



## Influence of the family context on sleep disorders in children

Influência do contexto familiar sobre os transtornos do sono em crianças

Influencia del contexto de la familia acerca de los trastornos del sueño en niños

Ana Luíza Paula de Aguiar Lélis<sup>1</sup>, Maria Aneuma Bastos Cipriano<sup>1</sup>, Maria Vera Lúcia Moreira Leitão Cardoso<sup>1</sup>, Francisca Elisângela Teixeira Lima<sup>1</sup>, Thelma Leite de Araújo<sup>1</sup>

This study aimed to identify in the scientific literature the aspects related to the family context involved in sleep disorders in children. An integrative literature review was conducted in the databases: Lilacs, PubMed, Cinahl, Scopus and Cochrane, covering the period from 2007 to 2012, with the descriptors in Portuguese and English: *transtornos do sono, família, criança*, and sleep disorders, family, children. Thirty-four articles were identified, in which 46 aspects mentioned in the results were identified, highlighting the habits in the family sleep pattern and routine, cultural habits, socioeconomic status, and parental mood as the most frequent. Parents as family members and those responsible for directing the habits inherent in the family context have the key role in the sleep-wake process of the children.

**Descriptors:** Child; Sleep Disorders; Family.

Objetivou-se identificar na produção científica os aspectos relacionados ao contexto da família, envolvidos nos transtornos do sono em crianças. Revisão integrativa da literatura, realizada nas bases de dados: Lilacs, Pubmed, Cinahl, Scopus e Cochrane, abrangendo o período de 2007 a 2012, com os descritores em português e inglês: “transtornos do sono, família, criança e *sleep disorders, family, children*”. Foram identificados 34 artigos, nos quais se identificaram 46 aspectos mencionados nos resultados, destacando-se hábitos no padrão e rotina do sono da família, hábitos culturais, condição socioeconômica e humor dos pais como os mais frequentes. Os pais como integrantes da família e os responsáveis por direcionar os hábitos inerentes ao contexto familiar apresentam papel fundamental no processo sono/vigília dos filhos.

**Descritores:** Criança; Transtornos do Sono; Família.

El objetivo fue identificar en la producción científica aspectos relacionados con el contexto de la familia, involucrados en los trastornos del sueño en niños. Revisión integradora de la literatura realizada en las bases de datos: Lilacs, Pubmed, Cinahl, Cochrane y Scopus, de 2007-2012, con los descriptores en Portugués y en Inglés: *trastornos del sueño, familia, niño y sleep disorders, family, children*. Se identificaron 34 artículos, de los cuales fueron identificados 46 aspectos mencionados en los resultados, especialmente en los hábitos de sueño normales y familiares de rutina, hábitos culturales, situación socioeconómica y estado de ánimo de los padres como los más frecuentes. Los padres y miembros de la familia y los responsables por dirigir los hábitos inherentes al contexto familiar tienen papel fundamental en el proceso sueño/despertar de hijos.

**Descritores:** Niño; Trastornos del Sueño; Familia.

<sup>1</sup>Universidade Federal do Ceará. Fortaleza, CE, Brazil.

Corresponding author: Ana Luíza Paula de Aguiar Lélis  
Avenida Filomeno Gomes, 100 - Jacarecanga. CEP: 6010-280. Fortaleza, CE, Brazil. E-mail: aninhanurse@hotmail.com

## Introduction

Sleep disorders in childhood can be influenced by intrafamiliar behaviors, cultural factors, biological, psychological, social and genetic alterations, and the development of the child<sup>(1-2)</sup>.

In the family context, marital problems, such as conflict, discord, inconsistency and dissatisfaction can influence family functioning and have negative effects on the social, emotional and behavioral status of children<sup>(3)</sup>.

Other aspects related to the family, such as psychological instability, socioeconomic problems, irregular sleep-wake patterns, and cultural habits of the parents, may also be associated with the establishment of sleep disorders in children<sup>(2,4-5)</sup>.

In clinical pediatric nursing, sleep disorders are not commonly addressed in consultations, as parents generally do not perceive them as important issues, due to ignorance about the lack of sleep.

