Cadernos Brasileiros de Terapia Ocupacional
Brazilian Journal of Occupational Therapy

ISSN 2526-8910

Original Article

Screen use by hospitalized children and adolescents: caregivers' perception

Uso de telas por crianças e adolescentes hospitalizados: percepção dos cuidadores

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How to cite: Martins, M. B., & Bacellar, A. M. L. (2024). Screen use by hospitalized children and adolescents: caregivers' perception. *Cadernos Brasileiros de Terapia Ocupacional*, *32*, e3411. https://doi.org/10.1590/2526-8910.ctoAO261334112

Abstract

This study aimed to analyze screen time usage among children and adolescents in both home and hospital settings from their caregivers' perception. An exploratory and cross-sectional research with a quantitative approach was conducted at a public university hospital in a Brazilian capital. Data collection involved administering two questionnaires to caregivers: one on socioeconomic and hospitalization factors, and another on screen time usage at home and in the hospital and their perceptions thereof. Descriptive and inferential statistics were used for data analysis. The study included 40 caregivers of hospitalized children and adolescents, the majority of whom were female (90%, n=36). Regarding the children and adolescents' characteristics, the majority were male (55%, n=22), aged between 8 months and 17 years. As for the reasons for hospitalization, it was identified that 40% (n=16) were due to diseases of the skin and subcutaneous tissue, and the length of hospital stay ranged from 1 to 37 days, with an average of 11 days. The results indicated screen time usage above recommended levels, though no significant difference was found between home and hospital usage, between weekdays, and/or between types of screens. Regarding caregivers' perceptions, it was observed that some believe the amount of screen time is appropriate, indicating a need for greater training on the topic.

Keywords: Video-Audio Media, Mobile Applications, Hospitalization, Caregivers, Child, Adolescent.

Resumo

Este estudo objetivou analisar o tempo de uso de telas por crianças e adolescentes nos contextos domiciliar e hospitalar sob a percepção de seus cuidadores. Foi realizada pesquisa exploratória e transversal com abordagem quantitativa em um hospital público e universitário de uma capital brasileira. Para coleta de dados,

Received on 31 Aug. 2022; 1st Revision on 20 Sep 2022; 2nd Revision on 11 Mar. 2023; Accepted on 29 Jan. 2024.

foram aplicados dois questionários aos cuidadores: com questões socioeconômicas e da internação e questões sobre o tempo de uso de telas em casa e no hospital e a percepção deles a esse respeito. Foi utilizada estatística descritiva e inferencial para análise de dados. Participaram do estudo 40 cuidadores de crianças e adolescentes hospitalizados, a maioria do sexo feminino (90%, n=36). Quanto à caracterização das crianças e adolescentes, a maioria era do sexo masculino (55%, n=22), com idade entre 8 meses e 17 anos. Sobre o motivo das internações, identificou-se que 40% (n=16) delas foram ocasionadas por doenças da pele e tecido subcutâneo, e o tempo de internação variou de 1 a 37 dias, com média de 11 dias. Os resultados obtidos indicaram tempo de uso de telas superior ao recomendado, embora não tenha sido constatada diferença significativa entre o tempo de uso em casa e no hospital, entre os dias da semana e/ou entre os tipos de tela. Em relação à percepção dos cuidadores, observou-se que parte deles acredita que o tempo de uso de telas é adequado, indicando a necessidade de sua maior capacitação sobre o tema.

Palavras-chave: Mídia Audiovisual, Aplicativos Móveis, Hospitalização, Cuidadores, Criança, Adolescente.

Introduction

The use of screens is part of the daily routine of children and adolescents, influencing their participation in occupational activities like study, play, rest, and sleep, as well as causing mood and behavior changes (Arora et al., 2016). Screen time includes daily exposure to television and other interactive media devices, such as computers, video games, smartphones, and tablets. Both the national and international literatures have discussed this usage and its impact on the health of children and adolescents.

Organizations focused on child and adolescent populations have developed recommendations on screen time. The international parameters proposed by the American Academy of Pediatrics (AAP) in 2013 recommend that screen time be limited to up to 2 hours a day, and discourage screen exposure for children under 2 years of age (American Academy of Pediatrics, 2013). More recent recommendations (Council on Communications and Media, 2016) limit screen time for children aged 2–5 years to 1 hour per day and maintain other guidance. Regarding national recommendations, the Brazilian Society of Pediatrics (SBP) recommends the following daily screen times: up to 1 hour for children aged 2–5 years, up to 2 hours for children aged 6–10 years, up to 3 hours for adolescents aged 11–18 years, and also advises that children under 2 years of age should not be exposed to screen use (Sociedade Brasileira de Pediatria, 2019). National and international studies have used the AAP's 2-hour daily recommendation as a reference (Nobre et al., 2021; Solomon-Moore et al., 2017; Bernard et al., 2017; Goh et al., 2016).

