



ORIGINAL ARTICLE

The sleep problems diagnosed among children with autistic spectrum disorder (ASD).

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ABSTRACT... Objective: To find the sleep problems in children who are diagnosed with Autism Spectrum Disorder between the age ranges from 3 to 12 years. **Study Design:** Cross-sectional Observational study. **Setting:** Department of the Developmental Pediatrics Children Hospital Lahore and Department of Occupational Therapy, Rising Sun, Lahore. **Period:** February 2017 to November 2017. **Material & Methods:** This study included 300 children who were diagnosed with ASD having sleep problems between ages 3-12 years. All other children were excluded. Data was collected by using Albany sleep problem scale. The sample size was determined by utilizing WHO Software for test size assurance in wellbeing considers. **Results:** Results demonstrated that majority of the kids presented with different sleep disorders such as (83%) of the children took a lot of time to sleep. Moreover, (43.2%) of the children depicted continuous awakening during night time. (63.4%) of the kids faced Respiratory problems. (53%) children showed restlessness during sleep. Furthermore, (83.3%) of the children remained consciousness during sleep. **Conclusion:** Study concluded that most habitually sleep issues in ASD kids are nodding off, fretful rest, not falling stay in own bed, take an hour to sleep, kicking legs and successive enlightenments. Less commonly sleep problems were sleep strolling, sleep talking, and resistance to go in bed, excessive sleep-in day screams uproariously.

Key words: Autism, Autistic Child, Autistic Disorder, Autism Spectrum Disorder, Childhood, Sleep Disorders.

INTRODUCTION

Autism Spectrum Disorder (ASD) is a developmental disability that is described by communication and social impairments in relation to repetitive and restricted behaviors.¹ Hypothetically, ASD is considered as a continuum of mental and psychological conditions that necessitates moderate to substantial support to overcome with deficits and lags in social interaction, repetitive & restricted behaviors.² Sleep difficulties are often considered as co-morbidities of Autism Spectrum Disorder.³ Lack of sleep and decreased sleep quality also exerts a deteriorating impact on learning abilities, emotional processing and social interactions.⁴ Meta-scale studies (n>1000) who are published in the previous five years reported sleep problems in ranges from 30 to 72% of children and adolescents who are diagnosed with ASD.⁵

Children with ASD are more likely to show sleep related problems (48%) as compared to their other siblings, 16%, when the family factors are well controlled like noisy environment, stress, child-rearing practices (no supervision from their parents).⁶

Sleep disturbances have also been reported among adults with prominent signs of ASD youngsters are that they does not respond to name by three hundred and sixty five days of age, avoids eye-to-eye contact, likely to play their own, delayed speech and language competencies, reverses pronouns (e.g., says “you” in place of “I”), gives unrelated answers to questions, Does not point or reply to pointing, lays with toys the equal manner on every occasion, traces up toys or different objects, Play likes components of items (e.g., wheels), gets dissatisfied by using

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minor modifications, has obsessive pursuits, has to observe positive workouts, Flaps hands, or spins self in circles, rocks body, unusual reactions to the manner things sound. Sleep is not a uni-process but it includes multiple cycles that variates from rapid eye movement (REM) to Non-rapid eye movement (NREM).⁷

Sleep can further by subcategorized into Non-rapid eye movement 1, Non-rapid eye movement 2, Non-rapid eye movement 3 degrees that explicit some characteristics like sufficient electroencephalographic hobby with low muscle tone, growing lazy, and gradual or no eye actions.⁸ ASD is associated with a higher prevalence of behavioral insomnia syndrome, Delayed sleep phase, obstructive sleep apnea. Parasomnias like; disoriented waking, bedwetting, night terrors, bruxism, rhythmic movements while falling asleep, sleep walking, and acting out dreams.⁹ Based on several questionnaires, a cross-sectional study across lifespan reports more, sleep anxiety, bedtime resistance, and night waking in children with ASD, parasomnias, where-as adolescents who are also victim of ASD features more daytime sleepiness, delayed sleep onset, shorter sleep duration.¹⁰ Sleep disturbances in the victims of ASD can be referred to environmental, social, biological, psychological. Co-morbid medical conditions may also aggravate sleep disturbances in people with Autism Spectrum Disorder such as, epilepsy, attention-deficit hyperactivity disorder, asthma pain and GI problems. Since, ASD patients are very sensitive, they more often fall asleep in their parent's arms.¹¹ Similarly, in fact little changes affects their behavior much.

