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Screen Exposure among Pre School Children: Behavioural Impacts

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Abstract

This study investigates the impact of screen exposure on the behavioural outcomes of pre-school children, focusing on attention, aggression, and sleep disturbances. A total of 156 respondents completed a questionnaire assessing screen time and child behaviour. Data were analysed using Spearman's rho correlation, Kruskal-Wallis tests, and Chi-Square tests to explore associations between screen exposure and behavioural outcomes. Results indicate a significant positive correlation between increased screen time and higher levels of aggression and attention difficulties, while longer screen exposure was also associated with greater sleep disturbances. Socio-demographic factors such as parental education level and income influenced these relationships. This study highlights the need for guidelines on screen time management for young children and underscores the importance of further research to understand the long-term effects of screen exposure on child development. Future studies should explore the causal mechanisms and broader behavioural effects of screen exposure across different socio-cultural contexts.

Keywords: Screen Exposure, Behaviour, Socio-Demography, Pre –Schooler

Introduction

In today's digital age, screens have become a ubiquitous part of daily life, impacting even the youngest in society. For preschool children, time spent in front of screens—whether for educational content, games, or videos—has rapidly increased. While technology offers undeniable learning opportunities, extensive screen exposure during early childhood raises important concerns about its effects on behaviour and development (Ashaari et al., 2024).

Emerging studies highlight a link between screen exposure and behavioural outcomes, pointing to potential effects on attention span, emotional regulation, and social interactions. This stage of life, crucial for cognitive and social growth, may be particularly vulnerable to the overstimulation or passive engagement often associated with screen use. Prolonged screen exposure, in particular, has been linked to heightened hyperactivity, decreased patience, and reduced interpersonal engagement, leading caregivers and educators to emphasize the need for a balanced approach between digital activities and traditional play-based learning.

This article delves into the behavioural impacts of screen exposure on preschool children, shedding light on the ways in which digital content might shape behaviours both at home and in school. By understanding these influences, parents, educators, and policymakers can make informed decisions to create a balanced approach that supports healthy development in a digital world.

Problem Statement

The increasing prevalence of screen usage among young children has become a significant global concern, including in Malaysia, where digital devices are now deeply integrated into family routines and early education. Technological advancements have made screens more accessible, leading to a rise in screen time among preschool-aged children. Research suggests that excessive screen exposure in early childhood is linked to various developmental concerns, including shorter attention spans, difficulties in emotional regulation, reduced social interaction, and delayed language acquisition. These behavioural issues are particularly concerning during early childhood, a critical phase for cognitive, emotional, and social development.

In Malaysia, recent statistics highlight the extent of this issue. A study conducted in Selangor found that 91.4% of children under five years old engaged in excessive screen time, with a median daily screen exposure of three hours (Raj et al., 2022). Similarly, the Malaysian National Health and Morbidity Survey (NHMS) 2016 reported that 52.2% of children nationwide exceeded recommended screen time limits (Arumugam et. Al., 2021).This growing trend raises concerns about its potential long-term effects on children's behaviour and development. International studies have consistently linked excessive screen use to attention difficulties, emotional dysregulation, and decreased social competence in young children (Kaye et al., 2020), but there is limited empirical evidence within the Malaysian context to confirm whether these findings apply to local preschoolers. Given the differences in cultural norms, parenting practices, and education systems, it is crucial to investigate whether Malaysian children exhibit similar behavioural patterns in response to screen exposure.

Additionally, socio-demographic factors such as parental education level, income status, and family structure play a crucial role in determining the extent and nature of screen exposure. Studies suggest that families with lower socioeconomic status may allow more screen time due to demanding work schedules and a lack of alternative recreational resources for children. However, there is insufficient empirical evidence within Malaysia examining how these socio-demographic factors influence not only the duration but also the quality of screen exposure and its behavioural implications.

