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The relationship of screen time with sleep patterns in toddler children at Posyandu, Mlaten Village

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ABSTRACT

Screen time in front of an electronic screen for a long time causes disturbances in children's sleep patterns, so that children will have difficulty concentrating, become irritable and appear tired. The aim of the research was to determine the relationship between screen time and sleep patterns in toddler children at the Posyandu in Mlaten Village. The research design used cross sectional. The population in this study were all mothers who had children aged 12-36 months at the Mlaten Village Posyandu, totaling 61 respondents. The sampling technique uses purposive Sampling. The research instrument uses sleep disturbance scale for children (SDSC). Data analysis using spearman rho. The research results showed that the majority of respondents who had high screen time activities (>120) per day experienced disturbed sleep patterns (95%). Spearman Rho test results show p value of 0.000. There is a relationship between screen time and sleep patterns in children. Excessive exposure to electronic screens with screen lighting that is too bright suppresses the secretion of melatonin, which regulates the sleep-wake cycle by influencing sleep phase delays. This causes disturbances in the quantity and quality of children's sleep.

Keywords: *Screen time, Sleep, Children*

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INTRODUCTION

Sleep is a very important and very basic part that is needed for children's physical growth and mental development (Christine Natalita, 2011). When a condition can be elicited by appropriate stimuli or sensors in an unconscious state. A good sleep pattern ensures that it is beneficial for health and the body can function optimally. Everyone's sleep needs are different depending on their age. Mostly, the younger the age, the more hours of sleep needed. If the number of hours a child sleeps is reduced, the child's sleep pattern will be disrupted. To recognize the characteristics of children who experience disturbed sleep patterns, children will appear tired so that the child becomes irritable, cries, is depressed, has difficulty doing things, has difficulty concentrating, loses appetite, loses weight and eventually falls ill. Therefore, one of the factors causing sleep pattern disorders in children could be excessive screen time activity.

Screen Time itself can be interpreted as a way to determine what we do, how we do it and to show the length of time spent by children such as watching screen-based entertainment media, for example: TV, computers, mobile devices, tablets, and so on (Fatimatuzahra, Balq , perdana, 2020). There are two forms of screen time, namely sedentarian and active, for sedentarian screen time itself where the child watches the screen with a relatively still and passive physical body, while the active form of screen time is where the child watches the screen with a relatively active physical movement. The structure and function of a toddler's brain is limited in terms of the ability to pay attention, recognize, store in memory and interpret in the form of 3 dimensions.

Screen time problems are a common problem that occurs in children with sleep disorders. The condition of a person who is at risk of changes in the quantity and quality of sleep patterns that cause discomfort

In the results of The Asian Parent Insight survey in 2014, the duration of use in Southeast Asia reached 40% of boys and girls aged 3-5 years for 0.5-1 hour, 36% of girls aged 6-8 years for 0.5 -1 hour and 32% of boys aged 6-8 years for 1-2 hours jam (Nalika, 2014). The results of research by Farah et al, the study subjects who used devices were dominated by women with a total of 25 people (61.0%), the age group obtained was 4 - 6 years with the highest age being 5 years at 41.5% (17 people).). The duration of use of the device varies between 0 – 6 hours. Most subjects used the device for 1 hour (13 people; 31.7%) followed by 11 people (26.8%) using the device for 2 hours per day. The average duration of device use in this study was 1 hour 45 minutes. A total of 21 respondents (51.2%) experienced sleep disorders with the difference in the average duration of device use between those who experienced sleep disorders and those who did not experience sleep disorders was 12 minutes (Utari and Farah, 2022).

Results of research by Angtoni at SDK Mater Dei. The characteristics of the most screen time for learning activities are 2-4 hours/day 59 (51.3%), watching videos 2-4 hours/day 57 (49.6%) , playing games <2 hours/day 56 (48.7%), using chat applications <2 hours/day 89 (77.4%), and the majority of 69 (60%) children have screen time ≤8 hours/day hari (Angtoni and Adjie, 2022). The results of research in Purbalingga, Central Java by Amelia et al. (2019) stated that lack of sleep, namely at least 2 hours of watching television, cell phone and screen time, and symptoms of sleep disorders are dominant in children who experience sleep deprivation (Amelia and Ramdani, 2019). Results of research by Witantri et al. in 2022. There were 44 respondents (41.5%) out of 106 respondents who had a high category in terms of length of gadget use and had disturbed sleep patterns tidur (Witantri *et al.*, 2022). And other research by Wahyuningrum et al (2021) in Semarang City, Indonesia shows that 48.8% of children wake up too late, 85.4% of children get enough sleep and 12.2% of children sometimes wet the bed at night, and 70% of children are sometimes lazy to get up (Wahyuningrum, 2021).

