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Sleep Habits of School-Age Children and Time Spent on Electronic Media in Nsukka Urban, Enugu State

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Abstract

This study investigated the relationship between the sleep habits of school-aged children and the time they spend on electronic media in Nsukka local government area, Enugu state. Four research purposes guided the study. The study adopted a cross-sectional survey research design. The sample size was 700 primary four and five pupils from 12 registered primary schools in the study area. The questionnaire was the instrument used for data collection. The instrument was validated by three experts from the Department of Home Science and Management, University of Nigeria, Nsukka. Cronbach Alpha reliability test was used to obtain a high coefficient of 0.82. Data collected were coded into the Statistical Product and Service Solution (IBM-SPSS) version 23.00. Frequencies, percentages, means, standard deviation, and chi-square were used for data analysis. The findings showed that the household income of more than half (56.1%) of the respondents was above ₦50,000 per month. Regarding the sleep habits of respondents, 69.40% of them had healthy sleep habits while 30.6% of them had unhealthy sleep habits. The majority (92.9%) of the children used electronic media in moderate amounts while 7.1% used electronic media excessively. The most commonly used electronic media by the respondents was television (31.0%) and the least used was headphones (9.6%). The respondents engaged in media activities such as watching cartoons, animation, films, and video clips; playing games; listening to music; taking pictures; and chatting with friends. Findings showed that no significant relationship existed between respondents' sleep habits and electronic media use. It was recommended that school administrators should organize seminars/talks for the teachers, caregivers, and parents on the importance of healthy sleep habits to children.

Keywords: Sleep habits, Electronic media, School-aged children, Media activities

Introduction

A child is a young human being below the age of puberty or the legal age of maturity. It also refers to younger people who do not have the maturity and understanding to make important decisions for themselves (Lansdown & Vaghri, 2022). Childhood is generally a time of playing, learning, socializing, and exploring in a world without much

adult interference, aside from parents. It is a time for carefree learning without the saddles of adult responsibilities. An individual's childhood is broadly classified into early childhood (birth-6years), middle childhood (6-12years), and adolescence (10-19years). Children in the middle childhood stage are referred to as school-aged children (United Nations International Children's Emergency Fund, 2007).

School-aged child development describes the expected physical, emotional, and mental abilities of 6 to 12 years old. In this period, children develop socially and mentally. They are at a stage where they make new friends and gain new skills, which will enable them to become more independent and enhance their individuality. School-aged children are highly active. They require a lot of developmental basic needs which include: sleep, shelter, food, clothing, and health care which can be physical and mental. Maintaining children's health implies offering them healthy foods, physical exercises, and ensuring they get enough sleep (Lund, 2017).

Sleep is a naturally recurring state of mind and body, characterized by altered consciousness, relatively inhibited sensory activity, reduced muscle activity and inhibition of nearly all voluntary muscles, and reduced interactions with surroundings. It is distinguished from wakefulness by a decreased ability to react to stimuli, but is more reactive than a coma or disorders of consciousness, with sleep displaying different, active brain patterns. Sleep is associated with a state of muscle relaxation and reduced perception of environmental stimuli (Krueger et al., 2016). Sleep helps children think more clearly, have quicker reflexes, and focus better. Sleep is beneficial to all aspects of body functions such as molecular energy balance, as well as intellectual function, alertness, and mood. The fact is that well-rested children are operating at a different level than those trying to get by on 1 or 2 hours less nightly sleep (Wein, 2013). It is important to remember that genetic background, nutrition as well as sleep habit may affect a child's growth.

