

## Description Quality of Sleep of Children With Autism

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### Abstract

**Background:** A developmental disorder that affects communication and behavior is known as Autism. The prevalence of autism is still increasing, ranging from 1-2/1000 in males more than in females (4:1). In children with autism, physical health problems are often complained of, one of which is sleep problems, such as delayed sleep onset, frequent awakenings at night, and sleep duration. This problem makes parents stressed because it impacts the severity of behavior both during the day and at night.

**Objectives:** The description of sleep quality in children with autism.

**Methods:** Cross-sectional approach to 55 special school students with autism in Cimahi. Data collection was collected by measuring sleep quality with the Children's Sleep Habits Questionnaire (CSHQ) with a cut-off point of < 30 good sleep quality and > 30 sleep problems with Chronbach's alpha = 0.68 to 0.78. Content validity; ROC = 0.41, differentiating between clinical and control groups; sensitivity = 0.80, specificity = 0.72. Data analysis was carried out univariate (frequency distribution) and bivariate with a chi-square test.

**Results:** It was found that most of the children with moderate Autism had sleep problems (54.5%)  $p = 0.005$ .

**Conclusion:** The study results describe that some children with autism in the city of Cimahi have sleep problems in conditions of delayed sleep onset and often wake up at night.

**Keywords:** autism, CSHQ, sleep quality

### Introduction

Developmental disorders are a group of conditions with onset in infancy or childhood and characterized by impaired or delayed function related to the maturation of the central nervous system. The term developmental disorder that affects communication and behavior is known as Autism. Although Autism can be diagnosed at any age, it is described as a "developmental disorder" because symptoms generally appear within the first two years.<sup>1</sup> Autism is a very complex developmental disorder that has always been a mystery in the medical world. Autism is not new and has existed for a long time, but it has

not been diagnosed as Autism. Autism was first proposed in 1943 by a child psychiatrist, Leo Kanner, who detected 11 patients with the same symptoms of a neuropsychiatric disorder characterized by severe and ongoing disturbances in infancy, social interactions, deviations in communication, and limited patterns of behavior and interests, stereotypes, or both.<sup>2</sup>

The onset of autism symptoms could be from birth since, in 1980, Autism was very rare, but it could also only arise after the child was between 12-24 months old (Regressive Autism). Since birth, those showing symptoms are usually difficult to detect.<sup>1</sup> The earliest suspicion of a new abnormality can arise when the child is about four months old; the baby does not want to look into his mother's eyes and is unresponsive. Sometimes, eating and digestive disorders include diarrhea, bloating, and sleep disturbances. Children with regressive Autism, on the other hand, had developed typically; they were responsive and could talk, but between the ages of 12-24 months, they stopped growing, then regression occurred in the field of communication and social interaction.<sup>3</sup> The prevalence of Autism began to increase very rapidly. There has been a marked increase in regressive Autism. Until now, the growth is still ongoing. In general, the prevalence of Autism ranges from 1- to 2 per 1000 population, with more distribution in males than females (4:1). But Autism in women is usually more severe, and there is more often a family history of cognitive impairment.<sup>4</sup> Eric From-bonne, a psychiatrist at Maudsley Hospital London, in his research with Chakrabarti (2001), estimated that the incidence of Autism among preschoolers is about 60 per 10,000 children. These results follow the figures stated by the Centers for Disease Control and Prevention in the United States.<sup>5,6</sup>

Likewise, the Autism Research Center of Cambridge University recommends that in Cambridge State, there is 1 case per 175 children with an average prevalence of 58 children with Autism per 10,000 children.<sup>7</sup> However, if you still use data of 15-20 per 10,000 children, with the number of Indonesian children being approximately 40 million, there are around 60,000 children with Autism. If 4.6 million children are born every year, autistic children will increase by about 6900 children.<sup>1</sup> Establishing a diagnosis of autism disorder does not require sophisticated ex-aminations such as brain mapping, CT-Scan, MRIs, etc. These examinations are only carried out if there are indications; for example, if the child has a seizure, an EEG or brain mapping is done to see epilepsy. Autism is a developmental disorder in children; therefore, the diagnosis is made from visible symptoms that indicate deviations from normal development according to age.<sup>7</sup> By studying the diagnostic criteria of the DSM-IV, parents can already diagnose their child whether the child is a person with Autism. These symptoms should be evident before the child reaches the age of three. Autism is a lifelong disability. There is currently no known cure for Autism. There are many guidelines for handling people with Autism to help children develop functional communication, physical function, and social and emotional function. Children with Autism Spectrum Disorder (ASD) often experience differences in behavior compared to other children. The most common sleep problems include delayed sleep onset, frequent awakenings during the night, and reduced sleep duration. As a result, daytime behavior problems such as mood instability, aggression, and increased susceptibility to self-injury can occur. Deficient levels of melatonin cause them. Sleep problems have been reported in 50-80% of children with ASD.<sup>8</sup>

