Sleep Medicine 12 (2011) 870–874

Contents lists available at SciVerse ScienceDirect

Sleep Medicine

journal homepage: www.elsevier.com/locate/sleep

Original Article

Sleep of preschool children with night-time fears

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ARTICLE INFO

Article history:
Received 15 November 2010
Received in revised form 7 March 2011
Accepted 13 March 2011
Available online 5 October 2011

Keywords:
Night-time fears
Sleep
Actigraphy
Preschool
Child
Anxiety

ABSTRACT

Background: Night-time fears are very common in preschool and early school years. However, to date, the links between night-time fears and sleep have not been assessed systematically. The aim of this study was to evaluate natural sleep patterns in children with night-time fears, and to assess the association between parental fear-related strategies and children's sleep disruptions.
Methods: Sleep was assessed in a sample of 109 preschool children (64 boys and 45 girls) aged 4–6 years suffering from significant night-time fears, and in 30 healthy controls using actigraphy and parental reports.
Results: Controls slept significantly better than the children with night-time fears. The disrupted sleep patterns of the children with night-time fears were reflected in a higher number of actigraphic night wakings, shorter periods of continuous sleep, shorter true sleep time, and a lower percentage of actual sleep time. Similar findings were manifested in sleep measures reported by the parents. Parental fear-management strategies were found to be linked to impaired actigraphic sleep measurements.
Conclusions: Children with night-time fears are at risk for developing poor sleep quality, which may further compromise their psychological well-being.

1. Introduction

Transient and mild night-time fears are very common and are recognized as normal phenomena in typical child development [1–3]. Muris et al. (2001) found that 73.3% of the children in their study aged 4–12 years reported night-time fears, but only 34.4% of their parents reported such fears [3]. Interestingly, Muris et al. found distinct developmental patterns according to the children and their parents. According to the children's reports, the prevalence of night-time fears increased from 58.8% in 4- to 6-year-old children, to 84.7% in 7- to 9-year-old children, and to 79.6% among 10- to 12-year-old children. A gradual decrease with age characterized parental reports, with 44.3% reporting fears in 4 to 6-year-old children, 32.1% in 7- to 9-year-old children, and 23.9% in 10 to 12-year-old children.

Night time and going to sleep pose a serious challenge for many young children [1–5], and persistent anxiety symptoms and severe night-time fears that interfere with daily functioning are common [1,5,6]. Among other difficulties, sleep problems are reported to be an integral part of the clinical picture in children with night-time fears as they tend to present difficulty going to sleep, falling asleep, frequent night wakings, and difficulty resuming sleep [1,5–7].

Surprisingly, there are no studies directly linking night-time fears with objective findings on sleep disruptions in young children. However, in a longitudinal study on bed-sharing and sleep problems among Swiss children in the first 10 years of life, Jenni et al. found a peak in prevalence of night wakings (54%) and bed-sharing (38%) phenomena at four years of age [8]. The authors speculated that these findings emanated from cognitive development and changes in separation–attachment processes, leading to night-time fears at this specific age and the associated sleep disruptions. In another study, a similar peak in night wakings in this age group was found in comparison with younger and older children using objective measures of sleep [9].

It is important to emphasize that night-time fears do not constitute a formal diagnostic entity. The phenomenology of night-time fears is likely to overlap with the phenomenology of formal diagnoses such as anxiety disorders and behavioural insomnia. For instance, in a study of normal school children, Muris et al. [3] found that night-time fears were associated with a diagnosis of at least one anxiety disorder in more than 10% of subjects. Night-time fears can play a major role in behavioural insomnia. However, behavioural insomnia can result from other reasons such as bedtime resistance and limit-setting problems. The focus of the present study was on the phenomenology of night-time fears rather than specific diagnoses.

Parental presence near the child's bed or allowing the child to fall asleep or sleep throughout the night with the parents in the parents' bed is a very common parental strategy for dealing with

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doi:10.1016/j.sleep.2011.03.022

night-time fears, and can produce positive outcomes in many cases [10,11]. However, it can also serve as a reward for the child that perpetuates the problem, or creates a new problem for parents who are not interested in a long-term cosleeping solution [5,12]. Furthermore, research has shown that infants who rely on their parents during the settling process are likely to have more night-waking problems [8,13–17]. In addition, it has been argued that excessive efforts of parents to calm their children and help them fall asleep may hamper the development of their self-soothing skills and can increase fears, thus the child remains dependent on parental help following night waking [8,13–17].