A sleep habit is a behaviour on bedtime, time to rise, and duration of nap and night sleep. The balance between sleeping and waking is regulated by a process called homeostasis (Schwartz & Roth, 2008). Suboptimal sleep is associated with poor cognitive functioning and mental health. Sleep habits of school-aged children vary across school days and weekdays. Children are commonly supposed to extend sleep duration on weekends to compensate for sleep debt accumulated over the school days (Li & Gooneratne, 2019). Generally speaking, the longer an organism is awake, the more it feels a need to sleep (sleep debt). Induced or perceived lack of sleep is called sleep deprivation (Schwartz & Roth, 2008). A lot of children do not sleep well or experience unhealthy sleep habits that result in perpetual tiredness; and when they are tired, they will be unable to function at their best. Unhealthy sleep habit sleep leads to sleep insufficiency producing a variety of symptoms and signs. The central nervous system is affected the most in

school-age children, although other systems may be involved. Several factors affect sleep habits in school-aged children including irregular sleep schedule, sleeping environment genetics, medical problems, parent/caregiver factors, snoring, and sleep duration/time (Sondergaard, 2003).

Time is the measured or measurable period during which an action, process, or condition exists or continues (Dainton, 2010). Sleep duration/time affects how school children feel, think, make decisions, and interact with the world around them. According to Paruthi et al. (2016), the American Academy of Sleep Medicine recommends that school-aged children should get 9-12 hours of sleep per day to develop and function properly. Sleeping the number of recommended hours regularly is associated with better health outcomes including improved attention, behaviour, learning, memory, emotional regulation, quality of life, and mental and physical health. On the other hand, regularly sleeping fewer than the recommended hours is associated with attention, behaviour, and learning problems. Insufficient sleep also increases the risk of accidents, injuries, hypertension, obesity, diabetes, and depression (Paruthi, 2016). The less time spent by school-age children on sleep can be caused by insomnia, play, sleep disorders, and time spent on electronic media among other things.

Electronic media covers the various technologies powered by electricity or any equipment used in the electronic communication process. These include digital, video, and audio recordings, slide presentations, CD-ROM and online content, television, radio, telephone, computer, game console, and mobile device is considered electronic media (Medoff & Kaye, 2013). With the increasing use of cellphones, computers, video games, and television, children have more reasons to stay inside rather than outdoors exploring and also to stay awake using those media rather than sleeping. Electronic media is an integral part of children's lives in the twenty-first century. Virtually in every home are television, video games, radio, and computers. The use of electronic media could affect children's lives; it could be a benefit that leaves children better educated or could be hazardous to children's sleep (Cole, 2023).

The American Academy of Pediatrics recommends restricting older children's screen time to no more than one or two hours a day (Christensen, 2021). However, the use of electronic media (EM) continues to take up a large part of children's waking time according to Kubiszewski (2014). Thousands of videos, TV shows, and websites have been designed and published for school-aged children. In recent years, there has been an exponential increase in the electronic media available to families, even for the youngest children in society (Spina et al., 2021). Parents might want to know whether digital technology is making children's lives better or miserable especially since children are generally not aware of the possible negative effects of technology (Cole, 2023). In practice, youngsters have multiple uses

rather than a single use of electronic media every day.

Whether or not the use of electronic media affects children's health has been a subject of debate for some time. In a longitudinal study of 759 adolescents with mean ages of 14, 16, and 22 years, it was found that extensive TV viewing during childhood may be associated with an increased risk of sleep problems in early adulthood (Johnson et al., 2004). In addition, a study by Dworak et al. (2007) showed that excessive TV and computer exposure affect children's sleep patterns. In particular, playing computer games resulted in prolonged latency of sleep onset, more sleep time in stage two, and less slow-wave sleep as a percentage of total sleep time in subsequent sleep. Using game consoles before bedtime has been linked to increased sleep latency, later bedtime, and shorter sleep duration (Kubiszewski, 2014). The negative effects of EM suggested by these studies are thus a matter of considerable concern.

Electronic media have often been considered to hurt the sleep habits of children and adolescents, but there are no comprehensive reviews of research in Nsukka Urban. Many variables have been investigated across these studies, and delayed bedtime and shorter total sleep time have been most consistently related to media use by school children. This study, therefore, determined the media use of school-aged children and its relationship with their sleep habits in Nsukka Urban.

