



DOCENCIA - INVESTIGACIÓN

Sleep habits of the children in the Grau de Gandia. A descriptive study.

Hábitos de sueño de la población infantil del Grau de Gandía. Un estudio descriptivo.

*Martínez Sabater, A., **Martínez Puig, C., **Marzà Gascón, A., **Escrivá Aznar, G., **Blasco Roque, M., **LLorca, J.

*Profesor Colaborador. Facultad de Enfermería. Universidad de Valencia. E-mail: Antonio.Martinez-Sabater@uv.es **Enfermera. Hospital Francesc de Borja. Gandía. Valencia.

Keywords: Sleep habit; child population; Health Promotion.

Palabras clave: hábitos de sueño; población infantil; promoción de la salud.

ABSTRACT

Insomnia is the most common sleep disorder among children and it can occur at infant or preschool age. Using sleeping habits tests, such as the Spanish version of the Pediatric Sleep Questionnaire (PSQ) is useful for early detection.

We considered the prevalence of sleep disorders in a population of children from Grau de Gandia, aged from 3 to 6, using the Spanish version of PSQ, a self-administrated questionnaire for the parents of students of different schools.

We performed a cross-sectional study, collecting 144 valid questionnaires, to create an Excel database for further study.

According to the answers, 23.4% of children have insomnia, other important parasomnias included sleep-talking (70%), snoring (7.2%), bruxism (22.3%), rhythmic movement disorders (7.1%) also 4.1% of the children have inattentive symptoms possibly combined with symptoms of hyperactivity, 2.08% of the answers belong to a combined ADHD and 6.25% had symptoms of hyperactivity-impulsivity.

Our study provides data similar to other population studies conducted in schools, of the same age range and above, regarding insomnia, parasomnias, sleep habits and ADHD, the most common cause is the lack of education in sleeping habits, so the nurse's role is crucial in guiding and training parents.

RESUMEN

El insomnio es es trastorno de sueño infantil más frecuente y puede aparecer en la edad lactante o en la etapa preescolar, siendo de utilidad para la detección precoz el uso de cuestionarios de sueño, como la versión española del Pediatric Sleep Questionnaire (PSQ).

Nos planteamos conocer la prevalencia de los trastornos de sueño en una población de 3 a 6 años del Grau de Gandía, utilizando para ello la versión española del PSQ mediante una encuesta autocumplimentada por los padres de los alumnos de los diferentes colegios.

Se ha realizado un estudio descriptivo de corte transversal, recogiendo 144 encuestas válidas, realizándose la entrada de los datos en una base de datos EXCEL para su posterior descripción.

Un 23,4% de los niños presentan insomnio en función de las respuestas dadas, siendo importante la presencia de otras parasomnias como somnolencias (70%), ronquidos (7.2%), bruxismo (22.3%), trastornos por movimientos rítmicos (7.1%) y un 4.1% de los niños presentan síntomas desatencionales independientemente de que se presente o no síntomas de hiperactividad, un 2.08% de las encuestas respondían a un TDHA combinado y un 6.25% sintomatología de hiperactividad-impulsividad.

Nuestro estudio proporciona datos similares a otros estudios poblacionales realizados en el medio escolar, tanto en este rango de edad como en superiores, respecto al insomnio, parasomnias, hábitos de sueño y los TDHA, siendo la etiología más frecuente la falta de educación del hábito de sueño, por lo que el papel de la enfermera es fundamental en la orientación y formación a los padres.

INTRODUCTION

Sleep is a complex physiological condition, necessary and inherent to life. Despite occupying about one third of our lives and its vital function in the brain, there are still many unknown questions about its nature and function ⁽¹⁾.

Knowledge of sleep disorders plus normal and abnormal patterns in children have been the subject of numerous studies over the past 10-15 years and are widely documented in literature, resulting in numerous publications ⁽²⁾.

Defining sleep disorders in childhood is surprisingly difficult for several reasons; there are often sleep problems rather than true sleep disorders, the difference between normal and abnormal is often defined by age and not by sleep patterns since these symptoms can have very different meanings depending on the child's age. In many cases this represents a problem for parents and not for the child ⁽³⁾. Sleep problems could then be defined as unsatisfactory sleep patterns for parents, children or the environment, then there is a close relationship between the problems at night and daytime behavioral disturbances. We could then also say that the changes of sleep patterns in children cause family stress and school disorders. On the other hand we define the disorder as a real disturbance and not as a variation of a physiological function that controls sleep and operates over it. Thus, the disorder represents a malfunction while the "problem" may represent it or not ^{(3) (4)}.

In any case we must take into account that the treatment will be similar whether we refer to it is a disorder or a sleeping problem, because the alteration of specific infant sleep patterns can cause serious problems, even when there are only normal variations. In addition, sleep disorders, are often associated with various pathologies such as, sleep disturbances in children with gastro esophageal reflux ⁽⁴⁾, respiratory diseases (such as asthma or obesity) and in the field of neurological processes. We can find children with mental issues or autism and children with neuromuscular problems ⁽⁵⁾ which can also cause respiratory problems that hinder the sleep process. But we must not forget the relationship between epilepsy and sleep. All these diseases involve the administration of antiepileptic drug treatments, antihistamines, and stimulants, which alter sleep patterns in children. So the dreams of the children can be altered by multiple medical causes and these are the first issues that we must rule out before arriving at a diagnosis of insomnia by incorrect habits.

In the classification of sleep disorders we define two major groups as noted in [Table 1 International Classification of Sleep Disorders Revised \(taken from American Academic of Sleep Medicine\)](#), the first group, dyssomnias, defined as disorders that cause difficulty initiating or maintaining sleep, and which in turn is divided into three subgroups, leading to intrinsic sleep disorders, extrinsic sleep disorders, being the most important in childhood an inadequate sleep hygiene and disorders involving circadian rhythm of sleep, which relate to the timing of sleep over 24 hours. The second group, the parasomnias are the phenomena that occur during sleep characterized by motor and vegetative behaviors, mixed sleep-wake states are more common between three and six years ⁽⁶⁾ When it comes to sleep disorders is important to differentiate parasomnias (such as sleepwalking), night terrors and nightmares, in which etiology are involved maturational and developmental factors ⁽⁷⁾ of childhood insomnia caused by bad sleep habits. The latter type of insomnia is characterized by difficulty for the child to initiate sleep alone and frequent night time awakenings.