The investigation and assessment of sleep disorder should be valued by the nurse, because when present in the child, it can cause difficulties in concentration, restlessness, tearfulness, habits that are acquainted with behavior considered adequate or normal in relationship to nail-biting, shyness, aggressiveness, developmental delay, cardiovascular, immunological and metabolic changes<sup>(1)</sup>. When present, these problems can affect the quality of life of the child and family.

It is believed that the knowledge about the aspects that involve the family context of the child who develops a sleep disorder can broaden the vision of health professionals, especially the nurse in the nursing consultation, in conducting an investigation of the possible causes of the sleep disturbances.

Based on this understanding, and with the information contained in the literature, the nurse may redirect his practice of promotion of quality of sleep in the child and consider guidance and education about this subject with the family as a fundamental intervention for the acquisition of healthy habits

and routines, which, possibly, will help minimize the occurrence of the development of a sleep disorder, acting to prevent disease.

Thus, the following question arose: what aspects of the family context are involved in sleep disorders in children, according to the scientific literature?

Therefore, the study aimed to identify in the scientific production aspects related to the family context involved in sleep disorders in children.

## Method

This was an integrative literature review, as this was a method that favored the search, analysis and synthesis of scientific literature about the investigated theme, by means of completing the following stages: identification of the theme; sampling or literature search; categorization and evaluation of the studies included in the integrative review; interpretation of results and synthesis of knowledge evidenced in the analyzed articles or presentation of an integrative review<sup>(6)</sup>. The results shown in the revisions may help nurses in decision making in clinical practice and, consequently, in the improvement of nursing care<sup>(7)</sup>.

The bibliographic search was accomplished in May of 2012, through on-line access to five databases, in the following sequence: *Literatura Latino-Americana em Ciências de Saúde* (Latin American Literature in Health Sciences - Lilacs), National Library of Medicine and National Institutes of Health (Pubmed), Cumulative Index to Nursing and Allied Health Literature (Cinahl), Scopus and Cochrane. The controlled descriptors used were "transtornos do sono", "família" and "criança" listed in the Descriptors in Health Sciences (DECS), in the site for the LILACS database search, and for the other databases "sleep disorders", "family" and "children", contained in the Medical Subject Headings (MESH), were used.

To search in each database, we conducted two crossings: in the Portuguese language, in Lilacs, using *transtornos do sono* and *criança*, followed by

*transtornos do sono* and *família*, and for the English language databases, sleep disorders and children, followed by sleep disorders and family.

The following inclusion criteria were defined: to be available in its entirety electronically, in Portuguese, English or Spanish languages; published between 2007 and 2012, and answer the question of the study. Exclusion criteria were considered letters to the editor and editorials.

The operationalization of the collection of articles proceeded, initially, with the descriptors *transtornos do sono* and *criança*, followed by *transtorno do sono* and *família* in LILACS, with 116 studies, followed by sleep disorders and children and sleep disorders and family in the following sequence: Pubmed, Cinahl, Scopus and Cochrane, resulting in 3945, 241, 3778, 767 publications, respectively. With the withdrawal of incomplete electronic articles, duplicates, and those that did not respond to the proposed question, 34 studies remained.

A reading of each of the selected articles was performed, followed by the completion of a data collection instrument, constructed by the authors, containing the methodological information and aspects involved in the family context about the sleep disorder of the child.

The articles were classified according to level of evidence: Level I: the evidence resulted from a systematic review or meta-analysis of randomized controlled clinical trials or arose out of clinical guidelines based on systematic reviews of randomized controlled trials; Level II: evidence derived from at least one well-designed randomized controlled trial; Level III: evidence obtained from well-designed clinical trials without randomization; Level IV: evidence from well-designed cohort and case-control studies; Level V: evidence originating from systematic review of descriptive and qualitative studies; Level VI: evidence derived from a single descriptive or qualitative study; Level VII: evidence from the opinion of authorities and / or report of expert committees<sup>(8)</sup>.

The methodological information was presented

in a descriptive form, following the synthesis of factors related to sleep disorders in children, arising from the results of selected research. Furthermore, it was decided to discuss the results based on evidence from studies about the same topic, but which were not included in the sample of this research.

## Results

Thirty-four manuscripts were selected, of these, 11 were published in 2010, 12 in 2008 and 2009, five in 2007, six in 2011 and 2012. Regarding the level of evidence, the following classification was observed: one in level VII, 22 in level VI, four in level V, three in level III and four in level II.

