Iqra Journal of Engineering & Computing
Vol. 01, No. 02, (September 2025) 57 –82
DOI 10.21621/ijec.20250102.04

Screen Practices and Perceptions of Parents of Young Children Under 6 Years Old

Kanwal M. Basit[1*], Sehrish Choudhry[1], Bianca Jiwa[1], Shelina Bhamani[1]

ABSTRACT

Screen time refers to the duration spent on digital devices and digital media, including online gaming, smartphones, tablets, computers, televisions, and wearable technologies such as smartwatches, as well as internet browsing across various devices. To analyze parents' perceptions of screen practices among young children under six, highlighting their behaviors and the impact on early development, including a lack of interaction, cognitive development, and behavioral issues. This study employed a quantitative, cross-sectional design, collecting data from 74 participants via convenience sampling, and analyzed the data using SPSS software for descriptive statistics (percentages, frequencies, and a chi-square test of parental perceptions of current screen practices among young children under 6. A p-value of less than 0.05 was considered statistically significant, with results underscoring the impact of screen practices on children, with $p<0.027$ indicating dependence on fast-paced media, while $p<0.020$ indicated dependence on problem-solving games. Ethical clearance was obtained from the institution's Ethical Review Committee (ERC No: 2024-10848-32188). Parental perception showed an association of increased screen time and its substantial impact on young children, emphasizing the varying perceptions related to screen practices, focusing on the need for future educators, researchers, and policymakers to focus on age-appropriate strategies for screen time.

Keywords*:* Behavior Issues, Digital Media, Early child development, Lack of interaction, Parental Perception, Screen practices, Screen Time

Author's Affiliation:
Institution(s) Name: [1]ECD PREP, Department of Obstetrics and Gynaecology, Aga Khan University

Country: [1]Pakistan
Corresponding Author's Email: [1]kanwal.kaleem87@gmail.com

3105-4528 (Online), 3105-451X (Print) © 2025

1. Introduction

Screen time refers to the time spent on a device with a screen, including online games, smartphones, tablets, computers, televisions, and wearable technologies such as smartwatches, as well as browsing the internet on multiple devices [1].

Globally, the average person spends 6 hours and 38 minutes each day on screens for internet-related activities. This time includes 2 hours and 21 minutes spent scrolling through social media, 1 hour and 25 minutes streaming music, and 52 minutes listening to podcasts. Most of this screen time occurs on mobile devices, averaging 3 hours and 46 minutes per day [2]. Similarly, Young children (aged 2-5) spend just under 2 hours daily on phones and tablets, while school-going children spend 4-6 hours, and teens can log up to nine hours [3], with a 59.4% rise compared to a 41.3% increase previously showing growing reliance on screens across all age groups worldwide [4].

In Asia, Japan has the lowest average screen time at 4 hours and 25 minutes per day. In contrast, the Philippines has an average screen time of 10 hours and 56 minutes. China spends about 5 hours and 22 minutes on screens, while South Africa has an average of approximately 10 hours and 6 minutes. The differences in screen time between these countries are quite significant [5]. These gaps highlight Asia's significant digital divide in terms of screen usage. Furthermore, over 80% of youngsters in Pakistan are screen-addicted to using digital devices for an average of 6 hours per day [6]. This addiction is causing significant issues such as sleep disturbances, depression, and social isolation. Therefore, it is crucial to raise awareness, implement regulations, and involve parents to mitigate the adverse effects of excessive screen time among young children under 6 in Pakistan.

Parents of young children under 6 are concerned that screen usage affects their children's well-being. 63% of parents believe that the time spent online has a detrimental influence on their children's health, up from 58% in 2022 [7]. Most children screen late at night, which disturbs the body’s natural sleep cycle and results in fatigue, irritability, and lower attention spans during the day, with three primary concerns observed mainly among parents are exposure to misinformation (36%), privacy and safety issues (47%), and a lack of in-person socialization (34%) [8]. As children become tech-savvy, parents are concerned about online predators, exposure to inappropriate content, and harmful influences from unsupervised browsing or video platforms. Cyberbullying is a concern among young children who may lack the emotional maturity to handle negative online interactions, leading to anxiety, low self-regard, and emotional distress [9]. There is also an increasing concern that children may lose touch with the real world of interactions due to screen-based entertainment.

Parents are concerned about excessive screen attachment in their children, leading to addiction and dependence. Children struggle to disengage during meals, family time, or outdoor play, and display tantrums, frustration, or anger when screen usage limits are imposed [10]. Empirical literature identified that the overuse of digital media creates an intrusion on learning and academic achievement among children. A correlation exists between prolonged use of the digital world and reduced attention span, impaired concentration, and loss of interest during classroom activities [11]. As a result, parents are having concerns in relation to the possible occurrence of developmental setbacks due to long use of screens.

Research Objective: to analyze the perception of parents of young children under 6 years regarding the screen practices in today's time.

2. Literature Review

2.1. Global-Local context of screen time of Parents of children under 6

The increasing use of screens among young preschool children has become a significant concern for educators and health professionals worldwide. The onset and duration of exposure to digital screens for young children have increased in both frequency and length compared to previous decades [12]. The average screen time of children between 2 and 5 years old worldwide is over two hours per day, which is higher than the recommendations from the World Health Organization (WHO) and the American Academy of Pediatrics. The COVID-19 pandemic exacerbated this exposure, as digital practices have arisen and are now essential for remote assessment and instruction during lockdowns, which has shaped an expectation of screen use at home [13].

In developed countries, screen usage among children is high, but there is often greater awareness and organized parental measures in place. These may include co-viewing and the use of digital literacy tools. In contrast, developing countries have seen an increase in screen time exposure among young children, but this has not been accompanied by a similar rise in digital literacy or parental awareness [14]. A study indicates that children spend 6-9 hours a day in front of the screen, and more than 80% of children are reported to be addicted to digital devices [15]. Yet, few parents are equipped with adequate knowledge or resources to manage and guide this use effectively. This reinforces the necessity of culturally sensitive education and helps parents of pre-school and primary school children navigate screen time safely, thereby safeguarding the health and development of their children.

2.2. Patterns and trends of screen use among young children under 6

Screen practices among young children under six have increased significantly worldwide, with digital devices becoming a regular part of children's daily routines. The empirical evidence suggests that children in this age group now

spend an average of 2-3 hours per day on screen-based interaction, which exceeds the recommendations made by leading health organizations [16]. As indicated by the World Health Organization (WHO) and the Academy of Pediatrics (AAP), children in the preschool stage (2-5 years of age) should not access more than an average of one hour of quality electronic media content per day, the administration of which should preferably be under adult supervision [17]. There is a global trend of spending more time on screen, which is mainly observed when children enter the stage of early childhood; also, there have been changes in screen-related preferences as people were mostly engaging in passive activities and digital media usage via TV watching, and are now engaging with interactive materials, which include the use of tablets and mobile phone applications [18]. A study done in the United States in 2020 suggested that 39% of parents reported their television was always on or on most of the time, implying that ongoing background media exposure would be one of the drivers of increased screen time among the youngest children [19].

In these families, children often watch significantly more television, which can lead to increasing difficulties, such as attention problems and language learning challenges. Families living in homes with low socioeconomic status or where parents have high personal screen time tend to have higher screen exposure themselves. The behavior of parents and the media environment in the home greatly influence children's screen habits [20]. However, most of the screen time is spent on passive activities, such as watching videos or cartoons, rather than engaging with interactive or educational content [21]. While some of the content children watch can positively affect literacy and social skills, much of it is entertainment-based and upbeat, which can slow down cognitive processing and concentration.

Screen time in children skyrocketed during the COVID-19 pandemic, primarily due to remote learning, limited outdoor activities, and an increased reliance on screens for entertainment and socialization [22]. Additionally, media multitasking, such as using multiple devices at once, is becoming more common, and its potential long-term cognitive impacts are starting to raise concerns [23]. Overall, global trends show that young children are spending more and more time in front of screens, often influenced by parental habits, home settings, and screen accessibility.