Table 1 Clasificación Internacional de los trastornos del Sueño revisada (tomada de American Academic of Sleep Medicine)

DISOMNIAS	PARASOMNIAS
Intrínsecas	Del despertar
Narcolepsia	Despertares confusionales
Síndrome de apneas obstructivas del sueño	Sonambulismo
Movimientos periódicos de las piernas	Terrores nocturnos
Extrínsecas	De la transición sueño-vigilia
Trastorno ambiental	Movimientos rítmicos del sueño
Trastorno del establecimiento de límites	Somniloquios
Trastorno de las asociaciones al inicio del sueño	Mioclonías del sueño
Trastornos del ritmo circadiano	Otras
Retraso en la fase de inicio del sueño	Bruxismo
	Enuresis
	Ronquido primario
	Muerte súbita del lactante
	Mioclonías neonatales benignas

After a literature review, we appreciate that the different diseases and the treatments derived from them can cause different disorders of sleep, but still the bad habit of insomnia is the most common sleep disorder in childhood and may occur in the infant or in the pre-school age ⁽⁸⁾ being the lack of sleeping habits the fundamental etiologic mechanism ⁽⁶⁾, meaning for the child that the appearance of inappropriate associations derived from the frequent changes made by the parents when they are putting the child to sleep, triggering distortion and disintegration of the habit. Children with this type of insomnia are mentally and physically normal children and the disorder is caused only by a poor acquisition of sleep habits. These children have clear symptoms, children with bright attitudes but no deep sleep are often irritable and restless during the day, they also have great dependence on the caregiver ⁽⁸⁾ and all this, because throughout the day they haven't slept a suitable number of hours for their age. A fundamental prevention mechanism would be a regular sleeping pattern organized by the parents for their children. It is then easy to understand that sleep is a

valuable marker of the health and disease statuses of the child. It is essential to note that sleep disorders may come to affect between 25-45% of children ⁽²⁾, although according to literature, the sleep-related disorders in children are frequent reasons for family consultation in pediatric wards, though in general little attention is paid to prevention, diagnosis and treatment. ⁽¹⁰⁾

An important tool that helps us to detect these disorders are sleep questionnaires, being they very useful both for epidemiological research and for the selection of patients requiring laboratory tests to allow us a more accurate diagnosis of the etiology of these disorders. But we must remember that sleep disorders in general, require a thorough history, a complete physical examination, collaboration of parents in the completion of sleep diaries and if necessary, to carry out the appropriate ancillary tests ^{(9) (11)}.

To understand the evolution of sleep throughout childhood is essential to know, as well as the physiology of sleep, certain specific characteristics of childhood development ^{(11) (12)}. If we keep track of the main characteristics of sleep during the first year of life we would observe that the average length of the sleep cycle in newborn babies is about 30-40 minutes, as brief awakenings are very frequent during the first 2 months of life. During the first 3 months sleep is usually achieved at night with ease, but after this age there is some difficulty in achieving it; this is perhaps related to the desire for relationship with the environment. By the 3rd month the maturation of control systems produces an almost stable distribution of periods of sleep and daytime vigilance so that the diurnal patterns are relatively well established at 12-16 weeks of life. In newborn babies the total sleep duration is usually 16 to 17 hours a day. Total hours of sleep decrease progressively being about 14 to 15 hours by the 16th week and 13 to 14 hours by 6th or 8th month. From the 8th/10th month, the organization and sleep cycles begin to be very similar to those in adults.

It is during the first year of life when the child learns several important habits such as eating and sleeping properly. Thus, parents should know that children should "learn" to sleep alone and should not communicate uncertainty ⁽⁸⁾. From the age of 2 to about 5 years old we find more gradual changes. Dreams begin to take root in a long night's sleep of about 10 hours. During the second and third years there are short daytime naps and between the third and fifth year it is consolidated in a single night period. Between the ages of 2 to 3 children still sleep with cycles of about 60 minutes, with the first REM period starting around one hour after the start (unlike adults). It is between the ages of 4 and 5 when cycles progressively lengthen to the typical adult 90 minutes.

Children at this age usually have 7 cycles of sleep each night. The transition between different cycles is regular and calm, while adults move sharply during the transitions from one cycle to another ⁽³⁾. It is at this stage of life that you should start changing their sleep habits if they haven't acquired them in the first year of life. Creating a bedtime ritual in addition to combining it with diurnal patterns such as some routine maintenance will help us to change spoiled sleeping habits and help us prevent the occurrence of multiple pathological distortions associated with sleep ⁽⁸⁾ Finally in the last stage, that includes children from 5 to 10 years, the sleep patterns stabilize and completely resemble that of adults being only 2 hours longer. At this age the presence of constant daytime naps it's a warning about the existence of some pathological process ⁽³⁾. The average length of sleep latency is usually around 15 minutes demonstrating a major state of alert and surveillance.

In summary, throughout childhood there is a progressive decreasing of hours devoted to sleep and sleep is unified in one night episode. Sleep disorders in childhood are frequent and sometimes go unnoticed unless the parents make a query to the pediatrician ⁽¹⁰⁾

Given the importance of the problem of insomnia, we set as our objective to determine the prevalence of sleep disorders in childhood from an assumed healthy group 3 to 6 year olds children from in the neighborhood of Grau de Gandia and what are their usual sleep patterns so that we can develop a guide for parents and teachers regarding the proper sleep hygiene.

MATERIALS AND METHODS

It has been suggested to conduct a cross-sectional descriptive study administering surveys to parents of children enrolled in kindergarten in Grau de Gandia. From the municipal census data, we performed sample size estimation with a confidence interval of 90%, a margin of error of 5% and a level of heterogeneity assumption of 50% resulting in a sample size of 140 surveys. The survey was completed voluntarily by parents, maintaining confidentiality at all times and without any contact with children, it has been considered unnecessary to consult the Ethics Committee.