Despite the rising concerns surrounding young children's screen use, there is a lack of context-specific research investigating the relationship between screen exposure, socio-demographic variables, and behavioural outcomes among Malaysian pre-schoolers. Addressing this gap is critical for developing effective, culturally relevant guidelines and interventions to promote healthier screen habits among young children in Malaysia. Therefore, this study aims to bridge this research gap by analyzing the impact of screen exposure on Malaysian preschoolers' behavioural development while also exploring how socio-demographic factors contribute to variations in screen use and associated behavioural changes. The findings of this study will provide valuable insights for parents, educators, and policymakers to establish appropriate screen-time recommendations tailored to the Malaysian context.

Research Objective

1. To determine the behavioral changes associated with screen exposure among preschool children.
2. To study the socio-demographic factors influencing screen exposure among preschool children.
3. To study the relationship between behavioral changes and socio-demographic factors in relation to screen exposure among preschool children.

Significance of Study

This research holds importance as it tackles a critical issue in early childhood development: the impact of screen exposure on the behavior of preschool children in Malaysia. With digital devices becoming an integral part of daily life, even for young children, it is essential for parents, educators, and policymakers to understand the potential effects of extended screen time. By concentrating on Malaysian preschoolers, this study aims to offer insights that are tailored to the cultural, social, and economic factors specific to the Malaysian context.

Moreover, the study will offer valuable information to parents and caregivers about the potential behavioral changes linked to screen exposure, enabling them to make informed decisions about screen use at home. Understanding how factors like parental education and income may relate to screen time habits can help parents identify potential risk factors and adopt practices that promote healthy development.

Overall, this study has the potential to create a significant impact by offering a comprehensive understanding of how screen exposure and socio-demographic factors affect the behavioural development of preschoolers in Malaysia. It can lead to practical recommendations that support healthy childhood development in a digital age.

Conceptual Framework

The conceptual framework of this study explores the behavioural effects of screen exposure on preschool children, as illustrated in Figure 1. The primary variables under investigation include screen duration, type of content, and the devices used, which are anticipated to impact outcomes such as cognitive development, social-emotional abilities, and physical well-being. Additionally, socio-demographic factors such as age, gender, parental education, and household income are integrated into the framework to examine their potential influence or moderating role in these behavioural relationships.

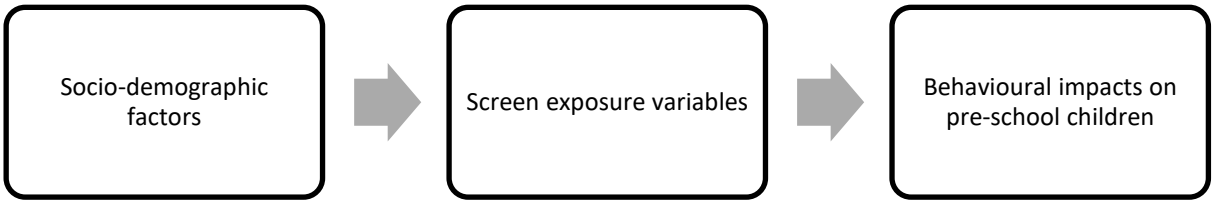

Figure 1: Conceptual Framework

Literature Review

A literature review serves as a critical examination of existing research and scholarly contributions within a particular field. It aims to synthesize and analyse the body of knowledge, providing a foundation for understanding the current state of research and identifying gaps that warrant further investigation. As noted by Hart (1998), a literature review is not merely a summary of existing literature but rather an evaluative process that highlights significant themes, methodologies, and findings. This review will focus on screen exposure among pre-schooler and their behavioural impacts, exploring the contributions of various scholars and the evolution of theories related to this subject.

Behaviour Factor and Screen Time

Poor Sleep Quality

Many studies have proved that excessive screen time in childhood is associated with behavioural health problems. One potential mechanism is sleep quality. Good quality sleep for aged less than 5 years old according to World Health Organization (WHO, 2019) is 10 to 13 hours per day. Adequate sleep duration, good sleep quality, regularity, and the absence of sleep disruptions are important factors for healthy sleep in children. Study done by Tempesta, Socci, De Gennaro, and Ferrara (2018) shows that sleep problems influence emotions and regulation of neurobiological behavioural and cognitive processes, mainly through behavioural tendencies and neurological changes which give to more negative emotions.