2.3. Impact on the health and well-being of children under 6

Excessive screen time is a growing concern for the well-being of children under 6 years old, as prolonged exposure to digital screens can have negative consequences [24]. Cognitive and language development are significantly affected during early childhood, especially under the age of 6, which is a critical period for speech and language acquisition. Excessive screen time,

particularly with passive content such as cartoons or YouTube videos, can hinder real-life interactions, limit vocabulary growth, and impede language development [25]. Children with more than 2 hours of daily screen time have a 1.54 to 2.38 times higher likelihood of developing speech disorders and a 1.96 times higher likelihood of developing a learning disability [26].

Similarly, excessive screen time, particularly before bedtime or without adult supervision, can lead to behavioral problems in young children, including increased irritability, hyperactivity, and emotional instability [27]. It was shown that preschoolers with greater than 60 minutes of screen time are likely to experience withdrawal symptoms, sleep issues, and autism spectrum disorders than those with screen time of less than 60 minutes [28]. Likewise, excessive screen use leads to a lack of physical activity, which in turn contributes to sedentary behavior, obesity, and sleep disturbances. Screen blue light disrupts melatonin levels, which in turn disrupts sleep patterns and leads to low-quality sleep, affecting mood and memory [29].

2.4. Impact on eating, physical activity, and sleep behavior in children under 6

The habits children form in their early years often shape their health and lifestyle in later life [30]. Specifically, the impact on children's eating behaviors is of concern. Extended screen use, particularly when meals are served, often encourages distracted eating habits [31]. When children are occupied watching television or using digital devices during meals, they become less aware of their internal hunger and fullness signals [32]. It is a reduced awareness that may lead to overconsumption of food and disrupted eating patterns, thus having adverse effects on nutrition and overall health. Poor food habits may also be linked to eating in front of a screen, the consumption of high-sugar snacks, processed foods, and fast food, as well as regular exposure to food advertisements, which can result in weight gain, unhealthy eating, and undermine proper growth and health [33].

Physical activity is another area significantly affected by screen time. Children spend hours sitting in front of screens and engaging in low-intensity outdoor play activities, which play a vital role in this stage of development in developing motor skills, enhancing cardiovascular health, and building bone and muscle strength, as well as overall well-being [34, 35]. Screen time is also a significant contributor to the need to interfere with the healthy sleep patterns of children. Blue light emitted by screens inhibits the production of melatonin, a hormone that regulates sleep, thereby impacting mood, behavior, attention span, and the capacity to learn effectively. Irregular sleep patterns also affect them [36, 37]. A deprived sleeping child can experience fatigue throughout the day and choose to spend time watching TV rather than engaging in physical activities, chronic exhaustion, anger, impaired scholastic achievement, and

lifetime health jeopardy through the process of obesity, type 2 diabetes, and behavioral issues [38, 39]. To achieve better and healthier outcomes, parents and caregivers should establish clear boundaries regarding screen usage, particularly during mealtimes and bedtime. Encouraging regular physical activity, eating healthy foods without screen distractions, and maintaining a consistent bedtime routine can help reduce the adverse effects of excessive screen time, along with raising awareness among parents regarding this issue to foster healthier and more balanced life choices [40].

2.5. Parenting strategies regarding screen time in children under 6

Young children, especially those under 6, who are in crucial developmental stages of cognitive, social, and emotional growth, are at risk from excessive exposure to screen time [41]. The parenting and caregiver role are therefore immense in nurturing healthy screen behaviors via well-educated and uniform methods. Making and having clear and consistent boundaries for screen time is one of the core parenting methods [42]. The health authorities advise that children between the ages of 2 and 5 years should have access to high-quality screen time of up to one hour a day [43].

Active involvement in children's screen use is another practical approach. Watching or playing with children together enables parents to monitor what their children are watching or playing and provides them with a platform to have quality conversations [44]. This cooperative media involvement can enable children to remember more of what they watch or play, build upon good values, and identify any distortions. Co-viewing also transforms passive screen time into a socially interactive experience, facilitating language development and intimate bonding [45]. It is necessary to model correct screen conduct. Children are attentive and tend to replicate the routines of their caregivers [46]. Establishing bedtime or bed-space-free zones can help parents increase healthy behaviors and enhance sleep quality.

Parents have a crucial responsibility to monitor the quality and content of screen media. Screen time does not necessarily indicate poor educational outcomes; in fact, age-appropriate interactive applications can enhance the learning process and support skill development. However, exposure to violent, fast-paced, or inappropriate content can negatively impact children's behavior and emotions. Therefore, it is essential for parents to utilize content filters, age ratings, and parental control features to create safe and enriching digital environments for their children [47, 48]. Providing an alternative to screen time entertainment is another positive action promoting creative, physical, or social activities in children, such as outdoor play, storytelling, board games, or art, keeps the daily routine optimal, and they do not have to use digital media as the source of stimulation or distraction [49]. However, open communication is essential, and discussing the benefits and drawbacks of

screen use with children in age-appropriate language helps them develop self-awareness and self-regulation [50]. Consulting with children in preparing screen rules and patterns can improve their willingness, knowledge, and feeling of responsibility. Such habits make children even stronger in building a positive image with devices and contributing to their overall well-being.

2.6. Emerging issues concerning parents of children under 6

Problems are connected not only to the time of exposure but also to the ever-changing nature of digital content, the availability of devices, and shifting social norms [51]. Controlling the use of the screen has become a complicated issue among contemporary parents and is usually surrounded by anxiety and depression, and many uncertainties about their child and their development in general. Most parents complain about behavioral problems, including irritability and frustration, when access to the screen is limited [52]. With the growing popularity of digital media, which has become an integral part of everyday life, parents face more challenges in motivating their children to engage in activities such as playing outdoors or engaging in creative games [53].

Another key issue is the integration of screens into educational settings and early learning environments. Although learning can be facilitated through the use of digital media and apps, most parents are concerned about excessive screen time, especially during both formal and informal learning [54]. As tablets and smartboards become more common in classrooms and at home, online education is increasing, and parents have a hard time distinguishing between the beneficial use of screens and excessive time unproductively consuming content [55]. Another major problem is the absence of consistent and practical guidance. Although global health organizations provide general screen time guidelines, most parents struggle to understand them and find it challenging to implement them in real life [56]. It is difficult to enforce strict guidelines, as there can be variations in expert opinion, cultural norms, and even family habits among different children.

Concerns about online safety and inappropriate content are becoming increasingly prominent, especially as more children access the internet at younger ages. Parents often do not feel equipped to police the digital lives of children, especially when multiple parties have access to devices that children use without supervision [57]. This threat of dealing with potentially violent, sexual, or commercial content causes high levels of anxiety in the caregivers, especially those who are less digitally literate or do not have access to parental control technology. Besides the practical issues, emotional distress and guilt have become widespread among parents [58]. Parents are often preoccupied with the demands of their jobs and family-related tasks, as well as the stress imposed by society, and therefore resort to using screens as a convenience.

However, dependence can sometimes be associated with feelings of inadequacy or judgment, especially when individuals compare themselves to idealized depictions of parenting found on social media and other popular narratives [59]. Ultimately, issues of digital inequality affect families across various socioeconomic contexts. Parents do not necessarily have access to high-quality educational materials, a good internet connection, or devices [60]. Such a digital divide can make it more difficult to promote healthy screen use and further burden the parents who struggle to control their children's development. Ultimately, the issue of parental management of screen time is multifaceted and dynamic [61].

3. Methodology

3.1. *Study design*

This study will employ a quantitative, cross-sectional design to collect current screen practices and perceptions among parents of young children under 6. A quantitative cross-sectional study is an appropriate method for collecting data at a single point in time, exploring the current situation related to the research topic [62].

3.2. Study setting

Pakistan has a diverse population, and there is a rise in screen practices among children, especially those under 6, with parents' perceptions regarding this concern. An Online Webinar was conducted, during which data collection was performed.

