Original Research Paper

Volume - 13 | Issue - 06 | June - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Paediatrics

PREVALENCE OF PARASOMNIAS IN CHILDREN ATTENDING TERTIARY CARE HOSPITAL IN BENGALURU

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ABSTRACT **Introduction:** Parasomnias in childhood are common. The large number of parasomnias underscore that sleep is not simply a quiescent state, but can involve complex episodes of movement, ranging from subtle to dramatic and complex. To develop a successful treatment plan for such illness, it is critical to recognise these behavioural issues. **Materials and method:** This cross sectional Observational study was conducted at Tertiary care hospital in Bangalore for children aged between 1 and 18 years attending during the period from February 2021 to August 2022. **Results:** As per inclusion exclusion criteria, 40 patients were included in the study. The age of the study participants was between 1-18 years. 55% (22) were males and females were 45% (18), 62.5% (25) were from rural area and 37.5% (15) were from urban area. Out of 40 subjects, 37.5% (15) subjects had sleep talking, 30%(12) subjects had bruxism, 12.5% (5) subjects bed wet in night, 12.5% (5) had nightmares,). 2.5% (1) subjects woken up screaming at night. **Conclusion:** It was concluded that parasomnias were prevalent among one- fifth of the children attending tertiary care hospital in this current cross-sectional study.

KEYWORDS : Sleep disorder; behavioral problems; sleep talking; awareness.

Introduction:

Parasomnias are unwanted motor, autonomic, or sensory occurrences that happen primarily predominantly while you're asleep. Bruxism, sleep terrors, and somnambulism are a few instances of the many childhood parasomnias that are frequent.(1) Children who have extreme trouble falling asleep, need excessive assistance to fall asleep, frequently wake up during the night and/or get out of bed, and get up very early in the morning are all examples of children who have sleep disorders. They are frequently categorized as "behavioral sleep disorders" since it is believed that the child's behavior is the cause of the issue. These issues could result in inadequate sleep and serious disruptions to family life.(2)

Depending on which of the two sleep stages they are associated with, they are generally categorized as either rapid eye movement (REM) parasomnias or non-REM parasomnias. Non-REM parasomnias, also known as arousal disorders, are characterized by simple or complicated activities that result from slow-wave sleep arousal, which often occurs in the early half of the night. They frequently evoke a positive family history and are connected with mental confusion and amnesia regarding the occurrence.(3)

In case of parasomnia, in order to protect the child, management techniques could include things like putting the mattress on the floor rather than a bed frame and attaching locks to doors to stop the youngster from unlocking basic latches while they are sleep walking. When parasomnias occur in otherwise healthy youngsters, simple techniques to reduce the frequency of occurrences are usually beneficial. These techniques include: extending the sleeping hours, reducing anxiety and struggles during bedtime and investigating for excessive daytime sleepiness and circadian rhythm disorders.(4)

Diagnosis and treatment might be delayed or inaccurate as a result of misdiagnosis of sleep disorders including narcolepsy and parasomnias as epilepsy or another neurologic ailment.(5) Therefore, understanding sleep disorders is essential for any neurology healthcare professional to assure accurate diagnosis, lessen the burden of symptoms, and improve disease management.

Materials and methods

This cross sectional Observational study was conducted at Tertiary care hospital in Bangalore for all children aged between 1 and 18 years attending for duration of 18months. Exclusion criteria were, children less than one year of age, children not accompanied by primary caretakers.

Children with suspected sleep problems were identified and further assessed in a designated sleep clinic. The sleep clinic was run by the Post graduate and a consultant Pediatrician with interest in sleeps disorders. Detailed history was elicited based on a validated children's sleep questionnaire.

Anthropometric measurements including height, weight and BMI were recorded. Examination of ENT was done to identify adenoid faces, enlarged tonsils and adenoids. A thorough systemic examination was done. Based on history and Clinical examination, a provisional diagnosis was made. Advice on sleep hygiene was given. Wherever appropriate, children were referred to a tertiary sleep clinic.

Results

The overall prevalence of Parasomnias was 22.5% (95% CI: 10.84%, 38.45%). (Table 1)

Table-1:Prevalance of sleep disorders

Parasomnias	Frequency	Percentage(%)
No	31	77.5
Yes	9	22.5
Total	40	100

The prevalence of Parasomnias in the age group 1-5 years was 16.7% (95% CI: 3.6%, 57.87%), in the age group 6-10 years was 30.4% (95% CI: 13.86%, 54.87%) ,in the age group 11-18 years was 9.1% (95% CI: 2.3%, 41.28%) (Table 2)

Table-2:Age distribution of parasomnias

Age	Parasomnias				Total	
	No		Yes			
	n	%	n	%	n	%
1-5 years	5	83.3	1	16.7	6	15
6-10 years	16	69.6	7	30.4	23	57.5
11-18 years	10	90.9	1	9.1	11	27.5
Total	31	77.5	9	22.5	40	100

