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# The family role in children's sleep disturbances: Results from a cross-sectional study in a Portuguese Urban pediatric population <sup>☆</sup>



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## ABSTRACT

**Background:** Sleep Disorders (SID) are frequently undervalued complaints in childhood. Several factors influence sleep, particularly socio-cultural environment and medical conditions such as breathing disorders. Poor sleep hygiene has physical, educational and social consequences. In Portugal, there are few published studies about children's sleep habits and rarely based on validated questionnaires.

**Aim:** To study the prevalence of SID and associated factors, in an outpatient pediatric population of a Primary Health Care Center (PHCC).

**Methods:** Cross-sectional study of children admitted to a PHCC on a suburban area of Lisbon. Children Sleep Habits Questionnaire, validated for the Portuguese population (CSHQ-PT) for the screening of SID (cut-off=44), was applied to parents, as well as a demographic inquiry. Body mass index z-score was evaluated. Children scoring 44 or above were sent to Pediatric Sleep Disorders consultation (PSDC). Parametric and non-parametric tests were used whenever appropriate.

**Results:** From 128 children, 57.8% were male; the median age was 6.0 years ( $P_{25}=5.0$ ;  $P_{75}=8.0$ ). The median of cohabitants per family was 4.0 ( $P_{25}=3.0$ ;  $P_{75}=5.0$ ); 21.1% lived in a single-parent family. From CSHQ-PT, 59.4% (76) scored above the cut-off. Data showed that children from a single-parent family have more SID ( $p=0.048$ ), particularly parasomnia ( $p=0.019$ ). Children with sleep disordered breathing (SDB) suffer more daytime sleepiness ( $p=0.034$ ). From 63 children sent to PSDC, 33 attended. Regarding these children, a difference was found between BMI z-scores of those with and without SDB ( $p=0.06$ ).

Abbreviations: SID, Sleep Disorders; OSA, obstructive sleep apnea; CSHQ-PT, Portuguese Children Sleep Habits Questionnaire; PHCC, Primary Health Care Center; BTR, bedtime resistance; SOD, sleep onset delay; SDur, sleep duration; PS, parasomnia; NW, night awakenings; SA, sleep anxiety; SDB, sleep disordered breathing; DTS, daytime sleepiness; BMI, body mass index; PSG, polysomnography

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*Conclusion:* Family structure plays a non-negligible role in children's sleep habits. Daily performance of children with SDB may become compromised.

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## 1. Introduction

Sleep is a vital physiological function and is known to be crucial to physical and mental health in children. Sleep Disorders (SD) are among the most common complaints in childhood, often undervalued by clinicians. Large epidemiological studies have found that about 30% of children suffer from sleep problems [1-4].

Extrinsic and intrinsic factors influence sleep, particularly socio-cultural environment and some medical conditions such as breathing disorders [5,6]. Sleep disordered breathing (SDB) is increasingly recognized in children with primary snoring, upper airway resistance syndrome and obstructive sleep apnea (OSA). A combination of anatomic factors such as adenotonsillar hypertrophy and decreased oropharyngeal dimensions is involved in the development of SDB, as well as overweight and obesity in children [7]. Snoring is more common in adults than in children, although it is estimated that approximately 6-12% of children snore frequently and that between 1% and 3% of children suffer from obstructive sleep apnea hypoventilation syndrome [8,9]. SDB includes potentially severe complications for children such as neuro-behavioural and cognitive, as well as the consequences in adulthood with an increased prevalence of metabolic syndrome with hypertension, obesity and insulin resistance [10,11].

It is recognized that poor sleep habits have physical, educational and social consequences [12]. As a result, it often interferes with daily life activities and family functioning. Family systems are dynamic, with reciprocal interactions that could have impact in child sleep, as well as child sleep problems can lead to family conflicts [13]. Not least important is the role of children's sleeping disorders in their mental health in adulthood [14].

The high prevalence of sleep problems, their negative implications for children and family and the success of educational interventions emphasize the need for early screening of Sleep Disorders [15]. Questionnaires are applied in clinical practice as recognized screening methods to evaluate sleep [16].

There are few Portuguese published studies about sleep habits in children and rarely based on validated questionnaires for the Portuguese population.

The primary aim of this study was to screen sleep habits and associated factors in an outpatient pediatric population of a Primary Health Care Center. In order to highlight children's sleep particularities in the studied population, a comparison of Children Sleep Habits Questionnaire validated for the Portuguese population (CSHQ-PT) subscales' scores with those of the CSHQ-PT questionnaire validation study, was also performed.

## 2. Material and methods

### 2.1. Subjects

A total of 136 children from 4 to 10 years old were admitted to a routine medical appointment at a Primary Health Care Center (PHCC) of a suburban area of Lisbon, from January to April 2013. All children, resident in the influence area of the referred PHCC, who attended a routine pediatric medical appointment in the referred period, were included. The exclusion criteria were: having less than 4 years old and more than 10 years and 364 days old; acute disease at the time of the medical appointment or in the previous week; the absence of authorization by parent or legal guardian and incomplete screening questionnaire. Since the aim was to screen sleep habits, children with chronic illness or comorbidities were not considered exclusion criteria in the present study.

The study was conducted in accordance with the principles of the Helsinki Declaration and was approved by the Clinical Council of the PHCC and National Committee for Data Protection. Informed consent was obtained from children's parents or a legal guardian.

### 2.2. Data

Children Sleep Habits Questionnaire validated for the Portuguese population (CSHQ-PT) [16] for the screening of SD (Portuguese cut-off of total score=44 points) was applied to parents or legal guardian. It comprises 8 subscales: bedtime resistance (BTR), sleep onset delay (SOD), sleep duration (SDur), parasomnia (PS), night awakenings (NW), sleep anxiety (SA), sleep disordered breathing (SDB) and daytime sleepiness (DTS). Each subscale was considered to be positive whenever a score higher than the mean of the subscales' scores of the CSHQ-PT questionnaire validation study was attained. An inquiry with demographic, health status and anthropometric information was also applied. Subjects were weighted on a calibrated scale to the nearest 100 g while wearing underwear and without shoes. Height was measured to the nearest 0.5 cm with a wall mounted stadiometer. Body Mass Index (BMI) z-score was determined by Center for Disease Control growth charts. Overweight was considered if BMI z-score was 2 or above.

### 2.3. Patient Referral

The criteria to any sleep disorder were met in children who scored 44 or above in CSHQ-PT. To those, a free specialized consultation of Pediatric Sleep Disorders (PSD) in the referral hospital was granted, in the following 3 months. Clinical

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