With regard to the method used, 74.4% were of a quantitative nature, with 17.6% of a cross-sectional nature; 11.7% were randomized; 8.8% were prospective cohort; 5.8% longitudinal, and 2.9% intervention. The remaining were characterized as: 11.7% literature review; 2.9%, retrospective documentary; 2.9%, reflective and one qualitative. Thirty were published in English, three in Portuguese and one in Spanish.

Based on Table 1, it was identified, from the selected articles, 46 aspects mentioned in the results; of these, habits in the pattern/ routine of family sleep, ethnicity, socioeconomic status and parental humor, were the most frequent. It is noteworthy that some articles indicated in the results more than one aspect of the family context.

**Table 1** - Aspects of the family context related to sleep disorders in children, according to the frequency in the 34 selected articles

| Aspects of the family context                      | N = 46 |
|--|--------|
| Habits in the pattern and routine of family sleep  | 15     |
| Ethnicity and socioeconomic status                 | 11     |
| Parental temperament – stress and depression       | 8      |
| Marital instability, divorce and domestic violence | 5      |
| Parental smoking                                   | 3      |
| Environmental conditions                           | 2      |
| Eating habits of the child                         | 2      |

The synthesis of the knowledge evidenced in the 34 articles analyzed showed that the habits in the sleep pattern and routine was the aspect of family context that appeared in the largest number of articles, demonstrating the significant representation of this factor in the establishment of sleep disorders in children.

The sleep habits of the parents influence the sleep routine of their children, since their sleep/wake pattern affected the sleep/wake routine of the children, with the highest significance the hour of bedtime of the mother in relationship to the father<sup>(2)</sup>.

The principal habits of parents to promote the onset of sleep of the child at bedtime were: a parent being present (31%), feeding the child, including bottle feeding (31%), tucking in the child (26%), and rocking the cradle (23%). Less frequent were: child falling asleep independently (18%) and child sleeping in a crib/bed with parent present (12%). With regard to frequency, the factor of children falling asleep while watching television or in another room in the home was rarely described<sup>(9-10)</sup>.

Regarding the influence of parents on the sleep of their children, it was found that the frequency of nocturnal awakenings in children coming from the United States and Canada was associated with increased parental intervention to promote children's sleep initiation, the main ones being: practices breastfeeding as an alternative to get the infant back to sleep, sleeping in the same room, offering a bottle during the night, sharing a bed, and irregular routines for bedtime<sup>(11-12)</sup>.

It is assumed that children who fall asleep by means of parental interventions fail to develop self-regulation and skills to sleep and, thus, continue to depend on repeated parental measures during the night<sup>(13)</sup>.

Such interventions in a sample of Italian children were associated with increased incidence of nighttime awakenings, and with the possible consequence of a reduction in the duration of sleep<sup>(11-12)</sup>.

Some parents reported an association between

the time the child remained breastfeeding during the night and the triggering of precarious sleep habits. Breastfeeding at the age of one year has been identified as a factor for persistence of sleep disorders in childhood, possibly due to the presence of the parents at bedtime, increasing problems in initiating sleep<sup>(10,14)</sup>.

It was found that the habit of watching television, playing computer and video games had the greatest impact on sleepiness in boys when compared to girls. In male children, over an hour of computer and video games influenced the occurrence of sleepiness and sleep disturbances. Thus, more than one hour spent in activities significantly increases the risk of drowsiness<sup>(15-16)</sup>.

It appears that the absence of routine bedtime brings about sleep disorders in children<sup>(17)</sup>, since the children do not have a pattern for the time for sleeping and, consequently, for waking up<sup>(11,16,18)</sup>.

A randomized study with the implementation of a children's bedtime routine by parents indicated benefits in various aspects of infant sleep, resulting in reduced time for the initiation of sleep, decreased wakefulness after sleep onset and steady increase of the sleep period. It was surprising that sleep during the night also improved, including a decrease in the number and duration of nocturnal awakenings, for example, children had lower frequency of calling their parents or leaving the crib or bed after institution of the bedtime routine<sup>(19)</sup>.