Research estimates that children spend about seven hours exposed to screens daily, and that the harmful effects of this exposure are related to aggressive behaviors, obesity, sleep disorders, attention deficit disorder, impaired cognitive development, lower academic performance, mood disorders, and psychological distress (Arora et al., 2016; Council on Communications and Media, 2016). A study conducted in the USA with children aged 3–5 years identified that increased screen time is associated with changes

in the white matter tracts, responsible for supporting pre-schoolers' language and literacy skills (Hutton et al., 2020). Data obtained through a systematic review with meta-analysis conducted in Brazil show a high prevalence of excessive screen and television time in adolescents, exceeding the AAP's recommended 2-hour daily limit (Schaan et al., 2019).

Moreover, it is important to investigate the impact of hospitalization on screen time, knowing that it occurs in different contexts. The study by Arora et al. (2016) conducted with a convenience cohort of 96 hospitalized participants aged between 4 months and 20 years, carried out through questionnaire application and observations, revealed screen use in 80.3% of the awake time of the patient. Furthermore, caregivers reported that their child engaged significantly with screen use in the hospital context compared with the home context (Arora et al., 2016).

Hospitalization is an event resulting from illness that has the potential to bring changes to the everyday life and routine of children, adolescents, and their families, constituting a challenging experience with repercussions caused by the distance from the family environment, living in an unfamiliar place, absence of usual recreational activities, and submission to invasive procedures (Barbosa & Crahim, 2020; Ferreira et al., 2020; Carvalho et al., 2020). In this context, pediatric diseases, chronic or acute, have physical, psychological, socioeconomic, and behavioral impacts on patients and their family caregivers – understood as people linked to the patient who offer emotional support and comprehensive care during chronic or acute illness (Toledano-Toledano & Domínguez-Guedea, 2019).

The routine of children and young people is often composed of various activities, and the use of screens is present in an abusive manner in many cases, potentially interfering directly with their health and development (Oliveira et al., 2021). Additionally, the COVID-19 pandemic was a decisive factor in the routine of people of all age groups. A descriptive observational study conducted in 2020 aimed to describe the possible repercussions that social distancing and the COVID-19 pandemic have had on the behavior, sleep quality, screen use, and eating habits of Brazilian children aged 0–12 years (Faria et al., 2022). The researchers concluded that

> […] the social distancing brought by the COVID-19 pandemic had significant repercussions on the routine of the assessed children, negatively impacting their behavior, eating habits, and screen use. The sleep quality of older children was also affected despite an observed improvement in the sleep quality of younger children (Faria et al., 2022, p. 71).

Considering the context of hospitalization and its repercussions on the everyday life of children and adolescents, play can help cope with stressful situations experienced during this period, providing balance between the patient and the environment, enabling the sensation of controlling the situation, and promoting health and well-being (Sposito et al., 2018). An exploratory study conducted with children aged 7–12 years undergoing chemotherapy in a hospital context identified play as a coping strategy, noting the children's preference for video games and computer use for Internet access and social networks (Sposito et al., 2018). Hospital wards commonly have television sets and/or other means of entertainment, and studies conducted in the last three

decades indicate that hospitalized children spend more time watching television compared to those not hospitalized (Arora et al., 2016).

Considering the changes in the everyday life of children and adolescents in the context of pediatric hospitalization, the growing influence of screen use on their everyday life and health, and the need for national and international research on the topic, it is necessary to investigate this theme from the caregivers' perspective. Therefore, this study aimed to analyze the screen time of children and adolescents in both home and hospital contexts from the perspective of their caregivers.

Methodology

Research design

This is an exploratory, cross-sectional field research with a quantitative approach.

Population and sample

The research was conducted in the pediatric ward of a public teaching hospital in a Brazilian capital city. The pediatric wing of this hospital had a medical and multidisciplinary team and was capable of accommodating 16 beds at the time the study was conducted, considering the reduction caused by the pandemic and the consequent need to allocate beds for COVID-19 patients. Each of the rooms had a television set available for use from 07:00 a.m. to 10:00 p.m. daily.

The service unit assists children and adolescents up to 18 years of age and has a hospital playroom, a space reserved for the development of playful activities. However, the COVID-19 pandemic caused the suspension of the playroom's operations for an indefinite period, with only the lending of resources for use at the bedsides being possible.

The study was conducted with a convenience sample composed of caregivers of patients hospitalized in the pediatric ward of the hospital. These caregivers are understood as individuals who performed the care of these patients and were familiar with the issues addressed by the collection instruments. Inclusion criteria: being a caregiver of children and adolescents up to 18 years old who use screens (television, computer, tablet, smartphone) and being with the patient for at least 1 day; exclusion criteria: children and adolescents with visual impairments and/or any clinical condition, acute or chronic, that hinders or prevents the caregiver from participating in the study.

Data collection

The data were collected in June and July 2021 through the application of two questionnaires answered by caregivers of hospitalized children and adolescents. The caregiver questionnaire was based on the study by Arora et al. (2016) and freely translated into Brazilian Portuguese with the authors' permission. There were no modifications or adaptations to its content. After back-translation, no significant changes regarding the content of the instrument were identified. The questionnaire consists of 11 closed questions that include elements such as screen use time, availability

of electronic devices, and participation in activities that do not involve screen use, aiming to describe screen use in the home and hospital setting, as well as the caregivers' perception of the media use by children and/or adolescents. A questionnaire addressing the socioeconomic profile and information regarding hospitalization was also applied.