A study conducted on ASD's victims stated that sensitivity abnormalities also trigger sleep problems.¹² Conversely, the hypersensitivity in ASD's victims imparts anxiety, un-easiness, mood-swings on bed at home, for instance when they brush their teeth it assists in sleeping difficulty.¹³ One of the studies confirms that children with auditory dysfunctions, have more troubled sleeping.¹⁴ Sleep difficulties are somewhat associated with poor developmental functioning in toddlers or infants. In children

and adolescents, sleep disturbances, like; less sleep duration, predicts ASD symptom severity. Poor ASD sleepers have high problems in social interactions with other people.¹⁵ Symptoms of insomnia described as difficulty beginning or preserving sleep, are the essential sleep worries mentioned through dad and mom of youngsters with ASD. ASD are more likely to show off insomnia with extended sleep latency (time to doze off), bedtime resistance, reduced sleep performance (decreased time asleep on the subject of time in bed), decreased sleep period and continuity, and increased awakenings. normal, sleep-onset insomnia (issue falling asleep) is extra common place, in comparison with sleep preservation insomnia (difficulty staying asleep) although children with ASD frequently revel in factors of both).¹⁶ Psychiatric co morbidities, including attention-deficit/hyperactivity disease (ADHD), and obsessive/repetitive conduct, anxiety/depression can additionally make contributions to insomnia and may also additionally be exacerbated via insomnia.^{17,18,19} The rationale of this study is that, there are very less studies in Pakistan which address this disorder among children.

MATERIAL & METHODS

It was an observational and cross-sectional study that included children who were diagnosed with Autism Spectrum Disorder. Data was collected from the Department of Developmental Pediatrics Children Hospital Lahore & Department of Occupational Therapy, Rising Sun, Lahore. The study duration was nine months from February 2017 to November 2017. 300 Children were added in our study. The sample size was determined by utilizing WHO Software for test size assurance in wellbeing considers. (Wanga and Limeshow, 2001). Convenient sampling technique were applied. The children with diagnosis of ASD having sleep problems between age range 3-12 years were included in this study. While, and all other children who were not fulfilling the above-mentioned criteria were excluded. Data was collected by using Albany sleep problem scale. This research was analyzed by using software SPSS version 24. Ethical committee approval was taken prior to research from the Institutional

Review Board (IRB) of Children Hospital Lahore (2325/SAHS).

RESULTS

Table-I shows that 50% of autistic children have not oppositional behavior whereas 23% showed this behavior less than once per week, 4% showed one to three times in a week, 2% three to six times per week and 6.7% showed nightly. It is observed that wake mid night behavior is observed 23.3% less than once per week, 13.3% one to three times per week, 3.3% children showed three to six times per week and 10% showed this behavior nightly. 16.7% children showed screaming at night less than once per week, 6.7% one to three times per week, 3.3% showed this behavior three to six times per week.

Table-II shows that play in bed behavior of autistic children have 23.3% less than once per week, 13.3% one to two times per week, 10% showed three to six times per week and 13.3% showed nightly. Vigorous activity behavior showed by autistic child 23.3% less than once per week, 16.7% one to two times per week, 6.7% three to six times per week, 20% showed nightly.

Resistance to go in bed behavior of autistic child 16.7% less than once per week, 10% one to two times per week and 3.3% showed nightly. The children that take one an hour to sleep less than once per week is 26.7%, one to two times per

week is 20%, three to six times per week is 10% and 26.7% showed this behavior nightly. 33.3% of children awake at night less than once per week, 3.3% one to two times per week, three to six times per week as well as nightly Difficult to sleep behavior of children showed 20% less than once per week, 16.7% one to two times per week, 13.3% showed this behavior nightly.

Table-III shows that Snoring behavior by autistic children showed 30% less than once per week, 3.3% showed one to two times per week. 3.3% showed three to six times per week, 3.3% showed this behavior nightly. 33.3% autistic children facing breathing difficulty 33.3% less than once per week, 16.7% showed one to two times per week, 3.3 % showed this behavior nightly.

Table-IV shows that Teeth grinding behavior in autistic child is observed 30% less than once per week, 10 % one to two times per week, 6.7% three to six times per week and 13.3% showed this behavior nightly. Banging behavior frequency is 23% less than once per week, 6.7% one to two times per week and 33.3% nightly. Kicking leg behavior is observed 36.7% less than once per week, 3.3% one to two times per week and 13.3% showed this behavior nightly. Body movement is observed by an autistic children are 26.7% less than once per week, 10% showed one to two times per week, 6.7% showed three to six times per week and 10% showed this behavior nightly.

Nightmare	Total	Never	Less Than Once Per Week	One to Three Two Per Week	Three to Six Time Per Week	Nightly
oppositional	300 (100%)	150 (50%)	70 (23.3%)	40 (13.3%)	20 (6.7%)	20 (6.7%)
Wake mid night	300 (100%)	150 (50%)	70 (23.3%)	40 (13.3%)	10 (3.3%)	30 (10%)
Screams loudly	300 (100%)	220 (73.3%)	50 (16.7%)	20 (6.7%)	10 (3.3%)	00

Table-I. Frequency of nightmare.