It was identified that ethnic cultural habits and socioeconomic conditions of the family were related to sleep problems in the child, especially those related to low socioeconomic status and an African-American descent.

A literature review study that investigated the family contextual factors related to sleep of the child through the transactional model suggested that the socio-cultural scenario played an important role in the formation of expectations and style of the parents, and that the practices and expectations of parents in relationship to infant sleep, as well as certain

sleep behaviors (waking at night), were perceived as problematic and varied greatly according to cultural norms, ethnicity and socioeconomic status<sup>(13)</sup>.

Another literature review study attributed the habit of the parents sleeping together with the child in bed and other aspects, with racial and ethnic differences, were more common in Africans (27.9%), followed by Asians (20.9%), and less prevalent in Caucasian families (7.2%), possibly due to lack of space in the residence. Other factors associated with sharing a bed included: marital status, one of the parents being single, separated or divorced; household crowding; and low parental education. Bed sharing in Asian cultures is a more acceptable practice and therefore had a higher prevalence. The rates in some countries were: 59% in Japan, 45% in Korea, and up to 93% in India<sup>(4)</sup>.

Children exposed to large families when living in small homes and who sleep in the same room as the parents, present disorders in the sleep/wake transition<sup>(18,20-22)</sup>. Indirectly, although the social and economic condition presented little effect on children's bedtime, it was strongly associated with paternal and maternal bedtime, and this, consequently, influenced the child's sleep, with maternal bedtime more influential than that of the father<sup>(2)</sup>.

In the same manner, in a study that analyzed the influence of marital conflict on children's sleep disorders, exposure to increased stress experienced by ethnic minorities or families with a less favored social condition was shown to lead to an additional effect of the conflict, with consequent impact on the development of sleep disturbances in children<sup>(23)</sup>.

The behaviors directed towards sleep maintenance differ by race or family income. The African-American children and those from low-income families have lower sleep duration, fail to develop independent sleep, and are more susceptible to snoring when compared to white children<sup>(24)</sup>.

The African-American children had less sleep duration, more often sleeping late during the week, with greater variation in time, higher levels of self-reported

drowsiness, among other problems, suggesting better sleep patterns in Euro-American children. It seems that the total number of individuals sharing the room of the child was related to socioeconomic status, and the economic factors may influence decisions about sharing a room<sup>(25)</sup>.

In contrast to the findings of the majority of the studies, a population-based study, conducted to assess the influence of socioeconomic factors in a sample of schoolchildren in Istanbul, indicated that the total duration of sleep significantly decreased both in boys and girls with higher socioeconomic status. Among the girls, the presence of some disorder affected the duration of sleep in the morning and waking up late, however, this association was not observed among the boys<sup>(26)</sup>.

The stress of the parents appeared in several articles related to the family context that influenced, primarily, sleep time and frequency of nocturnal awakenings. The children exposed to an environment in which parents were stressed presented less sleep, and some significant associations were noted between parental stress and the development of infant sleep problems<sup>(23,27)</sup>.

Children of mothers who experienced depressive symptoms, such as nocturnal awakening and agitation, presented a higher probability of changes when they were sleeping<sup>(18)</sup>. Maternal depression is seen as a generator of sleep problems with high frequency in children between two and three years of age and in adolescence. Other symptoms were also observed, such as: fatigue, inattention, learning difficulties, irritability, anxiety and fear<sup>(28)</sup>.

A study that compared two groups of mothers and newborns, with low risk of postpartum depression and with high risk for postpartum depression, found that sleep disturbances were more prevalent in children of mothers with risk of depression, in comparison with babies of low risk mothers. In addition, nocturnal sleep latency was longer, episodes of sleep were much shorter, and lower sleep efficiency in the high-risk group at two weeks postpartum,

persisting during 24 weeks<sup>(29)</sup>.

Children from the high risk group also had daytime drowsiness more than those in the low risk between two and 24 weeks, suggesting a delay in the consolidation of sleep for the nocturnal period, indicating multiple arousals during sleep time, and possible an inability to maintain sleep<sup>(29)</sup>.

In contrast, a retrospective documentary study compared data collected from records about the sleep behavior of children of mothers with or without a mood disorder. Results indicated no significant differences between the groups with and without a mood disorder that had repercussions of a sleep disorder in the children<sup>(30)</sup>.