Objectives of the study

The main objective of this study was to determine the sleep habits of school-aged children and time spent on electronic media in the Nsukka local government area, Enugu state. Specifically, the study sought to:

1. determine the sleep habits of school-aged children in Nsukka local government area;
2. determine the time spent on electronic media by school-aged children;
3. identify the different media activities they engage in; and
4. Determine the relationship between the time spent on electronic media and the sleep habits of school-aged children in Nsukka local government area.

Methodology

Study design: The study adopted a cross-sectional survey research design. According to Nworgu (2006), a descriptive survey research design is a research method in which a group of people is studied by collecting and analyzing data from a few people or items considered a good representative of the entire group under study.

***Study Population*:** The population for this study was 7,830 primary four and five pupils in 37 public primary schools and 54 private primary schools in Nsukka Urban, Enugu State (Ministry of Education, Enugu State, 2021; School Statistics, 2022).

***Sample Size and Sampling Procedure*:** Multi-stage sampling technique was used to select 700 pupils to participate in the study. The first stage involved the calculation of 20% (7) of the 37 public

schools and 10% (5) of the 54 private schools which gave a total of 12 schools with a population of 1,712. In the second stage, the WHO (2013) guideline for the calculation of sample size in a survey was used to get the sample size of 700 respondents. This sample was equally selected; 350 students each from public and private schools. A Purposive sampling technique was used to select the 700 children from the 12 selected primary schools in Nsukka Urban. The criteria for purposively selecting the participants were that the respondents identified as having access to technologies and advanced electronic media in their homes and/or schools. Those who reported they did not have access to the technologies either at home or at school were not included in the study.

***Instrument for Data Collection*:** A structured questionnaire was used to obtain data from the respondents. The questionnaire was divided into four parts. Part I elicited data on the socio-demographic features of the respondents. Part II contained items on the sleep habits of school-aged children. Part III elicited information on the time respondents spent on media while Part IV identified the media activities the respondents engaged in. The instrument was validated by three lecturers from the Department of Home Science and Management, University of Nigeria, Nsukka. To determine the reliability of the questionnaire, the questionnaire was administered to 20 primary four and five pupils in Udenu local government area. Cronbach Alpha coefficient of 0.82 was obtained showing high internal consistency of the questionnaire items.

***Method of data collection*:** Two research assistants were recruited and trained adequately on the study objectives, contents of the instruments, and distribution procedures. The questionnaires were hand-distributed to the children in their classrooms by the researcher and the trained assistants. The respondents were given sufficient time to fill out the questionnaires and then the questionnaires were collected the next day to increase the chances of accurate filling and return. All the distributed questionnaires were collected, giving a 100% return rate.

***Data and statistical analysis*:** The data from the questionnaire were input into the Statistical Product and Service Solution (IBM-SPSS) version 23.0. Descriptive results were presented in frequencies, percentages, mean, and standard deviation. Means of 2.00 and above were regarded as agreed while means below 2.0 were regarded as disagreed. For the respondents' sleep habits, part 2 of the questionnaire was made up of 18 items (8 healthy and 10 unhealthy habits). Responses were on a five-point Likert scale from never (1), to always (5). The respondents were regarded as having either healthy or unhealthy sleep habits based on the group they scored higher. For the respondents' electronic media use, part 3 of the questionnaire was made up of 9 items. Responses were on a five-point Likert scale from never (0), to ≥ 5hrs/day (4). The responses were summed up to obtain the total scores of the respondents on media use. Scores for electronic media use ranged from 0-

48. Scores of 0-8 showed low media use; 9-18 – moderate media use; and 19-48 – excessive media use. The scoring formula was determined bearing in mind the recommended screen time (2 hours or less per day) for children according to the American Academy of Pediatrics. Chi-square was used to test the relationship between categorical variables at $p < 0.05$ level of significance.