According to Guerrero et al. (2019), Choi (2021) , greater time spent playing mature-rated video games was associated with greater somatic complaints, aggressive behaviour, and reduced sleep duration. Besides that, the study also shows that watching television/movies was associated with increase in rule-breaking behaviour, increase in social problems, increase in aggressive behaviour, and increase in thought problems. This shows that greater time spent in screen time was associated with greater problem behaviours among children. Parent, Sanders, and Forehand (2016) reported that higher levels of youth screen time were associated with more sleep disturbances, which, in turn, were linked to higher levels of youth behavioural health problems. These also supported by Maurya (2022) that more than 2 hours on smartphone had higher chances of reporting sleep problems than those who did not use smartphone in the last 24 hours.

Character

WHO (2019) suggested that sedentary screen time of not more than 60 minutes, the less is better. Few study conducted by researcher from China reported that pre-schooler with screen

time of more than 60 min are tend to have more behavioural problems and they are at risk of negative effect on temper, character, vulnerable inattention and Attention Deficit Hyperactive Disorder (ADHD) symptoms Xie et. al. (2020), Chen (2020) reported the presence of autistic-like behaviour at pre-school aged; Xiang, Lin and Chen (2020) reported learning problem, conduct problem, psychosomatic problem, impulsive-hyperactive and hyperactivity and poor communication (Hu, Bi, Wong & Liu, 2022); (Choi, 2021) reported that higher screen time increase social problem, and rule breaking behaviour based on study conducted. Meanwhile Suleman, Sughra, Riaz and Akbar (2023) reported child tend to suffer withdrawal syndrome and autistic spectrum problem which characterized by persistent deficit in communication, social interaction and stereotype patterns of behaviour.

Several study conducted in India during COVID lockdown reported that the extended use of digital gadgets influenced young children's mobile dependency, socialization process, cognition, behaviour patterns and exhibited isolation tendencies and behavioural abnormalities among children (Vadakkemulanjanal Joseph et. al., 2022); more screen time associate with 25.53% higher risk of demanding extra attention, temper tantrums (21.31%), increased aggressiveness (19.90%), became more fussy (18.74%) and clinging (18.27%) (Gunasekaran et al, 2022).

Socio-Demographic Factors

Demographic Factors Influencing Screen Exposure among Children

Demographic factors play a crucial role in studying screen exposure among children. A study by Guodong Xie et al. (2020) focused on children aged 3 to 6 years and included data collected from family members over seven days, documenting their daily screen time. Socio-demographic characteristics were gathered through parent questionnaires. The researchers employed chi-square tests, t-tests, and nonparametric correlation analysis to determine the correlation between various factors and screen exposure. The study found that screen time is significantly associated with children's gender, household location, and maternal education levels.

Pre-schoolers who spent more than 60 minutes on screens exhibited more behavioural problems than those with less than 60 minutes. The findings suggest that increased screen exposure negatively impacts children's behaviour, with notable differences based on gender and age. Specifically, boys were found to have higher screen exposure than girls. Other significant factors included family structures—such as only-child families, rural single-parent families, low-income households, and families with lower maternal education. The analysis indicated that younger children, particularly those aged 4–5 years, had longer screen exposure than those aged 5–6 years.

Influence of Household Characteristics on Screen Time

The location of a child's home significantly affects screen exposure, with urban residents being more exposed than those in rural areas. Parental education is also a contributing factor, as children from families with secondary education levels showed higher screen exposure than those with higher or lower educational backgrounds. Additionally, marital status played a role, with children from married couples being less exposed to screens compared to those from divorced or widowed families. Family income was another critical factor; children from households earning between $3,000 and $5,000 experienced the highest screen exposure

compared to those in higher or lower income brackets. Furthermore, children living with grandparents had increased screen time compared to those cared for by parents or other caregivers.

Gender and Family Structure Correlations

The study highlighted that screen time was higher among male children, those from only-child families, and children from rural low-income single-parent families. Gender, household location, maternal education, marital status, and primary caregivers emerged as significant correlates of screen time. Consistent with previous research, boys had greater screen exposure than girls. For instance, Hinkley et al. observed differences in screen time compliance between genders, and Tamana et al. found that boys had higher externalizing behaviour problems compared to girls. Therefore, it is essential to implement sex-specific strategies to reduce screen time in pre-schoolers. Single-parent families also proved to be a significant factor contributing to excessive screen exposure.

