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Sleep Disorders in Children with Epilepsy at Haji Adam Malik Hospital Medan

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ABSTRACT

Sleep disorders are disorders that include all types of sleep dysfunction, including sleep disorders at night, poor sleep quality, early morning awakening, circadian rhythm disorders, parasomnias, sleep movement disorders, and sleep breathing disorders. This study was conducted at the Haji Adam Malik Central General Hospital in Medan. Sampling was carried out using a saturated sampling technique of 49 people. Based on the results of the analysis, it showed that there was no effect of age on sleep disorders in children with epilepsy, there was no effect of gender on sleep disorders in children with epilepsy, and there was no effect of seizure type on sleep disorders in children with epilepsy. The conclusion of this study is that age, gender, and type of seizure do not have a significant effect on sleep disorders in children with epilepsy. This study is a reference for health workers that age, gender, and type of seizure do not affect sleep disorders so that different treatments do not need to be carried out.

Keywords: child, epilepsy, sleep disorders

INTRODUCTION

Epilepsy in a way collective referring to on spectrum disturbance neurological that marked with seizure repetitive consequence activity electricity abnormal in the brain (World Health Organization [WHO], 2024). Epilepsy is a group of brain disorders characterized by abnormal ictal or interictal EEG epileptiform activity, leading to behavioural, cognitive, and motor regression. It often presents aggressive paroxysmal EEG activity, multiform seizures, progressive cognitive, behavioural, and neurological deficits, and may result in premature death (Tsai et al., 2019). A recent national audit of epilepsy care revealed that 37% children with epilepsy fall into the diagnosis of epilepsy syndrome and 11% of children who are diagnosed early with epilepsy can be prevented from falling into epilepsy syndrome (Chakraborty et al., 2021).

Sleep disorders are disorders that include all types of sleep dysfunction, including sleep disturbances at night, poor sleep quality, early waking, circadian rhythm disorders, parasomnias, sleep movement disorders, and sleep breathing disorders (Deshpande et al., 2022). The prevalence of sleep disorders reaches 20-50% of the general child population. with

dyssomnia and parasomnia being the most frequently found sleep disorders (80% in pre-school children) (Poza et al., 2020).

Sleep disorders in children are increasingly becoming a problem today. This is evidenced by the prevalence of sleep disorders in children aged 0–18 years is 3.7% (Puravath & Bhargava, 2023). Meanwhile, Owens explained that sleep disorders are found in up to 25% of the healthy child population, 1–5% of which are obstructive sleep apnea syndrome/OSAS). According to Deng et al. (2023) the prevalence of sleep disorders is increasing in children with chronic diseases, such as asthma, epilepsy, cerebral palsy, diabetes, congenital heart disease, and other neuropsychiatric disorders.

Epilepsy affects over 50 million people across the world. It ranks fifth among all neurological causes for disability-adjusted life years (DALYs). Worldwide, an estimated 125 000 deaths each year are related to the disorder. Epilepsy also has wider physical and mental health implications. Roughly half of all people with epilepsy also have other physical or mental health conditions, which are associated with poorer health outcomes and increased health-care needs (WHO, 2022).

People with epilepsy generally have sleep disorders and psychopathological symptoms such as behavioral problems, hyperactivity or inattention (Çetin et al., 2023). There is strong evidence that the structure and nature of sleep are altered in epilepsy, and that the degree of alteration impacts the amount of ictal and interictal epileptic activity (Bernard et al., 2023).

Previous research has examined an intervention to treat sleep disorders in children with epilepsy. Therefore, the novelty in this study is to see the correlation between age, gender, and types of seizures with sleep disorders in children with epilepsy. The aim of this study was to look at sleep disorders in children with epilepsy at the Haji Adam Malik Hospital, Medan.

METHODS

This type of research is quantitative with a cross-sectional study design. The study was conducted at the Haji Adam Malik Medan Hospital from February to June 2024. The accessible population of this study were children with epilepsy at the outpatient clinic of the Child Neurology Division in Medan from February to June 2024. Sampling was carried out using a saturated sampling method total 49 people. The sample criteria are children aged 4-10 years. Children who have been diagnosed with epilepsy based on anamnesis, physical examination

and supporting examinations in the form of EEG at the outpatient clinic, and parents who are willing to participate in the study.

Children's sleep habits questionnaire is a questionnaire filled out by parents, consisting of 33 items. questions. Each question has a 3- point scale, which depends on the answer "always" (5-7 times in the past week), a 2-point scale that depends on the answer "sometimes" (2-4 times in the past week), a 1-point scale that depends on the answer "rarely" (1 time in the past week), and a 0-point scale that depends on the answer "never" (0 times in the past week). The points obtained from each question are scored in reverse so that the higher the score obtained indicates the worse the sleep behaviour (Takeshima et al., 2021).

Data were collected using a questionnaire containing information about sleep disorders and epilepsy. The collected data were analysis using the Chi-square test to see the relationship between age, gender, and types of seizures with sleep disorders in children with epilepsy.

RESULTS

Respondent Characteristics

This study involved 49 children with epilepsy who were hospitalized. Respondents involved in the study had characteristics including age, gender, type of seizure, and sleep disorders. These characteristics can be seen in table 1 below.