3.3. Study Population

The study participants consisted of parents of young children aged under 6 years, using convenience sampling to ensure representation of diverse individuals, with a total of 74 participants included in the study who attended the webinar on screen practices and perceptions of parents of young children. The majority of female involvement in data indicates that mothers were more actively engaged and participated in parenting discussions in one of the studies related to screen practices and concerns for children aged under 6. Of the 74 participants, 56 were female, and 18 were male. The characteristics of the participants are shown in Figure 1, with 41 mothers, 15 fathers, and 18 as educators, as shown in Figure 2.

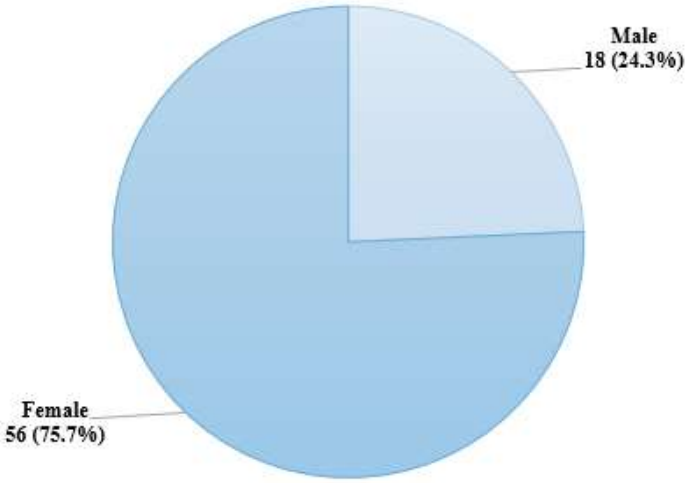

Figure 1: Characteristics of Participant

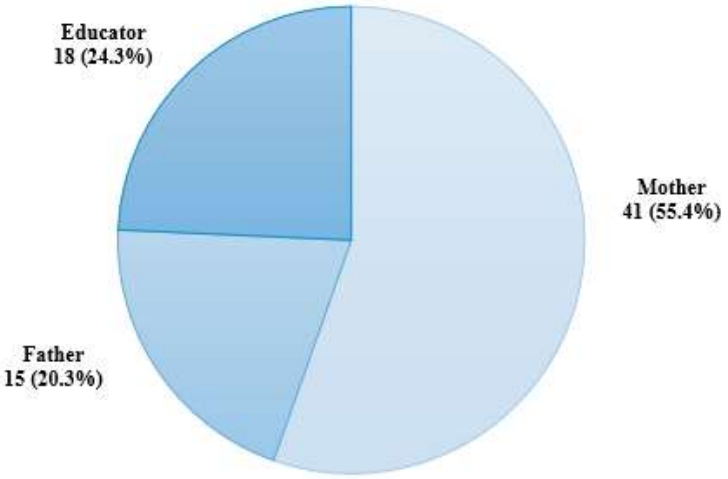

Figure 2: Attending Participant

The data suggests that educated parents are more likely to engage in discussions regarding screen practices among young children under six and their future. With 54.1% holding postgraduate degrees, 35.1% holding graduate degrees, 6.8% holding undergraduate degrees, 2.7% holding intermediate degrees, and 1.4% holding matriculate degrees being involved in this study, this indicates that more educated parents tend to use screen practices more among young children, as shown in Table 1.

Table 1: Education of participants using the screen with young children under 6

Education	Frequency(N)	Percentage (%)
Matriculate	1	1.4%
Intermediate	2	2.7%
Undergraduate	5	6.8%
Graduate	26	35.1%
Postgraduate	40	54.1%

The collected data followed the following inclusion and exclusion criteria

Inclusion Criteria: Parents of children aged under 6 years old

Exclusion Criteria: Parents of children aged above 6 years old

3.4. Data Collection

A user-friendly, self-administrative online questionnaire with 37 items, including a demographic survey and a self-created questionnaire to facilitate easy response with easy instructions, focusing on the perceptions of parents regarding screen practices among young children under six. Field experts validated the self-created questionnaire.

3.5. *Data Analysis*

Quantitative data analysis was performed using SPSS software version 27.0. Descriptive statistics, percentages, and frequencies were measured to study demographic and independent key variables using a chi-square test to analyze perceptions of parents of young children regarding current screen practices among young children under 6. A p-value <0.05 is considered statistically significant.

3.6. Ethical Consideration

Before initiating the data collection, ethical approval was obtained from the institution's Ethical Review Committee (ERC No: 2024-10848-32188) to ensure the study's compliance with institutional and ethical standards. Informed consent was obtained from the participant, ensuring they were aware of the study's background, aim, objective, purpose, risks, and benefits, as well as their role in the research, with the right to withdraw from the study at any time without consequences. Participation in the study is voluntary, and we will ensure the confidentiality and anonymity of participants. All collected data will be securely stored on a locked, password-protected computer, with access limited to the core team, including the supervisor and committee members.

4. Results

The data was collected from 74 participants, with the majority of parents being educated. The data suggests that educated parents are more likely to engage in discussions about their use of screen practices among young children. The most cited instances of sharing screen time with children include 58.1% for non-educational material with children under 6, 58.1% during feeding, 33.8% during restaurant or event engagement, and 31.3% during tantrum episodes. However, the screen was minimally used by 4.1% of children during bathing, and 12.2% usage while driving, as shown in Figure 3.

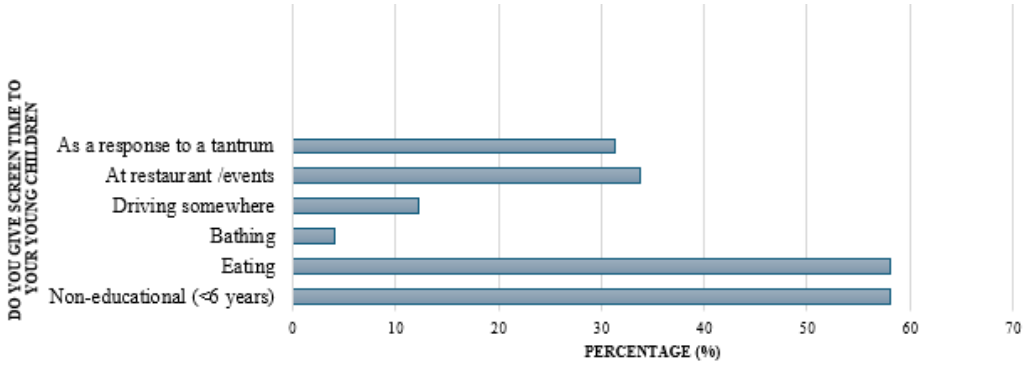

Figure 3: Parents who provided screen practices to young children under 6 (N = 56)

The data suggests that parents' perceptions regarding the sleeping hours needed by young children under 6 for their well-being and early years of development vary, with 44.5% indicating the need for 8-10 hours of sleep among young children, and 31% with 6-8 hours of sleep among children. While 16.2% believe children need 10-12 hours of sleep, 8.1% believe children require 4-6 hours of sleep. The results clearly indicate that children require a minimum of 8-10 hours of sleep, but the overall result is statistically insignificant. Table 3 presents the perceptions of different parents regarding the recommended sleep duration for young children under 6.

The data indicates that parents' perceptions of the necessary sleep hours for young children under six years of age vary significantly. Specifically, 44.5% of parents believe that children need between 8-10 hours of sleep, while 31% advocate for 6-8 hours. Additionally, 16.2% of respondents assert that children require 10-12 hours of sleep, while 8.1% believe that only 4-6 hours are necessary. However, the findings suggest the overall statistical significance of these results is inconclusive. Table 2 presents an overview of the differing perceptions among parents regarding the recommended sleep duration for young children under six.

Table 2: Parents' perception of sleeping hours for young children under 6

Sleeping hours of young children	Total	P-value
4-6 hours	6(8.1%)	0.600
6-8 hours	23(31.0%)	
8-10 hours	33(44.5%)	
10-12 hours	12(16.2%)	

The data suggest that parents perceive a need for outdoor play to promote physical activity and growth in young children under 6. Specifically, 31.1% of parents suggest 1-2 hours, 20.3% 30 minutes to 1 hour, 20.3% 30 minutes, and 13.5% less than 30 minutes per day for outdoor play and physical activity time for young children. The overall result indicates that parents recognize the importance of outdoor play; however, the p-value is statistically insignificant ($p = 0.793$), as shown in Table 3.