The results of interviews with 3 mothers who have toddler children at Posyandu Mlaten said that their children were often shown handphone or television screens. The mother also said that her child's sleeping hours were irregular, the time he went to sleep until he woke up was disturbed and his need for sleep was also disturbed.

Excessive screen exposure can cause sleep disorders, especially in children. Excessively bright screen lighting suppresses melatonin secretion, which regulates the sleep-wake cycle in a way that affects sleep phase delays. This causes the child's brain growth and mental health to deteriorate. Apart from that, lack of sleep can cause difficulty concentrating, fatigue easily, mood disorders and productivity problems, so it can affect the ability to concentrate in children, teenagers and adults (Fatimah Diantoro, Anantyo and Rahmadi, 2021). Getting enough sleep can improve body health and fitness. Screen time is also associated with the risk of obesity, children's sleep quality, and the risk of children's developmental delays, such as speech and cognitive delays. academic and emotional behavioral disorders. Parents have an important role in implementing healthy sleep habits in their children. Parents must actively guide children to sleep at the right time.

METHOD

The research design used in this research is Cross-sectional. The population was all mothers who had children aged 12-36 months, At the Mlaten Village Posyandu there were 61 respondents. The sampling technique uses purposive Sampling. Data were analyzed using spearman rho analysis.

The Screen Time instrument is measured by asking the mother about her child's activities related to the use of electronic media, such as television, gadgets and smartphones, as well as their duration per day in the previous week. The duration of each activity was recorded in minutes each day and then added up. The results are then classified as Low Screen Time (LST) if <120 minutes/day and High Screen Time (HST) if >120 minutes/day (Asy.S, 2016). The Sleep Pattern instrument uses sleep disturbance scale for children (SDSC) adopted from Bruni et al., (1996) (Bruni *et al.*, 1996).

FINDING AND DISCUSSION

RESEARCH RESULT

Table 1. Frequency Distribution of Respondents Based on Age, Gender. Screen time, sleep patterns of Toddler Children at Posyandu in Mlaten Village

Characteristics of Respondents	Frequency	Percentage (%)
Age		
12- 24 months	40	65,6
25 – 36 months	21	34,4
Gender		
Man	34	55,7
Woman	27	44,3
Screen time		
Low screen time (LST)	3	4,9

Hight screen time (HST)	58	95,1
Sleep Patters		
Sleep soundly	3	4,9
Disturbed Sleep	58	95,1
Uji Spearman Rho : *p*: 0,000		

Based on table 1, it is known that the majority of child respondents at the Mlaten Village Posyandu were male, 34 children (55.7%). Most of the children aged 12-24 months were 40 children (65.6%). The majority of respondents have high screen time activity habits (>120 minutes) as many as 58 children (95.1%). The majority of respondents experienced sleep pattern disturbances as many as 58 children (95.1%). Spearman Rho test results *p* value: 0.000

DISCUSSION

Screen Time for Toddler Children at Posyandu in Mlaten Village.

The results of the research show that in the Mlaten Village Posyandu the majority of children have higher screen time activities. This can be seen from the percentage of research results that out of 61 respondents, 58 respondents are classified as high screen time, which means they have a screen time duration of more than 120 minutes a day with a percentage of (95.1%). Meanwhile, only 3 respondents had low screen time activities with a percentage of 4.9%.

Screen Time itself can be interpreted as a way to determine what we do, how we do it and to show the length of time spent by children such as watching screen-based entertainment media, for example: TV, computers, mobile devices, tablets, and so on (Fatimatuzahra, Balq , perdana, 2020). Meanwhile, according to IDAI (2020), the structure and function of toddlers' brains are limited in terms of their ability to pay attention, recognize, store in memory and interpret in the form of 3 dimensions, so children will continue to ask for and become addicted to things they enjoy. The duration of use of electronic devices is said to be Low Screen Time if the average use of electronic media is less than 120 minutes. Meanwhile, children are classified as High Screen Time if they use electronic devices for more than 120 minutes a day (Amelia and Ramdani, 2019).

This happens because of the habits of parents who allow their children to use electronic media. The reason parents allow the use of electronic devices such as cellphones, television is because they can divert children's activities when children are fussy so they are calm so mothers can do other activities at home. Parents who do not understand the dangers of prolonged exposure to electronic devices, allow their children to use electronic devices which will make children addicted.

