



Sleep and quality of life in children with Autism Spectrum Disorder during Covid-19 home confinement period

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ABSTRACT

Autism Spectrum Disorder (ASD), one of the most common neurodevelopmental conditions worldwide with a prevalence rate of 1%. The main backbone treatment of ASD such as individualized behavioral and educational therapies were further hampered during this COVID home confinement. This study aims to investigate the relationship between sleep patterns and autism symptoms of children with ASD during covid-19 home confinement period. It's a cross-sectional design using the following questionnaire Autism Behavior Checklist (AuBC), Children's Sleep Habits Questionnaire (CSHQ), KINDL^R. The questionnaire about the ASD children's sleep and quality of life behaviour before and during home confinement was collected from their parents via telephone and analysed. Out of 52 children with ASD with age range of 6 to 14 years 40 were boys and 12 were girls. Children with ASD during home confinement had sleep problems, and autism symptom score compared to the normal (non-confinement) state. The mean QOL score for children was 68.2 (out of 100.0) on the KINDL which is decreased compared to normal state. The sleep pattern and ASD symptoms were worsened in the ASD children when forced into house confinement during COVID-19 pandemic. It can be alleviated and may be controlled by medication and psychotherapy interventions, as well as parental education.



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INTRODUCTION

COVID-19 pandemic and confinement create a sensation of fear and anxiety around the globe. COVID-19 quarantine reported to have various negative psychological effects, includes post-traumatic stress, confusion, or anger [1]. This is limited only not to certain common population, also sports professionals, athletes, chess players with the highest academic level executes greater levels of personal concern, anxiety, lower psychological inflexi-

bility due to COVID-19 home confinement compared to the individuals with lower academic level [2]. To prevent the spread of Covid-19 infection self-isolation and distancing strategy has been developed. In this regard locked down of schools, colleges, higher institutions, recreational activities.

were done and it has highly reported to cause ridiculous experience leads to stress and anxiety among the people around the world including children and adolescents in an unprecedented manner [3]. Many studies shown that in adult individuals, children and adolescents with normal mental health during home confinement confronts the negative consequences includes stigma, fears of being infected, frustration and boredom, misinformation, lack of personal contact with friends and class fellows, lack of personal space at home, and family economic crisis [4]. Since April 2020 the offline system in schools and education system were transformed to online [5]. However, among the children with disabilities and mental health issues the home confinement and online education system exaggerates their lifestyle changes with anxious, grumpy, restless, and develop unpleasant feelings [6]. Autism Spectrum Disorder (ASD), one of the most common neurodevelopmental conditions worldwide with a prevalence rate of 1%. While online classes are proving to be favourable for most students in normal mental health, little concern and measure were taken for the psychological impact for children with disabilities. Behavioral and educational therapies remain the mainstay of treatment for ASD. Children with pre-existing mental and physical disability are at utmost given less importance despite the difficulty to manage them physically and mentally safe during the current situation. The main backbone treatment of ASD such as individualized behavioral and educational therapies were further hampered during this COVID home confinement. This situation further escalates the potential risk factors for developing mental health problems among the children with ASD [7]. Additionally, the ASD children managing issues will not be favoured by the presence of non-ASD siblings or peers in the home during the locked down further exaggerate their psychological behaviour and could not able to controlled by parents [8]. ASD children normally reported to have variations in their sleep patterns and disturbances irrespective of COVID-19 [9]. The home confinement was expected to have similar or even worse changes on sleep behaviour among the children with ASD. COVID-19 significantly reported worsening the sleep disturbances of children with ASD [10]. Though the variation in their sleep cycles were reported not only associated children's men-

tal problem but also other factors such as poorer parent mental health, their work patterns, financial stability, higher parenting stress may contribute to their quality of life and sleep issues that needs to be explored. Only limited research data were available at present regarding the cultural influences on treatment, behavior, improvement on ASD children's behaviour quality of life and sleep. This study was initiated to evaluate the sleep and quality of life in children with ASD (Autism Spectrum Disorder) during covid-19 home confinement period using validated questionnaires with their parents assistance.

MATERIALS AND METHOD

Study design

It is a cross-sectional study and was initiated after the institutional ethical clearance with a sample size of 50 children aged between (6-12 years). The participants recruited for this study was diagnosed with ASD and attends regularly the outpatient clinic at occupational therapy department of Saveetha Medical hospital, Chennai, India (based on the records). This study was conducted during home confinement period during COVID. The parents of the children with ASD was obtained verbal consent via telephone and the online written consent form was sent along with the following study questionnaires. Along with the questionnaires the demographic data was also collected regarding the age, gender and location of the participant.

Selection criteria

The following are the criteria's (Inclusion & Exclusion) to recruit the children for this study: Inclusion criteria 1. Children who had been regularly monitored and received their conventional assessment forms before the commencement of home confinement 2. Parents of children with ASD who agreed to participate. Exclusion criteria: 1. Not being in the age range of 6-12 years, 2. Having any chronic physical disease, 3. Having other neurodevelopmental disorders. No monetary compensation was given for the participants or their parents for this study.