Data collection preferably occurred in the afternoon, considering that most of the procedures and services of the pediatric ward are conducted in the morning. Caregivers were individually approached at the bedside and invited to participate in the research after an explanation of its objectives and collection procedures. The questionnaires proved adequate and easy to apply, and the caregivers did not bring up doubts or show difficulty in understanding the questions. Data collection demanded approximately 20 min per participant on average. Two caregivers refused to participate in the study, claiming not to be interested at the time they were approached.

Data collection occurred with the caregivers, who had access to an Informed Consent Form (ICF). Since the collection involved data about children and adolescents, those who were capable of reading also had access to the ICF. The research project was submitted to the hospital's Ethics and Research Committee and was approved under CAAE 46284621.8.0000.5071.

Data analysis

The data were collected using a Google Forms electronic survey, which allowed for organizing the gathered information into spreadsheets. The data were analyzed using descriptive and inferential statistical methods. Variables were presented in frequency tables and measures of central tendency (mean). The quantitative variables included (I) caregiver data: age, relationship to the child, place of residence, race, marital status, education, occupation, and monthly family income; (II) patient data: age and reason for hospitalization; (III) data on screen time at home: TV on weekdays, TV on weekends, other devices on weekdays, and other devices on weekends; (IV) data on screen time in the hospital: TV use and use of other devices.

The inferential statistical analysis was conducted by the Statistics Laboratory of the Statistics Department at a Brazilian university using the R Core Team software 4.0.2 (2020). To assess the degree of association between the variables "caregiver education" x "perception of screen use," the chi-square test of independence was applied. For comparing screen time "at home" *vs*. "in the hospital," "on weekdays" *vs*. "on weekends," and the difference in usage time of "TV" *vs*. "other electronic media," the Friedman test was used to check for significant differences in the average usage times for the mentioned variables. After the collected data were categorized, that is, organized into time intervals, direct application of this test was impractical. Therefore, calculations of approximations for mean, variance, and standard deviation were performed considering the midpoint of each interval. For the category "more than 4 hours," 5 hours was considered the midpoint, since more than 4 hours represents a wide range of values. After obtaining the results through the Friedman test, the paired Wilcoxon test with Bonferroni correction was additionally applied to consolidate the results. A significance level of 5% (p>0.05) was adopted to interpret the results of all tests.

Finally, the technique of Ordinal Regression – a type of predictive analysis to describe the data and explain the relationship between a dependent variable (ordinal)

and two or more independent variables (ratio or interval) – was applied. To this end, two models were developed to (I) model the TV usage time in the hospital and (II) model the time of use of other media in the hospital.

For Model I, the following covariates were used: the hospital provides daily access to your child; attendance at school; age of the child/adolescent; caregiver's gender; time spent watching TV on weekdays at home; time spent on media other than TV on weekdays at home.

For Model II, various covariates were found to be insignificant for adjustment by the *p*-value, meaning the adjusted parameters for several covariates were statistically not different from zero. Thus, the following covariates were used: time spent on media other than TV on weekdays at home; time spent watching TV on weekends at home.

Results

Table 1 presents the socioeconomic characterization of the study participants. The sample comprised 40 caregivers of children and adolescents hospitalized in the pediatric ward during the data collection period. The majority were female (90%, n=36), 70% (n=28) were mothers, and 77.5% (n=31) were the primary caregivers of the child and/or adolescent.

The caregivers' ages ranged from 17 to 64 years, with an average age of 34 years, and the majority (55.0%, n=22) identified as mixed race. Most of the sample (77.5%, n=31) lived in the metropolitan region of Espírito Santo (ES); the predominant education level was high school completion (60%, n=24); half of them (50.0%, n=20) did not have paid work; the predominant family income was from 1 to 2 minimum wages (27.5%, n=11).

As for the children and adolescents, the majority were male (55%, n=22), aged 8 months to 17 years, with a predominance of teenagers between 12 and 18 years old (30%, n=12), and 72.5% (n=29) of the participants attended school. It is worth noting that 10% (n=4) of the sample was under 2 years old. Concerning the reason for hospitalization, it was identified that 40% (n=16) were caused by diseases of the skin and subcutaneous tissue, and the length of hospital stay varied between 1 and 37 days, with an average of 11 days.

Table 1. Socioeconomic characterization of study participants.

