assessed, with percentiles being used to evaluate the results. Two groups were created: one according to the age (children under or above 6 months), and the other according to the area. **Results:** A total of 125 children were studied (73 males). The nighttime sleep duration increased from 8.28 ± 2.06 h to 10.43 ± 1.21 h ($P = .0001$) and the daytime sleep decreased from 4.61 ± 2.66 to 1.96 ± 0.79 h ($P = .0001$) for children under 6 months and above 6 months, respectively. The children from Castilla y León slept more during daytime than those from Asturias (3.91 ± 2.67 vs. 3.00 ± 2.09 h, $P = .041$). Nineteen children had a total sleep duration below the 2nd percentile. A sleep duration below normal percentiles was observed in children under 6 months (14/72 vs. 5/53, $P = .006$).

Conclusions: As children grow older, they substitute daytime sleep for nighttime sleep. Approximately 15% of the children under 2 years-old may have changes in sleep duration, and is more common in children under 6 months.

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PALABRAS CLAVE

Duración del sueño;
Brief Infant Sleep Questionnaire;
 Percentiles de duración del sueño;
 Sueño diurno;
 Sueño nocturno

Cuantificación del sueño y presencia de alteraciones en la duración del sueño en niños menores de 2 años

Resumen

Objetivos: Conocer si en nuestro medio la duración del sueño y el patrón de distribución del sueño a lo largo del día en <2 años son similares a los publicados. Obtener información sobre la prevalencia de las alteraciones de la duración del sueño y sobre la influencia de la edad en dicha prevalencia.

Material y métodos: Estudio observacional, descriptivo, transversal realizado en niños <2 años de 3 centros de salud de León y Asturias. Mediante la cumplimentación por sus padres del cuestionario de sueño *Brief Infant Sleep Questionnaire* (BISQ) se analizó la duración del sueño. Para evaluar alteraciones en la duración del sueño se utilizaron percentiles de duración del sueño. Los resultados fueron valorados en el conjunto de niños encuestados y en los 2 grupos creados para su comparación (niños > y < 6 meses) (niños de León y Asturias).

Resultados: Se incluyeron 125 niños <2 años (73 varones). El sueño nocturno aumentó desde $8,28 \pm 2,06$ h en <6 meses hasta $10,43 \pm 1,21$ en >6 meses ($p = 0,0001$), disminuyendo el sueño diurno desde $4,61 \pm 2,66$ a $1,96 \pm 0,79$ h ($p = 0,0001$). Los niños leoneses duermen durante el día más horas que los asturianos ($3,91 \pm 2,67$ vs $3,00 \pm 2,09$ h, $p = 0,041$). Diecinueve niños tuvieron una duración total de sueño <percentil 2, siendo más frecuente en niños <6 meses ($14/72$ vs $5/53$, $p = 0,006$).

Conclusiones: Los niños sustituyen el sueño diurno por el sueño nocturno según van creciendo. Aproximadamente el 15% de niños <2 años podría tener trastornos en la duración del sueño, siendo este hallazgo más frecuente en <6 meses.

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Introduction

Physiological functions that are essential to the correct psychological and physical functioning of individuals take place during sleep.¹ This is particularly important in the early months of life. During this period, children develop the ability to sleep for long intervals of time predominantly at night, approaching the sleeping patterns of adults²; regular sleep-wake patterns are established, which are good indicators of healthy child development³; and if problems in sleep consolidation arise, they tend to persist throughout childhood.⁴

It is known that the total duration of sleep decreases with age and that significant changes take place in the first months of life.⁵ The number of hours that a child needs to sleep is not exact, as each child, just as it happens with adults, has specific individual sleep requirements. It is believed that the hours of sleep needed are those that allow the child to function well in his or her daytime activity.⁶ On the other hand, we know that there are cultural and geographical differences in regards to total sleep duration, night wakings, bedtimes, and naps.^{7,8}

Sleep disorders have a high prevalence and interfere with the normal sleep pattern, affecting both its duration and quality, or with the sleep-wake cycle regulation.^{4,5} Sleep duration percentiles are a very useful tool to detect sleep problems that affect sleep duration, and allow making comparisons throughout childhood.³

The purpose of this study was to learn whether sleep duration in children younger than 2 years in our region and the physiological changes that take place in the pattern of

sleep distribution during the day in this period of life are similar to those reported in the literature, and whether they are influenced by the region of origin. We also used percentiles to collect data on the prevalence of sleep duration disturbances in the children under study, and on the influence of age and geographical location in this prevalence.

Materials and methods

We performed a cross-sectional, descriptive observational study on sleep duration between May and June of 2012 in children younger than 2 years that came to 3 healthcare centres of León and Asturias (La Condesa and Eras de Renueva in León, and Mieres Sur in Asturias) for their well-child check-ups.

Once the well-child checkup was finished, and having informed the parents of the aim of the study and obtained their informed consent, the parents or legal guardians of the child answered the following questions concerning sleep duration, which had been taken from the Brief Infant Sleep Questionnaire (BISQ)⁴:

- How much time does your child spend sleeping during the night (starting at 9 in the evening)? (Hours and minutes).
- How much time does your child spend sleeping during the day (starting at a 9 in the morning)? (Hours and minutes).
- How much time does your child spend awake during the night (from 12 at night to 6 in the morning)? (Hours and minutes).
- How many times does your child wake up during the night?

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