Result

Demographic data of the respondents: The demographic characteristics of the respondents showed that the majority (97.6%) of them were between the ages of 6-12 years old. The majority (92.0%) of the respondents had their both parents alive, few of them (3.7%) had only their fathers alive, 4.7% had only their mothers alive and 1% of them had none of their parents alive. The majority (95.3%) of the respondents' education was sponsored by their parents. Business trading was the occupation for the majority of the respondents' parents, 40.7% for the fathers and 39.7% for their mothers. Thirty-seven per cent of their mothers earned less than ₦30,000 monthly and more than half of their fathers earned above ₦50,000. The majority (92.1%) of their parents were currently married and living together, 77.4% had fathers and 79.1% had mothers who obtained tertiary education.

Sleep habits of school-aged children

Table 1 shows the mean and standard deviation responses on the sleep habits of the respondents. The healthy sleep habits the children practice often are going to bed at the same time at night with a mean of 2.00, falling asleep alone in their bed (2.97), sleeping about the same amount each day (2.58), and waking up by him/herself (2.84). The unhealthy sleep habits they often practice are waking up earlier than required in the morning with a mean of 2.84 and waking up more than once during the night (2.44).

Table 1: Mean and standard deviation responses on the sleep habits of the respondents

Sleep habits	Mean	Std Dev	Remark
Healthy sleep habits. Child;			
goes to bed at the same time at night	2.00	1.34	Often
falls asleep alone in bed	2.97	1.15	Often
needs special objects like dolls or music to fall asleep	0.64	0.97	Not often
sleeps about the same amount each day	2.58	1.8.0	Often
wakes up by him/herself	2.84	1.11	Often
falls asleep within 20 minutes of going to bed	2.11	1.34	Often
wakes up once during the night	1.35	1.19	Not often
needs parents or siblings in the room to fall asleep	0.71	1.01	Not often
Unhealthy sleep habits. Child;			
is afraid of sleeping in the dark	1.62	1.58	Not often
resist going to bed at bedtime	1.43	1.39	Not often
moves to someone else bed during the night	0.58	0.99	Not often

is restless and moves a lot during sleep	0.95	1.06	Not often
snores loudly	0.31	0.73	Not often
awakens during the night, sweating and screaming	0.31	0.75	Not often
wakes up very earlier than required in the morning	2.84	1.13	Often
seems tired during the daytime	0.69	1.06	Not often
falls asleep while involved in activities	0.39	0.79	Not often
Wakes up more than once during the night	2.44	1.34	Often

Table 2 shows the frequency and percentage presentation of the sleep habits of the children. More than half (69.4%) of the respondents have healthy sleep habits while 30.6% have unhealthy sleep habits.

Table 2: Frequency and percentage presentations of the sleep habits of the children

Sleep habits	*f*	%
Healthy sleep habits	486	69.4
Unhealthy sleep habits	214	30.6
Total	**700**	**100.0**

Table 3 shows the frequency and percentage of responses on time spent on electronic media by the respondents. A greater proportion (31.0%) of the respondents spend 1-2 hours watching television every day. The majority (74.3%) of the respondents never used computers and 77.1% never used an iPad. More than half of them (53.9%) spend less than an hour every day on their smartphone. The majority (90%) of the children never used headphones and radio (70%).