Table 3: Parents' perception of outdoor play (Physical Activity) for young children under 6

Outdoor Play (Physical activity)	Total	P-value
< 30 minutes	10(13.5%)	0.793
30 minutes	15(20.3%)	
30 minutes – 1 hour	15(20.3%)	
1-2 hours	23(31.1%)	
No outdoor play	11(19.6%)	

The data suggests parents perception scoring the impact of screen time on children under 6 in different terms like blue light exposure, holding screen close to the eyes, reduced outdoor time, reduced indoor time, eye strain and physical fatigue, eating while using the media, working and short-term memory, passive consumption of media, dependence on face paced media, disruption of early learning routines, spoken language, reading skills, numerical problem solving, attention span, long-term information retention, reduced socializing and family time, behavioral issues, problem solving, and language learning as shown in Table 4. 47.3% of parents believe that blue light exposure has a harmful impact on young children, 60.8% of parents rate holding screens too close to the eyes of young children as severely harmful, 43.2% of parents reported reduced outdoor time, and 48.6% of parents reported this is due to high screen usage and digital media. However, these results show a negative impact on young children, but the p-value is greater than 0.05, indicating statistical insignificance. Screen time leads to eye

strain and physical fatigue in young children due to excessive screen use, as indicated by 47.3% of parents, who consider it severely harmful. 44.6% of parents consider it severely harmful to use media while eating in young children, 39.2% think it is harmful to use screens while working and short-term memory, 45.9% consider passive consumption of media harmful, 41.9% think screen time is harmful, resulting in disruption of early learning outcomes, and 32.4% parents consider screen time to impact on speaking language in young children. However, these results indicate a negative impact on young children; however, the p-value is greater than 0.05, indicating statistical insignificance. Not only this, but 35.1% parents also consider that screen practices also hinder reading skills, 37.8% think screen time is harmful, causing diminished long-term information retention in children, 45.9% parents rated that screen time is severely harmful, which causes high tantrums if taken away from children, with 47.3% parents consider that high dependency which is negative in early child development, these indicate high challenges with harmful and severely harmful but the p-value is >0.05, proving to be statistically insignificant. 43.2% of parents believe that using screens too quickly to calm children is severely harmful and hampers their development. There is a 41.9% increase in isolation among young children, 40.5% high aggression, and 48.6% with diminished socializing with the elderly, with a value >0.05 proving to be statistically insignificant. Usage and dependence on fast-paced media and games show significant development among children, according to 37.8% of parents, with a p-value of 0.027, which is statistically significant. However, 33.8% of parents have a neutral interpretation regarding screen practices and the numeracy development of young children's brains. 37.8% of parents consider screen time beneficial for exposure to different languages and learning games. 33.8% of parents consider the impact of screen usage on educational mobile games to be neutral. The findings indicate to be statistically significant with a p-value of 0.058. On the other hand, 39.2% of parents consider problem-solving games a highly efficient use of screen time for young children, with a p-value of 0.020, indicating statistical significance. 32.4% of parents think screen time has a neutral impact on the movement for physical and cognitive growth of children, while on the other hand, 35.1% of parents consider it beneficial for structured screen time for children; both indicate the importance and effectiveness, but the p-value is >0.05, which is statistically considered insignificant. Figure 4 highlights different parental perceptions regarding the impact of screen time on young children and their development in early years, especially under the age of 6, with further.

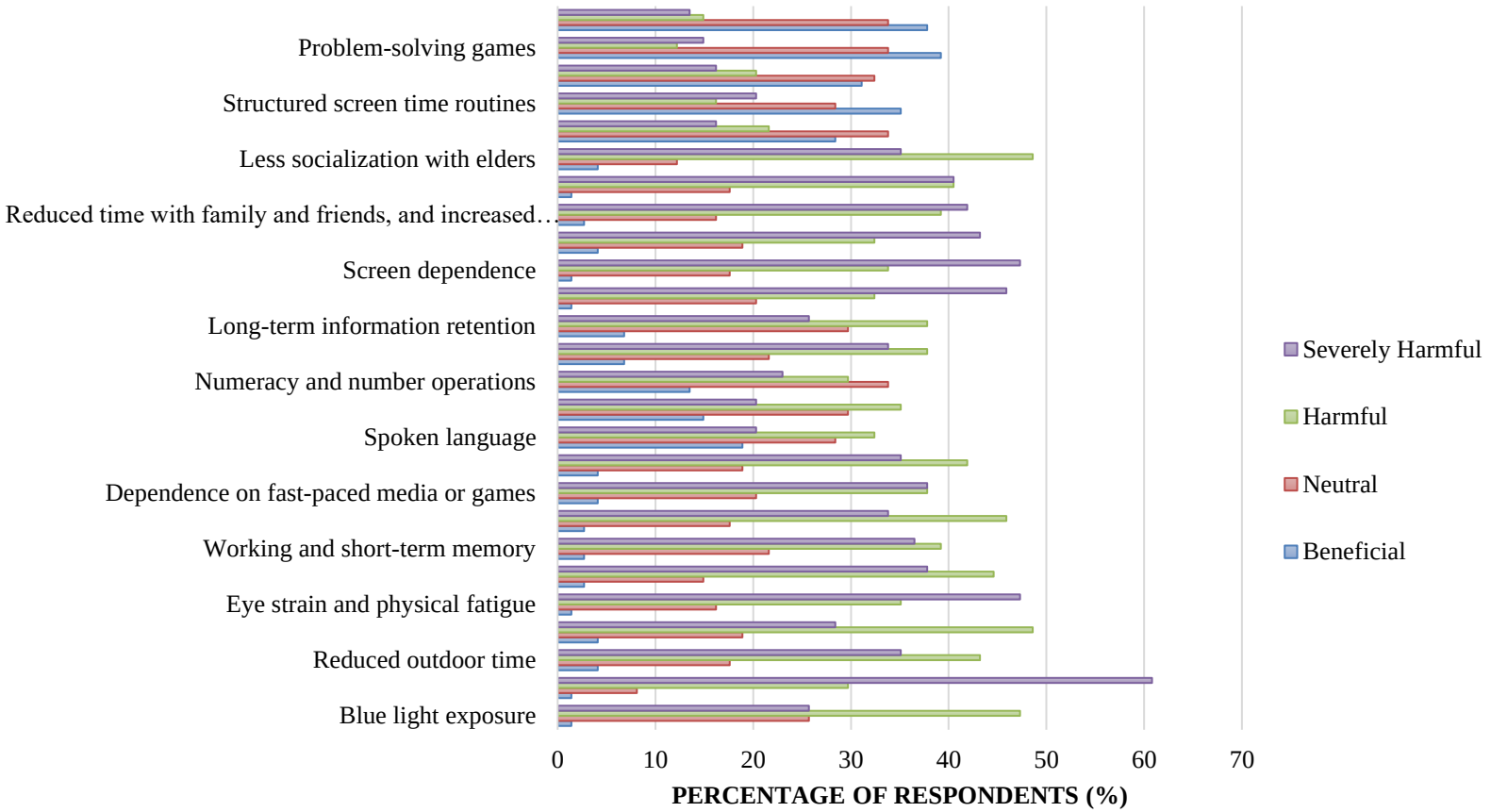

Figure 4: Parents' Perception of Screen Time Usage Impact of screen time in young children under 6

Table 1: Parents' Perception of Screen Time Usage Impact of screen time in young children under 6

