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To Study the Sleep Disoders in Children Aged Between 6-18 Years Attending the Pediatric Out Patient Department

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ABSTRACT

Background: Sleep disorders are common in childhood and adolescence and are associated with neurocognitive and psychosocial impairments as well as an increase in caregiver burden. Current evidence indicates that chronically disrupted sleep in children and adolescents can lead to problems in cognitive functioning, such as attention, learning, and memory. Sleep-wake disorders are common and have an important impact on the quality of life of children, but if they are promptly recognised and treated the outcome is favourable.

Methods: The present study was a single-center, observational Study conducted on patients admitted/visited with sleep disorders in children aged between 6-18 years. Irrespective of treatment and in the department of Paediatrics, Sri Siddhartha Medical College hospital and Research Centre, Tumkur from January 2020 to July 2022. Prior initiation of the study obtained Ethical and Research Committee clearance from Sri Siddhartha Medical College hospital and Research Centre, Tumkur. During present study total 185 children were reviewed in OPD/IP, among 120 patients were enrolled into the study according present study inclusion criteria and 60 patients were excluded according exclusion criteria.

Results: Most of the subjects had a positive family history, i.e., 67.50 %; followed by 32.50 % subjects without significant family history. Most of the subjects were born second in the family, i.e., 64.17 % subjects; followed by 13.33 % subjects who were born first and finally 22.5 % subjects born third in the family. Most of the subjects belong to upper class, i.e., 29.17 % subjects; followed by 24.17 % subjects in lower middle class; 19.17 % subjects in upper middle class; 15.83 % subjects in upper lower class and finally 11.67 % subjects in lower class. Most of the subjects had the risk factor of bed sharing practice, i.e., 60 % subjects; followed by 58.33 % subjects with bad sleep practice; 35.83 % subjects with nose block; 34.17 % subjects with ambient environment; 32.50 % subjects with noisy breathing; 30.83 % subjects with insect bites and finally 24.17 % subjects with external influences. Most of the subjects experienced symptoms of difficulty getting sleep, i.e., 77.50 % subjects; followed by 55 % subjects with difficulty breathing in sleep; 43.33 % subjects with irritability; 40 % subjects with sleep talking; 27.50 % subjects with bruxism and finally 26.67 % subjects with sweating in sleep.

Key Words: *Children, Sleep*

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INTRODUCTION:

Sleep disorders in children, and adolescents present in a myriad of ways, often leading to significant impairments in multiple aspects of daytime functioning. While bedtime settling difficulties and frequent night time awakenings tend to be predominant during early childhood, sleep difficulties due to insufficient sleep hygiene or circadian rhythm disorders tend to be more prominent in adolescence. Onset of specific sleep problems in children and adolescents could further complicate any underlying comorbid medical condition, such as obesity and asthma, and psychological problems, such as depression, anxiety, and substance abuse. Sleep-wake disorders are common and have an important impact on the quality of life of children, but if they are promptly recognized and treated the outcome is favorable. A number of physical changes occur during adolescence including changes in the region of the brain controlling sleeping[1]. Simultaneously, teenagers are required to take up increasingly newer social roles and responsibilities. To further complicate, the immense pressure to perform well in academics and peer pressure in different domains result in a drastic change in the sleep pattern and sleep quality. It is therefore imperative to establish healthy sleep practice during adolescence and even in childhood. Our aim in this study is to observe the sleep disorders and problems among school going children and adolescents in our community.

AIM & OBJECTIVES:

To study the sleep disorder in children aged between 6-18 years attending the pediatric outpatient department. To assess the Sleep patterns in children and to identify Factors affecting sleep patterns in children aged between 6-18years

Materials and Methods:

The present study was a single-center, observational Study conducted on patients admitted/visited with sleep disorders in children aged between 6-18 years. Irrespective of treatment and in the department of Pediatrics, Sri Siddhartha Medical College hospital and Research Centre, Tumkur from January 2020 to July 2022. Prior initiation of the study obtained Ethical and Research Committee clearance from Sri Siddhartha Medical College hospital and Research Centre, Tumkur. During present study total 185 children were reviewed in OPD/IP, among 120 patients were enrolled into the study according present study inclusion criteria and 60 patients were excluded according exclusion criteria. Not willing to participate, Children with neuropsychiatric disorder like meningitis encephalitis encephalopathy suspected psychological or psychiatric disorders, Children on treatment with antiepileptic or any other drugs that affect sleep, Children with medical disorders like hypothyroidism were excluded from the study. Cases selected from the patients with sleep disorders in children aged between 6-18 years, after taking consent, were analyzed clinically. All the patients selected for the study was examined according to protocol. All the patients fulfilled selection criteria were explained about the details of the disease process, options of treatment, ultimate outcome, possible effects, complications and chances of recurrence in both procedure and a written informed consent was obtained before enrollment. All the data was collected from the patients admitted in the department of pediatrics wards with sleep disorders in children aged between 6-18 years and those patients who attended in-patients and out-patient department with detailed history & thorough physical examinations. It included age, sex, nationality, complaints, and duration of symptoms. Telephone contact numbers and detailed address were collected for follow up. The collected data was entered into Microsoft Excel Worksheet-2010 and data was taken into IBM SPSS Statistic for windows, version 24(IBM Corp., Armonk, N.Y., USA) software for calculation of frequency, percentage, mean, standard deviation and Probability value.

Observations and Results:

Table 1: Subjects were distributed according to age group:

Age Group	No. of Patients	Percentage
Primary School (6-11years)	32	26.67
High School (12 – 16 Years)	58	48.33
College (17-18 Years)	30	25.00
Total	120	100

Table 2: Subjects were distributed according to gender:

Gender	No. of Patients	Percentage
Male	72	60.00
Female	48	40.00
Total	120	100

Table 3: Subjects were distributed according to birth order:

Birth order	No. of Patients	Percentage
First	27	22.50
Second	77	64.17
Third	16	13.33
Total	120	100

Table 4: Subjects were distributed according to Family History

Family History	No. of Patients	Percentage
Yes	81	67.50
No	39	32.50
Total	120	100

Table 5: Subjects were distributed according to Socioeconomicstatus

Socioeconomicstatus	No. of Patients	Percentage
Upper class	35	29.17
Upper middle	23	19.17
Lower middle	29	24.17
Upper lower	19	15.83
Lower	14	11.67
Total	120	100

Table 6: Mean of demographic parameters:

Demographic details	Mean	Sd
Height	125.65	29.41
Weight	46.32	7.65
BMI	21.35	2.94

Table 7: Subjects were distributed according to risk factors:

Risk Factor	No. of Patients	Percentage
Bed sharing Practice	72	60.00
Nose block	43	35.83
Noisy breathing	39	32.50
Insect Bites	37	30.83
External Influences	29	24.17
Ambient environment	41	34.17
Bad sleep practice	70	58.33

Table 8: Subjects were distributed according to Symptoms

Symptoms	No. of Patients	Percentage
Difficulty getting sleep	93	77.50
Sleep talking	48	40.00
Bruxism	33	27.50
Sweating in sleep	32	26.67
Irritability	52	43.33
Difficulty breathing in sleep	66	55.00

Table 9: BEARS sleep algorithm domain responses:

BEARS sleep algorithm	Yes	No
Bedtime problems	81 (67.50%)	39 (32.50%)
Excessive daytime sleepiness	65 (54.17%)	55 (45.83%)
Awakenings during the night	72 (60.00%)	48 (40.00%)
Regularity and duration of sleep	68 (56.67%)	52 (43.33%)
Snoring	61 (50.83%)	59 (49.17%)

Table 10: Mean times of subjects:

Variable	Mean	Sd
Time of last meal	21.12	1.12
Time of going to bed in night (average)	22.34	2.41
Time of waking up in morning (average)	6.32	1.42
Duration of sleep in hours	5.78	1.17
Duration of physical activity/day	1.37	0.58

DISCUSSION:

Most of the subjects were in the age group of 12 – 16 years (studying high school). i.e., 26.67 % subjects; followed by 48.33 % subjects in the age group of 6 -11 years (studying primary school) and finally 25 % subjects in the age group of 17-18 years (attending college).Most of the study subjects were males, i.e., 60 % followed by 40 % females. The results of our study were in co-relation with the past studies conducted by **Mishra A et al**[2]**, Oginska H et al**[3]**.** Most of the subjects were born second in the family, i.e., 64.17 % subjects; followed by 13.33 % subjects who were born first and finally 22.5 % subjects born third in the family. The results of our study were in co-relation with the past studies conducted by **Steenari MR et al**[4]**, Walker MP et al**[5]**.** Most of the subjects had a positive family history, i.e., 67.50

%; followed by 32.50 % subjects without significant family history. The results of our study were in co-relation with the past studies conducted by **Kuriyama K et al**[6]**.** Most of the subjects belong to upper class, i.e., 29.17 % subjects; followed by 24.17 % subjects in lower middle class; 19.17 % subjects in upper middle class; 15.83 % subjects in upper lower class and finally 11.67 % subjects in lower class. The results of our study were in co-relation with the past studies conducted by **Kuriyama K et al**[6]**, SekineM et al**[7]**.** Most of the subjects had the risk factor of bed sharing practice, i.e., 60 % subjects; followed by 58.33 % subjects with bad sleep practice; 35.83 % subjects with nose block; 34.17 % subjects with ambient environment; 32.50 % subjects with noisy breathing; 30.83 % subjects with insect bites and finally 24.17 % subjects with external influences. The results of our study were in co-relation with the past studies conducted by **Nixon GM et al**[8]**.** Most of the subjects experienced symptoms of difficulty getting sleep, i.e., 77.50 % subjects; followed by 55 % subjects with difficulty breathing in sleep; 43.33 % subjects with irritability; 40 % subjects with sleep talking; 27.50 % subjects with bruxism and finally 26.67 % subjects with sweating in sleep. The results of our study were in co-relation with the past studies conducted by **Petta D et al**[9]**.** Most of the subjects had bedtime problems, i.e., 67.50 % subjects and 32.50 % subjects did not have them. Most of the subjects had excessive daytime sleepiness i.e., 54.17 % subjects and 45.83 % subjects did not have it. Most of the subjects had awakenings during the night i.e., 60 % subjects and 40 %subjects did not have it. Most of the subjects had regularity and duration of sleep i.e., 56.67 % subjects and 43.33 % subjects did not have it. Most of the subjects had snoring i.e., 50.83 % subjects and 49.17 % subjects did not have it. The results of our study were in co-relation with the past studies conducted by **Owens JA et al**[10]**, MohammadiM et al**[11]**.**

CONCLUSION

A high frequency of sleep-related problems is common among school-age children. The effects are not limited to the children, but also spread to parents and perhaps siblings as well. According to socio economic status, the lower middle class subjects have 35.8% presence of co-sleeping than upper middle class subjects and due to co sleeping 34.5% adolescents frequently wake up during night. .12-14 years 58(48.3%)subjects had > 9 hours sleep and 15- 18 years 30(25%) had < 9 hours sleep. 18.6% adolescents have delay in the bedtimes after having drinks with caffeine after 8 pm. In 15-18years adolescents, 52.3% adolescents use their bed for other than sleep like doing homework, watching television, talking in telephone, playing video games. Frequent waking and struggles at bedtime can be wearing on the whole family. Problematic sleep may endanger children's optimal development and could also have an adverse effect on the interaction between child and parent given that sleeping problems in children often require the parent to be awake during the night as well. Sleep problems are quite persistent at school age, However, children regarded as good sleepers in preschool years seldom develop sleep difficulties at school age, which indicates the need to identify and treat potential problems during the preschool period in particular. If such problems are not resolved before school age they may adversely affect the on child's behavioral and emotional development.

Conflict Of Interest and Financial Support – NIL
Ethical approval -- The study was approved and ethical clearance taken from the Ethics committee, Sri Siddhartha Medical College, Tumkur , Karnataka.

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