Consequences of Excessive Screen Time

Hongyu Xiang et al. (2022) conducted a study involving 4,985 children aged 3 to 6 years in Chengdu, China, identifying excessive screen time as more than one hour per day. The research found that early screen exposure, defined as starting screen use before age 2, led to significant emotional and behavioural issues. Children with early exposure exhibited lower emotional functioning and psychosocial health scores and were at higher risk for conduct problems and hyperactivity, independent of excessive screen use. The study emphasizes the need for guidelines limiting screen exposure in children to promote better emotional and behavioural health outcomes.

Aliya (2022), found that children exposed to screens for more than two hours daily displayed significant challenges in speech and communication, social interaction, emotional responsiveness, behavioural patterns, motor skills, and cognitive development. These findings suggest a correlation between excessive screen time and symptoms associated with autism spectrum disorder (ASD), indicating that prolonged exposure increases the likelihood of developmental delays and ASD-like symptoms in children.

Methodology

This study adopted a quantitative methodology to systematically collect and analyze numerical data, allowing for the identification of patterns and examination of relationships between variables (Creswell, 2014).

The sample comprised 156 preschool children aged 3 to 6 years, selected from various kindergartens and day-care centers within the Alor Gajah district of Melaka. Data were gathered using a structured questionnaire distributed to parents and caregivers. The questionnaire covered demographic details (such as the child's age, gender, parental education level, and household income), screen exposure (including average daily screen time and types of screen content), and behavioural outcomes (such as attention span, social interactions, and emotional regulation). Parents, caretakers and kindergarten teachers were requested to provide accurate responses based on their child's daily activities. Additionally, all participants were informed about the study's objectives and assured of their right to withdraw at any stage. These participants provided valuable data regarding children's screen

exposure and associated behavioural characteristics, contributing to a comprehensive understanding of the study's objectives.

Data were analysed using SPSS (version X) for Windows. Descriptive statistics were calculated to summarize the demographic characteristics of the participants. The relationship between screen exposure and behavioural outcomes was examined using Spearman's rho correlation analysis, due to the non-parametric nature of the data. To assess group differences in behavioural outcomes based on categorical variables, the Kruskal-Wallis test was conducted.

Additionally, Chi-Square tests were performed to examine associations between categorical demographic factors (e.g., gender, parental education level) and screen exposure. The influence of demographic factors, such as parental education level and income, on the behavioural outcomes was assessed using appropriate statistical methods.

Prior to the main study, a pilot study was conducted to assess the clarity, reliability, and validity of the questionnaire items. This preliminary stage involved a small sample similar to the main studies demographic to ensure the instrument's appropriateness and refine any necessary aspects based on feedback.

Results and Discussion

Demographic Factors

The dataset offers a detailed overview of demographic and socio-economic characteristics for a group of 156 individuals. It encompasses information on data providers, parental education and employment, child demographics, household income, and other relevant factors, providing a rich foundation for in-depth analysis in this research.

Table 1
Demographic factors

Category	Frequency	Percentage (%)
Mother's Education Level		
SRP/PMR/PT3	3	1.9
SPM	30	19.2
STPM/STAM	81	51.9
Degree	22	14.1
Masters and above	20	12.8
Others	156	100.0
Total		
Father's Education Level		
SRP/PMR/PT3	5	3.2
SPM	38	24.4
STPM/STAM	63	40.4
Degree	26	16.7
Masters and above	24	15.4
Total	156	100.0
Gender of Children		
Men	85	54.5
Female	71	45.5
Total	156	100.0

Children's Age		
3 Years old	12	7.7
4 Years old	21	13.5
5 Years old	46	29.5
6 Years old	77	49.4
Total	156	100.0
Position of Children in the Family		
First	50	32.1
Second	47	30.1
Third	25	16.0
The youngest	28	17.9
Others	6	3.8
Total	156	100.0
Household Income		
Below RM 2500	20	12.8
RM 2501 to RM 5000	38	24.4
RM 5001 to RM 10,000	53	34.0
RM 10,001 and above	45	28.8
Total	156	100.0