Caregiver Data		
Variable	**Absolute Frequency (n)**	**Relative Frequency (%)**
Age		
<18 years	1	2.5
18 to 25 years	11	27.5
26 to 35 years	13	32.5
36 to 45 years	8	20.0
46 to 55 years	6	15.0
>55 years	1	2.5
Relationship with Child/Adolescent		
Mother	28	70.0
Father	3	7.5
Other Family Ties	9	22.5

Table 1. Continued…

Caregiver Data		
Variable	**Absolute Frequency (n)**	**Relative Frequency (%)**
Residence		
Metropolitan Region (ES)	31	77.5
Other Regions of ES	8	20.0
Vale do Rio Doce Region (MG)	1	2.5
Race		
Mixed	22	55.0
Black	10	25.0
White	7	17.5
Asian	1	2.5
Marital Status		
Single	15	37.5
Married	14	35.0
Living with Partner	8	20.0
Divorced	2	5.0
Widowed	1	2.5
Education		
Incomplete Elementary School	6	15.0
Complete High School	32	80.0
Complete Higher Education	2	5.0
Occupation		
Homemaker	20	50.0
Formal Workers	12	30.0
Informal Workers	6	15.0
Retired	1	2.5
Not Specified	1	2.5
Monthly Family Income		
<1 Minimum Wage (MW)	5	12.5
1-2 Minimum Wages (MW)	11	27.5
2-3 Minimum Wages (MW)	5	12.5
3-4 Minimum Wages (MW)	6	15.0
>4 Minimum Wages (MW)	4	10.0
Not Specified	9	22.5
Child/Adolescent Data		
Variable	**Absolute Frequency (n)**	**Relative Frequency (%)**
Age		
0 to 3 years	10	25.0
4 to 6 years	5	12.5
7 to 9 years	9	22.5
10 to 11 years	4	10.0
12 to 18 years	12	30.0
Reason for Hospitalization		
Skin and Subcutaneous Tissue Diseases	16	40.0
Genitourinary System Diseases	7	17.5
Endocrine, Nutritional, and Metabolic Diseases	5	12.5
Circulatory System Diseases	2	5.0
Digestive System Diseases	2	5.0
Herpes Virus Infections	2	5.0
Trauma, Examinations, Neoplasms, and Clinical Findings Not Classified in ICD (Wells et al., 2011)	6	15.0

Note: MW – Minimum Wages; ES – state of Espírito Santo; MG – state of Minas Gerais.

Figure 1 presents data related to screen time obtained through the application of the caregiver questionnaire, which also addressed questions about the availability of electronic devices and participation in activities that do not involve screen use.

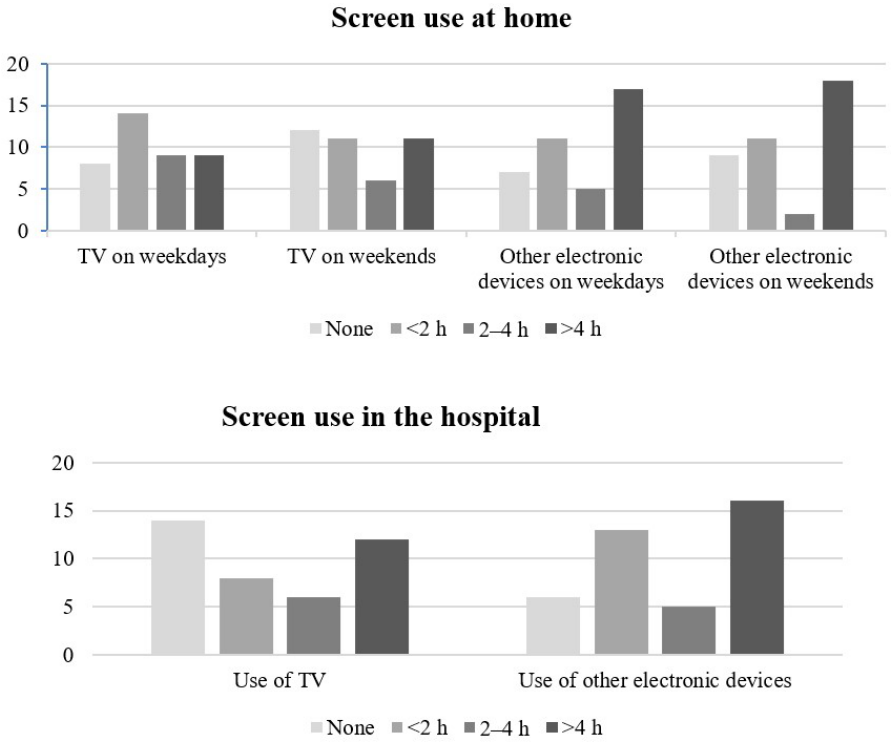

Figure 1. Data on screen time at home and in the hospital.

Regarding screen time, the results indicated that all children and adolescents participating in the study had access to screens, including children under 2 years of age. Adding the items "none" and "<2 h", the data showed that the time spent watching TV at home was <2 h daily on weekdays (55%, n=22) and weekends (57.5%, n=23), similar to the time spent on this device in the hospital context (55%, n=22). The use of other electronic devices, such as smartphones, tablets, computers, and video games, was >2 hours daily at home on weekdays (55%, n=22) and weekends (50%, n=20), as well as in the hospital (52.5%, n=21).