Sleep Patterns in Toddler Children at Posyandu in Mlaten Village.

Based on the research results, it can be seen that in the Mlaten Village Posyandu the majority of children experience sleep pattern disorders. This can be seen from the

research results which showed that 58 respondents (95.1%) experienced sleep pattern disorders. The majority of children whose sleep patterns are disturbed experience sleep-wake transition disorders.

Sleep pattern is a person's habit of resting the body by falling asleep, this includes sleeping hours and how long it takes to fall asleep. Everyone has a sleep-wake cycle that determines when it is time to sleep (Anggreni and Wardini, 2013). Sleep patterns are also defined as wake-up schedules, sleep frequency per day, maintenance of sleep conditions, and sleep satisfaction. A person with a regular sleep-wake pattern sleeps better and functions better than a person with a varied sleep-wake pattern (Perry, 2020).

Children who experience disturbed sleep patterns will appear tired so that the child becomes irritable, cries, is depressed, has difficulty doing things, has difficulty concentrating, loses appetite, loses weight and ultimately falls ill. The results of the study show that most boys experience disturbed sleep patterns due to lifestyle factors that often stay up late at night and high levels of stress.

The results of the study also show that children who experience sleep disorders are mostly due to excessive somnolence, sleep-wake transition disorders such as the child's legs often jerking when falling asleep or often changing positions at night or often kicking bed sheets, children delirious when sleeping, teeth the child rattles or sounds when sleeping.

The Relationship between Screen Time and Sleep Patterns in Toddler Children at the Posyandu in Mlaten Village.

Based on the results of the cross tabulation in table 2, it shows that the majority of 61 child respondents at Posyandu in Mlaten Village had high screen time activities with a duration of (>120) minutes per day and experienced sleep pattern disturbances, namely 58 respondents (95.1%). Spearman Rho test results show *p* value of 0.000. There is a relationship between screen time and sleep patterns in children. Screen Time is the amount of time spent by children for activities in front of screens or watching screen-based entertainment media, such as television, computers, mobile devices, tablets, children can also visit social networking sites or play on computers not for educational purposes, playing games. video via portable playstation (PSP) and handpone (Strasburger *et al.*, 2011)). According to the American Association of Pediatrics (AAP), a child's screen time is considered high if it exceeds the limit of 2 hours per day and for ages between 18 and 24 months screen time should be limited to watching educational programs with a caregiver. Meanwhile, for children aged 2- By 5 years, limit non-educational screen time to approximately 1 hour per day and 3 hours on weekends (Strasburger *et al.*, 2011).

Excessive screen exposure can cause sleep disorders, especially in children. Because too bright screen lighting suppresses the secretion of melatonin, which regulates the sleep-wake cycle in a way that affects sleep phase delays. This causes the child's brain growth and mental health to deteriorate (Natalia et al, 2014). Apart from that, lack of sleep can cause difficulty concentrating, fatigue easily, mood disorders and productivity problems, so that it can affect a person's ability to concentrate in children, adolescents and

adults (Fatimah Diantoro, Anantyo and Rahmadi, 2021). Getting enough sleep can improve body health and fitness. Screen time is also associated with the risk of obesity, children's sleep quality, and the risk of children's developmental delays, such as speech-language, cognitive and academic delays and emotional behavior disorders.

Based on the results of research conducted by Utari & Farah, (2022) with the results that the average duration of device use was 1 hour 45 minutes. A total of 21 respondents (51.2%) experienced sleep disorders with a difference in the average duration of use of devices with sleep disorders and those without experience sleep disturbance is 12 minutes (Utari and Farah, 2022). The results of research conducted in Purbalingga, Central Java by Amelia & Ramdani, stated that lack of sleep, namely a minimum of 2 hours of watching television, cell phones and screen time, and symptoms of sleep disorders were dominant in children who experienced sleep deprivation

Screen time activity is considered to be one of the factors that causes significant changes in children's sleep patterns. With the rapid development of technology, the use of electronic media devices among children and parents is increasing exponentially. Screen exposure is popular and widespread among young people. Parents have allowed or encouraged their children to use electronic devices such as cell phones or televisions because they assume they can divert their children's activities when they are fussy. In accordance with the hypothesis by looking at the results of this cross tabulation and supported by the results of previous research, children who have a habit of excessive screen time activity can cause the child's sleep patterns to be disturbed. Excessive screen time can be the biggest factor causing sleep pattern disorders in children.

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