This research was purposed to describe the distribution quality of sleep in children with Autism Spectrum Disorder.

## Methods

The research design used a correlation study with a cross-sectional design in the Cimahi city in 2021, examining the relationship between independent variables (ASD) and related variables (Sleep Quality) in a group of students with Autism Disorder aged 6-12 years in special schools through-out Cimahi City as many as 55 students. Sampling using a total sampling technique. Data collection was obtained by using closed questionnaires for

children and parents. Using the Children's Sleep Habits Questionnaire (CSHQ), sleep quality measurement with a cut-off point of  $< 30$  good sleep quality and  $> 30$  sleep problems with Chronbach's  $\alpha = 0.68$  to  $0.78$ . Content validity; ROC =  $0.41$ , differentiating between clinical and control groups; sensitivity =  $0.80$ , specificity =  $0.72$ . CSHQ consists of 35 items with eight domains; sleep resistance, and sleep onset delay. The research was carried out with a permit from the ethics committee of STIKes Jendral Achmad Yani Cimahi. Data collection begins with the respondent's consent to fill out the consent form or inform consent and a questionnaire. The researcher explains the purpose of the research later and the benefits of the research results.

Researchers have explained how to fill out the CSHQ questionnaire to measure their child's sleep problems based on their sleep habits in the past week. The researcher gave the CSHQ questionnaire to the respondent, 20 minutes to fill out the questionnaire, and the researcher supervised it. The assistant, referred to by the researcher, is a colleague. The researcher was collect the questionnaire and check whether it has been filled out completely. The researchers carried out data processing in the next stage. They analyzed univariate and bivariate using Chi-Square, SPSS V.14.0 software, and data normality test for sleep problems using the Kolmogorov-Smirnov test is known to be sig =  $0.17$  with a significance value  $> 0.05$ . The results were obtained through data processing and analysis; the researchers concluded to see the results of the distribution of the frequency and percentage of children with ASD and sleep problems. This activity was carried out from September 2020 to September 2021.

## Results

The results of the study on the description of sleep quality in autistic children in Cimahi City will be written in the table below;

**Table 1.** ASD frequency distribution (n = 55)

ASD level	Amount	Percentage
Middle	10	18.2
Moderate	10	18.2
Severe	35	63.6
<b>Total</b>	<b>55</b>	<b>100</b>

Based on table 1, describes the data results that most of the severity of ASD symptoms are at the severe level of as many as 35 children (63.6%).

**Table 2.** Distribution of Sleep Quality (n = 55)

Behavior	Amount	Percentage
Good	25	45.5
Sleep problems	30	54.5
<b>Total</b>	<b>55</b>	<b>100</b>

Based on table 2, describing the data results, most of them complained about sleep problems, as many as 30 children (54.5%).

**Table 3.** Overview of sleep quality in ASD children (n = 55)

ASD	Sleep Quality				Total		P-Value
	Sleep Problems		Good		N	%	
	F	%	F	%			
Middle	8	14.4	2	3.6	15	100	0.001

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Moderate	1	2	13	23.6	30	100
Severe	22	40	9	16.4	10	100
<b>Total</b>	<b>30</b>	<b>56.4</b>	<b>25</b>	<b>43.6</b>	<b>55</b>	<b>100</b>

Based on table 3, shows the data results that the severity of ASD at the severe level had more sleep disturbance complaints, as many as 22 children (40%), and at the middle level had more sleep disturbance complaints, as many as eight children (14.4%).