Insomnia can be present in children who live with parents having matrimonial disputes. Mothers reported different forms of disruption in sleep patterns of these children as well as associations between violence in the home and sleep disorders of children, since some women were assaulted at the time the child was sleeping<sup>(31)</sup>.

When the family is in conflict, there are repercussions in childhood, creating major symptoms of insomnia when the individual reaches 18 years of age. The difficult environment in infancy can cause harmful effects on biological processes, mainly related to sleep disorders. The period of a marital separation is associated with a short sleep duration in children<sup>(22,32)</sup>. The exposure of the child to a recent life event, such as loss of a loved object or separation from a special person, change of school, parental divorce, or when the child witnessed a situation of family violence, can trigger sleep disorders<sup>(33)</sup>.

A study conducted with 176 children and their parents tested the reciprocal relations between marital conflict and children's sleep for two years. A variety of instruments were used as measures of conflict, as well as objective and subjective parameters of sleep for children. Results indicated that marital conflict predicted children with increased sleep problems over time and that such relationships were present for African-Americans and those with lower

social and economic status<sup>(23)</sup>.

A cross-sectional study of children aged six to 12 years and their parents, whose sample consisted of 576 subjects coming from urban areas and 482 from rural, showed a significant difference in problems of sleep behavior and duration between rural and urban communities in the city of Liaocheng, China. It was found that the mean sleep time, especially in the children of the urban area, was below the national and international standards<sup>(34)</sup>.

In both groups, the mean sleep duration of urban children was lower than those from the rural area. The majority (87.7%) of children from the urban group had less than nine hours of sleep, as compared to 64.4% in the rural group. The proportion of children who presented more than ten hours of sleep in the urban and rural group was 12.4% and 35.6%, respectively. Moreover, in the group of the same community, the percentage of sleep duration at night in the group of nine to 12 year olds was lower than the group of six to eight year olds<sup>(34)</sup>.

Behavioral problems at bedtime were 82.81% for children from the urban area and 70.05% from the rural, respectively. The most common behavior problem was sleep delay, in which boys and girls represented 60% and 40%, respectively. The rate of late sleep in the urban population was higher than in the rural population, in the group of six to eight year olds, but similar between rural and urban in the group of nine to 12 year olds. In both community groups, the rate of sleep delays in the group of nine to 12 year olds was higher than in the group of six to eight year olds<sup>(34)</sup>.

The irregularity of maintaining sleep was similar in both groups. In relation to the days that the child was drowsy during the development of the study, June 2004 to September 2006, the group of nine to 12 years showed lower frequency than the six to eight year olds of both areas, however the group of nine to 12 year olds from the urban area had more days of drowsiness when compared to children of the same age from the rural area. Whereas, the percentage

who shared a bed with their parents was higher in the urban population than in the rural<sup>(34)</sup>.

Parental smoking appears to be an aspect related to sleep-disordered breathing in children, and is associated with changes such as delayed onset of sleep and daytime drowsiness<sup>(20,21,35)</sup>. The prevalence of these disorders is elevated, primarily, in children of nine to 14 years of age<sup>(21)</sup>.

There is an elevated prevalence of sleep disordered breathing among children exposed to the influences of factors related to family cluster and parental smoking. Children of smoking mothers presented a higher risk of developing sleep problems<sup>(21)</sup>.

The relationship between drowsiness and eating habits presented as significant variables, such as breakfast and evening snacks, especially for male children. Boys who skipped breakfast and snacks in the evening were more likely to report drowsiness<sup>(15)</sup>.

It was also found that girls with a daily habit of snacking between meals showed more drowsiness when compared to those who had snacks between meals sporadically. However, this relationship is established, since the girls went to sleep one hour later (75% of boys vs. 62.5% of girls reported bedtime before 11pm), which possibly favored a preference for snacks between meals<sup>(15)</sup>.

Parents should avoid offering meals at the time the child is going to sleep as a way of establishing a permanent habit, in order to assist the child to have good sleep, to avoid the association between eating and sleeping<sup>(9)</sup>.