Rate the impact of screen time on a child, in terms of:	Beneficial	Neutral	Harmful	Severely Harmful	P-value
Blue light exposure	1 (1.4%)	19 (25.7%)	35 (47.3%)	19 (25.7%)	0.598
Holding screens too close to the eyes	1 (1.4%)	6 (8.1%)	22 (29.7%)	45 (60.8%)	0.501
Reduced outdoor time	3 (4.1%)	13 (17.6%)	32 (43.2%)	26 (35.1%)	0.571
Reduced indoor play time	3 (4.1%)	14 (18.9%)	36 (48.6%)	21 (28.4%)	0.305
Eye strain and physical fatigue	1 (1.4%)	12 (16.2%)	26 (35.1%)	35 (47.3%)	0.686
Eating while using media	2 (2.7%)	11 (14.9%)	33 (44.6%)	28 (37.8%)	0.657
Working and short-term memory	2 (2.7%)	16 (21.6%)	29 (39.2%)	27 (36.5%)	0.370
Passive consumption of media	2 (2.7%)	13 (17.6%)	34 (45.9%)	25 (33.8%)	0.704
Dependence on fast-paced media or games	3 (4.1%)	15 (20.3%)	28 (37.8%)	28 (37.8%)	0.027
Disruption of early learning routines	3 (4.1%)	14 (18.9%)	31 (41.9%)	26 (35.1%)	0.825
Spoken language	14 (18.9%)	21 (28.4%)	24 (32.4%)	15 (20.3%)	0.927
Reading skills	11 (14.9%)	22 (29.7%)	26 (35.1%)	15 (20.3%)	0.977
Numeracy and number operations	10 (13.5%)	25 (33.8%)	22 (29.7%)	17 (23.0%)	0.939
Attention span	5 (6.8%)	16 (21.6%)	28 (37.8%)	25 (33.8%)	0.720
Long-term information retention	5 (6.8%)	22 (29.7%)	28 (37.8%)	19 (25.7%)	0.799
Tantrums when the screen is taken away	1 (1.4%)	15 (20.3%)	24 (32.4%)	34 (45.9%)	0.119
Screen dependence	1 (1.4%)	13 (17.6%)	25 (33.8%)	35 (47.3%)	0.206
Using screens too quickly calms a child	4 (5.4%)	14 (18.9%)	24 (32.4%)	32 (43.2%)	0.602
Reduced time with family and friends, and increased isolation	2 (2.7%)	12 (16.2%)	29 (39.2%)	31 (41.9%)	0.084
Acts of aggression	1 (1.4%)	13 (17.6%)	30 (40.5%)	30 (40.5%)	0.265
Less socialization with elders	3 (4.1%)	9 (12.2%)	36 (48.6%)	26 (35.1%)	0.536
Educational mobile games	21 (28.4%)	25 (33.8%)	16 (21.6%)	12 (16.2%)	0.058
Structured screen time routines	26 (35.1%)	21 (28.4%)	12 (16.2%)	15 (20.3%)	0.161
Media that encourages movement	23 (31.1%)	24 (32.4%)	15 (20.3%)	12 (16.2%)	0.191
Problem-solving games	29 (39.2%)	25 (33.8%)	9 (12.2%)	11 (14.9%)	0.020
Language exposure and learning games	28 (37.8%)	25 (33.8%)	11 (14.9%)	10 (13.5%)	0.275

5. Discussion

The study aims to describe the screen practices and their impacts on young children under six, as perceived by parents, regarding this concern in today's time. The findings of this study emphasize four key areas, including physical, cognitive, psychosocial, and educational domains. There is a notably high rating of harmful and severely harmful effects in the physical, cognitive, and psychosocial aspects. Many parents perceive screen use as harmful or severely harmful, with particular emphasis on its adverse impact on physical health.

The result underlined that parents in the current time have frequent screen practices among young children to divert their attention, with 58.1 % parents reporting using screen time for non-educational material while feeding the child, 33.8% while engaging children in restaurants or an event, and 31.3% in times when children are showing tantrums, as illustrated in Table 4. It has been highlighted. However, it is essential to recognize that excessive screen time can adversely affect their developmental growth, as elaborated by 45.9% of parents, who report a severely harmful impact of screen time, with the rise of intolerance and tantrums among children when the screen is taken away. Prolonged exposure to screens may lead to issues such as reduced physical activity, impaired social interactions, and challenges in attention span, ultimately hindering their overall development [44]. Balancing educational screen time with other activities is crucial to fostering healthy growth in young children. In contrast, 37.8% of parents expressed deep concerns regarding their children's increasing dependency on screens and the captivating nature of fast-paced games.

However, it is also reported that excessive screen time has resulted in a significant reduction in outdoor playtime, which can adversely affect child development [63]. Specifically, 43.2% of parents reported that the high amounts of time their children spend on screens have had a detrimental impact on crucial early stages of development, which are essential for building physical skills and social interactions. Furthermore, 48.6% of parents indicated that increased screen time also severely affects indoor playtime, limiting opportunities for imaginative and creative play, which are vital for cognitive growth. The observations reveal a concerning trend that screen time negatively influences both indoor and outdoor play activities, which are recognized as fundamental components of children's physical, social, and mental development during their formative years [43]. This interplay between screen use and playtime underscores the need for a balanced approach to technology use in early childhood.

Additionally, it is also reported that excessive screen usage can hinder early learning and retention, thereby limiting cognitive capacity in young children. According to 45.9% of parents, passive media usage has increased drastically, which can lead to behavioral issues, delayed language learning, and impaired

speaking skills. In contrast, 32.4% of parents perceived spoken language and 35.1% perceived reading skills as negatively influenced by high screen exposure, believing that screens do not have a beneficial effect due to diminished quality and quantity of verbal communication with friends and family [64]. Furthermore, 40.5% of parents reported high aggression among young children due to a lack of socializing and time among their loved ones, altering their overall well-being, such as depression, obesity, delayed speech, disruption of sleep, eyes, and mental health [65].

Conversely, findings underscore a concerning picture regarding the overuse of screen time among young children. This excessive engagement often fosters a sedentary lifestyle, leading to reduced physical activity and an alarming decline in information retention. Such impacts are particularly detrimental for young minds, which rely on sharp cognitive abilities for effective problem-solving and foundational learning in their early school years. As a result, many children may experience disrupted sleep patterns, especially those with less attentive dispositions, which can lead to heightened irritability and frustration throughout their daily lives. According to the American Academy of Pediatrics, the minimum recommended screen time for children aged 2-5 years is approximately 1 hour per day for educational learning, which can result in more critical thinking and ultimately lead to improved information retention during these years of early development [66]. On the contrary, many parents reported positive views on educational media. About 39% rated problem-solving games as beneficial, and nearly 38% endorsed language exposure and learning games as having a positive impact. These findings suggest that parents recognize the value of intentional and structured screen use in supporting early learning, identifying an area for future development, growth, and progress in education. These alarming trends underscore a pressing issue that merits our immediate attention and thoughtful consideration.

In contrast to these alarming factors, it has also been reported that utilizing screen time for a limited duration, specifically focused on educational learning, can significantly benefit young children by enhancing their motor skills, cognitive thinking, and problem-solving abilities [67]. Such practices used for this purpose can stimulate creativity and critical thinking, allowing children to engage actively with the content. However, playing fast-paced games can enhance quick thinking and problem-solving skills. When used minimally and appropriately, they can be of great use for cognitive and psychological development; otherwise, they may impact children with high screen time dependence [68]. Therefore, appropriate screen time, guided by age-appropriate guidelines, can be of great benefit if future policymakers engage the government and other community members to adopt acceptable approaches for parents, which can have a powerful impact, as parents often lack proper knowledge regarding this concern.

5.1. *Strengths*

This study in Pakistan highlights the diverse perceptions of parents regarding screen practices among young children, focusing on key items often overlooked by parents and often underreported. It also suggests the trend of how parents often use screen practices among young children to divert their attention due to limited time for their children and families, resulting from long working hours. Additionally, the study highlights significant factors, including early educational learning, game-based problem-solving, the impact of high screen time on short-term and long-term information retention, and a preference for isolation over socializing and family time, which is often overlooked, and if screen practices are efficiently used, can bring positive engagement for children as well as parents. Furthermore, it has identified a specific age window of concern among children, enabling parents to use more targeted parental strategies and screen usage due to advancing innovative parenting style adapting to western culture with limited family time due to job insecurities, which often leaves parents with handling parenting with the use of more screen time among children to divert their attention.