As for access to screen media in their room, caregivers could choose more than one option, and the results pointed out 44.4% (n=20) access to smartphones, 11.1% (n=5) to TV, 2.2% (n=1) to computers, and 2.2% (n=1) to tablets, with 40% (n=18) of the responses indicating no access to screens in the child or adolescent's room. Of these, 33.33% (n=6) were up to 3 years of age (early childhood), 22.22% (n=4) between 4 and 6 years, 33.33% (n=6) between 7 to 9 years, and 11.11% (n=2) between 10 and 13 years. Figure 2 presents the activities conducted by children and adolescents in the home and hospital contexts.

When asked about activities that the hospital could offer, the caregivers suggested playful activities in the toy library (33.3%, n=19), book reading (17.5%, n=10), playful activities in bed (12.3%, n=7), interaction with other children (10.5%, n=6), school assignments (10.5%, n=6), none (7.0%, n=4), access to other electronic media (5.3%, n=3), access to the Internet (1.8%, n=1), access to child programming on TV (1.8%, n=1).

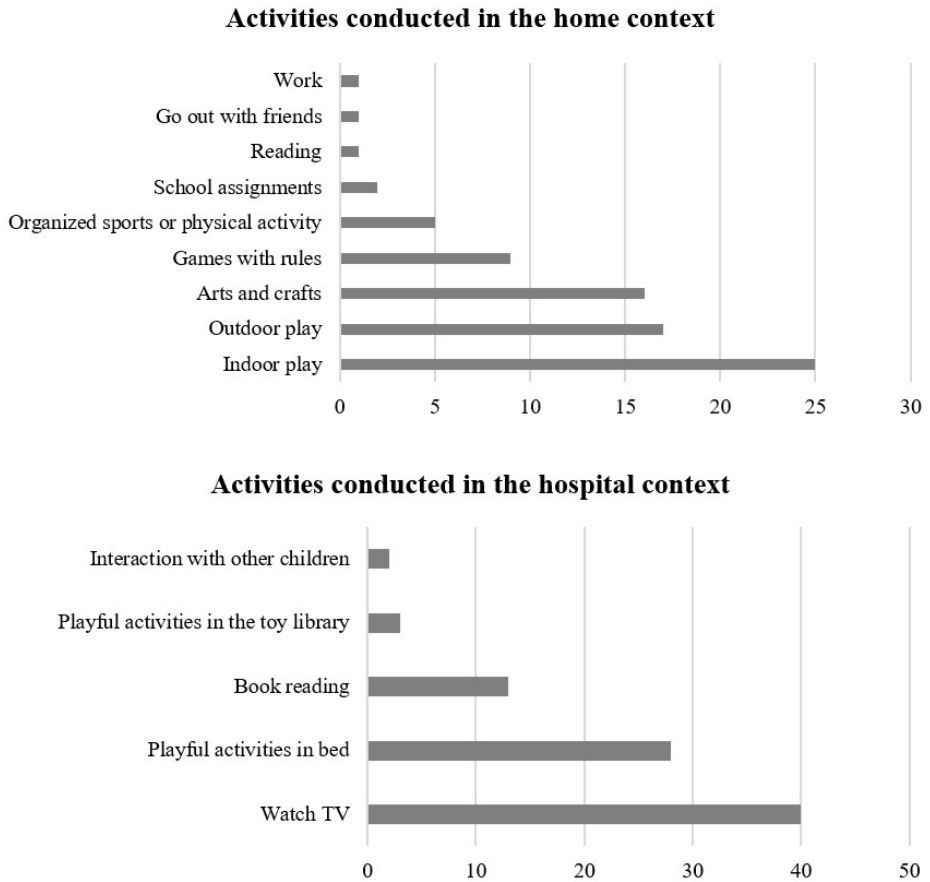

Figure 2. Activities conducted in the home and hospital contexts.

Concerning the caregivers' perception of screen time in the hospital context, 50.0% (n=20) reported believing it was the right amount, while 45.0% (n=18) reported that the screen time in the hospital was above the desired: 22.5% (n=9) a little above and 22.5% (n=9) much above. Only 5.0% (n=2) reported that screen time in the hospital was below the desired.

As for inferential statistical analysis, the comparison between the variables "caregiver education level" and "perception of screen use" performed using the chi-squared test resulted in a *p*-value = 0.7908, indicating that there is no evidence in the data that the caregivers' perception of screen time is related to education level. The Friedman test, conducted to check the difference between screen times, resulted in 10.528, with $df = 5$ and $p = 0.06159$, indicating that all screen times are statistically the same. The paired Wilcoxon test with Bonferroni correction resulted in $p>0.05$, confirming that there was no significant difference between the screen times.

Regarding the results obtained through ordinal regression, Model I used the following covariates: "the hospital provides daily access to your child"; "child attends school; age of the child/adolescent"; "caregiver's gender"; "time watching TV on

weekdays when not hospitalized"; "time spent on media other than TV on weekdays when not hospitalized". The covariates "age of the child/adolescent", "caregiver's gender", "time spent watching TV at home", and "time spent on media other than TV on weekdays when not hospitalized" were significant for the adjustment of this model. In addition, the analysis of the covariate "age of the child/adolescent" indicated that, for every additional year in the child/adolescent's age, their chance watching TV in the hospital (watching "<2 h" or "2 – 4 hours" or ">4 h" *vs*. "None") increases by 93.86%. As for Model II, the covariates "time watching TV at home on weekends" and "time spent using other media at home" were significant.