Table 3: Frequency and percentage responses on time spent on electronic media

Electronic Media	≥5hrs F (%)	3-4hrs/day F (%)	1-2hrs/day F (%)	<1hrs/day F (%)	Never F (%)
Television	131 (18.7)	167 (23.9)	217 (31.0)	178 (25.4)	7 (1.0)
Personal computer	0 (0.0)	3 (4.0)	22 (3.1)	155 (22.1)	520 (74.3)
Tablet and iPad	1 (1.0)	4 (6.0)	24 (3.4)	131 (18.7)	540 (77.1)
Smartphone	5 (0.7)	5 (7.0)	157 (22.4)	377 (53.9)	156 (22.3)
Phone/video games	6 (0.9)	10 (1.4)	115 (16.4)	316 (45.1)	253 (36.1)
Radio	1 (1)	4 (0.6)	47 (6.7)	158 (22.6)	490 (70.0)
DVD player	50 (7.1)	91 (13.0)	197 (28.1)	231 (33.0)	131 (18.7)
Headphones	0 (0.0)	0 (0.0)	3 (0.4)	67 (9.6)	630 (90.0)
Camera	2 (3)	5 (0.7)	0 (0.0)	163 (23.3)	530 (75.7)

Table 4 shows the extent of the use of electronic media by the respondents. The majority (92.9%) of the respondents used electronic media moderately while 7.1% of them made excessive use of electronic media.

Table 4: Extent of use of electronic media

Electronic media use	*f*	%
Moderate electronic media use	650	92.9
Excessive electronic media use	50	7.1
Total	**700**	**100.0**

Table 5 indicates the media activities engaged in by school-aged children in Nsukka local government area. Up to 87.1% of children watch cartoons and animation with electronic media. The respondents used electronic media for the following activities; watching films and video clips (79.7%), playing games (66.6%), watching educational videos (62.4%), watching funny videos (60.9%), listening to music (57.6%), attending online educational lessons (53.6%), recording videos and voice message (48.4%), and taking pictures (32.3%).

Table 5: Frequency and percentage responses on the media activities for children

Activities	Frequency	Percentage
Watching funny videos	426	60.9
Listening to music	403	57.6
Watching educational videos	437	62.4
Playing games	466	66.6
Watching films and video clips	558	79.7
Watching cartoons and animations	610	87.1
Chatting with friends	127	18.1
Taking pictures	226	32.3
Recording videos and voice messages	339	48.4
Attending online educational lessons	375	53.6

Table 6 shows the relationship between sleep habits and the electronic media use of the respondents. The analysis revealed a chi-square value of 1.864, since the p-value (0.172) is greater than the 0.05 level of significance, this shows that there was no significant relationship between sleep habits and the electronic media use of school-aged children. However, findings showed that less proportion (22.0%) of children with unhealthy sleep habits make use of electronic media in excessive amounts.

Table 6: Relationship between sleep habits and electronic media use of the respondents

	Healthy sleep habit F (%)	Unhealthy sleep habit F (%)	Total F (%)
Moderate media use	447 (68.8)	203 (31.2)	650 (100.0)
Excessive media use	39 (78.0)	11 (22.0)	50 (100.0)
			$\chi^2 = 1.864$, df = 1, p = 0.172

Discussion

Healthy sleep habit is all about putting oneself in the best position to sleep well every day and night. Optimizing one's sleep schedule, pre-bed routine, and daily routines is part of harnessing habits to make quality sleep feel more automatic. Good sleep habits help children to get enough quality sleep (Mindell et al., 2015). Findings showed that almost a third of the children had unhealthy sleep habits among which are waking up earlier than required in the morning and waking up more than once during the night. This is worrying because poor sleep in early childhood has been linked to immune system issues, allergic rhinitis, anxiety, and depression. There is also emerging evidence that lack of quality sleep as a child may lead to future cardiovascular problems such as obesity, diabetes, and high blood pressure (Pacheco, 2023). Supporting the finding, the American Academy of Pediatrics estimates that sleep problems affect 25 to 50 per cent of children. The finding is also in line with the report of McKinnen (2023) which stated that waking up at odd hours during the night and using technology in bed are some poor sleep habits that can lead to inadequate sleep in children. In addition, having an irregular sleep schedule or consuming too much caffeine, can interfere with children's sleep quality according to Suni (2023). Findings also showed healthy sleep habits such as going to bed at the same time at night with a mean of, falling asleep alone and sleeping about the same amount each day. This finding is in line with the recommendation of Hale and Guan (2015) for quality sleep in children such as setting a bedtime routine, relaxing before bedtime, and keeping regular sleep and wake times. According to Holly Springs Pediatrics (2022), healthy sleep habits for children include keeping a nightly outline and scheduling quiet time before bed. The American Academy of Pediatrics (2016) postulated keeping a regular daily routine, monitoring screen time, and creating a sleep-supportive bedroom environment among other things as healthy sleep habits for children.