The Pediatric Sleep Questionnaire (PSQ) is an instrument developed for the detection of sleep problems ⁽¹²⁾ and it has been validated into Castilian, as discussed previously ⁽⁹⁾. The basis of our study is the questionnaire, a comprehensive questionnaire with a completion time of approximately 10 minutes and the parents who answered it did so without help from professionals. To this questionnaire we have added demographic data, (information of birth and gender) so that in the first section of the survey they ask development data, age and sex, the second section asks about behavior during night and during sleep, (this consists of 46 questions of which 39 have multiple choice answers of "yes", "no" and "do not know"), a third section on daytime behavior and other possible problems, again with 21 close-ended questions with "yes", "no", "do not know" answers. In this paragraph, some questions have been deleted from the original questionnaire (Pediatric Sleep Questionnaire. Reliability Analysis) ⁽⁹⁾ e. g. "Has had your child, since birth, had a "break" in their growth? If it has describe what happened", "How many cans of soda or cups of coffee does he/she drink per day?", "Does your child take some kind of drug? If so, what and how often?", "Does your child smoke? How many cigarettes does he smoke per day?" Because given his age (3/6 years) these are not relevant questions in the survey. And a fourth section which consists of 18 close-ended questions about inattention and hyperactivity with five multiples choice responses (for example, "never," "sometimes," "often," "almost always" and "N/C").

Within the questionnaire, there are questions that refer to different parasomnias such as rhythmic movement disorders, bruxism, sleepwalking, bedwetting, somniloquy, nightmares and night terrors. These sleeping habits are measured by four variables: "What time does your child usually go to bed on weekdays?", "What time does he/she goes to bed on weekends or holidays?", "What time does he/she wake up during the week?", "What time does he/she wake up on weekends?". The questionnaire in its last part, as we have outlined before, consists of 18 variables that will determine ADHD (attention deficit and hyperactivity disorder) ⁽²⁾ To define ADHD there are several possibilities, one of them, the one we extract from the questionnaire basing it on similar studies ⁽⁹⁾, is the existence or not of a combined subtype, at least six of the first nine questions and six of the last nine must be affirmative and answered as "often" or "almost always", the negative responses are answered as "never". Also we'll obtain presence of hyperactive-impulsive symptoms when at least six of the last nine questions are affirmative and inattentional symptoms if at least six of the first nine are affirmative.

We wrote and delivered a letter to the directors of the three schools surveyed, explaining the purpose of the project and thanking them for their collaboration, also 333 questionnaires were provided and a new letter of introduction and explanation of the study were sent to the

parents of each student of the three schools surveyed, giving a margin of one week to ten days for completion and subsequent collection. Subsequently the results were transcribed into an EXCEL © database, which has allowed a description and the construction of graphs of the results.

RESULTS

We collected 144 completed surveys of the 333 spread over three schools representing a response rate of 43.24%. The responses were from parents of 70 girls (49%) and 73 boys (51%), since one of the surveys did not include data on age or sex. To summarize the results in a more practical way and to avoid excessive discourse a table has been constructed (Table 2; Table 3, and Table 4 with the percentages of all qualitative and quantitative variables of our questionnaire.

Table 2 Resultados en porcentajes de la encuesta sobre los hábitos de sueño de los alumnos de infantil del Grau de Gandia en el curso escolar 2010-2011

A. Conducta durante la noche y mientras duermes				
	SI	NO	N/C	
1- Cuando duerme su hijo a...				
...ronca alguna vez?	58.3% (81)	39.6% (55)	2.2% (3)	139
...ronca más de la mitad del tiempo?	7.2% (10)	88.4% (122)	4.3% (6)	138
...ronca siempre?	7.2% (10)	89.9% (124)	2.9% (4)	138
...ronca de forma ruidosa?	12.4% (17)	83.2% (114)	4.4% (6)	137
...tiene una respiración profunda y ruidosa?	18.4% (26)	78.0% (110)	3.5% (5)	141
...tiene problemas o dificultad para respirar?	3.6% (5)	92.0% (127)	4.3% (6)	138
2-Alguna vez...				
...ha visto a su hijo parar de respirar por la noche?	2.9% (4)	91.3% (126)	5.8% (8)	138
Si es así, por favor describa lo que ocurrió:				2
...ha estado preocupado por la respiración de su hijo?	18.4% (26)	80.1% (113)	1.4% (2)	141
...ha tenido que mover o sacudir a su hijo mientras estaba durmiendo para conseguir que respire o se despierte y vuelva a respirar?	6.5% (9)	90.6% (126)	2.9% (4)	139
...ha visto a su hijo despertarse con un bufido?	2.9% (4)	93.4% (128)	3.6% (5)	137
3-Su hijo...				
...tiene un sueño inquieto?	26.4% (37)	72.9% (102)	0.7% (1)	140
...refiere inquietud o desasosiego en las piernas cuando está en la cama?	23.0% (32)	71.9% (100)	5.0% (7)	139
...tiene dolores de crecimiento (sin causa clara)?	11.6% (16)	83.3% (115)	5.1% (7)	138
...los dolores de crecimiento empeoran en la cama?	2.9% (4)	90.6% (125)	6.5% (9)	138
4-Mientras su hijo duerme, ha visto alguna vez...				
...pequeñas patadas en una o ambas piernas?	40.7% (57)	57.1% (80)	2.1% (3)	140
...patadas repetidas o sacudidas con intervalos regulares?	8.8% (12)	83.1% (113)	8.1% (11)	136
5-Por la noche, su hijo habitualmente...				
...suda o moja los pijamas por la transpiración?	29.0% (40)	69.6% (96)	1.4% (2)	138