To test the accuracy of the created models, the model's predictions were compared with the actual responses. Model II indicated that children/adolescents who watch TV at home are more likely to watch TV in the hospital compared with those who do not use this device at home, and the same occurs with the use of other electronic media. Therefore, it was possible to notice that the home habits of the child/adolescent impact the habits that will be observed in the hospital, increasing the chances of screen use in this context.

Discussion

This study analyzed the time of screen use by children and adolescents in the home and hospital contexts from the perspective of their caregivers. The results indicated a high screen time in the studied population, although no significant difference was found between the screen time at home and in the hospital, between weekdays and/or types of screens. Regarding the caregivers' perception, it was observed that some of them believe the screen time is appropriate.

Screen time by the studied population was identified to exceed the recommendations of the AAP. A cross-sectional, descriptive, and exploratory study conducted with 180 children between 24 and 42 months of age found that 63% of the children used screens for more than 2 hours daily, with television being the most used device (Nobre et al., 2021). In addition, these authors highlighted a trend toward increasing preference for mobile interactive media devices, such as smartphones and tablets (Nobre et al., 2021; Bernard et al., 2017; Goh et al., 2016; Solomon-Moore et al., 2017), a finding that corroborates the results of the present study, which indicates a greater trend of using these devices, despite there being no statistical difference between them.

Regarding screen access by age group, it was identified that 10% (n=4) of the sample was under 2 years of age – a period when screen use is not recommended. Additionally, the results indicate a 93.86% increase in the chance of a child/adolescent using the TV in the hospital with each additional year of age, corroborating the study by Goh et al. (2016), conducted with 725 children aged ≤2 years who attended a pediatric clinic in Singapore, who reported that screen time in children under 2 years is high and increases across age groups. In parallel, the study by Twenge & Campbell (2018), conducted with a randomized sample of 40,337 children aged 2 to 17 years in the USA found that the average screen time was 3 hours daily and progressively increases among older children. Possibly, this is due to children getting accustomed to screen use increasingly early, and their reference for enjoyable and meaningful activity may be linked to the use of these media. Thus, as children grow older, they may find it difficult to engage in activities

that do not involve screen use, such as board games, outdoor play, and playing with peers.

A cross-sectional, descriptive, and investigative study conducted in the pediatric ward of a hospital in the Federal District of Brazil with 102 caregivers of children aged 5 to 71 months identified an early onset of screen use, as well as excessive frequency and time (Arantes & De-Morais, 2021). According to these authors, 83% of the sample began using screens before one year of age, and 17% between one and two years, with 28.4% owning their media devices (Arantes & De-Morais, 2021). Moreover, a study evaluating 98 children from public and private schools aged 3 to 9 years found that 59.1% of the studied population had free access to screens (Correia et al., 2020). Concerning the availability of screens, the current study identified that 55.0% (n=22) of the children and adolescents have access to media in their room. Arora et al. (2016) found that 71% of the studied children had access to electronic media in their room. Furthermore, the present study observed that children/adolescents who use electronic devices at home are more likely to use them in the hospital when compared to those who do not use them at home, highlighting the importance of awareness about screen use in the child's usual context, considering its impact in other contexts.

As for the activities performed by hospitalized children/adolescents, non-screen-related activities were identified, both at home and in the hospital. Regarding hospitalization, it is important to emphasize that play is an occupation that assists in the treatment and clinical improvement of the child, characterized as a pleasurable activity in which the child can experience the suspension of the hospital reality, reducing the negative effects of hospitalization (Silva et al., 2018). In this context, it is essential to offer playful activities during pediatric hospitalization, enabling the participation of patients in meaningful activities.

This study identified that caregivers requested the hospital to offer different activities—mostly playful activities in the toy library (33.3%, n=19). It is worth noting that the pediatric ward of this hospital had a toy library, but activities were restricted because of the COVID-19 pandemic when this study was conducted. According to the literature, the hospital toy library aids the hospitalization process, providing a space for play and opportunities for developing adaptation and coping strategies, as well as for improving socialization and coping with anxieties and traumas, being considered beneficial for the hospitalized child (Palhavã, 2020).

Regarding the caregivers' perception of screen use, it was identified that half of them (50.0%, n=20) believe the time spent on screens is adequate, which might indicate a lack of awareness about the recommended screen time guidelines, and this data corroborates the results obtained by Arora et al. (2016), in which 54% of caregivers reported that children and adolescents used screens "just the adequate time", 23% "a little longer than the adequate time", and 19% "much longer than the adequate time". A study conducted with 100 parents of preschool-aged children who used screens found that the harms identified by caregivers exceeded the benefits associated with screen use; however, most parents reported believing that the use of these devices is beneficial for the development of cognitive skills (Teixeira, 2020). Therefore, it is essential to emphasize the importance of improving parent knowledge about screen time recommendations and adopting strategies to reduce child exposure to these devices (Goh et al., 2016).