### Discussion

Table 1 showed that ten children had mild and moderate ASD severity, 18.2% each. In contrast, the number of children with ASD at the severe level was 35 respondents with 63.6%. So it can be concluded that the severity of ASD children in SLB Cimahi City is severe ASD. The above results align with previous studies that confirmed that the prevalence of ASD in children was more in extreme conditions. The above results are in line with the results of previous studies; although different methods of diagnosis highlight the prevalence based on age and severity in children with ASD and ASD with other comorbidities, these results confirm that the majority of ASD in children is more severe in conditions of severe severity.<sup>9</sup> The study results in table 2 illustrate that some ASD children experience sleep problems. The assessment results using CSHQ found that children tend to have more difficulty with daytime problems, sleep duration problems, and difficulty falling asleep in children with moderate and severe ASD. ASD children who experience sleep disorders are 30 respondents with 54.5%, compared to children who have good sleep quality, around 25 respondents (45.5%). Sleep problems are common in ASD, with a prevalence rate of about 50% to 80% compared with typical development and other developmental disabilities.<sup>10</sup>

The results of the chi-square analysis obtained data that the severity of ASD children in Cimahi City who were at the severe level had the highest tendency to have sleep problems (40%) compared to the middle class (14.4%) and severe level (2%) with a P-value of 0.0001. Different conditions at the moderate level of ASD had a good sleep (23.6%) compared to the middle and severe groups. These results prove that sleep problems often arise in children with autism.<sup>1</sup> Approximately 40-80% of children with ASD exhibit at least one sleep-related problem. Characteristic sleep in children with ASD include irregular sleep and wake patterns, decreased sleep efficiency, reduced total sleep time and REM sleep time, delayed sleep onset, decreased sleep efficiency, increased wakefulness after sleep onset, sleep resistance, and daytime sleepiness.<sup>11</sup> Sleep has a significant impact on cognitive, emotional, and social development, and sleep problems can interfere with these aspects. Sleep disturbances worsen at night and negatively impact daily functioning and increase the burden and stress on families of children with ASD and ID. For children with ASD, sleep problems lead to behavioral issues and worsen core symptoms, social skills and communication deficits, higher rates of stereotypical behavior, and tighter adherence to non-functional routines.<sup>12</sup> A comprehensive review of children with ASD reported that insomnia is one of the most common sleep problems.<sup>7</sup> Other studies have also documented that dominant sleep disorders include insomnia and difficulty falling and staying asleep.<sup>13</sup> Mutluer et al. (2016) found that the most commonly reported symptoms were difficulty falling asleep, sleeping after waking up, and being tired after sleeping.<sup>14</sup>

The transition from preschool to school-age poses academic, social, and cognitive challenges for children with ASD. Social behavior gradually becomes less accessible, thus demanding more effort to explain how to prepare specifically for interaction. In particular, spontaneous, authentic behaviors and emotions shown by peers require children to acquire social and emotional understanding and knowledge, such as how to understand each other, tolerate each other, express feelings and expressions interpersonally, and participate in social communication interactions effectively.<sup>15</sup> These results illustrate that the severity of ASD influences the severity of the problem in ASD children. This increases the risk of

increasing the severity of ASD symptoms. Problems in ASD children, according to the literature, include the main symptoms of ASD, namely impaired communication and social interaction, repetition, and stereotyping. In addition, these main symptoms cause problems in other functions such as physical, psychological, emotional, and other behavioral functions. This condition certainly requires consideration of other factors that aggravate and relieve complaints or problems. It is necessary to consider the child's external factors such as the environment, parenting and parental love, sleeping habits of children and families, parents' knowledge of dealing with children's problems and complaints, other physical health problems that impact sleep problems, and others. These factors need to be investigated further.

### Conclusion

The researcher concluded that the results presented by the CSHQ measurement described the distribution of children with ASD aged 6-12 years in Cimahi City; the majority were at the level of severe severity and tended to have sleep problems compared to mild and moderate severity. Although there is a significant analysis, the researcher realizes that there are limitations in this study, including a smaller sample size and age criteria only at one stage of development. They cannot compare sleep problems at other ages of children. -what factors influence the purpose of this research. Subsequent research recommends expanding the ASD group from preschool to adolescence to determine which level of problem children are in which risk groups and can appropriately reconsider appropriate treatment planning.

### Conflict of Interest Declaration

This research is free from conflicts of interest for both individuals and organizations.

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