A. Conducta durante la noche y mientras duermes				
...se levanta de la cama (por el motivo que sea)?	29.7% (41))	65.9% (91)	4.3% (6)	138
...se levanta de la cama para orinar?	39.6% (55)	56.8% (79)	3.6% (5)	139
Si es así, ¿cuántas veces lo hace por la noche por término medio?				33
¿su hijo duerme habitualmente con la boca abierta?	27.0% (38)	68.8% (97)	4.3% (6)	141
¿su hijo tiene habitualmente la nariz congestionada o tapada por la noche?	15.1% (21))	83.5% (116)	1.4% (2)	139
¿su hijo tiene algún tipo de alergia que le dificulte respirar por la nariz?	5.0% (7)	90.6% (126)	4.3% (6)	139
6-Su hijo...				
...tiene tendencia a respirar con la boca abierta todo el día?	7.0% (10)	90.1% (128)	2.8% (4)	142
...tiene la boca seca cuando se despierta por las mañanas?	15.0% (21)	81.4% (114)	3.6% (5)	140
...tiene molestias en el estomago por las noches?	5.7% (8)	91.4% (128)	2.9% (4)	140
...tiene sensación de quemazón en la garganta por la noche?	0.7% (1)	94.3% (132)	5.0% (7)	140
...le rechinan los dientes por la noche?	22.3% (31)	75.5% (105)	2.2% (3)	139
...de vez en cuando moja la cama?	14.4% (20)	82.7% (115)	2.9% (4)	139
¿Alguna vez su hijo ha caminado mientras dormía (sonambulismo)?	14.4% (20)	82.7% (115)	2.9% (4)	139
¿Alguna vez ha oído hablar a su hijo cuando está durmiendo?	70.0% (98)	27.9% (39)	2.1% (3)	140
¿Alguna vez su hijo se ha despertado chillando por la noche?	47.5% (66)	50.4% (70)	2.2% (3)	139
¿Alguna vez su hijo, se ha movido o comportado de una forma que ha Vd. le ha hecho pensar que no estaba ni completamente dormido ni despierto?	14.4% (20)	80.6% (112)	5.0% (7)	139
Si es así, describa lo que ocurrió:				12
¿Le cuesta a su hijo dormirse por las noches? (aproximadamente)	13.6% (19)	84.3% (118)	2.1% (3)	140
A la hora de irse a dormir, ¿Tiene su hijo "rutinas" o "rituales" problemáticos, discute mucho o se porta mal?	13.6% (19)	83.6% (117)	2.9% (4)	140
¿Tiene su hijo pesadillas una o más veces por semana? (por término medio)	14.4% (20)	81.3% (113)	4.3% (6)	139
7-Su hijo...				
...golpea su cabeza contra algo o balancea su cuerpo cuando está durmiéndose?	7.1% (10)	92.1% (129)	0.7% (1)	140
...se despierta más de dos veces por la noche (por término medio)?	10.0% (14)	89.3% (125)	0.7% (1)	140
...si se despierta por las noches, le cuesta volverse a dormir?	3.6% (5)	95.7% (134)	0.7% (1)	140
... se despierta muy temprano por las mañanas y le cuesta volverse a dormir?	18.7% (26)	79.9% (111)	1.4% (2)	139
¿La hora a la que su hijo se acuesta, cambia mucho de un día para otro?	6.4% (9)	91.5% (129)	2.1% (3)	141
¿Se levanta cada día a una hora diferente?	5.0% (7)	94.3% (132)	0.7% (1)	140

Table 3 Resultados en porcentajes de la encuesta sobre los hábitos de sueño de los alumnos de infantil del Grau de Gandia en el curso escolar 2010-2011 (y 2)

B. Conducta durante el día y otros problemas posibles:				
			N/C	
1- Su hijo...				
...se despierta cansado por las mañanas?	15.2% (21)	81.9% (113)	2.9% (4)	138
...se va durmiendo durante el día?	2.9% (4)	95.7% (133)	1.4% (2)	139
...se queja de que tiene sueño durante el día?	5.8% (8)	92.1% (128)	2.2% (3)	139
¿Su profesor o cualquier otro cuidador le ha comentado alguna vez que su hijo parece que esté dormido durante el día?	5.8% (8)	92.1% (128)	2.2% (3)	138
¿Su hijo duerme la siesta durante el día?	19.4% (27)	74.8% (104)	5.8% (8)	139
¿Le cuesta despertar a su hijo por las mañanas?	25.0% (35)	72.1% (101)	2.9% (4)	140
¿Su hijo se queja de dolor de cabeza por las mañanas, cuando se despierta?	3.7% (5)	93.4% (127)	2.9% (4)	136
¿Su hijo se queja de dolor de cabeza, como mínimo una vez como media?	13.0% (18)	84.1% (116)	2.9% (4)	138
¿Su hijo conserva todavía sus amígdalas?	80.9% (110)	11.0% (15)	8.1% (11)	136
Si no, ¿cuándo y por qué fue operado de amígdalas?				3
2-Alguna vez su hijo...				
...ha tenido algún problema médico que le causará dificultad para respirar?	19.6% (27)	76.8% (106)	3.6% (5)	138
...ha sido operado de algo?	7.2% (10)	89.9% (124)	2.9% (4)	138
Si ha sido operado, ¿tuvo algún problema respiratorio antes, durante o después de la operación?	1.6% (2)	74.2% (95)	24.2% (31)	128
...ha tenido de forma repentina debilidad en las piernas o en alguna otra parte después de reírse o de haber sido sorprendido por algo?	1.4% (2)	93.5% (129)	5.1% (7)	138
...ha tenido la sensación de no poder moverse durante un periodo corto de tiempo, estando en la cama a pesar de estar despierto y estar viendo lo que había a su alrededor?	2.2% (3)	92.0% (126)	5.8% (8)	137
¿Ha sentido alguna vez su hijo una necesidad irresistible de dormir una siesta, teniendo incluso que dejar lo que estaba haciendo con tal de dormir?	18.0% (25)	79.1% (110)	2.9% (4)	139
¿Ha tenido alguna vez su hijo la sensación de estar soñando (ver imágenes o escuchar sonidos) mientras estaba despierto?	4.4% (6)	85.4% (117)	10.2% (14)	137
¿Su hijo bebe bebidas con cafeína en un día normal?	6.6% (9)	90.5% (124)	2.9% (4)	137
Su hijo ¿Tiene sobrepeso? (Pesa más de lo normal para su edad)	4.4% (6)	92.0% (126)	3.6% (5)	137
¿Alguna vez algún Doctor le dice que su hijo tiene el paladar (el techo de la boca) arqueado?	4.3% (6)	87.0% (120)	8.7% (12)	138
¿Ha tomado alguna vez su hijo Rubifén por problemas de conducta?	0.0% (0)	96.4% (133)	3.6% (5)	138
¿Alguna vez algún profesional le ha dicho que su hijo padece déficit de atención con hiperactividad? (TDAII)	2.2% (3)	93.4% (128)	4.4% (6)	137