## Discussion

In studies with topics related to sleep disorders in children, there were similar results to the selected articles, principally, by highlighting that the factors of influence on sleep duration among children are related to the demographic context, sociocultural conditions, family environment and standards of life<sup>(36-38)</sup>.

Similarities and parental intervention at night

were mentioned, among which were remaining present and next to the child, feeding and rocking the infant back to sleep, as influencing the sleep patterns of children, causing greater number of awakenings and shorter duration of sleep at night, compared to children who fell asleep in the crib with minimal parental assistance<sup>(39)</sup>.

Similarly, children who were classified with a high dependence on the mother presented more sleep problems when compared with children who were less dependent<sup>(40)</sup>.

However, with regard to the social and economic condition, the results were conflicting. Children of lower and upper socioeconomic status showed similarities in sleep quality and less variability in hours of sleeping<sup>(25)</sup>. These findings are contrary to the majority of the selected studies, which found that the poorest children had a higher risk of developing sleep disorders.

Children with a high socioeconomic status presented a shorter duration of sleep due to the delay of bedtime, possibly due to longer use of the Internet, watching television and playing video games. Another cause may be related to the frequency with which the child wakes up early, because parents need to leave for work<sup>(41)</sup>.

Corroborating with the studies that indicated the mood of the parents as a factor that can influence sleep disorders, it was found that sleep of newborns of depressed mothers was more fragmented, indicating decreased sleep and more episodes of agitation during the night when compared to those without maternal history of depression<sup>(42)</sup>.

The justification in pathophysiological terms is that the increase in cortisol levels during pregnancy and postpartum in depressed mothers, suggests that the hypothalamic pituitary adrenal axis in the uterus prepares a stress response in children and, subsequently, could interfere with the initiation and maintenance of sleep<sup>(43)</sup>.

With regard to marital problems, similarities were also observed with articles in the sample to

highlight that the relationship between marital conflict and children's sleep problems were reciprocal and cyclical, and that exposure to marital conflict can lead to disruptions in the sleep of children, which in turn influences the increase of marital conflict<sup>(44)</sup>.

Regarding the environmental condition of the family, it was found that urban communities have better access to multimedia entertainment facilities such as television or the Internet. In a recent study of 19,299 school children from eight major cities in China, a television or computer were present in the bedroom of 18.5% and 18.3% of children, respectively. The presence and use of these media in the bedroom were positively correlated with delayed bedtime, more frequent nocturnal awakenings, and shorter sleep during the week and weekends<sup>(16)</sup>.

The factors of parental smoking and the eating habits of the child were also mentioned in other studies as influencing the establishment of sleep disorders in childhood, since the smoking habits of parents and maternal smoking during pregnancy were identified as the main factors that predispose the pediatric population to the development of obstructive sleep apnea syndrome<sup>(45)</sup>. Eating habits may be related to changes in bedtime routine in children six to seven years of age, considering the significant relationship between sleeping late, presenting short sleeping hours and childhood obesity<sup>(46)</sup>.

## Conclusion

Sleep disorders in children can be influenced by aspects involving the family context, among them the habits of sleep patterns of the parents, ethnic culture and socioeconomic status were the most frequently noted in the results of the selected articles.

It was observed that parents, as family members and those responsible for directing the habits inherent in the family context, have a fundamental role in the sleep/wake process of the children to stimulate the dependence on their presence at the bedtime of the child, perform nightly interventions for reestablishing

sleep of the child, and establishing routines of initiation of sleep.

The aspects mentioned above are interrelated and can present as enhancers of the others, since they exhibit reciprocal linkage in the family dynamics and, consequently, in the sleep patterns of the children.

It was found that the majority of the selected articles presented level of evidence six, which demonstrates the methodological weaknesses still present in studies on this topic, which was a limitation to the generalization of behaviors presented as well as possible nursing interventions.

The results of the selected articles may encourage health professionals, especially the nurse, to know other possibilities for addressing these disorders, in addition to routinely investigating while monitoring the health of children, particularly in primary care services, whose identification of this problem should be investigated to prevent complications, and to promote quality of sleep the child and family.

This underscores the importance of developing adequate sleep habits to promote children's health, and the instrumentalization of the parents, about knowledge related to standard sleep/wake patterns in childhood and the implementation of sleep routines, one of the basic interventions to care for the child in different health contexts.

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