The gender distribution among the children reveals a slight male majority, with boys comprising 54.5% and girls 45.5%. Regarding age, the group is relatively young, with 3-year-olds representing 7.7%, 4-year-olds at 13.5%, 5-year-olds at 29.5%, and 6-year-olds nearly half of the sample at 49.4%, indicating a higher concentration in the older preschool years. For birth order, 32.1% of the children are first-born, 30.1% are second-born, 16.0% are third-born, and 17.9% are the youngest, while a small 3.8% fall into other categories. This distribution suggests a sample with a typical family structure, with a notable focus on early-born children.

Finally, the household income data suggests a wide range of economic backgrounds. The highest proportion of households (34.0%) earn between RM 5001 and RM 10,000, followed by 28.8% earning above RM 10,001. About 24.4% fall within the RM 2501 to RM 5000 range, while the remaining 12.8% earn below RM 2500, indicating an economically diverse group with a leaning towards middle- to upper-income levels.

Screen Exposure

The data on screen exposure among preschool-aged children provides a comprehensive view of the types of gadgets they use, sources of internet connectivity, and patterns of device ownership. These insights shed light on how young children interact with digital technology, the settings where they access it, and the influence of parents and educational institutions in regulating their screen time.

Table 2
Screen Exposure among Preschool Children – Gadget Usage, Internet Connectivity, and Ownership Patterns

Category	Response	Percentage
Types of Gadgets Used	Smartphone	53.2%
	Smartphone and Tablet	16.0%
	Tablet	12.8%
	Smartphone, Laptop, and Tablet	5.1%
	Smartphone and Laptop	4.5%
	Smartphone and Computer	3.2%
	Smartphone, Computer, and Tablet	1.3%
	Laptop	1.3%
	Smartphone, Computer, Laptop, and Tablet	1.3%
	Computer	0.6%
	Laptop and Tablet	0.6%
Internet Connectivity	Wi-Fi	51.3%
	Wi-Fi and Mobile Data	29.5%
	Mobile Data	19.2%

Regarding gadget types, the dataset reveals that 53.2% of children use smartphones exclusively, making it the most common device among young users as in Table 2. This significant majority indicates a strong reliance on smartphones as the primary medium for children's screen exposure. Due to their multi-functionality, portability, and wide range of applications, smartphones likely offer a convenient and manageable platform for both entertainment and learning. The trend toward smartphone use may reflect parental preference for these devices, given their ease of use, affordability, and compatibility with child-friendly content, such as educational apps and videos.

After smartphones, 16.0% of respondents report that their children use a mix of smartphones and tablets. While tablets alone are less common (12.8%), they play a significant role in these mixed-use scenarios. With larger screens, tablets may complement smartphones for activities like interactive learning or watching videos, especially in stable settings like at a table or play area. Other combinations include 5.1% using smartphones and laptops, 3.2% using smartphones and computers, and 1.3% using all four devices: smartphones, tablets, laptops, and computers. These diverse combinations suggest that some children have access to a wider range of devices, likely supported by households with more digital resources or shared use among family members. Laptops (1.3%) and standalone computers (0.6%) are rarely used alone, possibly due to their size, complexity, and stationary nature, making them less suitable for young children compared to the mobility and ease of smartphones and tablets.

Regarding internet connectivity, Wi-Fi is the primary source for children's screen activities, with 51.3% of households relying on it exclusively, 29.5% using both Wi-Fi and mobile data, and 19.2% relying solely on mobile data. The dominance of Wi-Fi suggests that children's screen time often takes place in stable, controlled settings, like the home, where Wi-Fi offers cost-effective and consistent connectivity. Households using both Wi-Fi and mobile data enable access beyond the home, which may suit families with busier schedules. Meanwhile, those relying exclusively on mobile data may either lack stable Wi-Fi access or prefer mobile data's flexibility, though this may come with higher costs and variable speeds.

Overall, these patterns indicate that parents tend to facilitate and limit children's digital access within controlled, home-based environments.