Given the growing interest in night-time fears in preschool children and the assumed links between night-time fears and sleep disruptions that have not, to date, been assessed systematically, this study aimed to evaluate sleep patterns in preschool children with night-time fears, and to assess the link between parental fear-management strategies and sleep disruptions. Previous studies on sleep in children with night-time fears have been based on subjective reports, which have serious limitations [18]. The present study is, to the authors' knowledge, the first actigraphy study to compare naturalistic sleep patterns in children with night-time fears and controls.

It was hypothesized that the sleep of children with night-time fears would be significantly more disrupted than the sleep of control children, and that parental presence near the child during the night would be associated with more disrupted sleep in children suffering from night-time fears.

2. Methods

2.1. Participants

The study was approved by the departmental ethics committee and the Chief Scientist of the Israeli Ministry of Education. All parents signed informed consent forms.

The study included clinical and control samples. The clinical group consisted of 109 preschool children (64 boys and 45 girls aged 4–6 years, mean age 58.91 [standard deviation (SD) 8.32] months) with night-time fears. Children were recruited via advertisements (offering a service for children with night-time fears) and by screening children in kindergartens. Inclusion criteria for this group were: (a) night-time fears for at least two months; (b) the problem had a significant adverse impact on the child and family; and (c) the problem required parental intervention on at least two nights per week in order to comfort the child. The control group consisted of 30 healthy children from the same age group, recruited by similar methods, who did not meet the criteria for inclusion in the clinical group [16 boys and 14 girls, mean age 58.93 (SD 7.62) months]. Exclusion criteria for both samples were: (a) major health or neurological development problems; (b) concurrent psychiatric treatment; and (c) concurrent psychotherapy or similar interventions. The presence of night-time fears was solely determined by parental reports during the screening and intake interviews.

2.2. Measures

2.2.1. Actigraphy

Actigraphy is based on a small device which resembles a wristwatch that can be worn by a child for a substantial period of time and monitor sleep–wake patterns in that child's regular sleep environment [19–21]. The parents were instructed to attach an actigraph (Mini Motionlogger, Ambulatory Monitoring, Inc., Ardsley, NY, USA) to their child's non-dominant wrist during the evening before bedtime, and to remove it in the morning after rise time, for a period of one week. The actigraph collected data in 1-min epochs. Sleep measures were derived from the raw data using the Actigraphic Scoring Analysis (ASA) program for an IBM-compatible personal computer [22]. These sleep measures have been validated against polysomnography with agreement rates for minute-by-minute sleep–wake identification above 90% in children and adults [20,22]. Validation against polysomnography exists for children younger and older than those in the study group; as the same algorithms have been found to be valid for these younger and older children, it was assumed that they would be appropriate for children aged 4–6 years. Furthermore, these measures have been validated against parental reports in this specific age range [9].

Actigraphic measures included: (1) sleep period (min) (total sleep duration from sleep onset to morning rise time); (2) true sleep time (sleep time excluding periods of wakefulness after sleep onset); (3) number of night wakings (lasting at least 5 min); (4) longest sleep period (longest period of continuous sleep without any arousal); and (5) sleep percentage (percentage of actual sleep time from total sleep period excluding wake time after sleep onset).

2.2.2. Sleep diary

In addition to actigraphy, a sleep diary was completed by parents for the same 1-week period. The evening items assessed sleep latency and the level of sleepiness prior to bedtime. The morning items assessed the global number of night wakings and number of night wakings due to fears, level of subjective sleep quality, and total time awake during the night [23].

2.2.3. Child Behavior Checklist

The Child Behavior Checklist (CBCL) (version for 1.5–6 year olds) was used to assess behaviour problems as perceived by parents [24]. The CBCL is widely used for the assessment of behaviour problems in children with well-established psychometric properties. The CBCL has been translated into Hebrew and validated in Israel [25].

2.2.4. Brief Child Sleep Questionnaire

The Brief Child Sleep Questionnaire (BCSQ) provides information on children's sleep habits and problems. The BCSQ items were derived from the Brief Infant Sleep Questionnaire (BISQ) [23] and the Sleep Habits Questionnaire (SHQ) [26]. The BISQ was developed and validated as a brief infant sleep screening tool for clinical and research purposes [23]. Measures of internal consistency (Cronbach's alpha) for the SHQ scales range between 0.72 and 0.82 [26]. When completing the BCSQ, the parents were instructed to refer to their child's sleep over the past week. The items assessed sleep latency, number of night wakings, total time awake during the night, total sleep time during the night, movement during sleep, and sleep problems rating.

2.2.5. Night-time fears interview

A structured interview was held with parents to gain information on their child's night-time fears. The derived information included the coping behaviours adopted by parents and children to reduce night-time fears [3,27].

2.2.6. Family Background Information Questionnaire

The Family Background Information Questionnaire (FBIQ) includes 25 questions covering demographic and developmental data. The FBIQ has been established in previous studies in children [9,20,26,28].