5.2. *Limitations*

However, despite highlighting key concerns and collecting perceptions of parents regarding screen practices and time among young children, the study has a small sample size, resulting in underreporting and limitation of insight, statistically insignificant results, and thus lacks generalizability. A small sample size often yields limited parental perception, reducing data accuracy and introducing participant bias, which in turn limits the generalizability of the results. This greatly affects the result by not accurately reflecting the real-world perceptions and limitations of parental insight. Conducting this study using a mixed-methods approach would significantly add insight and depth to the study, yielding trends among parents of young children that are more generalizable for future policymakers, system-level administrators, and healthcare providers to design appropriate initiatives and interventions with more diverse data for parents.

5.3. *Recommendations*

Future mixed-methods studies would significantly add insight and depth to the study, yielding more generalizable results along with more deep data analysis from existing studies to highlight the gaps for policy makers to take appropriate initiatives and policies regarding screen usage in children under age of 6 along with designing parenting education programs to focus a more play based initiates and minimum usage of screen practices among young children for motor skill development and overall well-being. A larger sample size and a mixed-method study reduce the bias of parental perception, which is limited to single-time data collection. A greater focus on fostering different trends among parents can add significant insight to the study. The findings

reinforce the importance of system-level and healthcare-level multisectoral intervention design in already existing programs, such as Digital Hifazat, a program designed by the Pakistan Telecommunication Authority and UNICEF, focusing on parenting counseling and age-appropriate pedagogy for a smart parenting approach with innovative screen practices among children.

6. Conclusion

This study thoroughly examines the impact on young children under six, incorporating parents' perceptions of common behaviors observed in their children and more frequent modes of distracting them due to limited time and work-life stress, which can affect children's long-term sleep patterns and lead to screen addiction, ultimately making them less interactive socially. However, key findings underscore that when used appropriately with age-appropriate educational learning, they can enhance learning, creativity, and motor skill development. Since parents often lack proper literacy regarding screen content, policymakers in collaboration with multisectoral stakeholders can bring effective changes with the promotion of already existing programs, such as Digital Hifazat, the National Commission on the Rights of the Child program designed by Pakistan Telecommunication Authority and UNICEF, to protect children's privacy and educate parents regarding knowledge enhancement.

DECLARATIONS

Competing Interests

The authors declare that they have no competing interests

Authors Contribution

All authors have contributed in the paper

REFRENCES

[1] A. G. G. LeBlanc, Katie E.; Prince, Stephanie A.; Saunders, Travis J.; Barnes, Joel D.; Chaput, Jean-Philippe, "The Ubiquity of the Screen: An Overview of the Risks and Benefits of Screen Time in Our Modern World," *Translational Journal of the American College of Sports Medicine*, vol. 2, no. 17, pp. 104–113, 2017, doi: https://doi.org/10.1249/TJX.0000000000000039.

[2] R. Moody. "Screen Time Statistics: Average Screen Time by Country." Comparitech. https://www.comparitech.com/tv-streaming/screen-time-statistics/

[3] K. Lee. "Why Experts Say Parents Should Limit Their Kid's Screen Time." Parents. https://www.parents.com/less-screen-time-means-a-better-mind-and-body-for-kids-8654752 (accessed.

[4] Y. Y. Jingbo Qi, Hui Yin, "Screen time among school-aged children of aged 6–14: A systematic review," *Global Health Research and Policy*, vol. 8, no. 1, p. 12, 2023, doi: https://doi.org/10.1186/s41256-023-00297-z.

[5] F. G. Contacts. "Screen Time Countries – Nations Most Glued to their Devices." https://www.feelgoodcontacts.com/screen-time-countries (accessed.

[6] Tribune. "Screen addiction." The Express Tribune. https://tribune.com.pk/letter/2254678/screen-addiction-1

[7] I. M. Team. "Parents fear tech devices are impacting family time and children's physical health, sleep, and concentration." Internet Matters. https://www.internetmatters.org/hub/press-release/parents-fear-tech-devices-are-eating-up-family-time-and-screen-time-strain-is-damaging-childrens-physical-health-sleep-and-concentration/

[8] N. M. L. Sciences. "Parents focus on privacy and safety as top screen time concerns." News Medical. https://www.news-medical.net/news/20250513/Parents-focus-on-privacy-and-safety-as-top-screen-time-concerns.aspx (accessed.

[9] J. L. D. Emily L. Helfrich, Yi-Wen Su, Jacqlyn L. Yourell, Joy Gabrielli, "Parental Views on Preventing and Minimizing Negative Effects of Cyberbullying," *Children and Youth Services Review*, vol. 118, p. 105377, 2020, doi: https://doi.org/10.1016/j.childyouth.2020.105377.

[10] M.-A. B. V. Konok, Á. Korom, Á. Pogány, Á. Miklósi, C. Fitzpatrick, "Cure for tantrums? Longitudinal associations between parental digital emotion regulation and children's self-regulatory skills," *Frontiers in Child and Adolescent Psychiatry*, vol. 3, 2024, doi: https://doi.org/10.3389/frcha.2024.1276154.

[11] J. M. Sean Kearney, "Let's Get Engaged: The Nexus between Digital Technologies, Engagement and Learning," *Education Sciences*, vol. 10, no. 12, p. 357, 2020, doi: https://doi.org/10.3390/educsci10120357.

[12] J. L. A. Weiwei Chen, "Assessment of Screen Exposure in Young Children, 1997 to 2014," *JAMA Pediatrics*, vol. 173 no. 4, p. 391, 2019, doi: https://doi.org/10.1001/jamapediatrics.2018.5546.

[13] C. B. Suzanne M. Egan, "To school through the screens: the use of screen devices to support young children's education and learning during the COVID-19 pandemic," *Irish Educational Studies*, vol. 40, no. 2, pp. 275–283, 2021, doi: https://doi.org/10.1080/03323315.2021.1932551.

[14] A. N. Sonia Livingstone, Shakuntala Banaji, Mariya Stoilova. "Young adolescents and digital media: uses, risks and opportunities in low- and middleincome countries: a rapid evidence review." Gage. https://eprints.lse.ac.uk/83753/1/Livingstone_Young_Adolescents_Digital_Media.pdf

[15] P. P. Stéphanie Mignot, Pierre Ingrand, Anne-Laure Heintz, Nemat Jaafari, Philippe Binder, "Impact of Time Spent in Front of Screens and Frequency of Risk Behaviours According to Type of Screen: A Cross Sectional Study in Teenagers," *Psychology,* vol. 10, no. 12, pp. 1776–1789, 2019, doi: https://doi.org/10.4236/psych.2019.1012116.

[16] C. O. T. Rebecca Byrne, Stewart G Trost, "Measurement of screen time among young children aged 0-6 years: A systematic review," *Obesity Reviews,* vol. 22, no. 8, p. e13260, 2021, doi: https://doi.org/10.1111/obr.13260.

[17] L. S. Anna Dahlgren, Helén Eke, Stephanie E Bonn, Ylva Trolle Lagerros, "Screen time and physical activity in children and adolescents aged 10–15 years," *PLoS ONE,* vol. 16, no. 7, p. e0254255, 2021, doi: https://doi.org/10.1371/journal.pone.0254255.

[18] G. B. Priyank Bhutania, Ramesh Chandra Dekaa, Siddhartha Sankar Satapathya, Suvendra Kumar Ray, "Is the screen time duration affecting children's language development? - A scoping review," *Clinical Epidemiology and Global Health,* vol. 25, no. 25, pp. 101457–101457, 2024, doi: https://doi.org/10.1016/j.cegh.2023.101457.

[19] A. V. Nikolay Veraksa, Margarita Gavrilova, Daria Bukhalenkova, Ekaterina Oshchepkova, Apollinaria Chursina, "Short- and long-term effects of passive and active screen time on young children's phonological memory," *Frontiers in Education,* vol. 6, no. 600687, 2021, doi: https://doi.org/10.3389/feduc.2021.600687.