In conclusion, this dataset illustrates a detailed picture of how preschool children are introduced to digital technology. The dominance of smartphones (53.2%) as the primary gadget, supported mainly by Wi-Fi (51.3%) within a home setting, highlights a structured digital environment where access is relatively controlled and primarily dependent on parental supervision. Tablets and other devices are present but less common, serving as secondary tools rather than primary sources of engagement. Overall, this data underscores the importance of parental roles in managing children's screen time and the centrality of smartphones and Wi-Fi in shaping early childhood digital exposure.

Table 3
Screen Exposure among Preschool Children – Various Stages and Amount of Time Children Spend On Screens Each Day

Category	Frequency	Percentage (%)
Screen exposure at an early age		
Less than 1 year	7	4.5
1 year to 2 years	31	19.9
2 years to 3 years	43	27.6
3 years to 4 years	42	26.9
4 years and above	33	21.2
Total	156	100.0
Duration of screen exposure time in a day		
Less than 1 hour	33	21.2
1 hour to 2 hours	63	40.4
2 hours to 3 hours	21	13.5
3 hours to 4 hours	20	12.8
More than 4 hours	19	12.2
Total	156	100.0
Children's time is often exposed to screens		
Morning	16	10.3
Middle	19	12.2
Evening	88	56.4
Night	33	21.2
Total	156	100.0

The data shows that children are exposed to screens at various stages, with a significant portion beginning between the ages of 1 and 4. Specifically, 27.6% of children started screen exposure between 2 and 3 years old, closely followed by 26.9% who began between 3 and 4 years. A smaller, yet notable group (19.9%) started between 1 and 2 years, while 4.5% were introduced to screens before reaching 1 year of age. This early exposure is a growing trend as technology becomes more embedded in daily life, with 21.2% of children beginning screen use at 4 years or later. The prevalence of early screen exposure could have implications for developmental milestones, as excessive screen time in early childhood may impact social, cognitive, and physical growth.

Examining the amount of time children spend on screens each day, the largest group (40.4%) has moderate exposure, with screen time ranging from 1 to 2 hours. A smaller group (21.2%) has screen exposure of less than 1 hour, indicating limited screen use within these

families. The data on time of day for screen exposure reveals that screen usage is concentrated in the evening, with 56.4% of children most frequently using screens during this time. Nighttime screen exposure is also common, with 21.2% of children using screens after sunset. This trend could influence sleep quality and routines, as screen exposure close to bedtime can disrupt sleep patterns due to blue light emission, which can inhibit melatonin production.

The data indicates early and sustained screen exposure among children, with a significant portion exposed for 1 to 2 hours daily and predominantly in the evening. These findings underscore the need for balanced screen usage strategies to mitigate potential negative effects on young children's health and development.

Attitudes and Behavior of Children

Table 4

Attitudes and Behavior of Children

No.	Item	SD		D		N		A		SA		Min	SP
		f	%	*f*	%	*f*	%	*f*	%	*f*	%		
1.	Able to complete assigned tasks.	3	1.6	8	5.1	40	25.6	68	43.6	37	23.7	3.82	.919
2.	Active in team sports.	3	1.9	8	5.1	34	21.8	65	41.7	46	29.5	3.92	.943
3.	Able to concentrate on activities.	4	2.6	6	3.8	39	25.0	69	44.2	38	24.4	3.84	.926
4.	Able to perform simple activities without relying on parents or guardians.	4	2.6	11	7.1	25	16.0	77	49.4	39	25.0	3.87	.955
5.	Get bored quickly and change activities frequently.	4	2.6	27	17.3	44	28.2	62	39.7	19	12.2	3.42	.996
6.	Having difficulty sleeping.	46	29.5	33	21.2	34	21.8	30	19.2	13	8.2	2.49	1.271
7.	Showing emotional expression in any situation.	7	4.5	14	9.0	54	34.6	64	41.0	17	10.9	3.45	.959
8.	Able to respond to individuals/situations.	3	1.9	7	4.5	38	24.4	76	48.7	32	20.5	3.81	.878
9.	Can explore new things or activities without fear.	3	1.9	7	4.5	40	25.6	73	46.8	33	21.2	3.81	.888
10.	Always take care of things that belong to the family or other children.	4	2.6	7	4.5	45	28.8	67	42.9	33	21.2	3.76	.925
11	Easy to get along with other kids.	3	1.9	12	7.7	31	19.9	53	34.0	57	36.5	3.96	1.024
12	Able to express childishness according to age.	3	1.9	5	3.2	42	20.5	61	39.1	55	35.3	4.03	.929
13	Apologizing and feeling guilty after doing something wrong or wrong.	5	3.2	7	4.5	31	19.9	68	43.6	45	28.8	3.90	.976
14	Active and always energetic.	2	1.3	2	1.3	29	18.6	55	35.3	68	43.6	4.19	.871