Table 1. Characteristics of Research Respondents

Subject Characteristics	Frequency (f)	Percentage (%)
Age		
< 5 years	12	24.5
> 5 years	37	75.5
Gender		
Male	33	67.3
Woman	16	32.7
Seizure Type		
Focal	5	10.2
General	44	89.8
Sleep Disorders		
No	23	46.9
Yes	26	53,1

Based on Table 1, it is known that the study involving 49 children who experienced sleep disorders with epilepsy problems at Haji Adam Malik General Hospital, produced respondent characteristics consisting of age, gender, type of seizure, and sleep disorders. This is described

as respondents aged <5 years as many as 12 people (24.5%) and those aged ≥ 5 years as many as 37 people (75.5%). Male gender 33 people (67.3%) and female 16 people (32.7%). Respondents who did not experience sleep disorders were 23 people (46.9%) and those who experienced sleep disorders were 26 people (53.1%).

Cross Tabulation of Sleep Disorders in Children with Epilepsy

The relationship between age, gender, and seizure type can be seen in Table 2 below.

Table 2 Cross Tabulation of Sleep Disorders in Children with Epilepsy

	Sleep Disorders		P value
	No	Yes	
Age			
< 5 years	7 (14.3)	5 (10.2)	0.508
≥ 5 years	16 (32.7)	21 (42.9)	
Gender			
Man	17 (34.7)	16 (32.7)	0.382
Woman	6(12.2)	10 (20.4)	
Types of Seizures			
Focal	0 (0)	5 (10.2)	0.052
General	22(46.9)	21(42.9)	

The results of the study showed that respondents aged <5 years who experienced sleep disorders were 5 people (10.2%) and those aged ≥ 5 years who experienced sleep disorders were 21 people (42.9%). Based on the SPSS test, a p value of 0.508> 0.05 was obtained, which means that there is no effect of age on sleep disorders in children with epilepsy. There were 16 male respondents who experienced sleep disorders (32.7%) and 10 female respondents who experienced sleep disorders (20.4%). Based on the SPSS test, a p value of 0.382> 0.05 was obtained, which means that there is no effect of gender on sleep disorders in children with epilepsy. Respondents with focal seizure type with sleep disorders were 5 people (10.2%) and general seizure type with sleep disorders were 21 people (42.9%). Based on the SPSS test, a p value of 0.052 <0.05 was obtained, which means that there is no effect of seizure type on sleep disorders in children with epilepsy.

DISCUSSION

The results of the study showed that sleep disorders were experienced by the age> 5 years 42.9%. However, based on statistical results, it shows that there is no effect of age on sleep disorders in children with epilepsy. This research is in line with research Gutter et al., (2019) which revealed that there was no significant correlation between age and sleep disorders in children with epilepsy. The analysis shows that children with epilepsy are more prone to sleep

difficulties compared to healthy children. Children with epilepsy have 34 minutes less sleep time compared to healthy children (Winsor et al., 2021). Research by Halstead et al., (2021) conveyed that There were significant differences between age groups and nighttime sleep duration. Pairwise comparisons indicated that children aged 3–5 years had significantly higher scores than those aged 7–11 years.

In this study, male respondents had a higher percentage of sleep disorders than female respondents, which was 32.7%. There is no effect of gender on sleep disorders in people with epilepsy. This study is in line with research conducted by Nobili et al. (2022) that there is no relationship between gender and sleep disorders in children with epilepsy. There is no significant difference between men and women with the incidence of sleep disorders in epilepsy patients. Sleep disorders experienced during the epilepsy cycle have not been treated with good therapy (Zambrelli et al., 2020).

The results of the study showed that respondents who experienced generalized seizures were more than respondents with focal disorders, namely 42.9%, while the percentage of focal seizures was 10.2%. There is no effect of seizure type on sleep disorders in children with epilepsy. This research is the same as by Tsai et al. (2019) that seizure type does not affect sleep disturbance in children with epilepsy. Epilepsy itself is associated with changes in sleep architecture, nocturnal arousal, and daytime sleepiness. Even seizures that occur during the day or epileptic discharges that occur in the absence of seizures can disrupt the development of normal sleep stages and cause daytime fatigue in people with epilepsy. Children with epilepsy with sleep disorders show more behavioural problems and lower quality of life compared to those without sleep disorders. Sleep disorders such as anxiety and daytime sleepiness are associated with more behavioural problems and lower quality of life (Zhao et al., 2022).

CONCLUSION

The results of the study concluded that there was no influence of age on sleep disorders in children with epilepsy, there was no influence of gender on sleep disorders in children with epilepsy, and there was an influence of seizure type on sleep disorders in children with epilepsy.