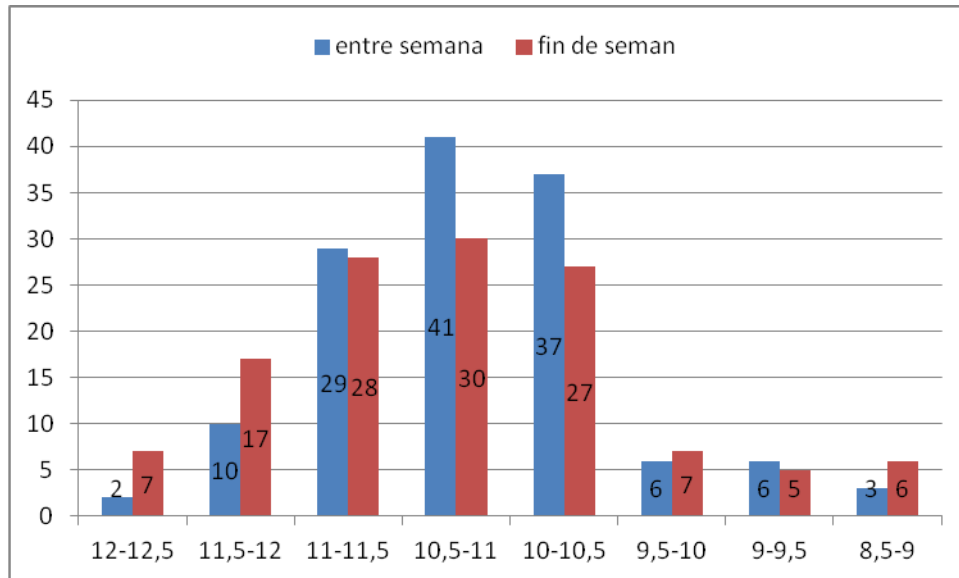
Table 4 Resultados en porcentajes de la encuesta sobre los hábitos de sueño de los alumnos de infantil del Grau de Gandia en el curso escolar 2010-2011 (y 3)

C. Por favor marque con una X la casilla correspondiente:				
1= Nunca 2= algunas veces 3= Muchas veces 4= casi siempre				
	1	2	3	4
No pone atención en los detalles, comete errores por descuido en sus tareas	21.3% (29)	58.8% (80)	12.5% (17)	1.5% (2)
Tiene dificultad para mantener la atención en las tareas y en los juegos.	49.3% (67)	38.2% (52)	8.8% (12)	1.5% (2)
No parece escuchar lo que se le dice.	33.8% (46)	48.5% (66)	11.0% (15)	2.9% (4)
No sigue las instrucciones o no termina las tareas en la escuela o en casa a pesar de comprender las órdenes.	45.3% (62)	38.0% (52)	8.8% (12)	0.7% (1)
Tiene dificultad para organizar sus actividades.	49.6% (68)	34.3% (47)	5.8% (8)	1.5% (2)
Evita hacer tareas o cosas que le exijan un esfuerzo vital sostenido.	58.1% (79)	31.6% (43)	4.4% (6)	1.5% (2)
Pierde sus útiles o las cosas necesarias para hacer sus actividades.	51.1% (70)	36.5% (50)	6.6% (9)	0.0% (0)
Se distrae fácilmente con estímulos irrelevantes.	27.0% (37)	46.7% (64)	10.9% (15)	7.3% (10)
Es descuidado en las actividades diarias.	45.6% (62)	40.4% (55)	5.9% (8)	2.9% (4)
Molesta moviendo las manos y los pies mientras está sentado.	39.3% (53)	33.3% (45)	12.6% (17)	9.6% (13)
Se levanta del sitio en la clase o en otras situaciones donde debe de estar sentado.	32.8% (45)	38.0% (52)	14.6% (20)	5.8% (8)
Corre o salta en situaciones inadecuadas.	39.4% (54)	43.8% (60)	8.0% (11)	3.6% (5)

Dificultades para jugar o dedicarse tranquilamente a actividades de ocio.	70.8% (97)	17.5% (24)	4.4% (6)	2.2% (3)
Está permanentemente en marcha como si tuviera un motor.	31.6% (43)	39.0% (53)	16.2% (22)	9.6% (13)
Habla demasiado.	23.4% (32)	45.3% (62)	14.6% (20)	13.1% (18)
Contesta o actúa antes de que se termine de realizar la pregunta.	39.4% (54)	47.4% (65)	7.3% (10)	2.9% (4)
Tiene dificultades para guardar su turno.	39.4% (54)	42.3% (58)	7.3% (10)	5.1% (7)
Interrumpe las conversaciones o los juegos de los demás.	19.7% (27)	56.9% (78)	12.4% (17)	6.6% (9)

However it should be noted, that regarding to sleep habits ([Illustration 1 Sleep time in childhood Grau de Gandia.](#)) of the 55 students born in 2005 (6 years old), the average weekday bedtime is 21:30 h (ranging from 20:30 to 23:30) and for weekends is the 22.30 h. (Ranging from 20:30 to 23:30 h). The average time that they get up during the week is 8 am (ranging from 7:30 to 8:30 pm) and at weekends, 9 am (ranging from 7:30 to 10:30 am). There is therefore no difference between the average duration of night time on weekdays and weekends or holidays, both of 10 hours and 30 minutes. Of the 50 students born in 2006 (5 years old), the average time that they go to bed on weekdays is 21:30 pm (ranging from 21:00 pm to 23:00 pm) and at weekends is 22:30pm (with a range of 20:00 pm to 24:00 pm). The average time that they get up during the week is 8:00 am (ranging from 6:30 to 9:00 am) and weekends is 9:00 am (ranging from 6:30 to 10:00 am). There is therefore no difference between the average duration of night time on weekdays and weekends or holidays, both of 10 hours and 30 minutes. Of the 34 children born in 2007 (4 years old) the average time they go to bed on weekdays is 21:30 pm (ranging from 20:00 pm to 23:30 pm) and at weekends is 22.30 pm (ranging from 21:00 to 23:30 pm) the average time they get up during the week is 8:00 am (ranging from 7:00 to 8:00 am) and at weekends is 9:00 am (ranging from 8:00 to 10:00 am). There is therefore no difference between the average duration of night time on weekdays and weekends or holidays, both of 10 hours and 30 minutes.