15	Speak fluently and understand the meaning of words well.	2	1.3	5	3.2	21	13.5	65	41.7	63	40.4	4.17	.871

Children's attitudes and behaviors provide an insightful look into their social, emotional, and cognitive development. The findings suggest that a majority of children show a strong ability to complete assigned tasks, with a mean score of 3.82 and a standard deviation of .919.

Specifically, 67.3% of respondents either agree (43.6%) or strongly agree (23.7%) with this ability, highlighting that children generally possess the focus and responsibility needed to finish tasks independently.

The data reflects a strong engagement in team sports among children, with a mean score of 3.92 (SD = .943). Over 70% of children demonstrate high involvement in team activities, with 41.7% agreeing and 29.5% strongly agreeing. This suggests a preference for peer interaction through physical activities, which are crucial for fostering teamwork, communication skills, and physical well-being.

Children also show solid concentration abilities, with a mean score of 3.84 (SD = .926), as 68.6% either agree (44.2%) or strongly agree (24.4%) that they can stay focused on activities.

This indicates an ability to maintain attention, an essential skill that supports early learning and cognitive development.

Independence in simple tasks is high, reflected by a mean score of 3.87 (SD = .955), with 74.4% of children managing tasks without assistance. This early self-reliance signals maturity and confidence at a young age.

Interestingly, children show a tendency to become easily bored, with a mean score of 3.42 (SD = .996). Approximately 39.7% agree that children frequently switch activities, suggesting that sustained attention is still developing as children explore various stimuli, which is typical in early childhood.

Sleep patterns appear generally stable, with a mean score of 2.49 (SD = 1.271). Around 50.7% either strongly disagree (29.5%) or disagree (21.2%) with the notion of sleep difficulties, indicating that most children have regular sleep routines, though some may face minor challenges.

Emotionally, children openly express feelings, as indicated by a mean score of 3.45 (SD = .959). With 41% agreeing and 10.9% strongly agreeing, this openness is an important element of emotional intelligence, essential for healthy social interactions.

Children display responsiveness to people and situations, with a mean score of 3.81 (SD = .878). Nearly 70% of respondents agree or strongly agree that children respond appropriately, suggesting adaptability and awareness—key traits for effective socialization.

Curiosity and openness to new experiences are evident, with a mean score of 3.81 (SD = .888). Approximately 68% agree or strongly agree, indicating a sense of adventure and eagerness to learn, which foster confidence and exploration.

Responsibility for belongings is also notable, as shown by a mean score of 3.76 (SD = .925). More than 64% agree or strongly agree that children take care of family or others' belongings, reflecting an early respect for property and a sense of responsibility.

Social compatibility is high, with a mean score of 3.96 (SD = 1.024). An impressive 70.5% of children reports ease in getting along with peers, suggesting they are sociable and adaptable—key factors for forming positive relationships.

Behaviorally, children demonstrate age-appropriate behavior, with a mean score of 4.03 (SD = .929). With 74.4% agreeing or strongly agreeing, this balance of maturity and playfulness aligns well with developmental expectations.

Expressing remorse and apologizing is another well-developed behavior, with a mean score of 3.90 (SD = .976). Around 72.4% agree or strongly agree, indicating that children show empathy and can recognize mistakes, foundational for moral development.

Finally, children are active and energetic, with a high mean score of 4.19 (SD = .871). A majority of 78.9% agrees or strongly agrees, suggesting good health and vitality.