Outcome measurement

The Autism Behavior Checklist: The AuBC checklist is one of the component that has been evaluated psychometrically as the Autism Screening Instrument for Educational Planning (ASIEP). It is behavior rating scale that has 57 items assessing the behaviors and symptoms of autism for children. The list of 57 questions was divided into 5 categories: 1. Sensory, 2. Relating, 3. Body and object use, 4. Language, 5. Social and self-help. Each item has

a weighted score ranging from 1 to 4. The AuBC is designed to be completed by a parent independently and approximately takes 10 to 20 min to complete [11].

Children's Sleep Habits Questionnaire (CSHQ): The Children's Sleep Habit Questionnaire (CSHQ) is a comprehensive screener of sleep disorders in children. The CSHQ was originally developed to assess sleep problems in TD children aged 4 to 10 years old, based on the pediatric International Classification of Sleep Disorders; however, it has been used to assess sleep disturbance in children of other ages and diagnostic populations, including children with ASD. The CSHQ is currently the most widely used standardized sleep assessment tool for children with ASD. The CSHQ produces a total score based on 45 items, and individual subscale scores based on 33 items, with higher scores indicating more severe sleep disturbance. The 33-item scale consists of eight subscales: 1. Bedtime Resistance, 2. Sleep Onset Delay; 3. Sleep Duration; 4. Sleep Anxiety; 5. Night Wakings; 6. Parasomnias; 7. Sleep Disordered Breathing; and 8. Daytime Sleepiness [12].

KINDL^R was used for assessing Health-Related Quality of Life in children and adolescents aged 3 years and older. It has 24 items, short, methodologically suitable, psychometrically sound and flexible measure of Health-Related Quality of Life in children and adolescents. All filled questionnaire were collected and analysed for scoring and interpretation [13].

Statistical analysis

Statistical analysis will be performed using IBM SPSS Statistical software. The paired sample t-test will be used to compare normally distributed data. The Pearson correlation test will be performed to evaluate the association between CSHQ and AuBC scores. A p-value <.05 will be considered statistically significant

RESULTS

A total of 52 children with ASD (40 boys and 12 girls) participated and provided their responses. The mean age of the children was 6.45 years with the range of 6 to 14 years. None of them got infected with Covid-19. Table 1 shows the baseline characteristics of the ASD children participated in this study. Table 2 showed that children with ASD during home confinement had sleep problems, and autism symptom score compared to the normal (non-confinement) state. The mean QOL score for children was 68.2 (out of 100.0) on the KINDL which is decreased compared to normal state. Tables 1

and 2

DISCUSSION

This was the first research showing a link between changing sleep patterns in children with ASD and their QOL during the COVID-19 stay-at-home period, based on the results of children's self-assessment. Previous studies also showed that children with ADHD and ASD were more likely to have sleep issues, which harmed their quality of life even when they were not in a crisis [14–16]. During the COVID-19 outbreak in Turkey, a study found that severe sleep disturbances were linked to an increase in ASD symptoms [17]. During the COVID-19 pandemic, altered sleep patterns were also linked to maladaptive behaviour in children. Internalizing symptoms were linked to disturbed sleep patterns in children with comorbid ASD or ADHD in previous research, even in non-emergency conditions. As a result, the COVID-19 outbreak's requirement for home confinement presents a clear danger for sleep issues. According to previous research, adults and children with ASD frequently have sleep disruptions and changes to their circadian sleep/wake schedule [18, 19]. Whereas, home confinement during the COVID-19 also contributing sleep pattern disturbance of the children with ASD. Severity of the autism behaviour also depends on of the sleep quality of the children. Our study demonstrated that sleep disturbances also contributing aggravation of behavioural symptoms.

CONCLUSION

In conclusion, sleep patterns and ASD symptoms deteriorated when kids with ASD were confined to their homes because of the COVID-19 epidemic. The COVID-19 epidemic's effects on housebound and socially isolated autistic children can be lessened if sleep disorders can be managed with medication, psychotherapy, and parental education initiatives.

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Conflict of Interest

The authors declare that there is no conflict of interest.

Table 1: Baseline details of the study participants

Variables	Total
Age (yrs)	6.45 (6-14)
Male: Female	40:12
BMI (kg/m ²)	19.32 (16-31)

Table 2: Results of the questionnaire

Questionnaire: children	Normal state	Details
Total CSHQ score	47.82 (8.25)	54.25(9.23)
Total AuBC score	56.41 (19.96)	72.12(26.38)
Total score of KINDL	-	82.3 (36-95)
Physical health	-	72.56 (28-98)
Emotional well being	-	76.50 (30-100)
Family	-	74 (30-100)
Self-esteem	-	64 (24-100)

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