[20] K. M. Danielle L Harvey, Andy P Jones, Andrew J Atkin, "International trends in screen-based behaviours from 2012 to 2019," *Preventive Medicine,* vol. 154, p. 106909, 2021, doi: https://doi.org/10.1016/j.ypmed.2021.106909.

[21] M. Ponti, "Screen time and preschool children: Promoting health and development in a digital world," *Paediatrics & Child Health,* vol. 28, no. 3, pp. 184-202, 2023, doi: https://doi.org/10.1093/pch/pxac125.

[22] L. C. Andrew D Ribner, Samantha Friedman, Melissa E Libertus 2, "Screen Time in the Coronavirus 2019 Era: International Trends of Increasing Use Among 3- to 7-Year-Old Children," *The Journal of Pediatrics,* vol. 239, pp. 59-66.e1, 2021, doi: https://doi.org/10.1016/j.jpeds.2021.08.068.

[23] P. Nikken, "The touch-screen generation: Trends in Dutch parents' perceptions of young children's media use from 2012–2018," vol. 47, no. 2, pp. 286-306, 2021, doi: https://doi.org/10.1515/commun-2020-0028.

[24] A. I. B.-V. Vicente Javier Clemente-Suárez, Silvia Herrero-Roldán, Stephanie Rodriguez-Besteiro, Ismael Martínez-Guardado, Alexandra Martín-Rodríguez, Jose Francisco Tornero-Aguilera, "Digital Device Usage and Childhood Cognitive Development: Exploring Effects on Cognitive Abilities," *Children (Basel)*, vol. 11, no. 11, p. 1299, 2024, doi: https://doi.org/10.3390/children11111299.

[25] H. S. Alroqi, "The relationship between screen media exposure and early language development," Doctor of Philosophy Faculty of Humanities, The University of Manchester, 2018. [Online]. Available: https://research.manchester.ac.uk/en/studentTheses/the-relationship-between-screen-media-exposure-and-early-language/

[26] W. H. Guangbo Qu, Jia Meng, Xingyue Wang, Wenqi Su, Haixia Liu, Shaodi Ma, Chenyu Sun, Christy Huang, Scott Lowe, Yehuan Sun, "Association between screen time and developmental and behavioral problems among children in the United States: evidence from 2018 to 2020 NSCH," *Journal of Psychiatric Research*, vol. 161, no. 161, pp. 140–149, 2023, doi: https://doi.org/10.1016/j.jpsychires.2023.03.014.

[27] G. W. K. Lauren Hale, Monique K. LeBourgeois, Michael Gradisar, Michelle M. Garrison, Hawley Montgomery-Downs, Howard Kirschen, Susan M. McHale, Anne-Marie Chang, Orfeu M, "Youth Screen Media Habits and Sleep: Sleep-Friendly Screen Behavior Recommendations for Clinicians, Educators, and Parents," *Child and Adolescent Psychiatric Clinics of North America*, vol. 27, no. 2, pp. 229–245, 2018, doi: https://doi.org/10.1016/j.chc.2017.11.014.

[28] U. S. Marriam Suleman, Asmaa Riaz, Maheen Akbar, "Effect of screen time on behavior of pre-schoolers in Islamabad," *Pakistan Journal of Medical Sciences*, 2023, doi: https://doi.org/10.12669/pjms.39.2.6883.

[29] J. V. Summer. "How Blue Light Affects Kids' Sleep." https://www.sleepfoundation.org/children-and-sleep/how-blue-light-affects-kids-sleep (accessed July 31, 2025).

[30] A. V. Edyta Swider-Cios, Margriet M. Sitskoorn, "Young children and screen-based media: The impact on cognitive and socioemotional development and the importance of parental mediation," *Cognitive Development*, vol. 66, p. 101319, 2023, doi: https://doi.org/10.1016/j.cogdev.2023.101319.

[31] M. B. Francisco Ibarra, Luca Cernuzzi, Fabio Casati, "A Systematic Review on Technology-Supported Interventions to Improve Old-Age Social Wellbeing: Loneliness, Social Isolation, and Connectedness," *Journal of Healthcare Engineering*, vol. 2020, p. 2036842, 2020, doi: https://doi.org/10.1155/2020/2036842.

[32] D. B. Cátia Maia, Helder Miguel Fernandes, Hugo Sarmento, Aristides M. Machado-Rodrigues, "The Impact of Parental Behaviors on Children's Lifestyle, Dietary Habits, Screen Time, Sleep Patterns, Mental Health, and BMI: A Scoping

Review," *Children*, vol. 12, no. 2, p. 203, 2025, doi: https://doi.org/10.3390/children12020203.

[33] H. P. Sarah Burkart, R Glenn Weaver, Michael W Beets, Alexis Jones, Elizabeth L Adams, Jean-Philippe Chaput, Bridget Armstrong, "Impact of the COVID-19 pandemic on elementary schoolers' physical activity, sleep, screen time and diet: A quasi-experimental interrupted time series study," *Pediatric Obesity*, vol. 17, no. 1, p. e12846, 2022, doi: https://doi.org/10.1111/ijpo.12846.

[34] J. S.-S. Miguel Angel Tapia-Serrano, David Sánchez-Oliva, Mikel Vaquero-Solís, Pedro Antonio Sánchez-Miguel "Effects of a school-based intervention on physical activity, sleep duration, screen time, and diet in children," *Revista de Psicodidáctica (English ed.)*, vol. 27, no. 1, pp. 56-65, 2022, doi: https://doi.org/10.1016/j.psicoe.2021.06.001.

[35] H. J. Xing Xiang, "Associations of physical activity, screen time, sleep duration with optimal eating habits among adolescents," *Complementary Therapies in Clinical Practice*, vol. 58, p. 101933, 2025, doi: https://doi.org/10.1016/j.ctcp.2024.101933.

[36] M. B. Stephen Whiting, Peter Gelius, Karim Abu-Omar,Mary Pattison, "Physical activity, screen time, and sleep duration of children aged 6–9 years in 25 countries: An analysis within the WHO European childhood obesity surveillance initiative (COSI) 2015–2017," *Obesity facts*, vol. 14, no. 1, pp. 32-44, 2021. [Online]. Available: https://karger.com/ofa/article/14/1/32/240935/Physical-Activity-Screen-Time-and-Sleep-Duration.

[37] C. E. T.-A. Jorge a Calvo-Sanz, "Blue light emission spectra of popular mobile devices: The extent of user protection against melatonin suppression by built-in screen technology and light filtering software systems," *Chronobiology International*, vol. 37, no. 7, pp. 1016-1022, 2020, doi: https://doi.org/10.1080/07420528.2020.1781149.

[38] J. Martin Gillies Banke Rasmussen, Pedersen, Line Grønholt Olesen, Søren Brage, Heidi Klakk, Peter Lund Kristensen, Jan Christian Brønd, Anders Grøntved, "Short-term efficacy of reducing screen media use on physical activity, sleep, and physiological stress in families with children aged 4–14: study protocol for the SCREENS randomized controlled trial," *BMC Public Health*, vol. 20, no. 1, 2020, doi: https://doi.org/10.1186/s12889-020-8458-6.

[39] G. C. H. Jean M Twenge, Zlatan Krizan, "Associations between screen time and sleep duration are primarily driven by portable electronic devices: evidence from a population-based study of US children ages 0–17," *Sleep medicine*, vol. 56, no. 1, pp. 211-218, 2019, doi: https://doi.org/10.1016/j.sleep.2018.11.009.

[40] J. M. Rippe, *Lifestyle Medicine, Fourth Edition*. CRC Press, 2024.

[41] A. E. M. Samuel Halpin, Sabine Baker, Alina Morawska "Parenting and Child Behaviour Barriers to Managing Screen Time With Young Children," *Journal of Child and Family Studies,* vol. 30, no. 3, pp. 824–838 2021, doi: https://doi.org/10.1007/s10826-020-01881-4.