As for screen time, this study did not identify a significant difference between use at home and in the hospital, unlike the research by Arora et al. (2016), in which caregivers reported that children watched TV and used other electronic media more in the hospital than at home. Studies addressing the impact of hospitalization on screen time are still scarce in the literature, necessitating further research in this area.

Another relevant factor for discussion is that the present study was conducted in the context of the COVID-19 pandemic, which led to social distancing, among other global repercussions. In this regard, studies indicate an excess of screen time in the context of the pandemic (Silva et al., 2021; Arufe-Giráldez et al., 2020; Eales et al., 2021). A study conducted with 280 Spanish children identified high screen time, especially for TV, tablets, and smartphones (Arufe-Giráldez et al., 2020). Corroborating these results, a study conducted with 129 children and adolescents aged 2–13 years observed a significant increase in screen time and associated this data with factors such as the pandemic, remote education, child behavior, parental mediation, among others (Eales et al., 2021). It is worth noting that screen use in the context of the pandemic was associated with a strategy for maintaining emotional bonds and a tool for remote education, entertainment, and leisure – alternatives to social distancing measures (Silva et al., 2021).

The results show that screen time was high in the studied population, but there were no significant differences between screen times at home and in the hospital, as well as between weekdays and between use of TV and other electronic media. It should be highlighted that these recommendations need to be disseminated to caregivers of children and adolescents through health education interventions, especially in the context of primary health care. Awareness campaigns should be developed by health professionals to guide caregivers on the appropriate screen time for each age group, as well as other important elements, such as the quality of the accessed content. It is worth emphasizing that this practice can be beneficial for reducing the negative consequences of excessive screen use, as well as for maintaining activities in other occupational areas and promoting healthy development.

Final Remarks

The main objective of this study was to analyze the screen time of children and adolescents in home and hospital settings and the perception of their caregivers. The data obtained indicate an excess of screen time in both contexts, which differs from the study's initial hypothesis. It also identified the need for caregivers to have a better understanding of the topic so that they can follow the recommendations on it.

Regarding the limitations of this study, it was not possible to analyze the relationship between screen time and age, considering the recommendations of the SBP, since the instrument used for data collection adopts the American parameter of 2 hours per day. Moreover, a scarcity of national and international studies addressing the theme of screen use during hospitalization was identified, signaling the need for scientific production on this theme. Finally, future research may adopt a qualitative approach to addressing the studied theme, in addition to investigating aspects related to the content accessed on screens by children and adolescents.

References

American Academy of Pediatrics (2013). Children, adolescents, and the media. *Pediatrics*, *132*(5), 958-961.

Arantes, M. C. B., & De-Morais, E. A. (2021). Exposição e uso de dispositivo de mídia na primeira infância. *Residência Pediátrica*, *12*(4), 1-6.

Arora, G., Soares, N., Li, N., & Zimmerman, N. L. F. (2016). Screen media use in hospitalized children. *Hospital Pediatrics*, *6*(5), 297-304.

Arufe-Giráldez, V., Sanmiguel-Rodríguez, A., Zagalaz-Sánchez, M. L., Cachón-Zagalaz, J., & González-Valero, G. (2020). Sleep, physical activity and screens in 0-4 years Spanish children during the COVID-19 pandemic: were the WHO recommendations met? *Journal of Human Sport and Exercise*, *17*(3), 484-503.

Barbosa, G. A., & Crahim, S. C. F. (2020). A importância do Lúdico no Contexto da Hospitalização. *Revista Mosaico*, *10*(supl 2), 26-31.

Bernard, J. Y., Padmapriya, N., Chen, B., Cai, S., Tan, K. H., Yap, F., Shek, L., Chong, Y. S., Gluckman, P. D., Godfrey, K. M., Kramer, M. S., Saw, S. M., & Müller-Riemenschneider, F. (2017). Predictors of screen viewing time in young Singaporean children: the GUSTO cohort. *The International Journal of Behavioral Nutrition and Physical Activity*, *14*(112), 1-10.

Carvalho, E. O., Lima, L. N., Melo, M. C., Boeckmann, L. M. M., & Silva, V. B. (2020). Experiência da criança sobre a hospitalização: abordagem da sociologia na infância. *Revista Cogitare Enfermagem*, *25*, 1-11.

Correia B. C. S. T., Almeida V. L., Guida T. V., Custodio V. I. C., & Custodio, R. J. (2020). Relação entre tempo de tela, frequência de excesso de peso e hábitos de sono em crianças. *Revista Interdisciplinar de Saúde e Educação*, *1*(2), 57-70.

Council on Communications and Media. (2016). Media and young minds. *Pediatrics*, *138*(5), 1-6.

Eales, L., Gillespie, S., Alstat, R. A., Ferguson, G. M., & Carlson, S. M. (2021). Children's screen and problematic media use in the United States before and during the COVID-19 pandemic. *Child Development*, *92*(5), e866-e882.