Insomnia	Total	Never	Less Than Once Per Week	One To Two Time Per Week	Three To Six Time Per Week	Nightly
Play in bed	300 (100%)	120 (40%)	70 (23.3%)	40 (13.3%)	30 (10%)	40 (13.3%)
Vigorous activity	300 (100%)	100 (33.3%)	70 (23.3%)	50 (16.7%)	20 (6.7%)	60 (20%)
Resist to bed	300 (100%)	210 (70%)	50 (16.7%)	30 (10%)	00	10 (3.3%)
Take an hour to sleep	300 (100%)	50 (16.7%)	80 (26.7%)	60 (20.0%)	30 (10.0%)	80 (26.7%)
Awake at night	300 (100%)	170 (56.7%)	100 (33.3%)	10 (3.3%)	10 (3.3%)	10 (3.3%)
Difficult to sleep/awake	300 (100%)	150 (50%)	60 (20.0%)	50 (16.7%)	00	40 (13.3%)

Table-II. Frequency of insomnia.

Breathing Related Disorder	Total	Never	Less Than Once Per Week	One To Two Time Per Week	Three To Six Time Per Week	Nightly
Snoring	300(100%)	180 (60%)	90 (30%)	10 (3.3%)	10 (3.3%)	10 (3.3%)
Breathing During Sleep	300(100%)	110 (36.7%)	100 (33.3%)	50 (16.7)	20 (6.7%)	20 (6.7%)
Trouble Breathing	300(100%)	180 (60%)	60 (20%)	50 (16.7)	00	10 (3.3%)

Table-III. Frequency of breathing related disorder.

Sleep Related Disorder	Total	Never	Less Than Once Per Week	One To Two Time Per Week	Three To Six Time Per Week	Nightly
Teeth Grinding	300 (100%)	120 (40%)	90 (30%)	3 (10%)	2 (6.7%)	4 (13.3%)
Banging	300 (100%)	110 (36.7%)	70 (23.3%)	20 (6.7%)	00	100 (33.3%)
Kicking Leg	300 (100%)	140 (46.7%)	110 (36.7%)	10 (3.3%)	00	40 (13.3%)
Body Movement	300 (100%)	140 (46.7%)	80 (26.7%)	30 (10%)	20 (6.7%)	30 (10%)

Table-IV. Frequency of sleep related disorder.

DISCUSSION

Many studies on insomnia or parasomnias in Autism have reported widely inconsistent results. Some of the studies reported that incidence of parasomnia slow. Consequently, four studies exhibit that Autistic Children often prone to parasomnias.²⁰

A study demonstrated that ASD victimized adolescents and children suffer insomnia with higher rate (40% to 80%) than normal children.²¹ A research works on sleep disorder in ASD. This study examined sleep related problems, and their correlations autistic children. Participants included 167 ASD children, among them 108 with autistic disorder, 27 with Asperger's syndrome, and 32 with other/more diagnoses of ASD. The Mean age was 8.8 years, 86% were boys. The results showed that average night sleep duration was 8.9 hours (SD = 1.8), 16% of children shared bed with their parents. About 86% of children had at least one sleep problem almost every day, including 56% with insomnia, 53% with parasomnias, 54% with bedtime resistance, 25% with sleep disordered breathing, 45% with morning rise problems, and 31% with daytime sleepiness.²²

A group of scientists conducted a study on pediatric insomnia, they concluded that it is the commonest sleep disorder in pediatrics by stating that approximately 30% of the patients undergoes from this disorder, it is characterized

by multiple awakening sessions, sleep-agitations, poor hygiene, Furthermore, in few cases, behavioral insomnia can activates co-morbidities like; Obstructive sleep apneas, epilepsy, restless legs syndrome, limb movement in state of sleep and daytime sleeping, bruxism.²³ Results of the present study correlate with the study of Miano and giannotti. Children who shows resistance to go to bed (30%), children take an hour to sleep (83.3%), awake at night (43.2%), napping (23.3%) breathing related disorders (63.4%), wake mid night (43.2%), kicking leg (53.3%),play in bed (59.9%),difficulty to sleep awake (50%), early to sleep awake (83.3%), excessive sleep in day (36.6%), snoring (39.9%), trouble breath (40%), oppositional (50%), screams loudly (26.7%), sleep walking (15.7%), sleep talking (16.7%), teeth grinding (60%), banging (63.3%), body movements (53.4%).²⁴

A cross-sectional study was conducted to evaluate the condition about worsening of anxiety of sleep and improvement in the bedtime activities. Unluckily, the measurements objective of sleep in Autism Spectrum Disorder infants and toddlers are not mentioned or skipped as previous studies that involves questionnaires filled by their caregivers about parasomnias, short sleep duration, resistance in bedtime, sleepiness in daytime, walking at night, crying while waking-up before an age of two years.²⁵

CONCLUSION

Study concluded that most habitually sleep issues in ASD kids are nodding off, fretful rest, not falling stay in own bed, take an hour to sleep, kicking legs and successive enlightenments. Less commonly sleep problems were sleep strolling, sleep talking, and resistance to go in bed, excessive sleep-in day screams uproariously.






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6	Zahid Hussain	Statistical analysis & Final review.	