[42] Y. J. Xueting Ding, Yuan Dong, Zhijing Li & Yan Zhang, "The impact of family factors and communication on recreational sedentary screen time among primary school-aged children: a cross-sectional study," *BMC Public Health,* vol. 24, no. 1, p. 1733, 2024, doi: https://doi.org/10.1186/s12889-024-19128-y.

[43] W. Z. T. Shang Chee Chong, Shefaly Shorey, "Exploring the perception of parents on children's screentime: a systematic review and meta-synthesis of qualitative studies," *Pediatric Research,* vol. 94, pp. 915–925, 2023, doi: https://doi.org/10.1038/s41390-023-02555-9.

[44] J. S. Parveen Attai, Stephanie Anzman-Frasca, Kai Ling Kong1,3,*, "Associations between parental and child screen time and quality of the home environment: A preliminary investigation," *International journal of environmental research and public health,* vol. 17, no. 17, p. 6207, 2020, doi: https://doi.org/10.3390/ijerph17176207.

[45] R. B. Widjane Sheila Ferreira Goncalves, Marcelo Tavares Viana, Stewart G. Trost, "Parental influences on screen time and weight status among preschool children from Brazil: a cross-sectional study," *International Journal of Behavioral Nutrition and Physical Activity,* vol. 16, no. 1, 2019, doi: https://doi.org/10.1186/s12966-019-0788-3.

[46] J. L. Shaocong Ma, Eva E. Chen, "Does screen media hurt young children's social development? Longitudinal associations between parental engagement, children's screen time, and their social competence," *Early Education and Development,* vol. 35, no. 1, pp. 10-25, 2024, doi: https://doi.org/10.1080/10409289.2022.2151401.

[47] G. L. Arundell L, Ridgers ND, Ayala AMC, Downing KL, Salmon J, Timperio A , Veitch J ""Everything kind of revolves around technology": a qualitative exploration of families' screen use experiences, and intervention suggestions.," *BMC Public Health,* vol. 22, no. 1, p. 1606, 2022, doi: https://doi.org/10.1186/s12889-022-14007-w.

[48] S. a. P. Abdul Rahman, Bharti and Govind Shirodker, Aastha, "Preliminary Exploration of Parental Perspectives on Navigating Nomophobia and Screentime for Young Children," *International Journal of Innovative Science and Research Technology,* vol. 10, no. 6, pp. 788–798, 2025.

[49] P. R. Vaishnavi N. Panjeti-Madan, "Impact of Screen Time on Children's Development: Cognitive, Language, Physical, and Social and Emotional Domains," *Multimodal Technologies and Interaction,* vol. 7, no. 5, p. 52, 2023, doi: https://doi.org/10.3390/mti7050052.

[50] G. M. Caterina Balenzano, Sabrina Girardi, "Families in the pandemic between challenges and opportunities: An empirical study of parents with preschool and school-age children," *Italian Sociological Review,* vol. 10, no. 3S, 2020, doi: https://doi.org/10.13136/isr.v10i3S.398.

[51] A. Carr, "Family therapy and systemic interventions for child-focused problems: the current evidence base," *Journal of Family Therapy,* vol. 41, no. 2, pp. 153–213, 2018, doi: https://doi.org/10.1111/1467-6427.12226.

[52] M. D. Francesco Agostinelli, Giuseppe Sorrenti, Fabrizio Zilibotti, "When the great equalizer shuts down: Schools, peers, and parents in pandemic times," *Journal of Public Economics,* vol. 206, no. 104574, 2022, doi: https://doi.org/10.1016/j.jpubeco.2021.104574.

[53] L. Burhan Nudin, Wahyu Sihab, Nofri Aldinata, Muhammad Daffa Imaduddin, Triono, "The Role Of Parents And Families In Children's Education In The Digital Era," *Linguanusa Social Humanities Education and Linguistic,* vol. 2, no. 1, pp. 9-22, 2024. [Online]. Available: http://linguanusa.com/index.php/1/article/view/35.

[54] M. D. G. Melina A Throuvala, Mike Rennoldson, Daria J Kuss, "Policy Recommendations for Preventing Problematic Internet Use in Schools: A Qualitative Study of Parental Perspectives," *International journal of environmental research and public health,* vol. 18, no. 9, p. 4522, 2021, doi: https://doi.org/10.3390/ijerph18094522.

[55] S. K. Walker, "Technology Use and Families: Implications for Work-Family Balance and Parenting Education paper prepared for the UNITED NATIONS Department of Economic and Social Affairs (UNDESA) Division for Inclusive Social Development," University of Minnesota, Minnesota, 2021. [Online]. Available: https://social.desa.un.org/sites/default/files/inline-files/Technology-Families-Background_0.pdf

[56] M. Danet, "Parental Concerns about their School-aged Children's Use of Digital Devices," *Journal of Child and Family Studies,* vol. 29, no. 10, pp. 2890-2904, 2020, doi: https://doi.org/10.1007/s10826-020-01760-y.

[57] Q. Zara, "Early childhood education and care and the use of digital media in informal environments," *Berkeley Review of Education,* vol. 9, no. 2, 2020, doi: https://doi.org/10.5070/b89242103.

[58] Y. L. Yuping Chen, Siyu Li, Meiheng He, Qingwei Chen, Taotao Ru, Guofu Zhou, "When and what: A longitudinal study on the role of screen time and activities in adolescent sleep," *Sleep Medicine,* vol. 117, no. 1, pp. 33-39, 2024, doi: https://doi.org/10.1016/j.sleep.2024.03.008.

[59] Z. T. Baurzhan Bokayev, Zhuldyz Davletbayeva, Fatima Zhakypova, "Distance learning in Kazakhstan: estimating parents' satisfaction of educational quality during the coronavirus," *Technology Pedagogy and Education,* vol. 30, no. 1, pp. 27–39, 2020, doi: https://doi.org/10.1080/1475939X.2020.1865192.

[60] S. K. Arfa Afzal, Sana Daud, Ayesha Butt, "Addressing the digital divide: Access and use of technology in education," *Journal of Social Sciences Review,* vol. 3, no. 2, pp. 883-895, 2023, doi: https://doi.org/10.54183/jssr.v3i2.326.

[61] J. D. C. John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Los Angeles: Sage, 2018.

[62] R. K. Gopal Singh Charan, Gursharan Singh Narang, "Screens to Sunshine: Rescuing Children's Outdoor Playtime in the Digital Era," *Journal of Indian Association for Child and Adolescent Mental Health* vol. 20, no. 1, 2024, doi: https://doi.org/10.1177/09731342241229845.

[63] S. V. Sudheer Kumar Muppalla, Apeksha Reddy Pulliahgaru, Himabindu Sreenivasulu, "Effects of Excessive Screen Time on Child Development: An Updated Review and Strategies for Management," *Cureus,* vol. 15, no. 6, p. e40608, 2023, doi: https://doi.org/10.7759/cureus.40608.

[64] A. A. Salima Kerai, Martin Guhn, Barry Forer, Eva Oberle, "Screen time and developmental health: results from an early childhood study in Canada," *BMC Public Health,* vol. 22, no. 1, 2022, doi: https://doi.org/10.1186/s12889-022-12701-3.

[65] AACAP. "Screen time and children [Internet]. American Academy of Child and Adolescent Psychiatry." https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Children-And-Watching-TV-054.aspx

[66] M. Ponti. "Screen time and preschool children: Promoting health and development in a digital world." Canadian Paediatric Society. https://cps.ca/en/documents/position/screen-time-and-preschool-children

[67] A. F. Triantafyllia Zioga, Eleni Konsolaki, Chrysanthi Nega, Panagiotis Kourtesis, "Video Game Skills across Diverse Genres and Cognitive Functioning in Early Adulthood: Verbal and Visuospatial Short-Term and Working Memory, Hand–Eye Coordination, and Empathy," *Behavioral Sciences,* vol. 14, no. 10, p. 874, 2024, doi: https://doi.org/10.3390/bs14100874.