Illustration 1. Horas de sueño en la edad infantil del Grau de Gandía.



We note that 23.4% of the children have insomnia ([Table 5 Cross of positive responses to the questions set for the prevalence of insomnia.](#)) and with respect to one of the most significant parasomnias we find that 70% of children show sleep-talking. In relation to the presence of snoring in our students (table 2) it is noted that a 58.3% (81 children) sometimes snore, while only 10 (7.2%) always snore or do it more than half of the time.

Table 5 Cross of positive responses to the questions set for the prevalence of insomnia..

TOTAL: 33 niños (23,24%)	Su hijo - ¿Le cuesta a su hijo dormirse por las noches?	Su hijo - ...se despierta más de dos veces por la noche (por término medio)?	Su hijo - ...si se despierta por las noches, le cuesta volverse a dormir?	Su hijo - ... se despierta muy temprano por las mañanas y le cuesta volverse a dormir?
Su hijo - ¿Le cuesta a su hijo dormirse por las noches?				
Su hijo - ...se despierta más de dos veces por la noche (por término medio)?	18			
Su hijo - ...si se despierta por las noches, le cuesta volverse a dormir?	3	3		
4 Su hijo - ... se despierta muy temprano por las mañanas y le cuesta volverse a dormir?	2	5	2	

Of the 139 students who answered the question ... "you grind your teeth at night?" There are 105 (75.5%) students do not, compared with 31 students 22.3% who suffer from bruxism. As for the variable that gives us data on respiratory pauses, only 2.9%, i. e. 4 students, have been detected by their parents with breathing pauses at night. 26.4% of the surveys report that children have a restless sleep pattern, showing restlessness in the legs when in bed in 23%. 40.7% are reported to have observed small kicks in both legs, only 8.8% of the cases have them at regular intervals. 39.6% indicated that their child gets up every night for some reason. Regarding to the question "Does your child have nightmares once or more than once

a week?" the variable that will determine the prevalence of nightmares, it gets a positive response in 20 students (14.4%) this disorder usually appears between the 4th and 8th years (13), we also observed that it is slightly higher in girls, 12 (17.9%) compared to 8 boys, 11.3%.

Referring to the question "...Does he/she hit his head against something or balance his body when falling asleep?" That would give us the prevalence of rhythmic movement disorders, it is important to note that 129 students of the respondents (92.1%) do not have this condition as opposed to 10 students, 7.1% who do suffer from it. 15.2% of the parents responded that their children wake up tired in the morning and 25% report that it they find it difficult to wake them up in the morning.

Only 2.2% of the parents indicated that their child has a hyperactivity disorder. However, the latter part of the questionnaire includes 18 variables that will indicate the prevalence of attention deficit disorders and hyperactivity (ADHD), as well as sleep disorders. So we've categorized the positive responses (often, almost always) with a value of "1" and what we think of as negative responses (never, sometimes) with a value of 0. Thus we have obtained, from the 144 surveys that 6 (4.1%) had responded positively to six or more of the first nine variables, which indicates the presence of inattentive symptoms regardless of whether or not they have symptoms of hyperactivity and of these six, 3 (2.08%) coincided with six or more positive answers on the last nine variables, indicating a combined type ADHD (which coincides with the answers given by parents). Nine students (6.25%) had hyperactivity-impulsivity symptoms.

DISCUSSION

Sleep problems are common during childhood and depending on the age and the size of the group that has been investigated we find changes in the prevalence of the different studies. We found no studies that validate the period of school aged children (aged 3-6), that made it difficult to compare, but if we consider other geographical areas and different age groups it allows us to give an approximation of health status on our children.

As for the insomnia, which is defined as "difficulties falling asleep and / or maintain it, including early awakenings, resulting from this drowsiness or poor daytime functioning." ⁽⁸⁾ It is one of the variables to consider in this study. Of the 144 students surveyed it has caught our attention that 33 of them meet the requirements to determine the prevalence of insomnia, a significant finding because it confirms that 23.4% of students in the Grau de Gandia suffer from insomnia. By using the PSQ as a questionnaire, like other authors ⁽¹⁴⁾ to test for the presence of insomnia in our students, we value the existence of at least two of the four affirmative questions that refer to the inability to sleep, nighttime awakenings, difficulty to go back to sleep after an awakening and early awakenings ([Table 5 Cross of positive responses to the questions set for the prevalence of insomnia.](#)).

The percentage of insomnia obtained in our study is slightly higher than the study carried out by Pin et al. of children up to 6 years old in Spanish families, which showed that 18.6% of children interrupted the family sleep at least three times a week, and significantly superior to the 2005-2006 school year study in students in primary and secondary education of the city of Gandia ⁽¹⁵⁾ which showed a prevalence for the age group under 12 years of 9.2%. But we must remember that preschoolers and children up to 5 years have a prevalence between 10-30% ⁽⁶⁾ in disorders of sleep bad habits so that our study, framed in this age group, would be within the normal range.

Regarding the qualitative variable of the sex of the children surveyed, it is important to note that in our case this does not significantly influence the results of the percentages of the different variables. In the reviewed studies on sleep disturbance in school children, we found no gender differences except in the study of sleep disorders in schoolchildren in Gandia held in 2005-2006 ⁽¹⁵⁾, citing a higher prevalence of daytime sleepiness and somniloquy in girls, while in boys more frequent bruxism, enuresis and observation by the parents of pauses in breathing during the night. It should be noted that the studies surveyed are variables with statistical significance of age, when studying the whole period of childhood and adolescence. In our case, since we focused our study on a specific period (3-6 years), it has not been possible to compare the results with other studies.