Electronic media is present and apparent in the 21st century, especially among children and adolescents. Findings showed that children spend time on electronic media such as television, computers, iPads, and smartphones. This is in line with the findings of studies by Falbe et al. (2015) and Kubiszewski et al. (2014) which showed that participants make use of electronic media such as mobile devices, television, video games, and computers. Findings also showed that the majority of the children never spend time using the radio and headphones respectively. The low use of radio might be attributed to the fact there are better options for obtaining information and entertainment, such as phones. Given that studies over the years showed that excessive headphone use could cause hearing loss in children, parents may not want their kids to use them, which may be why low usage was recorded. In contrast, a study by Kubiszewski et al. (2014) showed that the participants made extensive use of radio and music players.

Media activities for children are those things that engage in using the electronic media available to them. This study showed that the activities the children used electronic media for included watching cartoons and animation, watching films and video clips, playing games, watching educational videos, watching funny videos, listening to music, attending online educational lessons, recording videos, and voice messages and taking pictures. Supporting these findings, Kennedy and

Hupert (2021) reported that children make use of electronic media for entertainment, learning, sharing videos, playing games, reading, drawing, and storytelling. Similarly, Radesky (2016) recommended that children may use electronic media for creating and learning together, taking photos, recording videos and songs, researching, video chatting, and building vocabulary.

Electronic media use is becoming an increasingly important part of life for today's school-aged children. At the same time, concern about children's sleep habits has arisen. Findings showed that electronic media use was not associated with the sleep habits of the children. This was attributed to the fact that almost equal proportion of the children who used electronic devices excessively and those who used them moderately had unhealthy sleep habits. This finding is in contrast with that of Nuutinen et al. (2013) which showed that Computer use and television viewing predicted significantly shorter sleep duration and later bedtimes among school-aged children. Their finding also showed that Computer use predicted unfavourable changes in sleep duration and bedtimes on school days and weekends. Additionally, Kubiszewski et al. (2014) found that cell phone use among the participants predicted sleep problems and was associated with a higher risk of sleep problems such as going to bed late and difficulty waking up. They further stated that possession and pattern of electronic use by children are associated with impaired sleep quality and late bedtimes, indicating the need to control their screen time. The difference in findings could be attributed to the high educational qualification of the parents in this study which could influence children's adherence to family regulations and time management practices. Supporting this, a study by Cameron et al. (2022) showed that higher parental education was associated with longer childhood sleep duration and better sleep quality in children.

Conclusion

This study investigated the sleep habits and time spent on electronic media by school-aged children in Nsukka Urban. Findings showed that the majority of the children had healthy sleep habits and made moderate use of electronic media. Furthermore, the most commonly used electronic media by the respondents was television, smartphone, and DVD player. The respondents engaged in media activities such as watching cartoons, animation, films, and video clips; playing games; listening to music; taking pictures; and chatting with friends. A significant proportion of the children had unhealthy sleep habits, though they mostly used electronic media moderately. However, their sleep habits were not associated with the extent of electronic media use.

Recommendations

Based on the findings of the study, the following recommendations were made.

1. Primary education administrators should organize seminars/talks for the teachers, caregivers, and parents on the importance of healthy sleep habits to children.
2. Family and Child Study professionals should increase awareness through workshops and training to all who work with children on the developmental needs and benefits of balancing media time and sleep time.
3. The government should through appropriate authorities enforce policies in the primary school curriculum that grant students nap time during school hours.

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