REFERENCES

Bernard, C., Frauscher, B., Gelinas, J., & Timofeev, I. (2023). Sleep, oscillations, and epilepsy. *Epilepsia*, *64*(S3), S3–S12. https://doi.org/10.1111/epi.17664

Çetin, İ. D., Şentürk, B., Köse, S., Aktan, G., Tekgül, H., Kanmaz, S., Serin, M., Yılmaz, S., & Gökben, S. (2023). Sleep problems in adolescents with epilepsy and their caregivers:

Associations with behavioural difficulties. *Turkish Journal of Pediatrics*, *65*(3), 500–511. https://doi.org/10.24953/turkjped.2022.56

Chakraborty, P., Sanchez, N. A., Kaddumukasa, M., Kajumba, M., Kakooza-Mwesige, A., Van Noord, M., Kaddumukasa, M. N., Nakasujja, N., Haglund, M. M., & Koltai, D. C. (2021). Stigma reduction interventions for epilepsy: A systematized literature review. *Epilepsy and Behavior*, *114*(30), 1–8. https://doi.org/10.1016/j.yebeh.2020.107381

Deng, Y., Zhang, Z., Gui, Y., Li, W., Rong, T., Jiang, Y., Zhu, Q., Zhao, J., Zhang, Y., Wang, G., & Jiang, F. (2023). Sleep disturbances and emotional and behavioral difficulties among preschool-aged children. *JAMA Network Open*, *6*(12), E2347623. https://doi.org/10.1001/jamanetworkopen.2023.47623

Deshpande, P., Salcedo, B., & Haq, C. (2022). Common lseep disorders in children. *American Family Physician*, *105*(2), 168–176. https://escholarship.org/uc/item/3964z9kx

Gutter, T., Callenbach, P. M. C., Brouwer, O. F., & de Weerd, A. W. (2019). Prevalence of sleep disturbances in people with epilepsy and the impact on quality of life: A survey in secondary care. *Seizure*, *69*(April), 298–303. https://doi.org/10.1016/j.seizure.2019.04.019

Halstead, E. J., Joyce, A., Sullivan, E., Tywyn, C., Davies, K., Jones, A., & Dimitriou, D. (2021). Sleep disturbances and patterns in children with neurodevelopmental conditions. *Frontiers in Pediatrics*, *9*(March), 1–14. https://doi.org/10.3389/fped.2021.637770

Nobili, L., Frauscher, B., Eriksson, S., Gibbs, S. A., Halasz, P., Lambert, I., Manni, R., Peter-Derex, L., Proserpio, P., Provini, F., de Weerd, A., & Parrino, L. (2022). Sleep and epilepsy: A snapshot of knowledge and future research lines. *Journal of Sleep Research*, *31*(4), 1–11. https://doi.org/10.1111/jsr.13622

Poza, J. J., Pujol, M., Ortega-Albás, J. J., & Romero, O. (2020). Melatonin in sleep disorders. *Neurología (English Edition)*, *37*(7), 575–585. https://doi.org/10.1016/j.nrleng.2018.08.004

Puravath, F., & Bhargava, S. (2023). Sleep disorders in adolescents. *Encyclopedia of Child and Adolescent Health, First Edition*, *145*(2), 1034–1040. https://doi.org/10.1016/B978-0-12-818872-9.00097-2

Takeshima, M., Ohta, H., Hosoya, T., Okada, M., Iida, Y., Moriwaki, A., Takahashi, H., Kamio, Y., & Mishima, K. (2021). Association between sleep habits/disorders and emotional/behavioral problems among Japanese children. *Scientific Reports*, *11*(1), 1–8. https://doi.org/10.1038/s41598-021-91050-4

Tsai, S. Y., Lee, W. T., Jeng, S. F., Lee, C. C., & Weng, W. C. (2019). Sleep and behavior problems in children with epilepsy. *Journal of Pediatric Health Care*, *33*(2), 138–145. https://doi.org/10.1016/j.pedhc.2018.07.004

Winsor, A. A., Richards, C., Bissell, S., Seri, S., Liew, A., & Bagshaw, A. P. (2021). Sleep disruption in children and adolescents with epilepsy: A systematic review and meta-analysis. *Sleep Medicine Reviews*, *57*, 101416. https://doi.org/10.1016/j.smrv.2021.101416

World Health Organization. (2022). New WHO brief sets out actions needed to improve lives of people with epilepsy. *World Health Organization*. https://www.who.int/news/item/12-12-2022-new-who-brief-sets-out-actions-needed-to-improve-lives-of-people-with-epilepsy

World Health Organization. (2024). *Epilepsy*. World Health Organization. https://www.who.int/news-room/fact-sheets/detail/epilepsy

Zambrelli, E., Turner, K., Vignoli, A., La Briola, F., Dionisio, S., Malanchini, S., Galli, F., & Canevini, M. P. (2020). Sleep disturbances in italian children and adolescents with epilepsy: A questionnaire study. *Epilepsy and Behavior*, *106*, 107014. https://doi.org/10.1016/j.yebeh.2020.107014

Zhao, F., Sun, X., Wang, Y., Zhou, Y., He, Y., Wang, C., Han, F., Liu, J., Tsai, S. Y., Wang, G., & Wang, J. (2022). Sleep disturbances in Chinese children with epilepsy: Associations with behavioral problems and quality of life. *Nature and Science of Sleep, 14*, 1225–1236. https://doi.org/10.2147/NSS.S367900