The prevalence of Parasomnias among males is 31.8% (95% CI: 13.86%, 54.87%) and among females was 11.1% (95% CI: 1.37%, 34.71%) (Table 3)

Table-3:Sex distribution of parasominas

Sex	Parasomnias				Total	
	No		Yes			
	n	%	n	%	n	%
Male	15	68.2	7	31.8	22	55

Female	16	88.9	2	11.1	18	45
Total	31	77.5	9	22.5	40	100

The prevalence of Parasomnias among those having awareness of sleep problems was 14.3% (95% CI: 0.36%, 57.87%) and those who are not aware of sleep problems was 24.2% (95% CI: 11.09%, 42.26%) (Table 4)

Table-4:Awareness of sleep problems among parents.

Awareness of sleep problems among parents	Parasomnias				Total	
	No		Yes			
	n	%	n	%	n	%
Yes	6	85.7	1	14.3	7	17.5
No	25	75.8	8	24.2	33	82.5
Total	31	77.5	9	22.5	40	100

The prevalence of Parasomnias among those having enough sleep is 22.5%. All the cases had enough sleep and none of them had a deficiency in enough sleep.

The prevalence of Parasomnias among those having a bedtime routine was 17.4% whereas those who do not have a bedtime routine had a 29.4% prevalence of Parasomnias. Of those having different sleep, none had Parasomnias, and among children who do not have different sleep found to have the prevalence of Parasomnias was 23.1%.

The prevalence of Parasomnias was 26.5% among those children who share their parents' room; share a bed with their parents.

The prevalence of Parasomnias was 33.3% among those who move to parents bed at night. And the Prevalence of Parasomnias was 21.6% among those who do not move bed at night.

The prevalence of Parasomnias was 27.33% among those who fear the dark, and the prevalence of Parasomnias was 20.7% among those who do not fear the dark.

The prevalence of Parasomnias was 30.8% among those who need parents, and the prevalence of Parasomnias was 18.5% among those who do not need parents.

The prevalence of Parasomnias was 60.0% among those who walk at night while sleeping, and the prevalence of Parasomnias was 17.1% among those who do not walk at night while sleeping.

None of the study subjects had a habit of head-banging. Among subjects who do not have a habit of head banging, the prevalence of Parasomnias was 22.5% None of the study subjects had a covid altered sleep. Among subjects who do not have a covid altered sleep, the prevalence of Parasomnias was 22.5%

The prevalence of Parasomnias was 14.3% among those who have an awareness of sleep problems. The prevalence of Parasomnias was 24.2% among those who do not have an awareness of sleep problems. (Table 5)

Table 5:Sleep Parameters and Parasomnias Crosstabulation

Study parameters		Parasomnias				Total	
		No		Yes			
		n	%	n	%	n	%
Enough sleep	Yes	31	77.5%	9	22.5%	40	100.0%
	No	0	0.0%		0.0%	0	0.0%
Bedtime routine`	Yes	19	82.6%	4	17.4%	23	57.5%
	No	12	70.6%	5	29.4%	17	42.5%
Difference sleep	Yes	1	100.0%	0	0.0%	1	2.5%
	No	30	76.9%	9	23.1%	39	97.5%
fall asleep on own bed	Yes	26	78.8%	7	21.2%	33	82.5%
	No	5	71.4%	2	28.6%	7	17.5%
sleeping place	own room; separate bed	4	100.0%	0	0.0%	4	10.0%
	own room; shares bed with a sibling	2	100.0%	0	0.0%	2	5.0%
	parents' room; shares bed with parents	25	73.5%	9	26.5%	34	85.0%
moves bed at night	Yes	2	66.7%	1	33.3%	3	7.5%
	No	29	78.4%	8	21.6%	37	92.5%
fear dark	Yes	8	72.7%	3	27.3%	11	27.5%
	No	23	79.3%	6	20.7%	29	72.5%
parent needed	Yes	9	69.2%	4	30.8%	13	32.5%
	No	22	81.5%	5	18.5%	27	67.5%
Night walking	Yes	2	40.0%	3	60.0%	5	12.5%
	No	29	82.9%	6	17.1%	35	87.5%
Trouble falling asleep	Yes	1	100.0%	0	0.0%	1	2.5%
	No	30	76.9%	9	23.1%	39	97.5%
Head banging	Yes	0	0.0%	0	0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
Covid altere	Yes	0	0.0%	0	0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
Awareness sleep problems	Yes	6	85.7%	1	14.3%	7	17.5%
	No	25	75.8%	8	24.2%	33	82.5%

None of the study subjects had Growing pains, Bedtime growing pain, Restless sleep, repeated jerks, excessive sweating, getting out of bed, getting up for urine, sleep paralysis, night terrors, and hypnagogic hallucinations

The prevalence of Parasomnias was 0.0% among those who have restlessness legs. The prevalence of Parasomnias was 24.3% among those who do not have restlessness legs.