Faria, J. F., Sartori, L. R. M., de Moura, C. R., Pinto, C. A., Teixeira, R. A., da Silva, B. C. B., Guerreiro, P. O., Correa, M. B., & de Oliveira, L. J. C. (2022). Pandemia de COVID-19 no Brasil: quais as repercussões no comportamento, qualidade do sono, uso de telas e alimentação de crianças? *Revista da Faculdade de Odontologia, Porto Alegre*, *63*(1), 70-82.

Ferreira, A. N., de Sales, J. K. D., Coelho, H. P., Marçal, F. A., de Melo, C. S., de Sousa, D. R., & Feitosa, A. C. (2020). Hospitalização infantil: impacto emocional indexado a figura dos pais. *Revista Interfaces: Saúde, Humanas e Tecnologia*, *8*(1), 402-408.

Goh, S. N., Teh, L. H., Tay, W. R., Anantharaman, S., van Dam, R. M., Tan, C. S., Chua, H. L., Wong, P. G., & Müller-Riemenschneider, F. (2016). Sociodemographic, home environment and parental influences on total and device-specific screen viewing in children aged 2 years and below: an observational study. *BMJ Open*, *6*(1), e009113.

Hutton, J. S., Dudley, J., Horowitz-Kraus, T., DeWitt, T., & Holland, S. K. (2020). Associations between screen-based media use and brain white matter integrity in preschool-aged children. *JAMA Pediatrics*, *174*(1), pp. e193869.

Nobre, J. N. P., Santos, J. N., Santos, L. R., Guedes, S. C., Pereira, L., Costa, J. M., & Morais, R. L. S. (2021). Fatores determinantes no tempo de tela de crianças na primeira infância. *Ciencia & Saude Coletiva*, *26*(3), 1127-1136.

Oliveira, A. L. S., Bisinoto, B. S., Vaz, M. H. V., França, P. R., de Farias, R. S., de Farias, T. S., & Silvestre, M. A. (2021). Os impactos do uso de telas no neurodesenvolvimento infantil. *Revista Educação em Saúde, 9*(supl 3), 103-118.

Palhavã, G. P. (2020). Efeitos das atividades lúdicas na reabilitação infantil no contexto hospitalar do Brasil. *Revista Pesquisa e Ação*, *6*(1), 24-37.

Schaan, C. W., Cureau, F. V., Sbaraini, M., Sparrenberger, K., Kohl Iii, H. W., & Schaan, B. D. (2019). Prevalence of excessive screen time and TV viewing among Brazilian adolescents: a systematic review and meta-analysis. *Jornal de Pediatria*, *95*(2), 155-165.

Silva, A. C. P., Danzmann, P. S., Neis, L. P. H., Dotto, E. R., & Abaid, J. L. W. (2021). Effects of the COVID-19 pandemic and its repercussions on child development: an integrative review. *Research, Social Development*, *10*(4), 1-12.

Silva, R. F., Pinto, P. I., & Alencar, A. M. C. (2018). Efeitos da hospitalização prolongada: o impacto da internação na vida do paciente e seus cuidadores. *Revista Saúde (Santa Maria)*, *44*(3), 1-12.

Sociedade Brasileira de Pediatria – SBP. (2019). *Manual de orientação: grupo de trabalho saúde na Era Digital (2019-2021).* Recuperado em 31 de agosto, de https://www.sbp.com.br/fileadmin/user_upload/_22246c-ManOrient_-__MenosTelas__MaisSaude.pdf

Solomon-Moore, E., Sebire, S. J., Macdonald-Wallis, C., Thompson, J. L., Lawlor, D. A., & Jago, R. (2017). Exploring parents' screen-viewing behaviours and sedentary time in association with their attitudes toward their young child's screen-viewing. *Preventive Medicine Reports*, *7*, 198-205.

Sposito, A. M. P., Garcia-Schinzari, N. R., Mitre, R. M. A., Pfeifer, L. I., de Lima, R. A. G., & Nascimento, L. C. (2018). O melhor da hospitalização: contribuições do brincar para o enfrentamento da quimioterapia. *Avances en Enfermería*, *36*(3), 328-337.

Teixeira, E. R. (2020). *Percepção dos pais sobre o brincar digital e o impacto do uso das tecnologias na promoção da saúde das crianças* (Dissertação de mestrado). Centro Universitário de Maringá, Maringá.

Toledano-Toledano, F., & Domínguez-Guedea, M. T. (2019). Psychosocial factors related with caregiver burden among families of children with chronic conditions. *BioPsychoSocial Medicine*, *13*(6), 1-9.

Twenge, J. M., & Campbell, W. K. (2018). Associations between screen time and lower psychological well-being among children and adolescents: evidence from a population-based study. *Preventive Medicine Reports*, *12*, 271-283.

Wells, R. H. C., Bay-Nielsen, H., Braun, R., Israel, R. A., Laurenti, R., Maguin, P., & Taylor, E. (2011). *CID-10: classificação estatística internacional de doenças e problemas relacionados à saude*. São Paulo: EDUSP.

Authors' contributions

Both authors were responsible for designing the study, organizing and analyzing the data, and writing and reviewing the text, and have approve the final version of this manuscript.

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Section Editor:

Prof. Luzia Iara Pfeifer