In our study, 22.3% of parents report that their children have symptoms characteristic of bruxism. When compared to a July 2003 ⁽¹¹⁾ national study of children attending schools in urban areas at kindergarten and primary level between the ages of 3 and 8 years it was showed that bruxism is the second most common parasomnia with a prevalence of 26.5%. While in the Gandia study in the group aged under 12 the observed frequency was 14.8% ⁽¹⁵⁾. Given that this parasomnia can eventually cause significant wear on teeth and particularly in the molars ⁽¹⁶⁾, assuming a level of nursing, which is important to influence oral health education and proper dental hygiene, and that if the contracture is very important, disruption can be avoided with dental prosthesis protection during the night, therefore, we must explain to parents what is the importance of prevention and detection of this problem. The information found in the literature indicates that children can often reach 15% prevalence and that it may be based on family medical history ⁽¹⁷⁾. However, we note that bruxism may be a sign of the presence of pinworm parasites in the gut, so we should insist on the education of the parents.

The variable that we will determine the presence of somniloquy, very common phenomenon that occurs during sleep, normally in the morning and that is characterized by expressing verbal sounds with little semantic content that can become intense, with laughter and tears and that the child does not remember the next day ⁽⁶⁾. It gives a positive result of 98 (70%) students surveyed, prevalence slightly higher than the 62.9% of children under 12 years that had in Gandia in 2005-2006. Although this parasomnia does not imply any specific disease, this disorder is a very typical of starting school age children and may be more evident in feverish conditions (commonly known as "delusions").

During the nightmares the child has dreams that make him/her scared and that wake him/her up frightened, thus making it more difficult to go back to sleep afterwards. In our study, this variable affects 14.4% of the students surveyed. The prevalence in children under 12 in the school year 2005-2006 in Gandía was 13.4%, while in other studies of similar age groups (3 to 8 years) conducted in other countries ⁽¹¹⁾ it was of 25.5 %.

But, within nightmares we must differentiate from night terrors, a condition that usually occurs during the 2nd and 3rd year and will decrease with increasing age ⁽¹⁶⁾. In our study, 47.5% of students have night terrors, compared to 22.2% of those younger than 12 years during 2005-2006 in Gandia. It is the most common parasomnia, with 33.7% of children aged 3 to 8 years of studies outside Spain affected. On the subject of night terrors we encourage parents to take a conservative approach to avoid injury to the child, e. g. falls out of bed, but it is advisable not to wake the child, as the episode will go away within 4-5 minutes and then the child will go back to sleep without problems.

Parasomnia disorders are easier to interpret and although we have previously mentioned the difficulty of this questionnaire and the different age groups covered, we thought it interesting

to compare our results with publications from other countries. ([Table 6 Comparison of the frequency of parasomnias with other studies from the study of Thomas et al.](#))

Table 6 Comparison of the frequency of parasomnias with other studies from the study of Thomas et al.

	Nuestros resultados	Resultados Bibliografía					
EDAD (años)	3-6	6-17	2-14	3-13	3-10	4-12	2-11
Año de publicación	2011	2007	1998	2000	2006	2000	2003
País	España	España	EE.UU.	Canadá	India	EE.UU.	Argentina
	Frecuencia observada en %						
Bruxismo	22.3	13.3	29	28.1	11.7	14.8	5.4
Pesadillas	14.4	12.8			6.8	8.5	8.3
Somnolencias	70	63.7	55.5	14.6		19.7	
Sonambulismo	14.4	12.7	15	13.8	1.9	2.4	3.4
Terrores nocturnos	47.5	18.4	27	17.3	2.9	5.7	7.3

According to the classification of sleep disorders ⁽¹⁸⁾ we differentiate three sleeping disorders as dyssomnia, which in our case we detailed as questionnaire variables. In the case of obstructive sleep disorders, we know that approximately 10-12% of children snore, and many of them have what we call "simple snoring" it is the snoring not associated with apnea ⁽¹⁹⁾ In this case only 7.2% always refers snoring or more than half the time. From the nursing point of view, as a preventive measure of the risk of OSAS in children is knowing that the prevalence of childhood obesity is increasing in Spain and that approximately one third of overweight children have sleeping disorders related to breathing and that obesity in children with OSA ranges between 13 and 36% ⁽²⁰⁾. We note that although the respondents to the question... "Is your child overweight?" 126 of the children surveyed (92%) answered negatively, education in healthy eating habits in children will help prevent this condition on infant sleep.

Regarding habits, most publications refer to the hours of sleep in early childhood and adolescence, so the analysis and comparison of results becomes even more complex. A previous population study ⁽²¹⁾ shows that sleep duration among children of up to 6 years old is approximately 10.9 hours, while another ⁽²²⁾ gives figures of 9.5 to 13.3 hours in children up to 5 years old. Our data shows that in the period between the ages of 3 to 6 children sleep 10.30 hours, this data is very similar to other publications, showing no differences between sleep during the week and weekends. However in order to maintain the number of hours of sleep on weekends they have to delay the time they get up.

In most publications we see an important relationship between sleep impairment and drowsiness with school performance, cognitive functioning and emotional disorders ⁽¹⁵⁾, hence the importance of promoting proper sleep habits from an early age and prevent future sleep disorders.

In the final part of our questionnaire we analyzed ADHD, which is the most common neurodevelopmental disorder in childhood and the most prevalent in children of school age, between 3-5% ⁽²³⁾ In other population studies conducted in schools the overall data rate of ADHD had a prevalence ranging between 5.5 and 8.5% ⁽²⁾ Consistent with the percentages obtained in our study that would fall between 2.08 and 6.25%. There is great variety of literature and different criteria for diagnosing ADHD, however we believe it to be of interest to obtain this data because the children who have ADHD in childhood may continue to have symptoms during adolescence and adulthood, therefore early diagnosis and treatment could modify their educational and social development, along with improving the quality of life of the child and his/her family.

CONCLUSIONS

Note that in our study, the results are similar to other population studies in schools, both in the parasomnias and sleep patterns and ADHD.

We are reminded that the results of the prevalence of insomnia, (23.4%), is the most common cause is a lack of education of sleeping habits in children, and that guiding the parents to acquire proper guidelines for their children sleep helps prevent future sleep disorders.

The most common parasomnias are sleep-talking, night terrors, bruxism and nightmares.