The prevalence of Parasomnias was 33.3% among those who have a habit of bed wetting. The prevalence of Parasomnias was 20.6% among those who do not have a habit of bed wetting.

The prevalence of Parasomnias was 25.0% among those who have bruxism. The prevalence of Parasomnias was 21.4% among those who do not have bruxism.

The prevalence of Parasomnias was 50.0% among those who have a habit of walking during sleep. The prevalence of Parasomnias was 21.1% among those who do not have a habit of walking during sleep.

The prevalence of Parasomnias was 20.0% among those who have a habit of talking during sleep. The prevalence of Parasomnias was 24.0% among those who do not have a habit of talking during sleep.

The prevalence of Parasomnias was 00.0% among those who have night mares and the prevalence of Parasomnias was 24.3% among those who do not have night mares.(Table 6)

Table 6:Sleep Parameters and Parasomnias Crosstabulation

Study parameters		Parasomnias				Total	
		No		Yes			
		n	%	n	%	n	%
Growing pains	Yes	0	0.0%	0	0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
Bedtime growing pain	Yes	0	0.0%	0	0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
Restless sleep	Yes	0	0.0%	0	0.0%	0	0.0%

	No	31	77.5%	9	22.5%	40	100.0%
restlessness legs	Yes	3	100.0%	0	0.0%	3	7.5%
	No	28	75.7%	9	24.3%	37	92.5%
repeated jerks	Yes		0.0%		0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
excessive sweating	Yes		0.0%		0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
getting out of bed	Yes		0.0%		0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
getting up for urine	Yes	0	0.0%	6	100.0%	6	15.0%
	No	30	90.9%	3	9.1%	33	82.5%
bed wetting	Yes	4	66.7%	2	33.3%	6	15.0%
	No	27	79.4%	7	20.6%	34	85.0%
sleep paralysis	Yes	0	0.0%	0	0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
bruxism	Yes	9	75.0%	3	25.0%	12	30.0%
	No	22	78.6%	6	21.4%	28	70.0%
sleep walking	Yes	1	50.0%	1	50.0%	2	5.0%
	No	30	78.9%	8	21.1%	38	95.0%
sleep talking	Yes	12	80.0%	3	20.0%	15	37.5%
	No	19	76.0%	6	24.0%	25	62.5%
night mares	Yes	3	100.0%	0	0.0%	3	7.5%
	No	28	75.7%	9	24.3%	37	92.5%
night terrors	Yes		0.0%		0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%
hypnagogic hallucinations	Yes		0.0%		0.0%	0	0.0%
	No	31	77.5%	9	22.5%	40	100.0%

Discussion

Previous studies carried out by Iglowstein et al. in 2003 and Waters et al. in 2013 states that an age-related variation in the average duration of sleep varies accordingly at different points of time in an individual. (6,7) Whereas, in this study the participants' age distribution ranged from 1.5 to 17 years of age, with 7.9 years being a mean age; the standard deviation being 3.3 years, at a median of 8 years with an interquartile range of (5– 10) years.

A study conducted by McKnight-Eily et al. in 2011 had 49% of females and 50.3% of males as their study population. (8)

Another study carried out by Kim et al. in 2010 and Iglowstein I et al. in 2003 both of which had 52% of males and 48% of females in Seoul, Korea in the year 2017. (9)

These results were thus in concurrence to a the gender-distribution of current study which revealed that most of the study participants were males 54.8% (114); while females made up 45.2% (94) of the study population which was exactly similar to Blunden et al. study in 2004. (10)

Non-REM parasomnias, also referred to as arousal disorders, are characterized by simple or complicated activities that result from slow-wave sleep arousal, which often occurs in the early half of the night. They frequently evoke a positive family history and the current study had similar results.(3) In a recent study, it was found that parasomnias, insomnia, and obstructive sleep apnea all occur at rates of 14%–37%, 5%–27%, 1%–3%, and 5%–27%, respectively, in children and adolescents. The prevalence of sleep-related disorders was found to be around 43% in these age groups.(11)

Limitations

The major limitation of this study was that the questioning and administration of the questionnaire was constrained to the parents or caretakers only. Lack of awareness of parents about their child's parasomnias may lead to increased chances of under reporting and addressing sleep issues. Nevertheless, the data obtained from parents were revealed to be more precise.

The current study did not inquire the parents about their socio-economic statuses or financial conditions of the child which might have a considerable amount of influence in the child's patterns of sleep.

Conclusion

Parasomnias are prevalent among one- fifth of the children attending tertiary care hospital in this current cross- sectional study. Parents lacked awareness about the parasomnias faced by their children and this could have resulted in the under diagnosis of sleep disorders.Furthermore, children visiting the hospital had underlying illnesses which could have influenced the child's sleeping patterns.

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