Language skills are also strong, as indicated by a mean score of 4.17 (SD = .871). Around 82.1% agree or strongly agree, suggesting effective communication abilities and language comprehension.

Overall, the data highlights a group of children progressing well in critical developmental areas, including social compatibility, task completion, emotional expression, independence, and language skills—each contributing to a foundation for continued growth and learning.

Table 5
Interpretation of Mean Score (Davis, 1971)

Interpretation	Mean Score Range
High	3.68 – 5.00
Moderate	2.68 – 3.67
Low	1.00 – 2.67

Table 6
Interpretation Table for Each Variable

Variable	Mean	Interpretation
Attitudes and Behaviours of Children	3.7637	High

The analysis in the table above shows that the attitudes and behaviours of children variable shows mean = 3.7637. The results of this analysis can be concluded that, according to the interpretation of Davis (1971) mean data, the variable is at a high level.

Table 7
Correlation results using Spearman's rho analysis

Variable	Behavioral changes (r)
Parental education level (father)	.024*
Parental education level (mother)	.012*

** Correlation is significant at the 0.05 level (1-tailed)

The Table 7 shows the analysis of the relationship between parental education level towards behavioural changes. The results of the analysis using Spearman's rho analysis show the value of r = 0.024 (father) and r = 0.012 (mother) while the value of $p < 0.05$. The results of the study show that there is a significant relationship between parental education levels towards behavioural changes. This suggests that children of parents with higher education levels tend to have lower screen exposure. However, no significant correlations were found between family income and screen exposure, indicating that socioeconomic factors alone may not fully account for screen use patterns.

These findings suggest that screen exposure is a key factor influencing the behavioural development of preschool children, particularly with regard to attention and aggression. The relationship between screen time and negative behavioural outcomes underscores the importance of regulating screen use in early childhood. Parents, educators, and policymakers must work collaboratively to create strategies that encourage healthier media consumption and promote balanced child development.

Limitation

While this study provides important insights into screen exposure and child behavior, there are several limitations. The cross-sectional nature of the study precludes causal inferences, and the reliance on parent-reported data may introduce bias. As parents may overestimate or underestimate their child's screen time or behavioral changes due to social desirability or recall bias. Using objective measures of screen exposure (e.g., screen time trackers) could help mitigate this limitation.

Conclusion

In conclusion, this study offers valuable insights into the digital habits and screen exposure among preschool-aged children within the community. The findings reveal that smartphones dominate as the primary device, reflecting a trend toward portability and multi-functionality that aligns well with both children’s entertainment needs and parental convenience.

These patterns highlight the dual role parents play in facilitating digital access while also managing it within a structured setting. As screen time becomes increasingly prevalent in early childhood, understanding the types of devices used, connectivity sources, and parental influences is essential for developing guidelines and practices that promote balanced digital engagement for young children. This research underlines the importance of continued awareness and guidance to ensure that children’s early interactions with digital technology remain beneficial and age-appropriate.

Future studies should consider exploring the role of environmental factors, such as parental involvement and educational settings. Children's development is strongly influenced by their immediate surroundings, and parental engagement plays a critical role in fostering emotional intelligence, cognitive growth, and appropriate behavioural responses. In particular, investigating how different levels of parental involvement in managing screen time influence children's behaviour would provide valuable insights.

Additionally, the type of preschool environment—whether private, government-funded, or specialized—could have significant implications for children's social, cognitive, and emotional development. Longitudinal studies could further explore the long-term effects of screen exposure in different educational settings. Objective measures of screen time, such as device tracking, would provide more accurate data to complement self-reported screen use, thereby enabling a deeper understanding of the effects of screen exposure on children's behaviour across diverse socio-cultural contexts.

This research direction would help to refine intervention strategies, parenting programs, and educational practices to better support early childhood development.

Authors Contributions

Mayilvahanam, S: Conceptualization, Methodology, Software, Writing-Original Draft Preparation; Abu Hassan Ashaari, S. R: Writing-Reviewing and Editing; Ahmad, D: Validation; Saat, R: Software; Rameli, F. E: Methodology, Writing-Reviewing.

Conflict Of Interest

The manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the review, agree with its submission and declare no conflict of interest on the manuscript.

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