Although our results show that our students are in the correct percentages for their age groups when compared to different studies of teenagers, they present a gradual decrease of the nocturnal hours of sleep and a slight increase in daytime sleepiness ⁽¹⁵⁾, data of concern because it is clearly associated with school performance, cognitive functioning, emotional disorders ... that indicates the need to promote healthy lifestyles.

The existence of ADHD that is directly related to an increase in sleep disorders is highlighted along with its detection and prevention leading to positively influence the quality of life of the children and their families.

And we must not forget that while this study provides data only on the population prevalence and age group studied, with the difficulty of carrying out comparative studies, it is a step towards the greater understanding of sleep disorders in terms of epidemiological investigation

With all this the figure of the school nurse is considered essential. The nurse has an important role, both in terms of the promotion and education of healthy habits plus the detection of problems with parents, teachers along with direct contact with the health center of reference. This forms a suitable combination that allows us to detect and prevent future sleep problems in our schools.

For future research we will consider a number of improvements, such as sample size increases (to a greater age range) and the use of statistical techniques to provide greater reliability.

REFERENCES

1. Pin Arboledas G. Bases fisiológicas y anatómicas del sueño. *Pediatría Integral*. 2010; 14(9).
2. Tomas Vila M, Miralles Torres B, Beseler Soto M, Revert Gomar M, Sala Langa M. Relación entre el trastorno por déficit de atención e hiperactividad y los trastornos del sueño. resultados de un estudio epidemiológico en la población escolar de la Ciudad de Gandía. *Anales de pediatría*. 2008;(69 (3)): p. 251-7.
3. Escalera Gamiz A. Trastornos del sueño infantil. *Innovacion y experiencias educativas*. 2009 febrero 15; 15.
4. Didden R, Korzilius H, Van Apperlo B, Van Overloop C, de Vries M. Sleep Problems and daytime problem behaviours in children with intellectual disability. 2002;(46): p. 537-47.
5. Gharem M, Amstrong K, Trocki O, Ceghorn G, Patrick M, Sheperd R. The Sleep patterns of infants and young children with gastro esophagcal reflux. *J. Pediatr. Child Healh*. 1998;(34): p. 160-3.
6. Richdale A, Prior M. The sleep-Wake rhythm in children with autism. *Eur Child Adoles Psychiatry*. 2000; 3(4): p. 175-86.
7. Estivill E. Trastornos del sueño en la infancia. In *Psicología conductual*.; 1994. p. 347-362.
8. Peralta R. Semiología, evaluación y diagnóstico de los trastornos de la vigilancia y del sueño en la infancia. *Revista neurológica*. 1997;(25): p. 1429-33.
9. Estivill E, Segarra F. Insomnio infantil por hábitos incorrectos. *Rev Esp Neurol*. 2000;(30): p. 188-191.
10. Villó Sirerol N, Kheiri Amin I, Mora Rodríguez T, Saucedo Frutos C, Prieto Yebra M. Hábitos del sueño en niños. *An Esp Pediatr*. 2002; (2)(57): p. 127-30.
11. Tomás Vila M, et_al. Version española del sleep questionnaire. Análisis de fiabilidad. 2007; 2(66): p. 121-8.
12. Minde K, Popiel K, Leos N. The Evaluation and treatment of sleep disturbances in young children. 1993;(34): p. 21-533.
13. Aldana A, Samundio D, Irala E, Rodas N. Trastornos del sueño: prevalencia en población pediátrica en edad preescolar y escolar de área urbana. *Pediatr. (Asuncion)*. 2006; 33(1).
14. Mindell J, Owens J. A clinicial guide to pediatric sleep diagnosis and management of sleep problems. 2003.
15. Chervin R, Hedger K, Dilon J, Pituch K. Pediatric Sleep Questionnaire (PSQ) : Validity and reliability of scales-disordered brreathing, snoring, sleepiness and behavioral problems. *Sleep Medicine*. 2000;(1): p. 21-32.
16. López SA. Trastornos del sueño en la infancia. In *Trastornos del sueño en el niño: identificación y herramientas para su manejo*.
17. Archold K, Pitach K, Panabi P, Chervin R. Symptoms of sleep distrurbances among children at two general pediatric clinics. *J pediatr*. 2002;(140): p. 97-102.
18. Vila M, Torres A, Miralles A, B S, Beseler B, Gomar M, et al. Patrones normales y trastornos del sueño entre la población escolar de la ciudad de Gandía. *An Pediatr*. 2008; 3(68): p. 250-6.
19. Puñal J, Gay L, Castro-Cago M. Principales trastornos del sueño. In *Libro de Ponencias Madrid*; 2010; Madrid. p. 55-59.
20. Castro-Cago M, Novo-Rodríguez M, Eiris-Puñal J. Trastornos paroxísticos y síntomas episódicos no epilépticos en relación con el sueño. *Anales Esp. Pediatría*. 2001;(54

(Supl. 4): p. 193-202.

21. American Academic of Sleep of Medicine. Classification of sleep disorders, revised: Diagnostic and coding manual. In. Chicago, Illinois: American Academy of Sleep Medicine. International; 2001.
22. Pin G. Trastornos respiratorios obstructivos del sueño en el niño. In PCF S, editor. Propuesta de Ponencia oficial Congreso Nacional.
23. Llorente E, Meltrana J, Vicente E. Obesidad y trastornos respiratorios obstructivos del sueño en el niño. In Propuesta de Ponencia Oficial congreso Nacional del 2013: PCF,SEORL.
24. I I, Jenni O, Molinari L, Largo R. Sleep duration from infancy to adolescence: reference values and generation trends. Pediatrics. 2003;(115): p. 1774-86.
25. Jenni O, Molina L, Caflisch J, Largo R. La duración del sueño de las edades de 1 a 10 años: la variabilidad y la estabilidad en comparación con el crecimiento. Pediatría. 2007 noviembre; 120(4): p. 769-76.
26. Valdizan JR. Trastornos generalizados del desarrollo y sueño. Rev. neurológica. 2005; 41(supl. 1): p. 135-138.

ISSN 1695-6141

© [COPYRIGHT](#) Servicio de Publicaciones - Universidad de Murcia